PAPERS/RAZPRAVE

CHALLENGES FOR THE VITICULTURAL LANDSCAPE – THE CASE OF VIPAVA HILLS IN SLOVENIA
IZZIVI VINOGRADNIŠKE POKRAJINE – PRIMER VIPAVSKEGA GRIČEVJA V SLOVENIJI

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DOI: https://doi.org/10.3986/GV95102
UDC/UDK: 711.3:634.8(497.47)
COBISS: 1.01

ABSTRACT
Challenges for the viticultural landscape – The case of Vipava Hills in Slovenia
The article deals with the Vipava Hills, one of the oldest and still promising Slovenian wine-growing regions. Despite the favourable natural conditions, especially for organic viticulture, a comparison of land use in the last two decades shows the abandonment and overgrowth of vineyards in the higher, so-called vineyard sites and, on the other hand, their relocation to the bottom of the Vipava Valley, where grape production is intensified. The article discusses the obstacles leading to the unfavourable development trends in the landscape and demography, and proposes measures that could, on the one hand, prevent further abandonment of agricultural land, especially vineyard land, population out-migration and biodiversity decline and, on the other hand, make better use of the advantages of the ideal combination of climatic, lithological and pedological features, the mosaic-like structure of the landscape, the high degree of naturalness, the extensive protected areas of Natura 2000 and, last but not least, the rich cultural heritage of the region.

KEY WORDS
rural geography, sub-Mediterranean viticulture, cultural landscape, demographic perspective, sustainable land use, Slovenia

IZVLEČEK

Izzivi vinogradniške pokrajine – primer Vipavskega gričevja v Sloveniji

Prispevek obravnava Vipavsko gričevje, eno najstarejših in tudi danes obetavnih slovenskih vinogradniških pokrajin. Kljub ugodnim naravnim razmeram, posebej za ekološko vinogradništvo, primerjava rabe zemljišč v zadnjih dveh desetletjih kaže opuščanje in zaraščanje vinogradov v višjih, t. i. vinogradniških legah, po drugi strani pa njihovo selitev proti dnu Vipavske doline, kjer prihaja do intenzifikacije pridelave grozdja. Članek govori o ovirah, ki povzročajo neugodne razvojne trende v pokrajini in demografiji ter predlaga ukrepe, s katerimi bi lahko na eni strani preprečili nadaljnje opuščanje kmetijskih, posebej vinogradniških zemljišč, izseljevanje prebivalcev in upadanje biodiverzitete, po drugi pa bolje izkoristili prednosti idealne kombinacije podnebnih, kamninskih in pedoloških lastnosti, mozaične strukture pokrajine, visoke stopnje naravnosti, obsežnih zavarovanih območij Nature 2000 in nenazadnje bogate kulturne dediščine regije.

KLJUČNE BESEDE

geografija podeželja, submediteransko vinogradništvo, kulturna pokrajina, demografska perspektiva, trajnostna raba zemljišč, Slovenija

Editorial Board received this article on October 26, 2023.
Uredništvo je prispevek prejelo 26. oktobra 2023.

1 Introduction

Slovenia has only 1% of vineyards among all types of land use, but is nevertheless a traditional wine-growing country. Of the three wine-growing regions, the Primorska wine-growing region has the highest proportion of vineyards. Within this region, the Mediterranean hills are the most important, with an average vineyard land use of 6.4% (Gabrovec et al. 2020, 280). This includes the Vipava Hills, which are part of the Vipava Valley wine-growing area, which boasts 13.6% of the vineyards and one of the oldest wine-growing traditions in Slovenia. In some sources, especially on maps, the Vipava Hills are also referred to as *Vipavska brda* (*brda* is another name for hills), which has even been standardised, but this geographical name is not common among the locals. The first Slovenian expert manual for viticulture also originated in the Vipava region and was published in the mid-19th century (1844) as a supplement to *Kmetijske in rokodelske novice* (Agricultural and Craft News) by Matija Vertovec (1784–1851), a local man, priest and expert in various fields (Vertovec 2015). A facsimile edition was published in 1994 and a transcription of the original was published again in 2015 as a »professional, linguistic and national gem« (Korošec-Koruza 2015).

Despite the favourable conditions for agriculture, especially for viticulture, a progressive process of overgrowth and abandonment of agricultural land can be observed in the Vipava Hills. Vineyards are being abandoned and moved from higher to lower areas or to the plain. The transformation of the viticultural landscape in Slovenia could be partly due to the modernisation of land cultivation (Pipan and Kokalj 2017). There are two opposing trends in land use in Slovenian agricultural landscapes: abandonment and intensification (Ribeiro and Šmid Hribar 2019). Both trends lead to a loss of landscape- and biodiversity, which means a degradation of the agricultural landscape and a decline in the attractiveness of the region for settlement, tourism and recreation.

The aim of this study was to investigate the land use change in the Vipava Hills between 2002 and 2020 and to determine the current situation and trends in this viticultural landscape. The following research questions were asked:

1) How did the landscape and land use change in the period 2002–2020?
2) How can the Vipava Hills viticultural landscape be preserved?

The results of the research will contribute to the formulation of landscape policy, in particular measures and strategies for the management of cultural landscapes (e.g., Urbanc 2002; Šmid Hribar 2017; Penko Seidl and Golobič 2020; Topole and Pipan 2022), as well as to the implementation of the European Landscape Convention (2000), which emphasises that landscape is a fundamental component of Europe's natural and cultural heritage, contributing to people's well-being and enhancing of European visibility.

The results will also be useful for in the efforts of the European Commission and the Republic of Slovenia. Both have recently adopted a roadmap for the transition to organic farming (Action … 2022; Akcijski … 2022). This is intended to contribute to the implementation of the European Green Deal (European … 2019), with the objective of converting 25% of all agricultural land in the European Union to organic farming by 2030 and gradually achieving climate neutrality by 2050. After 2023, the EU and Slovenia will implement specific measures and create incentives, including the incentive to establish ecoregions (Charter … 2021). Organic vineyards, which should continue to expand, are also the most rational form of land use in the Vipava Hills in the areas that are becoming overgrown. The areas that are becoming overgrown are those that are suitable only for vineyards, or at best for olive groves and fruit trees.

2 Methods

2.1 GIS analysis

In order to calculate the statistics for the landscape analysis, we used our own code, which calculates statistical indicators such as minimum and maximum values, average, area and percentile from

the raster data due to the large number of layers, class combinations and administrative units. We performed the calculations for selected administrative units, such as settlements, and according to selected criteria, such as slope classes, by individual land use categories (Maroh and Kokalj 2021).

In addition, mathematical and statistical data processing was carried out to show the significance of individual phenomena or land use types using concentration indices. The importance of the geofactors influencing land use was highlighted using the Hirschman concentration coefficient.

We used the Airborne Laser Scanning Data of Slovenia (Podatki … 2015), the organic vineyards layer was obtained through personal correspondence with the Ministry of Agriculture, Forestry and Food (Frelih 2021), and the layer of Natura 2000 areas was obtained from the Institute of the Republic of Slovenia for Nature Conservation, also through personal correspondence (Natura … 2021).

2.2 Field visits and participatory focus groups

Between October 2020 and May 2022, we conducted 10 field visits to explore landscape and meet farmers and residents in the area. We held informal short interviews with them. We were interested in the structure of the landscape, the attitudes of local people towards their own region and their views on its strengths and weaknesses.

Equipped with the results of the GIS landscape analysis, the thematic map analysis and the statistical data analysis (Topole 2021; Šmid Hribar 2021a; 2021b) as well as the findings from the field research, we presented the landscape topics to the stakeholders in three participatory focus groups in October and December 2021 and in April 2022. The invited participants included conventional and organic winegrowers, farmers, representatives of the municipalities, the Forest Service, the regional development agency, educational and research institutions, heritage institutions, tourism and information centres, associations and NGOs, as well as providers of tourism, gastronomy, crafts and trade. Based on the discussions with them, we have formulated measures for the preservation and further development of the Vipava Hills viticultural landscape.

3 Results

3.1. Vipava Hills

The Vipava Hills are the rugged southern part of the Vipava Valley, nestled between the high karst plateaus of the Trnovo Forest Plateau (*Trnovski gozd*) (1,495 m) and Nanos (1,313 m) in the north and north-east, respectively, and the lower karst Kras Plateau in the south-west (average 334 m). In the west, where the Vipava Valley merges into the Friuli Plain, the influence of the sea is most pronounced. The average air distance to the Adriatic Sea in the Gulf of Trieste is only 15 km.

The **climate** in the Vipava Hills is inland sub-Mediterranean or temperate Mediterranean. It differs from the typical Mediterranean climate in having slightly lower average temperatures and a different distribution of precipitation. The meteorological station Slap recorded an average annual temperature of 12°C, an average July temperature of 21.2°C and an average January temperature of 3.1°C in the period 1967–2006. Winter temperatures are strongly influenced by the penetration of cold continental air masses. The Vipava Valley receives an average annual rainfall of around 1,500 mm, with the first peak in the autumn months and the second peak at the transition from spring to summer. The lowest rainfall occurs in winter and in July and August. The growing season, with an average daily temperature of over 5°C lasts 289 days (February 22 – December 7), while the tillage or cultivation season with an

Figure 1: The position of the Vipava Hills in Slovenia (source for administrative boundaries of municipalities and settlements: Register of Spatial Units 2021). ►

NANOS
Ajdovščina
Nova Gorica
Vipava
Hubelj
Vipava
Preserje
Steske
Vipava
Branik
Brestca
Brje
Velike Žablje
Tevče
Vrtovče
Zavino
Planina
Dolenje
VIPAVSKO GRIČEVJE
Spodnja Branica
Šmarje
Gaberje
Dolanci
Erzelj
Kodreti
Slap
Lože
Manče
Goče
Podraga
Podnanos
Razdrto
Orehovica
KRAS
municipality parts / deli občin
Ajdovščina
Komen
Nova Gorica
Vipava
highway / hitra cesta
settlement boundaries / meje naselij
wine-growing regions / vinorodne dežele
Podravje
Posavje
Primorska
HU
AT
SI
IT
HR
Cartography / Kartograf: Žiga Kokalj
Contents / Vsebina: Matej Šmid Hribar, Maja Topole
Data source / Viri podatkov: GURS, MKGP, ZRC SAZU
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average daily temperature above 10°C lasts 208 days (April 8 – November 1). Spring frost can still occur in March and in colder areas in April (Hrvatin 2021). On April 6, 2021, for example, polar air swept over Slovenia within a few hours. It even snowed by the sea, but most heavily along the Dinaric mountain barrier. The coldest April morning in more than 60 years of observations was April 7, 2021. The Bilje station near Nova Gorica recorded a minimum temperature of –4.1°C, while Podnanos in the Vipava Valley recorded a minimum temperature of –3.2°C (Mraz … 2021).

In 2020, the **population** of the 23 **settlements** of the Vipava Hills, which cover an area of 68.6 km^2 and belong to four municipalities (Ajdovščina, Komen, Nova Gorica and Vipava), was 5,511. Almost half of the population (47%) was employed, of which 5.7% worked in agriculture (SiSTAT 2021). The Vipava Hills have a favourable **traffic position** along the Razdrto-Nova Gorica highway, but the connections within the hills are mostly poor, with the exception of a few cross-connections.

3.2 Geomorphological and pedological analysis of the landscape and land use 2020

The average **height** of the Vipava Hills is 206 m, with a difference of 497 m between the highest point in the south-east (Stanibreg, 556 m) and the lowest point in the north-west at the mouth of the Branica river (59 m). Almost two thirds of the Vipava Hills are between 100 and 250 m, less than a tenth are below 100 m and only 6% of the hills are above 350 m (Figure 2). The highest point is the watershed ridge between the Vipava and Branica rivers, which runs NWW-SEE in the west and almost north-south in the east. The Vipava Hills are an area with considerable slopes. The average **slope** is 31%, which is why much of the land is terraced.

MAJA TOPOLE, 2020

Figure 2: The varied viticultural landscape of the Vipava Hills. View over Our Lady of the Snows above Goče to the south-east, into the upper Vipava Valley below Nanos.

Figure 3: Vipava Hills: land use in 2020 (Dejanska … 2021). ►

NANOS
Ajdovščina
Vipava
Nova Gorica
Razdrto
Podnanos
Orehovica
Podraga
Goče
Manče
Kodreti
Erzelj
Lože
Slap
Dolenje
Planina
Tevče
Vrtovče
Velike Žablje
Zavino
Šmarje
Gaberje
Dolanci
Spodnja Branica
Brje
Branik
Preserje
Šteske
VIPAVSKO GRIČEVJE
KRAS
Vipava
Vipava
Branica
built up / pozidano
arable / njiva
vineyard / vinograd
orchard / sadovnjak
olive grove / oljčnik
forest / gozd
grassland / travnik
overgrown / v zaraščanju
water / voda
other / drugo
highway / hitra cesta
settlement boundaries / meje naselij
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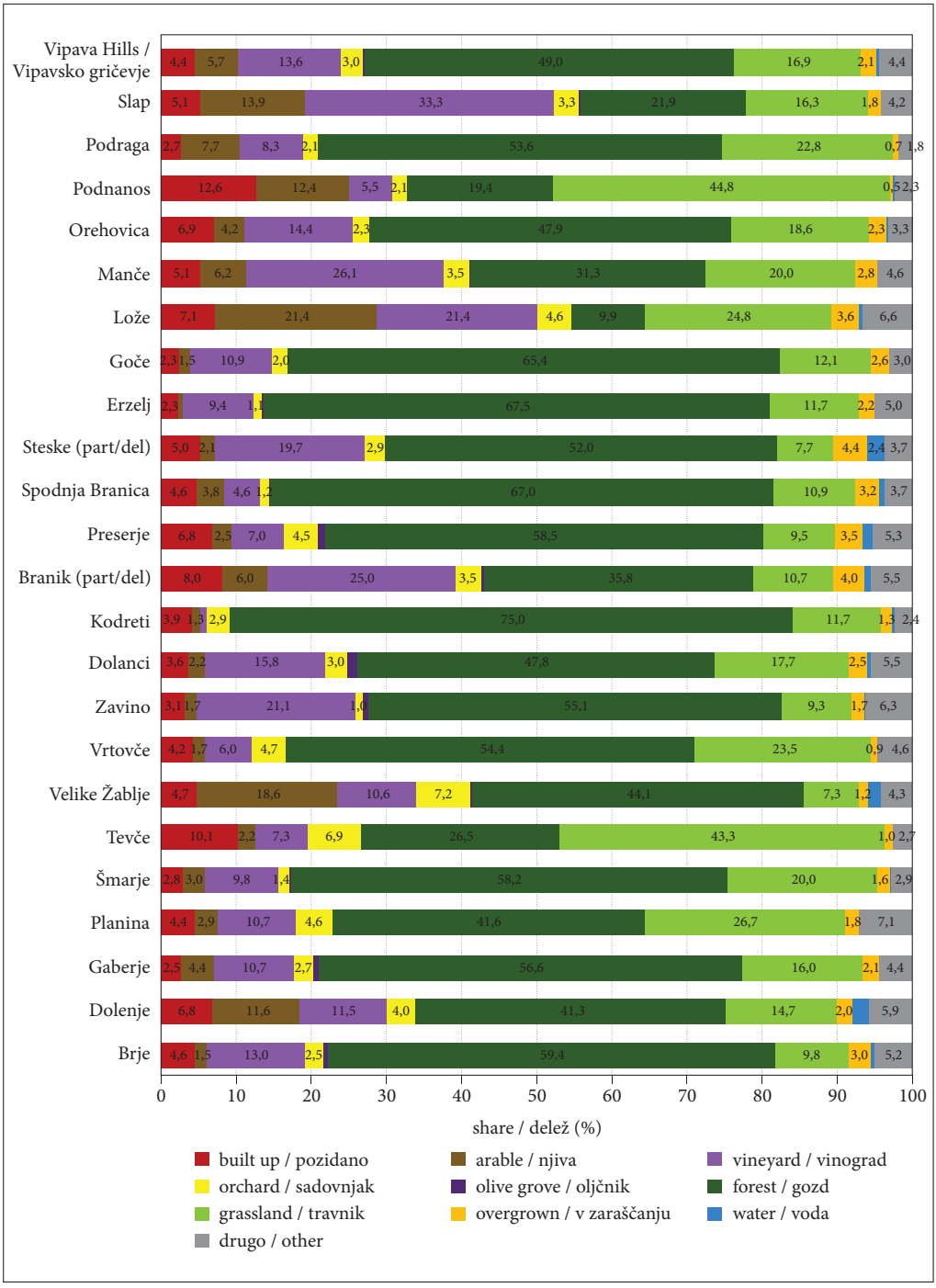

Figure 4: Vipava Hills: land use structure by settlement in 2020 (in %).

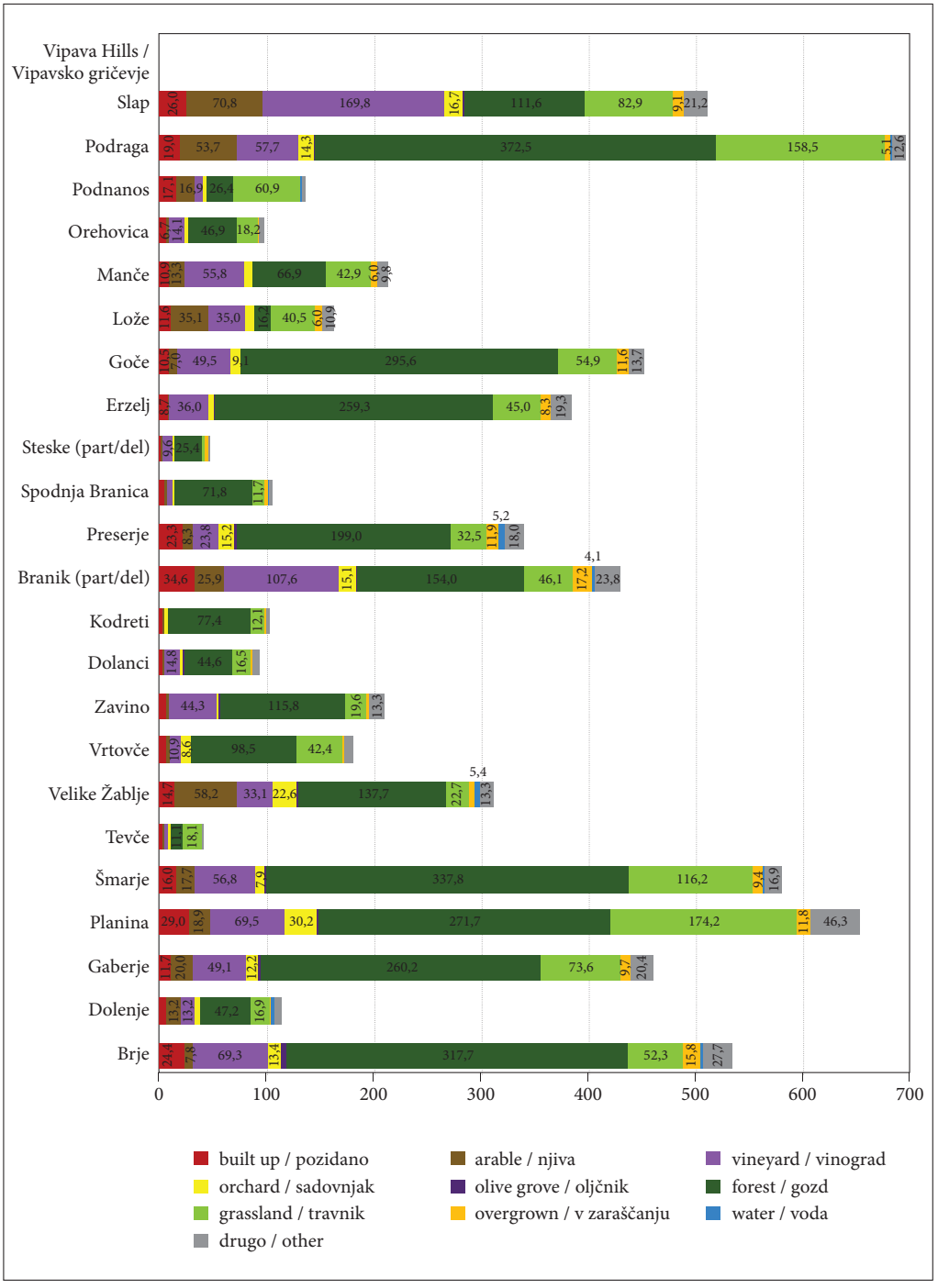

Figure 5: Vipava Hills: land use structure by settlement in 2020 (in ha).

The **bedrock** throughout the hills is Eocene flysch, alternating with marls, sandstones, argillites and alevrolites, with interbeds of breccias, conglomerates and calcarenites (Buser 1973, 23–25). Various eutric brown **soils** have developed on this bedrock, covering 71.2% of the Vipava Hills. They differ in the proportion of sandstones and marls, in the proportion of admixtures and their thickness, which is related to the slope of the surface. 38.8% of the soils are heavily anthropogenised, i.e. ameliorated or modified by human influence. The second group consists of gleyic and pseudo-gleyic soils of various depths, which may be alluvial or on colluvium and together cover a good fifth of the Vipava Hills (21.2%) (Pedološka … 2016). In addition to rock composition and slope inclination, pedological conditions are also influenced by exposure, insolation and water conditions.

There are almost no flat areas in the Vipava Hills, with the western and northern **exposures** below average and the north-eastern, south-eastern and southern exposures above average. The Vipava Hills receive a large amount of **solar irradiation** energy, on average 4276 MJ or 1188 Kwh/m^2 per year, which is 6.6% above the national average (Gabrovec 1998; Hrvatin 2021). Due to the topography, local variations are considerable. As much as three quarters of the Vipava Hills belong to the three highest classes of insolation, which receive over 900 Kwh/m^2.

The land use analysis confirmed that the Vipava Hills are a **viticultural landscape** (Figure 3). In 2020, **vineyards** occupied 936.4 ha or 13.6% of the total area of 6862.5 ha, or 29.6% of the 3166.3 ha of agricultural land. According to the Institute of Agriculture and Forestry Nova Gorica, 587 (70%) of the total of 839 farms in the Vipava Hills were classified as vineyard farms. On average, there were 1.6 ha of vineyards per vineyard farm, and the average size of each vineyard was 0.5 ha.

The settlements with the highest relative share of vineyards of all land uses are Slap (33.3%), Manče (26.1%), Branik (25%), Lože (21.4%) and Zavino (21.1%) (Figure 4), while the areas with the largest absolute area under vines are Slap (169. 8 ha), Branik (107.6 ha), Planina (69.5 ha), Brje (69.3 ha), Podraga (57.7 ha), Šmarje (56.8 ha) and Manče (55.8 ha) (Figure 5).

The average **altitude of the vineyards** is 187 m. Most of the vineyards are at an altitude of 100–250 m, where two thirds of them are located. The average **slope** of the vineyards is 20.3%, and one third of all vineyards are located on areas with a slope of more than 21%. 572.9 ha, or 61,2% of all vineyards, are therefore on terraces. Viticulture is the most extensive of all land uses on **terraced land**. Terraces not only facilitate cultivation, but also provide better sunlight and breathability for the vines.

The eastern, south-eastern and southern **exposures** (concentration indices 125, 124, 122) are most used for viticulture, as it is important for the vines to be exposed to the rising sun as early as possible in the morning, which dries out the dewy leaves and thus prevents the development of diseases. The **organic vineyards** are even more concentrated in the eastern sites (concentration index 129), followed by the north-eastern and south-eastern sites – before the southern ones. The Hirschman concentration coefficient, which indicates the relationship between vineyard area and exposure, is much higher for organic vineyards (0.1777) than for vineyards in general (0.1156). 37.5% of the area receives between 1000 and 1100 Kwh/m^2 of **solar energy** per year, and almost half (49.1%) of all vineyards are located in these areas. The concentration indices for the two highest classes of insolation (1000–1100 and over 1100 Kwh/m^2) are 115 and 176 for organic vineyards and 131 and 127 for conventional vineyards.

There are 12 different **soil** types in the Vipava Hills, but 96% of all vineyards are planted on only six types and 68% on only three types of eutric brown soil. The relatively most important soils are deeply cultivated vineyard soils (vitisol), eutric, and the pseudo-gleyic colluvial eutric brown soils on Eocene flysch (concentration indices of 228 and 130). The **organic vineyards** are even more limited. 75% of them are linked to eutric brown soils with up to 20% interbeds of rendzina soils or up to 40% interbeds of anthropogenic (ameliorated) soils and vitisol. The concentration index is 416 on vitisol and 169 on

Figure 6: Vipava Hills: organic and conventional vineyards in 2020 and their location in relation to Natura 2000 protected areas. ►

NANOS
Ajdovščina
Nova Gorica
Vipava
Razdrto
Podnanos
Orehovica
Hubelj
Vipava
Slap
Lože
Manče
Podraga
Goče
Dolenje
Tevče
Planina
Erzelj
Kodreti
Vrtovče
Velike Žablje
Gaberje
Dolanci
Zavino
Šmarje
Spodnja Branica
Brje
Branik
Preserje
Steske
Branica
VIPAVSKO GRIČEVJE
KRAS
organic vineyard / ekološki vinograd
conventional vineyard / konvencionalni vinograd
Natura 2000
highway / hitra cesta
settlement boundaries / meje naselij
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Data source / Viri podatkov: GURS, MKGP, ZRC SAZU
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eutric brown soils with interbeds of rendzinas. It is important to remember that **choosing the right grape variety** for each vineyard micro-location is essential, as the different varieties have different sensitivities to drought, humidity, frost, etc. Many wine-growers have very good experience with old autochthonous or **local grape varieties**, which, according to estimates by the Institute of Agriculture and Forestry Nova Gorica, account for 35% of the vines in the Vipava Valley (Škvarč 2023, 6).

The Vipava Hills thus have **a number of advantages** in terms of natural conditions: a rugged surface, a favourable climate, numerous elevated, sun-facing slopes, a windswept landscape with a high degree of mosaic-like landscape. It is characterised by a high degree of naturalness and a rich biodiversity. It alternates between patches of forest, extensively used grassland and farmland, with 49% forest, 17% extensively used grassland and pasture and 2.1% overgrown land. There are no disturbing factors such as intensive monocultures, industry, traffic and other pollutants, which makes the area very favourable for the introduction of organic viticulture. In 2020, 84.6 ha or 9% of all vineyards in the Vipava Hills were already organically farmed (Figure 6), which is above the national average (5.1%) (Akcijski … 2022, 17).

By 2020, only **623.2 ha** or 57.2% of the 1089.7 ha of vineyards that existed in 2002 had been preserved. These are considered permanent vineyards (Table 1).

Between 2002 and 2020, 313.2 ha of vineyards were newly **planted** (Figure 8). The new vineyards therefore accounted for one third of the 936.4 ha recorded in 2020. The new vineyards were created on former grassland (38.8%), arable land (27.4%), forest (21.4%) and orchards (8.8%) (Figure 9, line 1).

However, by 2020, **466.5 ha** of vineyards from 2002 were **abandoned** and converted as follows (Figures 9, line 2, and 10): 38.7% were converted to grassland, 12.3% were in the process of overgrowing, 6.2% had already become forest, 10.8% were ploughed into arable land, 10.4% were converted to orchards, 4.9% of the 466.5 ha were built on, 2.3% were converted to olive groves, and 14.5% were converted to various other uses. Half of all abandoned vineyards were located at an altitude of 150–250 m. The main reason for this is their relocation to the foothills, where cultivation on slopes of less than 6%, and especially less than 2% is much easier.

Despite the establishment of new vineyards, the total area under vines decreased from 1089.7 ha in 2002 to 936.4 ha in 2020, i.e., by 153.3 ha or 14.1% (see Figure 11 and the indices in Table 1).

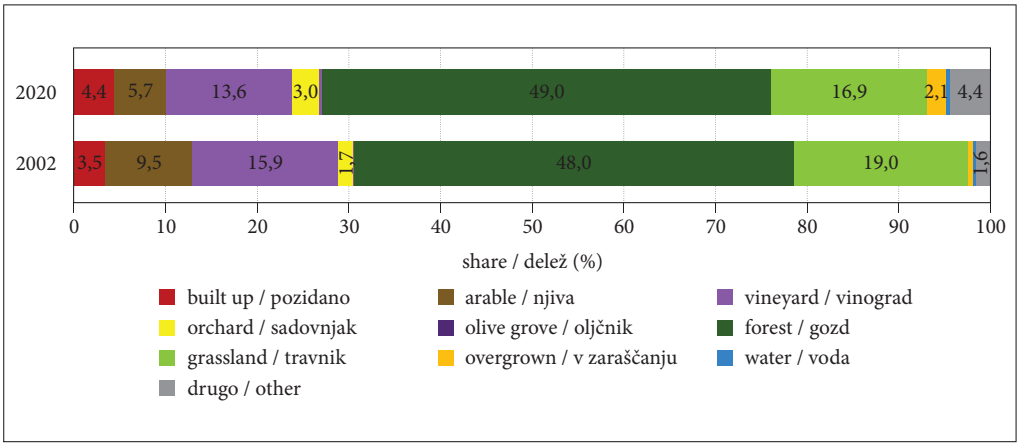

Figure 7: Vipava Hills: land use structure in 2002 and 2020.

Figure 8: Vipava Hills: new vineyards registered in 2020 (313.2 ha in total); the different colours indicate the type of land use in 2002; the dotted areas show the Natura 2000 protected areas that were designated in 2004. ➤

NANOS
Ajdovščina
Nova Gorica
Vipava
Razdrto
Podnanos
Orehovica
Preserje
Šteske
Brje
Branik
Velike Žablje
Tevče
Vrtovče
Dolenje
Planina
Zavino
Spodnja Branica
Šmarje
Gaberje
Dolanci
Erzelj
Kodreti
Slap
Lože
Manče
Podraga
Goče
VIPAVSKO GRIČEVJE
KRAS
built up / pozidano
arable / njiva
vineyard / vinograd
orchard / sadovnjak
olive grove / oljčnik
forest / gozd
grassland / travnik
overgrown / v zaraščanju
water / voda
other / drugo
Natura 2000
highway / hitra cesta
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Table 1: Comparison of land use in the Vipava Hills in 2002 and 2020 (yellow: permanent land use in the period 2002–2020, pink: comparison of vineyards in 2002 and 2020, red: areas that have decreased significantly).

Land use (ha)		**2020**										
		Built up	Arable	**Vineyards**	Orchards	Olive groves	Forest	Grassland	Overgrown	Water	Other	**Vipava Hills**
2002	Built up	203.2	3.3	2.3	9.0	0.1	4.1	10.5	0.8	0.4	3.7	**237.3**
	Arable	13.7	252.1	85.7	25.8	0.3	6.9	241.4	4.3	0.4	22.1	**652.8**
	Vineyards	22.6	50.5	623.2	48.3	10.6	28.9	180.6	57.2	0.2	67.5	**1,089.7**
	Orchard	4.9	14.8	30.6	29.2	1.0	4.1	19.6	2.6	0.3	8.7	**115.8**
	Olive grove	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	**0.4**
	Forest	19.0	4.4	67.1	22.2	4.6	3053.3	49.8	18.0	2.3	52.8	**3,293.6**
	Grassland	35.1	61.4	121.5	65.2	3.9	190.6	640.1	57.7	0.9	129.7	**1,306.2**
	Overgrown	1.2	0.4	1.0	1.3	0.2	29.0	1.3	1.4	0.1	3.6	**39.4**
	Water	0.1	0.0	0.1	0.0	0.0	2.0	0.6	0.4	16.0	0.5	**19.6**
	Other	5.4	2.2	4.9	6.2	0.5	46.3	18.6	3.5	5.2	14.7	**107.5**
Vipava Hills		**305.2**	**389.2**	**936.4**	**207.6**	**21.2**	**3,365.2**	**1,162.5**	**146.0**	**25.7**	**303.3**	**6,862.3**
Newly developed land		102.1	137.1	313.2	178.4	21.2	311.9	522.4	144.5	9.8	288.5	2,029.1
Abandoned land		34.2	400.6	466.5	86.5	0.4	240.4	666.1	38.0	3.6	92.7	2,029.1
Difference in ha 2020:2002		67.9	**–263.5**	**–153.3**	91.9	20.8	71.5	**–143.7**	106.5	6.2	195.8	0.0
Index 2020/2002		129	60	86	179	2608	102	89	370	132	282	100

In terms of exposure, the smallest decline in vineyard area over the period 2002–2020 is observed in the eastern and north-eastern positions. In terms of soils, by far the largest increase in the area under vines, 25-fold, was observed on eutric brown soils on older clayey alluvial land, where arable land used to be.

The changes in the other land uses are shown in the indices for 2020/2002 (Table 1). Arable land decreased the most. In 2020, the share of arable land was only 5.7%, i.e., 263.6 ha or 40% less than in 2002. In addition to the abandonment of arable land, this is mainly due to the migration of vineyards to the bottom of the Vipava Valley, where they have displaced arable land. The area of grassland also decreased, by 143.7 ha (11%). The land for other uses increased, with orchards increasing relatively the most (by 91.8 ha or 80%), and olive groves in particular. These were almost non-existent in 2002 and covered 21.2 ha in 2020.

49% of the Vipava Hills are covered with **forest**. It dominates in shady and steep areas. The average slope of the forest area is 43.8%. Since 2002, the forest area has increased by 71.5 ha (2%). Even before the observation period, the forest had already grown over extensive terraced areas. Many terraces have thus lost their original function, and 4.1% of the terraces were still in the process of becoming overgrown in 2020. Although the forest is not of great economic importance here, it provides ecosystem services such as forest fruits, wood biomass (firewood) and vineyard stakes as well as recreation. In very steep areas, it plays an erosion-preventing, protective role, but otherwise it provides shelter for animals and contributes to the mosaic structure of the landscape.

In 2020, 146 ha (2.1%) of **land** was **overgrown**, which is 3.7 times more than in 2002 (39,4 ha) in the entire region. Overgrowth was concentrated in areas further away from settlements, at higher altitudes, less accessible, steeper, drier or with shallow soils, as well as in areas with problematic ownership (age, unregulated ownership, multiple owners).

A comparison of land use between 2002 and 2020 shows a significant decrease in vineyards, especially in the extreme north-western and south-eastern parts of the Vipava Hills. Most of the abandoned vineyards are located in the settlements of Spodnja Branica, Preserje, Branik, Brje and Podraga, where

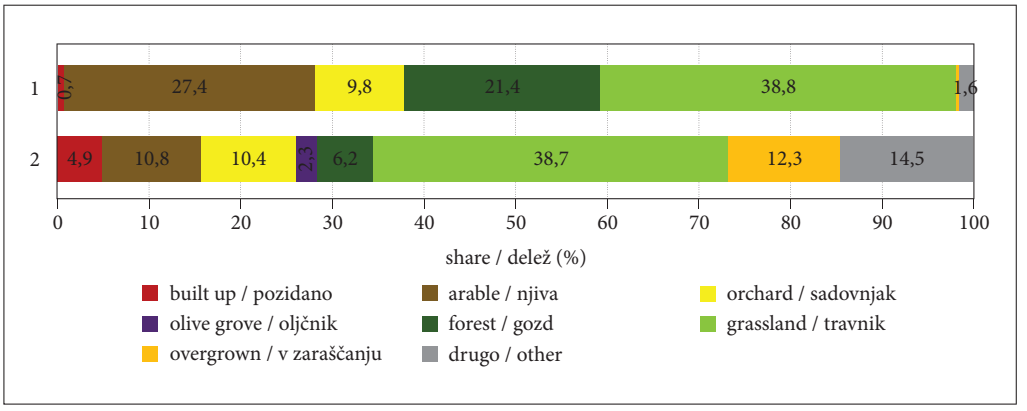

*Figure 9: Vipava Hills: changes in vineyards 2002–2020: **1. newly established** vineyards (**313.2 ha**) by 2020 and their land use in 2002; **2. abandoned** vineyards (**466.5 ha**) in the period 2002–2020 and their land use in 2020 (Dejanska … 2021).*

Figure 10: Vipava Hills: land use types in 2020 where there were still vineyards in 2002 (land use of abandoned vineyards, 466.5 ha in total) and Natura 2000 protected areas. ➤ *str. 44*
Figure 11: Vipava Hills – changes in vineyards 2002–2020 (abandoned: 466.5 ha, new: 313.2 ha, permanent or preserved: 623.2 ha) and their location in relation to Natura 2000 protected areas. ➤ *str. 45*

NANOS
Ajdovščina
Nova Gorica
Vipava
Razdrto
Podnanos
Orehovica
Preserje
Steske
Branik
Brje
Velike Žablje
Zavino
Vrtovče
Tevče
Dolenje
Planina
Slap
Lože
Podraga
Manče
Goče
Erzelj
Kodreti
Gaberje
Dolanci
Šmarje
Spodnja Branica
VIPAVSKO GRIČEVJE
KRAS
built up / pozidano
arable / njiva
orchard / sadovnjak
olive grove / oljčnik
forest / gozd
grassland / travnik
overgrown / v zaraščanju
water / voda
other / drugo
Natura 2000
highway / hitra cesta
settlement boundaries / meje naselij
Cartography / Kartograf: Žiga Kokalj
Contents / Vsebina: Mateja Šmid Hribar, Maja Topole
Data source / Viri podatkov: GURS, MKGP, ZRC SAZU
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NANOS
Ajdovščina
Nova Gorica
Vipava
Vipava
Hubelj
Branica
Preserje
Steske
Branik
Brje
Velike Žablje
Zavino
Vrtovče
Tevče
Dolenje
Planina
Spodnja Branica
Šmarje
Gabrje
Dolanci
Erzelj
Kodreti
Slap
Lože
Manče
Goče
Podraga
Podnanos
Razdrto
Orehovica
VIPAVSKO GRIČEVJE
KRAS
abandoned vineyards / opuščeni vinogradi
newly established vineyards / novo urejeni vinogradi
permanent vineyards / stalni vinograd
Natura 2000
highway / hitra cesta
settlement boundaries / meje naselij
Cartography / Kartograf: Žiga Kokalj
Contents / Vsebina: Mateja Šmid Hribar, Maja Topole
Data source / Viri podatkov: GURS, MKGP, ZRC SAZU
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almost no new vineyards are being established. There are also abandoned vineyards in Lože, on Slap, Planina, in Šmarje and Gabrje, where, unlike the above-mentioned settlements, new vineyards are also recorded, and in some cases there may be a migration of vineyards from higher and steeper areas to lower ones where cultivation is easier.

Converting to grassland or even overgrowth of vineyards are very common in the Vipava Hills. In the period 2002–2020, 14% of vineyards were abandoned, 40% of arable land was lost and 11% of grassland was lost (Table 1: Index 2020/2002). More detailed data on the individual settlement in the Vipava Hills can be found in Topole, Šmid Hribar and Pipan (2022, 26–27).

In this context, the village of Šmarje in the municipality of Ajdovščina is interesting, where new vineyards are being planted despite a drastic decline in agricultural activity. After a field visit, we learned that new vineyards are being planted in Šmarje by foreigners (two Italians and a Slovene from central Slovenia) who, according to a local, are buying land in the most favourable agricultural locations in the settlement. One of them has planted a large vineyard where all the machine work is done by a local and the harvested grapes are transported to Italy by the owner. This is a worrying development, as the land is a natural resource that needs to be managed carefully. This is particularly problematic when vineyards are developed on former low-lying grasslands. This results in a shortage of grassland for livestock farming, while at the same time the higher areas, which are best suited to viticulture, are being overgrown.

3.3. Vineyards and Natura 2000

The Vipava Hills are included in two Natura 2000 sites due to their well-preserved nature: Natura 2000 – Fauna Flora Habitat and Natura 2000 – Habitat Types (Illyrian oak-hornbeam forests (*Erythronio-carpinion*), juniper stands in dry grasslands on carbonate substrate (*Juniperus communis*), rocky grasslands on alkaline substrate (*Alysso-Sedion albi*) and western sub-Mediterranean dry grasslands (*Scorzoneratalia villosae*)). Together, Natura 2000 covers almost half (46.1%) of the Vipava Hills. A detailed GIS analysis shows that one third of all vineyards (32.8%) overlap with Natura 2000 sites. In 2004, when Natura 2000 was declared, there were 280.5 ha of vineyards in the different types of Natura 2000 (the number of organic vineyards is not yet known for that year), while in 2020 there were 275 ha of conventional and 30.9 ha of organic vineyards within the Natura 2000 area (Figure 6). The vineyard areas and the development of vineyard areas in the period 2002–2020 in relation to Natura 2000 are shown in Figures 6, 8, 10 and 11. Natura 2000 is not evenly distributed across the settlements; there are more protected areas in the central part of the hills, south of the watershed between the Vipava and Branica rivers and in the east.

3.4 Measures to preserve the viticultural landscape

Based on the landscape analysis, the analysis of land use change in the period 2002–2020, three participatory focus groups and desk work, we have formulated five short-term (1–2 years), five medium-term (3–5 years) and four long-term (6–10 years) measures to contribute to the conservation and development of the Vipava Hills viticultural landscape. The measures are shown in Table 2. In addition to a brief description of the measures, the key stakeholders involved in their implementation are also listed. The feasibility of the measures is also considered. As can be seen, the key stakeholders for the preservation of the Vipava Hills viticultural landscape are the wine-growers, the landowners, the municipalities, which have to provide the appropriate legal framework, the agricultural and forestry institute, which is to help with the establishment of new vineyards, and last but not least, the researchers and experts who compile the relevant data.

Table 2: Measures for the conservation and development of the Vipava Hills viticultural landscape.

Measure	Period of implementation	Action	Stakeholders	Obstacles/risks
Measure 1 Revitalisation of the existing Vipava Wine Museum	Short-term	The Wine Museum can contribute to strengthening the visibility and competitive advantage of the Vipava Valley viticultural area, which has a rich history and tradition based on exceptional natural conditions. To revitalise the museum, we propose to: • improve the museum's accessibility to visitors (daily, several hours a day), • increase the promotion of the museum (through wine shops, tourist agencies, etc.) • offer presentations or guided tours in different languages, • include the museum in the wine route.	The Regional Museum *Goriški muzej Nova Gorica*	Securing funding
Measure 2 Up-to-date overview of the state of overgrowth of vineyard land: • list of interested parties for the lease/purchase of vineyard land and • monitoring the situation	Short-term	GIS data preparation and record keeping: • former vineyards registered as land in overgrowth in 2020, • vineyards from 2002 converted to new land use by 2020, • field verification of identified land, recording of current use, owner's details, • informing the owner about the condition of the land and possible measures (agricultural cultivation, renting, higher taxation in event of overgrowth), • at the same time, the municipality keeps a list of wine-growers, those looking for a vineyard or those who want to buy or lease an area suitable for viticulture.	• Researchers/Experts to provide GIS data on vineyards, • Municipalities where land is in overgrowth (Vipava, Ajdovščina, Komen and Nova Gorica), • Wine-growers interested in renting/purchasing vineyard land, • Wine-growers interested in renting/selling vineyard land	• Securing funding; • Engage the relevant institutions to carry out field visits and communicate with owners of vineyard land in overgrowth and potential tenants

Measure	Period of implementation	Action	Stakeholders	Obstacles/risks
Measure 3 Training stakeholders in sustainable farm management and agroecological practices	Short-term	To make society and ecosystems more resilient to climate change and more resilient to erosion, to make farming and food systems more sustainable and economically viable, farms need to: • increase knowledge of agroecological practices, • strengthen and disseminate traditional practices that are still alive in many places, such as: mixed planting, hand harvesting, mechanical weed control, weed control by burning, partial and complete greening of inter-row spaces, screening with different materials, intermittent irrigation, inter-row crops, mulching of pruning waste, green manuring with different plants, organic manure application, preparation and use of compost, including composting of grape skins, presence of beehives and bird nesting boxes (Best … 2020).	• Wine-growers or farmers, • Institute of Agriculture and Forestry Nova Gorica, • School for of Viticulture and Enology, University of Nova Gorica	Lack of interest from wine growers/farmers
Measure 4 Eco-region formation and branding	Short-term	Given the exceptional natural conditions in the hills, which are favourable for the introduction of organic farming, and the promised incentives from the EU and Slovenia, it makes sense to initiate the process of introducing an eco-region and creating a brand (Logar 2022a; 2022b). The International Network of Eco Regions (IN.N.E.R.), founded in 2014, issued guidelines or a Charter in support of new eco-regions (Charter … 2021).	• The economy departments of the municipalities of Vipava, Ajdovščina, Komen and Nova Gorica, • Regional Development Agency ROD Ajdovščina and Regional Development Agency of Northern Primorska ltd. Nova Gorica, • Tourist organisations, • Wine-growers, fruit-growers, olive-growers, • Research institutions	Lack of interest from wine growers/farmers

Measure	Period of implementation	Action	Stakeholders	Obstacles/risks
Measure 5 Short lectures and discussions on specific Nature 2000 cases in the Vipava Hills several times a year	Short-term	Short events with a presentation of Natura 2000 in the Vipava Hills, where local people would learn more about Natura 2000, the status (conservation) of local habitat types and species, best practices in Natura 2000 conservation of and viticulture, and the challenges they face. The activity should be carried out jointly by agricultural advisors, who monitor and know the situation from an agricultural and environmental point of view, and nature conservationists, who are able to present topics related to nature conservation and Natura 2000. A better knowledge of Natura 2000 should have an impact on the maintenance of agricultural practices in these areas and on the reduction of the overgrowth of Natura 2000 areas.	• Institute for Nature Conservation, Nova Gorica regional unit, • Institute of Agriculture and Forestry Nova Gorica, • municipalities with land in the Vipava Hills (Vipava, Ajdovščina, Komen and Nova Gorica)	• Coordination of dates for events by Institute for Nature Conservation, Nova Gorica regional unit, Chamber of Agriculture and Forestry of Slovenia – Institute Nova Gorica and participating municipalities, • Ensuring that local people attend and that events are moderated
Measure 6 Revitalisation of the Wine road	Medium-term	The wine roads that were built in the Vipava Hills at the end of the 20th century to promote the sale of wine and support viticulture connected the wine and gastronomy providers and the natural and cultural attractions of the hills. It would be necessary to: • rehabilitate individual sections of the road and better connect the villages or create connecting roads, • create a map of the wine road (marking the locations of wine-growing farms, farms with other facilities, natural and cultural heritage, protected areas, viewpoints, drinking water sources, basic supply centres and accommodation), • review the conditions for the participation of interested wine-growers and wine merchants, • include the previously excluded areas, • strengthen the promotion of the wine road, • properly maintain the infrastructure.	• The economy departments of the municipalities of Vipava, Ajdovščina, Komen and Nova Gorica, • Regional Development Agency ROD Ajdovščina and Regional Development Agency of Northern Primorska ltd. Nova Gorica, • Tourist organisations, • Wine-growers/farmers	Lack of interest from municipalities and other stakeholders

Measure	Period of implementation	Action	Stakeholders	Obstacles/risks
Measure 7 Strengthening the role of the wine cooperative or the participation of farmers	Medium-term	The Vipava Agricultural Cooperative was founded in 1894 to help farmers sell their produce (grapes, fruit, milk and meat). Following the forced sale of a majority share in *Agroind Vipava* in 2014, the cooperative has become less effective. This is also reflected in the abandonment of the fragmented vineyards in the north-western part of the hills, which is the furthest from the Vipava 1894 wine cellar, which is now owned by a foreigner. The situation could be improved by strengthening the role of the cooperative, cooperation between wine-growers or farmers and building a common network, focusing on sustainable farming and joint promotion.	Wine-growers/farmers	• Lack of interest from farmers, • Problems with the organisation or management
Measure 8 Setting up a specialised service to assist in the rental/sale of land, especially in the case of multiple owners	Medium-term	Legal and organisational support for municipal or inter-municipal services in the renting/sale of suitable land to interested wine-growers. Some vineyard land is becoming overgrown because it is co-owned by several heirs who cannot agree on a sale/lease or are abroad and no longer have any interest in their property.	Municipalities and administrative units where land is in overgrowth (Vipava, Ajdovščina, Komen and Nova Gorica administrative units)	Lack of interest from municipalities to set up such a service

Measure	Period of implementation	Action	Stakeholders	Obstacles/risks
Measure 9 Programme for the marketing of the Vipava Hills as a Natura 2000 site	Medium-term	The high proportion of the area protected by Natura 2000 gives the Vipava Hills an important character. It should not be seen as an obstacle but as an advantage and emphasized in the tourist offer and in the promotion of products from this area. To this end, a programme should be developed in the medium term to integrate Natura 2000 into the marketing programme, from wine sales to destination marketing for the Vipava Hills.	• Institute for Nature Conservation, Nova Gorica regional unit, • Municipalities with land in the Vipava Hills (Vipava, Ajdovščina, Komen and Nova Gorica), • Owners of wine cellars and accommodation, • Regional Development Agency ROD Ajdovščina and Regional Development Agency of Northern Primorska ltd. Nova Gorica, • Institute of Agriculture and Forestry Nova Gorica	• Lack of interest from landowners and municipalities. • Another risk may be the fear of over-promotion of Natura 2000 by Institute for Nature Conservation, Nova Gorica regional unit. It will probably be necessary to consider which areas should be more open and which should remain hidden.
Measure 10 Amendment of the Municipal Spatial Plan (MSP) and granting of permits for the gradual establishment of new vineyards on the areas of former vineyards	Medium-term	If there is interest in establishing new vineyards, these activities should also be encouraged at a formal level by clearly indicating in the MSP which former vineyard land, now overgrown with forest, is eligible for replanting. To this end, the land should be assessed in terms of its suitability for viticulture (for an example of the methodology, see Topole 1998, 122–126).	• Municipalities with land in the Vipava Hills (Vipava, Ajdovščina, Komen and Nova Gorica), • The Slovenia Forest Service, • Vineyard owners, • Cartographer (preparation of a map of land use changes 1825–2022 with former vineyards marked), • Research institution	Lack of interest in implementing the measure from municipalities and the Slovenia Forest Service

Measure	Period of implementation	Action	Stakeholders	Obstacles/risks
Measure 11 Establishment of new vineyards on the land of previously abandoned vineyards	Long-term	Restoration of vineyards on the land of abandoned vineyards or on vineyard land in overgrowth or under forest.	• Owners of abandoned vineyards or vineyard land in overgrowth or under forest, • Wine-growers interested in renting/purchasing land with abandoned vineyards or land in overgrowth or under forest and in restoring former vineyards or establishing new vineyards, • Institute of Agriculture and Forestry Nova Gorica; (assistance in planning new vineyards)	Failure to implement the Municipality spatial plan or inadequate implementation of the Municipality spatial plan that would allow wine growers to establish new vineyards on former vineyard land in overgrowth or under forest
Measure 12 Introduction of direct agricultural incentives/subsidies for terrace cultivation	Long-term	As in the case of Less Favoured Areas, payments should also be introduced for the cultivation of vineyards on terraces and slopes with a greater gradient. Such areas require a higher financial input than the cultivation of vineyards on flat land. On the other hand, it is this type of farmland that is most suitable for viticulture (including orchards and olive groves) as they are located at higher altitudes, which are less suitable for cereals and garden vegetables. Flat land at the bottom of the valley should be preserved as arable land.	• Ministry of Agriculture, Forestry and Food, • Institute of Agriculture and Forestry Nova Gorica, • Wine-growers	Lack of interest from the Ministry of Agriculture, Forestry and Food

Measure	Period of implementation	Action	Stakeholders	Obstacles/risks
Measure 13 Payments for vineyard cultivation at higher and steeper altitudes (between 100 and 350 m) and in Natura 2000 sites	Long-term	Higher, windswept, sunny and sloping positions are more favourable for organic viticulture and healthy ripening of the grapes. Although low-lying areas are easily accessible by machinery and easier to work, they require a higher use of plant protection products due to gleization, higher humidity and the risk of diseases, pests and frost. On the other hand, these areas are lost for the cultivation of cereals and garden vegetables. We propose subsidies to help preserve the traditional viticultural landscape for: • vineyards in Natura 2000 areas and • vineyards at higher altitudes and on slopes that require terracing, the preservation and maintenance of terraces, more manual labour because they are more difficult to access with machinery, but are more sustainable and have less harmful effects on the environment (Šmid Hribar et al. 2017; Topole 2020). This is the only way to bring out the characteristic rock substrate that enables the production of autochthonous quality wines.	• Ministry of Agriculture, Forestry and Food, • Institute for Nature Conservation, Nova Gorica regional unit, • Institute of Agriculture and Forestry Nova Gorica, • Wine-growers	Lack of interest from the Ministry of Agriculture, Forestry and Food
Measure 14: Increase the representation of local grape varieties	Long-term	As local grape varieties are less susceptible to climate change, efforts should be made to increase their share (currently estimated at more than 35% in Vipava Valley) (Škvarč 2023).	• Institute of Agriculture and Forestry Nova Gorica, • The Grapevine Nursery Cooperative Trsnica Vrhpolje	Lack of interest from wine-growers

4 Discussion

The results of the survey show a typical process of relocation of vineyards to the flatland and intensification of viticulture over the last two decades, while the problem of abandonment and overgrowth of vineyards is more pronounced in the higher altitudes of the hills.

The European Union set itself the target to convert 25% of its agricultural land to organic farming by 2030. In some countries (Austria, Estonia and Sweden), more than 20% of cultivated land has already been organically farmed in 2021 (Agricultural … 2023), but there is still considerable room for progress in Slovenia. The Vipava Hills are among its most promising areas, where 9% of vineyards are already organically farmed. Organic viticulture is also the most rational form of land use in the Vipava Hills in the areas that are becoming overgrown. This is because areas that are becoming overgrown are primarily suitable for viticulture, or potentially for olive groves and fruit trees.

The reasons for the abandonment of vineyards are not only the less favourable natural conditions, the poorer accessibility and the difficulty of cultivation, but also the ageing population, the unregulated ownership of vineyards and the large number of vineyard owners. Older people are reluctant to convert to organic farming because it requires more manual labour and new skills in which they are no longer willing to invest much. They find it difficult to sell their land or leave their vineyards to a younger generation. The advanced age of those taking over the business means less flexibility and an obstacle to the introduction and implementation of important innovations. More incentives should therefore be created to hand over the farms to a younger generation that is more flexible, more teachable and more willing to introduce innovations and grow grapes organically. Young people are also migrating because work in agriculture is undervalued and they can earn money more easily in other sectors of the economy.

The problems of the hills are also related to the former Vipava Agricultural Cooperative, or *Agroind*, the largest winery in Vipava, whose ownership has changed, the closure of its purchasing office or branch in Branik and the low purchase prices for grapes. The grapes now have to be delivered to Vipava. In the autumn of 2021, the average purchase price was 30 to 40 cents, and even as low as 25 cents per kilogram for machine harvesting. Added to this are the costs of transportation from the north-western Vipava Hills to Vipava, and for many it is not economically viable to produce grapes. Farmers' lack of awareness of the importance of high-quality grape production is also often to blame, and this is linked to the low purchase prices.

Viticulture is mainly practiced by larger wine-growers who produce and sell their own wine.

The vineyards are fragmented (the average size is only 0.5 ha), and apart from the difficulty of renting or buying suitable and sufficiently large contiguous land, it is also difficult and time-consuming to obtain a consensus for the change of use. Within three years of abandoning cultivation, the vineyard starts to overgrow, which is followed by a reclassification of the land from overgrown to forest. Such land is usually lost forever for agricultural use. The restitution or restoration of former vineyards involves enormous costs and time losses. It requires extreme perseverance to obtain permits, as there are many obstacles that are difficult to overcome: municipal spatial plans are rarely renewed; foresters only allow the clearing of up to 0.5 ha of large contiguous areas at a time, even if there was once a vineyard at a particular location.

The loss of fertile land is not only detrimental, but also increases the habitat for wild animals. Unbridled overgrowth that does not lead to a quality forest brings game ever closer to the remaining vineyards and causes damage to wine-growers.

Restrictions are also imposed by the EU through annual quotas for newly authorised vineyards per country and by Natura 2000 or nature conservationists. In addition, the disorganisation and disconnection of wine-growers and even the municipalities of the Vipava Valley make development more difficult.

In line with these findings, the abandonment of cultural landscapes will continue in the future.

It is not only the abandonment of vineyards that is problematic, but also their relocation to the bottom of the Vipava Valley and the intensification of viticulture. These two developments took place in the period under review from 2002 to 2020. In 2020, 85.7 ha or 9.2% of the vineyards were located on land that was still used as arable land in 2002. While new vineyards on less sloping soils are more accessible to machinery and easier to cultivate, the soils there require a much higher use of plant protection products due to the gleization of the soil. The more frequent fog, less sunshine and greater risk of frost also make the vineyards at the valley bottom more susceptible to diseases and pests, so that much higher use of plant protection products is required. The area is therefore suitable for intensive cultivation, but not for the introduction of organic viticulture. On the other hand, this land is being lost as arable land or for the cultivation of cereals and vegetables, as Vertovec warned against in his manual from 1844 (Vertovec 2015). At the same time, this leads to overgrowth on the higher slopes, where it is difficult or even impossible to grow crops other than vines, fruit trees and olives. While this may be desirable from a nature conservation perspective, it is not always positive as it tends to lead to a loss of biodiversity. Therefore, measures to prevent overgrowth, which we have outlined in section 3.4, are essential.

The inclusion of the Vipava Hills in the Natura 2000 network brings with it certain restrictions in terms of management, but also benefits, as it highlights the high degree of naturalness of the area. Discussions with stakeholders revealed that the Natura 2000 sites in the Vipava Hills are little known. Many wine growers do not know whether their vineyards are in Natura 2000 areas or not. As part of this study, we have produced maps of the vineyards and Natura 2000 sites and organised a lecture on the Natura 2000 sites in the Vipava Hills, but more events of this kind are needed to improve knowledge about Natura 2000. Stakeholders, especially landowners, would like to see more discussion and an attempt to find synergies with the management of Natura 2000 sites. Of particular importance here is the restoration of former vineyards and the establishment of new vineyards on overgrown land, which is also protected by Natura 2000. Overgrowth, which usually leads to biodiversity depletion, must be stopped. In any case, great attention will have to be paid to raising awareness and fruitful dialogue between farmers, wine-growers and nature conservationists in order to preserve nature and vineyards at the same time. The worst-case scenario for the Natura 2000 area and the viticultural landscape would be the loss of vineyards, which would become overgrown and turn into low-quality forests.

There is an urgent need to raise awareness of Natura 2000 among the local population and other stakeholders and to include it as an environmental brand in the marketing programme. Not every wine comes from an area as natural as the Vipava Hills. It should be emphasised that the Vipava Hills have the advantage of having a number of high-altitude vineyard sites with an ideal combination of microclimatic, lithological and pedological features that enable the production of top quality (*single vineyard*) wines (Klemenčič 2020). The promotion of the Vipava Hills viticultural landscape should be based on this. The ideal conditions in the region should be utilised and the creation of an ecoregion and a brand should be launched as soon as possible, which both the European Union and Slovenia have been advocating for since this year. The focus groups have shown that many wine-growers in Vipava want to use the natural advantages of their area and maintain or reorient themselves towards organic farming, thus contributing to the provision of public goods, the preservation of the agricultural cultural landscape and the protection of the environment as a whole (Ekološka … 2023).

5 Conclusion

Based on a landscape analysis, a land use change analysis and three participatory focus groups, we have proposed 14 short-, medium- and long-term actions to contribute to the conservation of the Vipava Hills viticultural landscape and Natura 2000 over the next 10 years. Most of the efforts and activities will have to focus on preventing overgrowth as the proportion of vineyards decreases, even if new ones

are planted. Although we have not included specific actions to deal with wildlife issues (i.e., game), we would like to emphasise that it will also be necessary to start effective management of the increasing wildlife population. The viticultural landscape of the Vipava Hills has a high degree of naturalness and provides a habitat for a variety of animal species, including game, which often causes damage to the vineyards. This is closely linked to the aforementioned overgrowth. The overgrowth leads to an increase in the number of wild animals, and the damage caused by the wild animals in turn leads to the abandonment of the vineyards near the overgrown land. Finding this delicate balance will require the cooperation of various stakeholders. A key role will have to be played by the district hunting ground managers, foresters and the Ministry of Agriculture, Forestry and Food.

Considerable attention will have to be paid to raising awareness and recognising the value of Natura 2000 sites. Through a series of public debates and presentations, protected areas need to be recognised and treated as an asset rather than a constraint. Last but not least, the mosaic-like viticultural landscape with its high degree of naturalness is attractive to visitors, and part of the activities should also focus on linking viticulture, tourism and gastronomy.

Acknowledgments: We would like to thank the Interreg project ECOVINEGOALS - Management and Activities in Organic Vineyards as a Basis for the Preparation of Landscape Strategies, the Slovenian Research and Innovation Agency for the financial support for the research programmes Geography of Slovenia (P6-0101), Heritage on the Margins: New Perspectives on Heritage and Identity Within and Beyond National (P5-0408) and Earth Observation and Geoinformatics (P2-0406). Finally, we would like to thank Saša Požek for the English translation.

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IZZIVI VINOGRADNIŠKE POKRAJINE – PRIMER VIPAVSKEGA GRIČEVJA V SLOVENIJI

1 Uvod

Slovenija ima med vsemi tipi rabe zemljišč le 1 % vinogradov, a se kljub temu uvršča med tradicionalne vinorodne države. Med njenimi tremi vinorodnimi deželami ima največji delež vinogradov vinorodna dežela Primorska. Znotraj te dežele prednjačijo sredozemska gričevja, kjer je vinogradniške rabe zemljišč povprečno 6,4 % (Gabrovec in sod. 2020, 280). Sem spada tudi Vipavsko gričevje, del vinorodnega okoliša Vipavske doline, ki se ponaša s 13,6 % vinogradov, in eno najstarejših vinogradniških tradicij v Sloveniji. V nekaterih virih, predvsem zemljevidih, se za Vipavsko gričevje uporablja tudi ime Vipavska brda, ki je tudi standardizirano, vendar med domačini ni udomačeno. Z Vipavskega izvira tudi prvi slovenski strokovni vinogradniški priročnik, ki ga je sredi 19. stoletja (1844) kot prilogo Kmetijskih in rokodelskih novic izdal domačin, duhovnik in strokovnjak na različnih področjih, Matija Vertovec (1784–1851) (Vertovec 2015). Leta 1994 je izšla njegova faksimilirana izdaja, prepis originala pa kot »strokovni, jezikovni in narodnostni biser« ponovno leta 2015 (Korošec-Koruza 2015).

Kljub ugodnim razmeram za kmetijstvo, zlasti za vinogradništvo, pa tudi v Vipavskem gričevju opažamo napredujoče procese zaraščanja in opuščanja kmetijskih zemljišč. Vinogradi se opuščajo in selijo iz višje ležečih na nižje ležeča območja oziroma v ravnine. Do preobrazbe vinogradniške pokrajine v Sloveniji med drugim prihaja zaradi modernizacije obdelovanja zemljišč (Pipan in Kokalj 2017). V slovenskih kmetijskih pokrajinah sta pri rabi zemljišč prisotna dva nasprotujoča si trenda: opuščanje in intenzifikacija (Ribeiro in Šmid Hribar 2019). Oba trenda vodita v izgubo pokrajinske in biotske pestrosti, kar pomeni razvrednotenje kmetijske pokrajine in upadanje privlačnosti regije za poselitev, turizem in rekreacijo.

Namen te študije je bil preučiti spremembo rabe zemljišč v Vipavskem gričevju v obdobju 2002–2020 ter ugotoviti trenutno stanje in trende v tej vinogradniški pokrajini. Zastavili smo si naslednji raziskovalni vprašanji:

1) Kakšne so bile spremembe v pokrajini oziroma rabi zemljišč v obdobju 2002–2020?
2) Kako ohranjati vinogradniško pokrajino Vipavskega gričevja?

Rezultati raziskave bodo prispevali k oblikovanju pokrajinske politike, posebej ukrepov in strategij pri upravljanju kulturnih pokrajin (na primer Urbanc 2002; Šmid Hribar 2017; Penko Seidl in Golobič 2020; Topole in Pipan 2022) in k uresničevanju Evropske konvencije o krajini (European landscape… 2000). Ta izpostavlja, da je pokrajina temeljna sestavina evropske naravne in kulturne dediščine, ki prispeva k človekovi blaginji in utrjevanju evropske prepoznavnosti.

Rezultati bodo dobrodošli tudi v prizadevanju Evropske komisije in Republike Slovenije. Obe sta nedavno sprejeli načrt prehoda v ekološki način kmetovanja (Action … 2022; Akcijski … 2022). S tem naj bi pripomogli k uresničitvi Evropskega zelenega dogovora (European … 2019) s ciljem, do leta 2030 vključiti 25 % vseh kmetijskih zemljišč Evropske unije v ekološki način obdelave, do leta 2050 pa postopno doseči podnebno nevtralnost. EU in Slovenija bosta po letu 2023 izvajali posebne ukrepe in dajali spodbude, med drugimi za ustanavljanje ekoregij (Charter … 2021). Ekološki vinogradi, ki naj bi se širili, pa so v Vipavskem gričevju tudi najbolj racionalni način rabe zemljišč v območjih, ki se zaraščajo. Zaraščajo se namreč lege, ki so primerne le za vinograde, kvečjemu še za oljčnike in sadno drevje.

2 Metode

2.1 GIS analiza

Pri izračunu statistik za potrebe pokrajinske analize smo si zaradi velikega števila slojev, kombinacij razredov in administrativnih enot pomagali z lastno kodo, ki iz rastrskih podatkov izračuna statistične kazalce, kot so na primer najmanjša in največja vrednost, povprečje, površina in percentil. Izvedli smo izračune za izbrane administrativne enote, na primer naselja, in glede na izbrane kriterije, kot na primer naklonske razrede, in sicer po posameznih kategorijah rabe zemljišč (Maroh in Kokalj 2021).

Dodatno smo izvedli matematično-statistične obdelave podatkov in prikazali pomen posameznih pojavov oziroma tipov rabe zemljišč s pomočjo indeksov koncentracije. Pomen geofaktorjev, ki vplivajo nanje, smo osvetlili s pomočjo Hirschmanovega koeficienta koncentracije.

Pomagali smo si s Podatki aerolaserskega skeniranja Slovenije (2015), sloj ekoloških vinogradov smo dobili prek osebne korespondence z Ministrstvom za kmetijstvo, gozdarstvo in prehrano (Frelih 2021), sloj območij Nature 2000 pa iz Zavoda Republike Slovenije za varstvo narave, prav tako prek osebne korespondence (Natura … 2021).

2.2 Terenski ogledi in participativne fokusne skupine

Med oktobrom 2020 in majem 2022 smo opravili 10 terenskih ogledov, na katerih smo se seznanili s pokrajino ter srečali s kmeti in drugimi prebivalci območja. Z njimi smo opravili neformalne kratke pogovore. Zanimali so nas struktura pokrajine, odnos domačinov do lastne regije ter njihov pogled na njene prednosti in slabosti.

Opremljeni z rezultati GIS pokrajinske analize, analize tematskih zemljevidov in analize statističnih podatkov (Topole 2021; Šmid Hribar 2021a; 2021b) ter ugotovitev na terenu smo pokrajinsko problematiko predstavili deležnikom na treh participativnih fokusnih skupinah, in sicer oktobra in decembra 2021 ter aprila 2022. Vabljeni so bili konvencionalni in ekološki vinogradniki, kmetje, predstavniki občin, zavoda za gozdove, regionalne razvojne agencije, izobraževalnih in raziskovalnih ustanov, predstavniki dediščinskih ustanov, turističnih in informacijskih središč, društev in nevladnih organizacij ter ponudniki s področij turizma, gostinstva, obrti in trgovine. Na podlagi razgovorov smo oblikovali ukrepe za ohranjanje in nadaljnji razvoj vinogradniške pokrajine Vipavskega gričevja.

3 Rezultati

3.1. Vipavsko gričevje

Vipavsko gričevje je razgiban južni del Vipavske doline, stisnjen med visoki kraški planoti Trnovski gozd (1495 m) in Nanos (1313 m) na severu oziroma severovzhodu in nižjo kraško Tržaško-Komensko planoto oziroma Kras na jugozahodu (povprečno 334 m). Na zahodu, kjer Vipavska dolina prehaja v Furlansko nižino, je vpliv morja najbolj občuten. Zračna razdalja do Jadranskega morja v Tržaškem zalivu znaša povprečno le 15 km.

Slika 1: Položaj Vipavskega gričevja v Sloveniji (vir za administrativne meje občin in naselij: Register prostorskih enot 2021).
Glej angleški del prispevka.

Podnebje Vipavskega gričevja je submediteransko oziroma zmerno sredozemsko. Od pravega sredozemskega podnebja se razlikuje po nekoliko nižjih povprečnih temperaturah in drugačni razporeditvi

padavin. Meteorološka postaja Slap je imela v obdobju 1967–2006 povprečno letno temperaturo 12 °C, povprečno julijsko 21,2 °C in januarsko 3,1 °C. Na zimske temperature močno vplivajo vdori hladnih celinskih zračnih mas. Vipavska dolina prejme letno povprečno okrog 1500 mm padavin; prvi višek je v jesenskih mesecih, drugi pa na prehodu pomladi v poletje. Najmanj padavin pade pozimi ter julija in avgusta. Rastna sezona s povprečno dnevno temperaturo nad 5 °C traja 289 dni (22. februar–7. december), poljedelska sezona s povprečno dnevno temperaturo nad 10 °C, pa 208 dni (8. april–1. november). Pomladanska pozeba se lahko pojavi še marca, v hladnejših legah tudi aprila (Hrvatin 2021). 6. aprila 2021, na primer, je polarni zrak v nekaj urah preplavil Slovenijo. Snežilo je celo ob morju, najmočneje pa vzdolž dinarske gorske pregrade. Najbolj mrzlo aprilsko jutro v več kot 60 letih opazovanja pa je bilo 7. aprila 2021. Postaja Bilje pri Novi Gorici je takrat zabeležila minimalno temperaturo –4,1 °C, Podnanos v Vipavski dolini pa –3,2 °C (Mraz … 2021).

Leta 2020 je v 23 **naseljih** Vipavskega gričevja, ki obsega 68,6 km^2 in pripada štirim občinam (Ajdovščina, Komen, Nova Gorica in Vipava), živelo 5511 **prebivalcev**. Delovno aktivna je bila slaba polovica prebivalcev (47 %). Med temi se jih je s kmetijsko dejavnostjo ukvarjalo 5,7 % (SiSTAT 2021). Vipavsko gričevje ima ugoden **prometni položaj** vzdolž hitre ceste Razdrto–Nova Gorica, medsebojne prometne povezave znotraj gričevja pa so z izjemo redkih prečnih smeri večinoma slabe.

3.2 Geomorfološka in pedološka analiza pokrajine in raba zemljišč 2020

Povprečna **višina** Vipavskega gričevja je 206 m, razlika med najvišjo točko na jugovzhodu (Stanibreg, 556 m) in najnižjo točko na severozahodu ob izlivu Branice v Vipavo (59 m) je 497 m. Skoraj dve tretjini Vipavskega gričevja pripada višinam 100 do 250 m, slaba desetina je nižja od 100 m in le 6 % gričevja sega više kot 350 m (slika 2). Najvišji je razvodni greben med vodotokoma Vipavo in Branico, ki poteka na zahodu v smeri SZZ–JVV, na vzhodu pa skoraj od severa proti jugu. Vipavsko gričevje je območje precejšnjih strmin. Povprečni **naklon** je 31 %, zato je tu velik del zemljišč terasiranih.

Kamninsko podlago v celotnem območju gričevja tvori eocenski fliš, kjer se menjavajo laporji, peščenjaki, argiliti in alevroliti, vmes pa se pojavljajo vložki breč, konglomeratov in kalkarenitov (Buser 1973, 23–25). Na tej podlagi so se razvile različne evtrične rjave **prsti**, ki zavzemajo 71,2 % Vipavskega gričevja. Med seboj se razlikujejo po deležu peščenjakov in laporjev, po deležu primesi ter po debelini, ki je povezana z naklonom površja. 38,8 % prsti je močno antropogeniziranih, spremenjenih pod vplivom človeka. V drugo skupino spadajo različno globoko oglejene in psevdooglejene prsti, ki so lahko obrečne ali na koluviju, in skupaj zavzemajo dobro petino Vipavskega gričevja (21,2 %) (Pedološka … 2016). Na pedološke razmere poleg kamninske sestave in naklonov vplivajo ekspozicija, osončenost in vodne razmere.

V Vipavskem gričevju skoraj ni ravnih površin, podpovprečno so zastopane zahodne in severne **ekspozicije**, nadpovprečno pa severovzhodne, jugovzhodne in južne ekspozicije. Vipavsko gričevje prejema veliko količino energije **sončnega obsevanja**, letno v povprečju 4276 MJ oziroma 1188 Kwh/m^2, kar je za 6,6 % več od slovenskega povprečja (Gabrovec 1998; Hrvatin 2021). Zaradi reliefne razčlenjenosti so lokalne razlike velike. Kar tri četrtine Vipavskega gričevja spada v najvišje tri razrede osončenosti, ki prejmejo nad 900 Kwh/m^2.

Z analizo rabe zemljišč smo potrdili, da je Vipavsko gričevje **vinogradniška pokrajina** (slika 3). Leta 2020 so **vinogradi** zavzemali 936,4 ha ali 13,6 % od skupno 6862,5 ha vseh zemljišč oziroma 29,6 % od 3166,3 ha kmetijskih zemljišč. Med vinogradniške kmetije je po podatkih Kmetijsko gozdarskega zavoda Nova Gorica v Vipavskem gričevju štelo 587 (70 %) od skupno 839 kmetij. Na eno vinogradniško kmetijo je odpadlo povprečno 1,6 ha vinogradov, povprečna velikost posameznega vinograda pa je bila 0,5 ha.

Slika 2: Razgibana vinogradniška pokrajina Vipavskega gričevja. Pogled prek Marije Snežne nad Gočami proti jugovzhodu, v zgornjo Vipavsko dolino pod Nanosom.
Glej angleški del prispevka.

Slika 3: Vipavsko gričevje – raba zemljišč leta 2020 (Dejanska … 2021).
Glej angleški del prispevka.

Relativno največji delež vinogradov med vsemi rabami imajo naselja: Slap (33,3 %), Manče (26,1 %), Branik (25 %), Lože (21,4 %) in Zavino (21,1 %) (slika 4), z absolutno največjimi površinami s trto pa razpolagajo Slap (169,8 ha), Branik (107,6 ha), Planina (69,5 ha), Brje (69,3 ha), Podraga (57,7 ha), Šmarje (56,8 ha) in Manče (55,8 ha) (slika 5).

Slika 4: Vipavsko gričevje – struktura rabe zemljišč po naseljih leta 2020 (v %).
Glej angleški del prispevka.

Slika 5: Vipavsko gričevje – struktura rabe zemljišč po naseljih leta 2020 (v ha).
Glej angleški del prispevka.

Povprečna **nadmorska višina vinogradov** je 187 m. Najbolj so zgoščeni v višinah 100 do 250 m, kjer jih je dve tretjini. Povprečni **naklon** vinogradov je 20,3 %, tretjina vseh pa je na zemljiščih, katerih naklon presega 21 %. 572,9 ha ali 61,2 % vseh vinogradov je zato na **terasah**. Vinski trti je med vsemi rabami namenjenih največ terasiranih zemljišč. Terase ne omogočajo le lažje obdelave, temveč tudi boljšo osončenost in zračnost trt.

Sicer so za vinograde najbolj izkoriščene vzhodne, jugovzhodne in južne **ekspozicije** (indeksi koncentracije 125, 124, 122), saj je za trto pomembno, da jo zjutraj čim prej obsije vzhajajoče sonce, ki osuši rosne trtne liste ter tako prepreči razvoj bolezni. **Ekološki vinogradi** so še bolj zgoščeni v vzhodnih legah (indeks koncentracije 129). Sledijo severovzhodne in jugovzhodne lege, pred južnimi. Hirschmanov koeficient koncentracije, ki kaže povezavo vinogradov z ekspozicijo, je precej višji pri ekoloških vinogradih (0,1777) kot pri vinogradih nasploh (0,1156). 37,5 % površja prejme med 1000 in 1100 Kwh/m^2 **sončne energije** letno in na takšna območja odpade skoraj polovica (49,1 %) vseh vinogradov. Indeksi koncentracije so pri ekoloških vinogradih pri najvišjih dveh razredih osončenosti (1000–1100 in nad 1100 Kwh/m^2) 115 in 176, pri konvencionalnih vinogradih pa 131 in 127.

V Vipavskem gričevju ločimo 12 različnih tipov **prsti**, a 96 % vseh vinogradov je urejenih na le šestih tipih, 68 % pa celo samo na treh tipih evtričnih rjavih prsti. Relativno največji pomen za vinograde imata rigolana, vinogradniška prst, t. i. vitisol, in psevdooglejena koluvialna evtrična rjava prst na eocenskem flišu (indeksa koncentracije 228 in 130). Še bolj so omejeni **ekološki vinogradi**. 75 % jih je vezanih na rjave evtrične prsti z do 20 % vmesnih rendzin ali do 40 % vmesnih antropogeniziranih prsti ter na vitisol. Indeks koncentracije na vitisolu je 416, na evtričnih rjavih prsteh z vmesnimi rendzinami pa 169. Ob tem je treba upoštevati, da je za posamezne mikrolokacije vinogradov zelo pomemben **izbor prave trtne sorte**, saj so različne sorte različno občutljive na sušnost, vlažnost, zmrzal … Številni vinogradniki imajo zelo dobre izkušnje s starimi domačimi oziroma **lokalnimi sortami vinske trte**, ki po ocenah Kmetijsko gozdarskega zavoda Nova Gorica zavzemajo v Vipavski dolini 35-odstotni delež (Škvarč 2023, 6).

Vipavsko gričevje ima torej z vidika naravnih razmer **številne prednosti**: razgibano površje, ugodno podnebje, obilico dvignjenih, k soncu usmerjenih pobočij, dobro prevetrenost, visoko stopnjo pokrajinske mozaičnosti. Odlikujeta ga visoka stopnja naravnosti in bogata biotska raznovrstnost. Menjajo se zaplate gozda, ekstenzivnih travnikov in kmetijskih zemljišč. Delež gozda je 49 %, ekstenzivnih travnikov in pašnikov 17 % in zaraščajočih se zemljišč 2,1 %. Tu ni motečih dejavnikov kot so intenzivne monokulture, industrija, promet in drugi onesnaževalci, zato ima območje zelo ugodne razmere za uvajanje ekološkega vinogradništva. Med vsemi vinogradi jih je bilo leta 2020 v Vipavskem gričevju **v ekološki obdelavi** že 84,6 ha ali 9 % (slika 6), kar je za slovenske razmere (5,1 %) nadpovprečno (Akcijski … 2022, 17).

Preglednica 1: Primerjava rabe zemljišč v Vipavskem gričevju leta 2002 in 2020 (rumeno: zemljišča, ki so v obdobju 2002–2020 ohranila rabo, rožnato: primerjava vinogradov 2002 in 2020, rdeče: zemljišča, ki so se močno skrčila).

raba zemljišč (ha)		**2020**										
		pozidano	njive	**vinogradi**	sadovnjak	oljčnik	gozd	travnik	zaraščanje	vode	drugo	**Vipavsko gričevje**
2002	pozidano	203,2	3,3	2,3	9,0	0,1	4,1	10,5	0,8	0,4	3,7	237,3
	njive	13,7	252,1	85,7	25,8	0,3	6,9	241,4	4,3	0,4	22,1	652,8
	vinogradi	22,6	50,5	623,2	48,3	10,6	28,9	180,6	57,2	0,2	67,5	1089,7
	sadovnjak	4,9	14,8	30,6	29,2	1,0	4,1	19,6	2,6	0,3	8,7	115,8
	oljčnik	0,0	0,0	0,0	0,4	0,0	0,0	0,0	0,0	0,0	0,0	0,4
	gozd	19,0	4,4	67,1	22,2	4,6	3053,3	49,8	18,0	2,3	52,8	3293,6
	travnik	35,1	61,4	121,5	65,2	3,9	190,6	640,1	57,7	0,9	129,7	1306,2
	zaraščanje	1,2	0,4	1,0	1,3	0,2	29,0	1,3	1,4	0,1	3,6	39,4
	vode	0,1	0,0	0,1	0,0	0,0	2,0	0,6	0,4	16,0	0,5	19,6
	drugo	5,4	2,2	4,9	6,2	0,5	46,3	18,6	3,5	5,2	14,7	107,5
Vipavsko gričevje		**305,2**	**389,2**	**936,4**	**207,6**	**21,2**	**3365,2**	**1162,5**	**146,0**	**25,7**	**303,3**	**6862,3**
na novo urejena zemljišča		102,1	137,1	313,2	178,4	21,2	311,9	522,4	144,5	9,8	288,5	2029,1
opuščena zemljišča		34,2	400,6	466,5	86,5	0,4	240,4	666,1	38,0	3,6	92,7	2029,1
razlika v ha 2020:2002		67,9	–263,5	–153,3	91,9	20,8	71,5	–143,7	106,5	6,2	195,8	0,0
indeks 2020/2002		129	60	86	179	2608	102	89	370	132	282	100

Slika 6: Vipavsko gričevje – ekološki in konvencionalni vinogradi leta 2020 ter njihova lega glede na zavarovana območja Nature 2000.
Glej angleški del prispevka.

Slika 7: Vipavsko gričevje – struktura rabe zemljišč leta 2002 in 2020.
Glej angleški del prispevka.

Do leta 2020 se je od 1089,7 ha vinogradov, ki so obstajali leta 2002, ohranilo le **623,2 ha** oziroma 57,2 %. Te štejemo med stalne vinograde (preglednica 1, slika 7).

Popolnoma **na novo** so v obdobju 2002–2020 uredili **313,2 ha** vinogradov (slika 8). Med nove je torej spadala tretjina od vseh 936,4 ha, kolikor smo jih evidentirali leta 2020. Novi vinogradi so nastali na nekdanjih travišči (38,8 %), njivah (27,4 %), gozdu (21,4 %) ter sadovnjakih (8,8 %) (slika 9, vrstica 1).

Slika 8: Vipavsko gričevje – novi vinogradi, evidentirani leta 2020 (skupaj 313,2 ha). Različne barve označujejo tipe rabe teh zemljišč leta 2002. Pikčasto so prikazana zavarovana območja Nature 2000, razglašena leta 2004.
Glej angleški del prispevka.

466,5 ha vinogradov iz leta 2002 pa je bilo do leta 2020 **opuščenih** in spremenjenih (sliki 9 (vrstica 2) in 10): 38,7 % je bilo ozelenjenih oziroma spremenjenih v travnike, 12,3 % jih je bilo v procesu zaraščanja, 6,2 % jih je že prerasel gozd, 10,8 % so jih preorali v njive, na 10,4 % so uredili sadovnjake, 4,9 % od 466,5 ha so pozidali, 2,3 % preuredili v oljčnike, 14,5 % pa je dobilo razne druge rabe. Polovica vseh opuščenih vinogradov je bila v višinah 150 do 250 m. Poglavitni vzrok je njihova selitev v vznožje gričevja, kjer je na naklonih pod 6 %, še posebej pa pod 2 %, njihova strojna obdelava bistveno lažja.

*Slika 9: Vipavsko gričevje – spremembe vinogradov 2002–2020: **1.** do 2020 **novo urejeni** vinogradi (**313,2 ha**) in raba teh zemljišč 2002; **2.** v obdobju 2002–2020 **opuščeni** vinogradi (**466,5 ha**) in raba teh zemljišč leta 2020 (Dejanska … 2021).*
Glej angleški del prispevka.

Kljub ureditvi novih vinogradov se je skupna površina pod vinsko trto s 1089,7 ha leta 2002 zmanjšala na 936,4 ha leta 2020, torej za **153,3 ha** ali za **14,1 %** (glej sliko 11 in indekse v preglednici 1).

Slika 10: Vipavsko gričevje – tipi rabe zemljišč leta 2020, kjer so bili še leta 2002 vinogradi (raba zemljišč opuščenih vinogradov, skupaj 466,5 ha) in zavarovana območja Nature 2000.
Glej angleški del prispevka.

Slika 11: Vipavsko gričevje – spremembe vinogradov 2002–2020 (opuščeni: 466,5 ha, novi: 313,2 ha, stalni oziroma ohranjeni: 623,2 ha) in njihov položaj glede na zavarovana območja Nature 2000.
Glej angleški del prispevka.

Glede na ekspozicijo opažamo v obdobju 2002–2020 najmanjši upad zemljišč z vinogradi v vzhodnih in severovzhodnih legah. Glede na prst so se zemljišča vinogradov daleč najbolj, kar 25-krat, povečala na evtričnih rjavih prsteh na starejšem ilovnatem aluviju, kjer so bile v preteklosti njive.

Spremembe ostalih rab zemljišč kažejo indeksi 2020/2002 (preglednica 1). Najbolj so upadla orna zemljišča. Njiv je bilo leta 2020 le 5,7 %, tj. 263,6 ha ali 40 % manj kot leta 2002. Poleg opuščanja ornih zemljišč je vzrok predvsem selitev vinogradov proti dnu Vipavske doline, kjer so izpodrinili njive. Zmanjšala so se tudi zemljišča s travišči, in sicer za 143,7 ha (11 %). Zemljišča z ostalimi rabami so se povečala – relativno najbolj sadovnjaki (za 91,8 ha ali 80 %), še posebej pa oljčniki. Teh leta 2002 skoraj še ni bilo, v letu 2020 pa so prekrivali 21,2 ha.

Gozd poraša 49 % Vipavskega gričevja. Prevladuje v osojnih in strmih legah. Povprečni naklon gozdnih zemljišč je 43,8 %. Od leta 2002 so se gozdna zemljišča povečala za 71,5 ha (2 %). Gozd je že pred opazovanim obdobjem prerasel obsežna terasirana zemljišča. Številne terase so tako izgubile prvotno funkcijo, v procesu zaraščanja pa je bilo leta 2020 še 4,1 % teras. Tukajšnji gozd sicer nima večjega gospodarskega pomena, a nudi ekosistemske storitve, na primer oskrbo z gozdnimi sadeži, lesno biomaso (drvmi) in vinogradniškimi koli ter omogoča rekreacijo. Na zelo strmih območjih ima protierozijsko, varovalno vlogo, sicer pa daje zavetje živalim in prispeva k mozaični strukturi pokrajine.

Zemljišč v zaraščanju je bilo leta 2020 146 ha (2,1 %), kar je v celotni regiji 3,7-krat več kot leta 2002 (39,4 ha). Zaraščala so se predvsem od naselij bolj oddaljena, višja, slabo dostopna, bolj strma in sušna območja oziroma območja s plitvimi prstmi, pa tudi zemljišča s problematičnim lastništvom (starost, neurejeno lastništvo, številni lastniki).

Primerjava rabe zemljišč v letih 2002 in 2020 kaže velik upad vinogradov predvsem na skrajnih severozahodnem in jugovzhodnem delu Vipavskega gričevja. Največ opuščenih vinogradov je v naseljih Spodnja Branica, Preserje, Branik, Brje in Podraga, kjer skoraj ne opažamo urejanja novih vinogradov. Poleg tega so opuščeni vinogradi tudi v Ložah, na Slapu, Planini, v Šmarjah in Gabrjah, kjer v nasprotju s prej omenjenimi naselji beležimo tudi nove vinograde ter gre ponekod morda za selitev vinogradov iz višje ležečih in bolj strmih v nižje ležeča območja, kjer je obdelava lažja.

V Vipavskem gričevju sta močno prisotna ozelenjevanje in celo zaraščanje vinogradov. V obdobju 2002–2020 je bilo opuščenih 14 % vinogradov, izgubljenih 40 % ornih zemljišč in 11 % travišč (preglednica 1: indeks 2020/2002). Podrobnejše podatke po naseljih Vipavskega gričevja smo prikazali v: Topole, Šmid Hribar in Pipan (2022, 26–27).

V povezavi s tem je zanimivo naselje Šmarje v ajdovski občini, kjer kljub drastičnemu upadu kmetijske dejavnosti nastajajo novi vinogradi. Po terenskem ogledu smo ugotovili, da v Šmarjah nove vinograde urejajo tujci (dva Italijana in Slovenec iz osrednje Slovenije). Po pripovedovanju domačina kupujejo zemljišča, ki imajo v naselju najugodnejše lege za kmetijstvo. Med njimi je eden zasadil večji vinograd, na katerem vsa strojna dela opravi domačin, obrano grozdje pa lastnik odpelje v Italijo. Takšen razvoj je zaskrbljujoč, saj zemljišča spadajo med naravne vire, s katerimi je treba skrbno ravnati. To je še posebej sporno, če vinograde urejajo na nekdanjih nižje ležečih travnikih. Tako zmanjkuje travnikov za živinorejo, hkrati pa se višje, za vinograde najprimernejše lege zaraščajo.

3.3. Vinogradi in Natura 2000

Zaradi dobro ohranjene narave je Vipavsko gričevje vključeno v dve območji Natura 2000: Natura 2000 – habitat živalskih vrst in Natura 2000 – habitatni tipi (ilirski hrastovo-belogabrovi gozdovi (*Erythronio-carpinion*), sestoji navadnega brina na suhih traviščih na karbonatni podlagi (*Juniperus communis*), skalna travišča na bazični podlagi (*Alysso-Sedion albi*) in zahodna submediteranska suha travišča (*Scorzoneratalia villosae*)). Natura 2000 skupaj zavzema skoraj polovico (46,1 %) Vipavskega gričevja. Podrobna GIS analiza je pokazala, da se tretjina vseh vinogradov (32,8 %) prekriva z območji Natura 2000. Leta 2004, ko je bila ta razglašena, je bilo pod njenimi različnimi tipi 280,5 ha vinogradov (podatek o ekoloških za to leto še ni znan), leta 2020 pa je bilo znotraj območja Nature 2000 275 ha konvencionalnih in 30,9 ha ekoloških vinogradov (slika 6). Vinograde oziroma spremembe vinogradov v obdobju 2002–2020 v odnosu do Nature 2000 kažejo slike 6, 8, 10 in 11. Natura 2000 po naseljih ni razporejena enakomerno; več zavarovanih zemljišč je v osrednjem delu gričevja, južno od razvodnice med Vipavo in Branico in na vzhodu.

3.4 Ukrepi za ohranjanje vinogradniške pokrajine

Na podlagi pokrajinske analize, analize spremembe rabe zemljišč v obdobju 2002–2020, organizacije treh participativnih fokusnih skupin in kabinetnega dela smo oblikovali pet kratkoročnih (1–2 leti),

pet srednjeročnih (3–5 let) in štiri dolgoročne (6–10 let) ukrepe, katerih namen je prispevati k ohranjanju in razvoju vinogradniške pokrajine Vipavskega gričevja. Ukrepi so predstavljeni v preglednici 2. Poleg kratkega opisa ukrepov so navedeni deležniki, ključni za njihovo izvedbo. Dodan je tudi pomislek o izvedljivosti ukrepa. Kot je razvidno, so ključni deležniki za ohranjanje vinogradniške pokrajine Vipavskega gričevja vinogradniki, lastniki zemljišč, občine, ki morajo poskrbeti za ustrezen pravni okvir, kmetijsko-gozdarski zavod za pomoč pri vzpostavitvi novih vinogradov ter nenazadnje raziskovalci in strokovnjaki za pripravo ustreznih podatkov.

4 Razprava

Rezultati raziskave so za zadnji dve desetletji pokazali značilen proces selitve vinogradov v ravnino in intenzifikacijo vinogradništva, medtem ko v višjih legah gričevja izstopa problem opuščanja vinogradov in njihovo zaraščanje.

Evropska unija ima cilj do leta 2030 v ekološki način obdelave vključiti 25 % vseh svojih kmetijskih zemljišč. Nekatere države (Avstrija, Estonija in Švedska) so imele leta 2021 že več kot 20 % takšnih zemljišč (Agricultural … 2023), Slovenija pa ima v tem pogledu še precej priložnosti za napredovanje. V ekološki obdelavi je tedaj imela nekaj več kot 10 % kmetijskih zemljišč, v primeru vinogradov le 5 %. Vipavsko gričevje je med njenimi obetavnejšimi območji, saj je bilo v ekološko pridelavo grozdja vključenih že 9 % vinogradov. Ekološki vinogradi so v Vipavskem gričevju tudi najbolj racionalni način rabe zemljišč v območjih, ki se zaraščajo. Zaraščajo se namreč lege, ki so primerne predvsem za vinograde, kvečjemu še za oljčnike in sadno drevje.

Vzroki za opuščanje vinogradov pa niso le v manj ugodnih naravnih razmerah, slabši dostopnosti, težavni obdelavi, temveč tudi v staranju prebivalstva, neurejenem lastništvu vinogradov in v velikem številu lastnikov. Starejši se neradi odločajo za prehod v ekološko kmetovanje, saj zahteva več ročnega dela in nova znanja, v kar pa ti niso več pripravljeni veliko vlagati. Težko se odločajo za prodajo zemljišč ali prepustitev vinogradov mlajši generaciji. Visoka starost prevzemnikov kmetij pomeni manjšo prilagodljivost ter oviro za uvajanje in izvedbo ključnih inovacij. Zato bi bilo treba krepiti spodbude za prenos kmetij na mlajšo generacijo, ki je bolj fleksibilna, učljiva in naklonjena inovacijam in ekološkemu načinu pridelave grozdja. Mladi odhajajo tudi zaradi podcenjenosti delovne sile v kmetijstvu in ker najdejo lažji zaslužek v drugih gospodarskih panogah.

Problemi gričevja so povezani tudi z nekdanjo Kmetijsko zadrugo Vipava oziroma največjo vipavsko vinsko kletjo Agroind, s spreminjanjem njenega lastništva, ukinitvijo odkupnega mesta oziroma njene izpostave v Braniku in nizkimi odkupnimi cenami grozdja. Grozdje je zdaj treba dostaviti v Vipavo. Odkupne cene so bile jeseni 2021 v povprečju 30 do 40 centov, v primeru strojnega obiranja celo le 25 centov za kilogram. Če dodamo še stroške prevoza iz severozahodnega dela Vipavskega gričevja do Vipave, se marsikomu pridelava grozdja ekonomsko ne izplača. Pogosto je kriva tudi premajhna ozaveščenost kmetov o pomenu kakovostne pridelave grozdja, s čimer so povezane tudi prenizke odkupne cene.

S pridelavo grozdja se ukvarjajo predvsem večji vinogradniki, ki vino pridelujejo in prodajajo sami.

Vinogradi so razdrobljeni (povprečna velikost je le 0,5 ha), poleg težav z najemom in nakupom primernih in dovolj obsežnih, strnjenih zemljišč, je težavno in dolgotrajno tudi pridobivanje soglasij za spremembo namembnosti. Že v treh letih po opustitvi obdelave se vinograd začne zaraščati, sledi prekategorizacija zemljišča iz zaraščajočega v gozdno. Tako zemljišče je za kmetijsko rabo najpogosteje za vedno izgubljeno. Pot nazaj oziroma obnavljanje nekdanjih vinogradov je povezano z izjemnimi stroški in časovnimi izgubami. Potrebna je izredna vztrajnost pri pridobivanju dovoljenj, saj obstajajo številne težko premostljive ovire: občinski prostorski načrti se redko prenavljajo, gozdarji dovoljujejo naenkrat le krčenje do 0,5 ha velikih sklenjenih zemljišč, četudi je na določenem mestu v preteklosti vinograd že obstajal.

Preglednica 2: Ukrepi za ohranjanje in razvoj vinogradniške pokrajine Vipavskega gričevja.

ukrep	čas izvedbe	dejavnost	deležniki	ovire / tveganja
ukrep 1 oživitev že obstoječega Vinarskega muzeja Vipava	kratkoročno	Vinarski muzej lahko prispeva h krepitvi prepoznavnosti in konkurenčne prednosti vinskega okoliša Vipavske doline v Sloveniji, ki ima bogato zgodovino in tradicijo, temelječi na izjemnih naravnih danostih. Za oživitev muzeja predlagamo: • povečati dostopnost muzeja za obiskovalce (vsak dan več ur dnevno), • okrepiti promocijo muzeja (na primer prek vinotek, turističnih agencij), • ponuditi predstavitve oziroma vodenja v različnih jezikih, • vključiti muzej v vinsko cesto.	Goriški muzej Nova Gorica	zagotovitev sredstev
ukrep 2 ažuren pregled nad stanjem zaraščanja vinogradniških zemljišč: • seznam interesentov za najem/nakup vinogradniških zemljišč in • spremljanje stanja	kratkoročno	Priprava GIS podatkov in vodenje evidenc: • nekdanji vinogradi, leta 2020 evidentirani kot zemljišča v zaraščanju, • vinogradi iz leta 2002, ki so se do leta 2020 preobrazili v novo rabo zemljišča, • preverjanje identificiranih zemljišč na terenu, evidentiranje njihove trenutne rabe, podatek o lastniku, • obvestilo lastniku o stanju zemljišča in seznanitev z možnimi ukrepi (kmetijska obdelava, oddaja v najem, višja obdavčitev v primeru zaraščanja), • vzporedno občina vodi seznam vinogradnikov, iskalcev vinogradov oziroma za vinograde primernih zemljišč za nakup ali najem.	• raziskovalci/strokovnjaki za pripravo GIS podatkov o vinogradnih, • občine, na katerih so zemljišča v zaraščanju (Vipava, Ajdovščina, Komen in Nova Gorica), • vinogradniki, zainteresirani za najem/nakup vinogradniških zemljišč, • vinogradniki, zainteresirani za oddajo/prodajo vinogradniških zemljišč	• zagotovitev sredstev, • angažiranje ustreznih institucij za izvedbo terenskega ogleda in komunikacijo z lastniki vinogradniških zemljišč v zaraščanju in potencialnimi najemniki

ukrep	čas izvedbe	dejavnost	deležniki	ovire / tveganja
ukrep 3 usposabljanje deležnikov za trajnostno upravljanje kmetij in izvajanje agroekoloških praks	kratkoročno	Za večjo prilagodljivost družbe in ekosistemov na podnebne spremembe, večjo odpornost proti eroziji, za trajnostne kmetijske in prehranske sisteme ter ekonomsko preživetje kmetij je potrebno: • poglabljanje znanja o agroekoloških praksah, • krepitev in širjenje marsikje še živih tradicionalnih praks, kot so: mešane zasaditve, ročna žetev, mehansko zatiranje plevelov, zatiranje plevelov s sežiganjem, delna in popolna ozelenjenost medvrstnih prostorov, zastiranje z različnimi materiali, občasno namakanje, medvrstni posevki, mulčenje rožja, zeleno gnojenje z različnimi rastlinami, vnos organskega gnoja, priprava in uporaba komposta, tudi kompostiranje tropin, prisotnost čebelnjakov in ptičjih gnezdilnic (Best … 2020).	• vinogradniki oziroma kmetje, • Kmetijsko gozdarski zavod Nova Gorica, • Fakulteta za vinogradništvo in vinarstvo, Univerza v Novi Gorici	premalo interesa med vinogradniki/kmeti
ukrep 4 oblikovanje ekoregije in znamčenje	kratkoročno	Glede na izjemne naravne razmere v gričevju, ki so ugodne za uvajanje ekološkega kmetovanja in glede na obljubljene spodbude s strani Evropske unije in Slovenije, je smiselno začeti postopek zagona ekološke regije in oblikovanje blagovne znamke (Logar 2022a; 2022b). Leta 2014 ustanovljena Mednarodna mreža ekoregij IN.N.E.R. (*International Network of Eco Regions*) je izdala smernice oziroma Listino v podporo novim ekološkim območjem (Charter … 2021).	• oddelki za gospodarstvo občin Vipava, Ajdovščina, Komen in Nova Gorica, • Regijska razvojna agencija ROD Ajdovščina in Regijska razvojna agencija Severne Primorske d.o.o. Nova Gorica, • Turistične organizacije, • vinogradniki, sadjarji, oljkarji, • raziskovalne ustanove	premalo interesa med vinogradniki/kmeti

ukrep	čas izvedbe	dejavnost	deležniki	ovire / tveganja
ukrep 5 krajša predavanja in pogovori nekajkrat letno o konkretnih primerih Nature 2000 v Vipavskem gričevju	kratkoročno	Krajši dogodki s predstavitvijo Nature 2000 v Vipavskem gričevju, na katerih bi se prebivalci podrobneje seznanili z Naturo 2000, stanjem (ohranjenostjo) tamkajšnjih habitatnih tipov in vrst, z dobrimi praksami s področja ohranjanja Nature 2000 in vinogradništva ter z izzivi, s katerimi se soočajo. Aktivnost naj skupaj izvajajo kmetijski svetovalci, ki spremljajo in poznajo stanje s kmetijskega in z okoljevarstvenega vidika, in naravovarstveniki (Zavod Republike Slovenije za varstvo narave), ki kompetentno predstavljajo vsebine s področja varovanja narave in Nature 2000. Boljše poznavanje Nature 2000 naj bi vplivalo na ohranjanje kmetijskih praks na teh območjih in na upadanje zaraščanja zemljišč pod Naturo 2000.	• Zavod Republike Slovenije za varstvo narave, OE Nova Gorica, • Kmetijsko gozdarski zavod Nova Gorica, • občine z zemljišči v Vipavskem gričevju (Vipava, Ajdovščina, Komen in Nova Gorica)	• uskladitev terminov za dogodke s strani Zavoda Republike Slovenije za varstvo narave, Kmetijsko gozdarskega zavoda Nova Gorica in udeleženih občin, • zagotovitev obiska domačinov na dogodkih in moderiranje dogodkov
ukrep 6 revitalizacija vinske ceste	srednjeročno	Vinske ceste, speljane prek Vipavskega gričevja konec 20. stoletja za namene promocije prodaje vina in spodbujanje dejavnosti, povezanih z vinogradništvom, so poleg ponudnikov vina in kulinarike povezale naravne in kulturne znamenitosti gričevja. Treba bi bilo: • očistiti posamezne odseke poti in bolje povezati kraje med seboj oziroma urediti povezovalne poti, • izdelati zemljevid vinske ceste (označiti lokacije vinogradniških kmetij, kmetij z drugo ponudbo, lokacije naravnih in kulturnih vrednot, zaščitenih območij, razgledišč, virov pitne vode, središč osnovne oskrbe in prenočišč), • prevetriti pogoje za vključitev zainteresiranih vinogradnikov in ponudnikov vina, • vključiti doslej izvzeta območja, • okrepiti promocijo vinske ceste, • ustrezno vzdrževati infrastrukturo.	• oddelki za gospodarstvo občin Vipava, Ajdovščina, Komen in Nova Gorica, • Regijska razvojna agencija ROD Ajdovščina in Regijska razvojna agencija Severne Primorske d.o.o. Nova Gorica, • turistične organizacije, • vinogradniki/kmetje	premalo interesa na strani občin in drugih deležnikov

ukrep	čas izvedbe	dejavnost	deležniki	ovire / tveganja
ukrep 7 okrepitev vloge vinske zadruge oziroma sodelovanja kmetov	srednjeročno	Kmetijska zadruga Vipava je bila ustanovljena že leta 1894, in sicer z namenom pomagati kmetom pri prodaji pridelka (grozdja, sadja, mleka in mesa). Po prisilni prodaji večinskega deleža v podjetju Agroind Vipava leta 2014 je zadruga manj učinkovita. To se kaže tudi v opuščanju razdrobljenih vinogradov v severozahodnem delu gričevja, ki je najbolj oddaljen od odkupne postaje Vinske kleti Vipava 1894, ki je zdaj v lasti tujca. Položaj bi se izboljšal ob krepitvi vloge zadruge, sodelovanja vinogradnikov oziroma kmetov in izgradnjo skupne mreže, z usmerjanjem v trajnostno kmetovanje in s skupno promocijo.	vinogradniki/kmetje	• premalo interesa med kmeti, • problem organizacije oziroma vodenja
ukrep 8 ustanovitev specializirane službe za pomoč pri oddaji/prodaji zemljišč, zlasti v primeru številnih lastnikov	srednjeročno	Pravna in organizacijska pomoč občinskih ali medobčinskih služb pri oddaji/prodaji ustreznih zemljišč zainteresiranim vinogradnikom. Nekatera vinogradniška zemljišča se namreč zaraščajo, ker so v solastništvu številnih dedičev, ki se ne uspejo dogovoriti o prodaji/oddaji v najem, ali pa so v tujini in se ne zanimajo več za svojo lastnino.	občine in upravne enote, na katerih so zemljišča v zaraščanju (UE Vipava, Ajdovščina, Komen in Nova Gorica)	premalo interesa na strani občin za vzpostavitev takšne službe.

ukrep	čas izvedbe	dejavnost	deležniki	ovire / tveganja
ukrep 9 program trženja Vipavskega gričevja kot območja Natura 2000	srednjeročno	Visok delež območja, zavarovanega z Naturo 2000, daje Vipavskemu gričevju pomemben pečat. Bolj kot oviro ga je treba razumeti kot prednost ter poudariti v turistični ponudbi in promociji proizvodov s tega območja. V ta namen je srednjeročno treba pripraviti program, kako Naturo 2000 vključiti v program trženja vse od prodaje vin do trženja destinacije Vipavskega gričevja.	• Zavod Republike Slovenije za varstvo narave, OE Nova Gorica, • občine, z zemljišči na Vipavskem gričevju (Vipava, Ajdovščina, Komen in Nova Gorica), • lastniki vinskih kleti in prenočitvenih zmogljivosti, • Regijska razvojna agencija ROD Ajdovščina in Regijska razvojna agencija Severne Primorske d.o.o. Nova Gorica, • Kmetijsko gozdarski zavod Nova Gorica	Premalo interesa na strani lastnikov zemljišč in občin. Tveganje je lahko tudi bojazen s strani Zavoda Republike Slovenije za varstvo narave pred preveliko promocijo Nature 2000. Verjetno bo treba pretehtati, katera območja je smiselno bolj odkriti, katera pustiti bolj zakrita.
ukrep 10 sprememba občinskega prostorskega načrta in podelitev dovoljenj za postopno vzpostavitev novih vinogradov na območju nekdanjih vinogradov	srednjeročno	V primeru interesa za ureditev novih vinogradov je treba tovrstne aktivnosti spodbujati tudi na formalni ravni, tako da se v občinskem prostorskem načrtu jasno označi, na katerih nekdanjih vinogradniških zemljiščih, ki jih zdaj prerašča gozd, se dovoli obnovitev vinogradov. Za ta namen bi bilo treba ovrednotiti zemljišča z vidika primernosti za vinograde (primer metodologije v: Topole 1998, 122–126).	• občine, z zemljišči v Vipavskem gričevju (Vipava, Ajdovščina, Komen in Nova Gorica), • Zavod za gozdove Slovenije, • lastniki vinogradov; • kartograf (priprava zemljevida Spremembe rabe zemljišč 1825–2022 z označenimi nekdanjimi vinogradi), • raziskovalna ustanova	premalo interesa za izvedbo ukrepa na strani občin in Zavoda za gozdove Slovenije

ukrep	čas izvedbe	dejavnost	deležniki	ovire / tveganja
ukrep 11 vzpostavitev novih vinogradov na zemljiščih nekdanjih opuščenih vinogradov	dolgoročno	Obnovitev vinogradov na zemljiščih opuščenih vinogradov oziroma vinogradniških zemljiščih v zaraščanju ali pod gozdom.	• lastniki opuščenih vinogradov oziroma vinogradniških zemljišč v zaraščanju ali pod gozdom, • vinogradniki, zainteresirani za najem/nakup zemljišč z opuščenimi vinogradi oziroma zemljišči v zaraščanju ali pod gozdom ter za obnovo nekdanjih ali vzpostavitev novih vinogradov, • Kmetijsko gozdarski zavod Nova Gorica (pomoč pri načrtovanju novih vinogradov)	Neizveden oziroma neustrezno izveden občinski prostorski načrt, ki vinogradnikom ne dovoljuje ureditve novih vinogradov na nekdanjih vinogradniških zemljiščih v zaraščanju ali pod gozdom.
ukrep 12 uvedba neposrednih kmetijskih spodbud/plačil za obdelavo na terasah	dolgoročno	Kot v primerih območij z omejenimi možnostmi (OMD) bi bilo treba uvesti tudi plačila za obdelavo vinogradov na terasah in na pobočjih z večjimi nakloni. Takšna območja zahtevajo večje finančne vložke kot obdelava vinogradov na ravnini. Po drugi strani so prav tovrstna kmetijska zemljišča najprimernejša za vinograde (tudi za sadovnjake in oljčnike), saj so na višjih legah, ki so manj primerne za pridelavo povrtnin. Ravna zemljišča v dnu doline bi bilo smiselno ohraniti za njive.	• Ministrstvo za kmetijstvo, gozdarstvo in prehrano, • Kmetijsko gozdarski zavod Nova Gorica, • vinogradniki	premalo interesa na strani Ministrstva za kmetijstvo, gozdarstvo in prehrano

ukrep	čas izvedbe	dejavnost	deležniki	ovire / tveganja
ukrep 13 plačila za obdelavo vinogradov v višjih in strmih legah (med 100 in 350 m) in na območjih Nature 2000	dolgoročno	Za ekološke vinograde in zdravo dozorevanje grozdja so ugodnejše višje, prevetrene, osončene in nagnjene lege. Nižinske lege so sicer lahko dostopne za mehanizacijo in lažje za obdelavo, vendar zaradi oglejenosti, večje vlažnosti in nevarnosti zaradi bolezni, škodljivcev in pozebe zahtevajo večji vnos gnojil in zaščitnih fitofarmacevtskih sredstev. Po drugi strani so ta zemljišča izgubljena za gojenje žit in povrtnine. Predlagamo subvencije, ki bodo pripomogle k ohranjanju tradicionalne vinogradniške pokrajine, in sicer za: • vinograde v območjih Nature 2000 in • vinograde z večjimi nadmorskimi višinami in nakloni, ki zahtevajo terasiranje, ohranjanje in vzdrževanje teras, več ročnega dela, ker so težje dostopni z mehanizacijo, a so bolj trajnostno naravnani in imajo manj škodljivih učinkov na okolje (Šmid Hribar in sod. 2017; Topole 2020). Le tako prihaja do izraza svojstvena kamninska podlaga, ki omogoča pridelavo kakovostnih avtohtonih vin.	• Ministrstvo za kmetijstvo, gozdarstvo in prehrano, • Zavod Republike Slovenije za varstvo narave, OE Nova Gorica, • Kmetijsko gozdarski zavod Nova Gorica, • vinogradniki	premalo interesa na strani Ministrstva za kmetijstvo, gozdarstvo in prehrano
ukrep 14 povečati zastopanost lokalnih sort vinske trte	dolgoročno	Ker so lokalne sorte vinske trte manj občutljive v razmerah spreminjanja podnebja, je treba stremeti k povečanju deleža njihove prisotnosti (danes je njihov delež v Vipavski dolini ocenjen na več kot 35 %) (Škvarč 2023).	• Kmetijsko gozdarski zavod Nova Gorica, • Trsnica Vrhpolje	premalo interesa s strani vinogradnikov

Zaraščanje ni neugodno le zaradi izgube rodovitnih zemljišč, temveč se tako povečuje tudi življenjski prostor divjadi. S širjenjem stihijskega zaraščanja, ki ne vodi v kakovostni gozd, divjad prihaja vse bližje še ohranjenim vinogradom in povzroča škodo vinogradnikom.

Omejitve določa tudi Evropska unija s predpisovanjem letnih kvot dovoljenih novih vinogradov za posamezno državo, obstajajo pa tudi omejitve s strani Nature 2000 oziroma naravovarstvenikov. Poleg naštetega otežuje razvoj neorganiziranost in nepovezanost vinogradnikov ter celo občin Vipavske doline.

Skladno s temi ugotovitvami se bo opuščanje kulturne pokrajine v prihodnje še nadaljevalo.

Problematično pa ni le opuščanje vinogradov, temveč tudi njihova selitev proti dnu Vipavske doline in intenzifikacija vinogradništva. Zgodili sta se prav v preučevanem obdobju 2002–2020. 85,7 ha ali 9,2 % vinogradov je leta 2020 zasedalo zemljišča, kjer so bile še leta 2002 njive. Novi vinogradi na manj nagnjenih tleh so sicer lahko dostopni za mehanizacijo in lažji za obdelavo, vendar tam prsti zaradi oglejenosti potrebujejo veliko večji vnos mineralnih in drugih gnojil. Zaradi pogostejše megle, manjše osončenosti in večje izpostavljenosti zmrzali pa so vinogradi v dnu doline tudi bolj izpostavljeni boleznim in škodljivcem, kar zahteva veliko večji vnos fitofarmacevtskih sredstev. To pomeni, da je območje primerno za intenzivno obdelavo, ne pa za uvajanje ekološkega vinogradništva. Po drugi strani so ta zemljišča izgubljena kot orna zemljišča oziroma za pridelavo žit in povrtnin, pred čimer je svaril že Vertovec v svojem priročniku iz leta 1844 (Vertovec 2015). Hkrati to vodi v zaraščanje višje ležečih nagnjenih območij, na katerih je težko ali celo nemogoče gojiti druge kulturne rastline, razen vinske trte, sadnega drevja in oljk. To je z vidika naravovarstva sicer lahko zaželeno, a ni vedno pozitivno, ker tako običajno izgubljamo biotsko raznovrstnost. Zato so nujni ukrepi za preprečevanje zaraščanja, ki smo jih nanizali v poglavju 3.4.

Vključenost Vipavskega gričevja v Naturo 2000 sicer prinaša določene omejitve v gospodarjenju, po drugi strani pa tudi prednosti, saj kaže na visoko stopnjo naravnosti območja. V pogovorih z deležniki se je izkazalo, da so območja Nature 2000 v Vipavskem gričevju slabo poznana. Mnogi vinogradniki ne vedo, ali so njihovi vinogradi na območjih Natura 2000 ali ne. V okviru te študije smo pripravili zemljevide vinogradov in območij Nature 2000 ter organizirali predavanje o območjih Nature 2000 v Vipavskem gričevju, vendar bo za boljše poznavanje Nature 2000 potrebno še več takšnih dogodkov. Deležniki, predvsem lastniki zemljišč, si želijo več pogovorov in iskanja sinergij z gospodarjenjem na območjih Nature 2000. Tu je še zlasti pomembno obnavljanje nekdanjih in urejanje novih vinogradov na zaraščajočih zemljiščih, ki so hkrati zavarovani v sklopu Nature 2000. Treba je ustaviti zaraščanje, ki praviloma vodi v siromašenje biotske raznovrstnosti. Vsekakor bo treba veliko pozornosti nameniti ozaveščanju in plodnemu dialogu med kmeti, vinogradniki in naravovarstveniki, da bi hkrati ohranili naravo in vinograde. Najslabši scenarij za območje Nature 2000 in vinogradniško kulturno pokrajino bi bila izguba vinogradov, ki bi se zarasli in prešli v gozdove slabše kakovosti.

Med domačini in drugimi deležniki bi morali nujno krepiti prepoznavnost Nature 2000 in jo kot naravovarstveno znamko vključiti v program trženja. Ne prihaja vsako vino s tako naravnega območja, kot je Vipavsko gričevje. Poudariti je treba, da je prednost Vipavskega gričevja prav v obsegu dvignjenih vinogradniških leg z idealno kombinacijo mikroklimatskih, kamninskih in pedoloških lastnosti, ki omogočajo pridelavo vrhunskih (*single vineyard*) vin (Klemenčič 2020). Na tem bi morala temeljiti promocija vinogradniške pokrajine Vipavskega gričevja. Izkoristiti bi bilo treba idealne razmere v regiji in se podati v čimprejšnje oblikovanje ekoregije in blagovne znamke, kar prav od tega leta dalje spodbujata tako Evropska unija kot Slovenija. Na fokusnih skupinah se je izkazalo, da želijo številni vipavski vinogradniki izkoristiti naravne prednosti svojega območja in vztrajati oziroma se na novo usmeriti v ekološki način obdelave ter tako prispevati k zagotavljanju javnih dobrin, ohranjanju kulturne kmetijske pokrajine in varovanju celotnega okolja (Ekološka … 2023).

5 Sklep

Na podlagi pokrajinske analize, analize sprememb rabe zemljišč in treh participativnih fokusnih skupin smo predlagali 14 kratkoročnih, srednjeročnih in dolgoročnih dejavnosti (ukrepov), ki naj bi v naslednjih 10 letih prispevale k ohranjanju vinogradniške kulturne pokrajine in Nature 2000 v Vipavskem gričevju. Največ truda in aktivnosti bo treba usmeriti v preprečevanje zaraščanja, saj delež vinogradov, četudi se urejajo novi, upada. Čeprav za urejanje problematike, povezane z divjadjo, nismo posebej oblikovali aktivnosti, izpostavljamo, da bo treba začeti učinkovito upravljati tudi s povečano populacijo divjadi. Vinogradniška pokrajina Vipavskega gričevja izkazuje visoko stopnjo naravnosti in nudi habitate različnim živalskim vrstam, med drugim tudi divjadi, ki pa pogosto povzroča škodo v vinogradih. To je tesno povezno z že omenjenim zaraščanjem. Zaradi zaraščanja se povečuje število divjadi, škoda, ki jo povzroča divjad, pa še dodatno vodi v opuščanje vinogradov v bližini zaraščajočih zemljišč. Pri iskanju krhkega ravnovesja bo potrebno sodelovanje različnih deležnikov. Ključno vlogo bodo morali zavzeti upravljavci lovišč, gozdarji in Ministrstvo za kmetijstvo, gozdarstvo in prehrano.

Precej pozornosti bo treba posvetiti ozaveščanju in prepoznavanju vrednosti območij Nature 2000. S številnimi javnimi razpravami in predstavitvami je treba zavarovana območja prepoznati in obravnavati kot prednost in ne kot oviro. Nenazadnje je mozaična vinogradniška pokrajina z visoko stopnjo naravnosti privlačna za obiskovalce, zato bi del aktivnosti morali usmeriti tudi v povezovanje vinogradništva, turizma in gostinstva.

Zahvala: Zahvaljujemo se Interreg projektu ECOVINEGOALS – Upravljanje in dejavnosti v ekoloških vinogradih kot podlaga za pripravo pokrajinskih strategij, Javni agenciji za znanstvenoraziskovalno in inovacijsko dejavnost Republike Slovenije za finančno podporo raziskovalnim programom Geografija Slovenije (P6-0101), Dediščina na obrobjih: novi pogledi na dediščino in identiteto znotraj in onkraj nacionalnega (P5-0408) in Opazovanje Zemlje in geoinformatika (P2-0406). Za angleški prevod se zahvaljujemo Saši Požek.

6 Viri in literatura

Glej angleški del prispevka.