

# Population Structure in the Island of Ugljan – Demographic Processes and Marital Migration

Ana Malnar

Institute for Anthropological Research, Zagreb, Croatia

## ABSTRACT

*This research on the basic demographic processes and marital migrations of the population on Ugljan Island in the period from 1857 to 2001 was conducted within the context of the long-term anthropological research of the population structure of Croatia's islands. The analysis was based on the study of the origin of 5 244 married couples from Preko, Kali, Kukljica, Lukoran and Ugljan and carried out using data preserved in the old Registers of Marriages. The results show a high level of endogamy and reproductive isolation of the population in all the villages and they also confirm the importance of using historical and demographic sources for researching the shaping of population structures.*

**Key words:** island of Ugljan, population structure, demographic processes, marital migration

## Introduction

Settlement models of Croatia's islands can be traced from the oldest historical ages, beginning with the high Paleolithic and Neolithic cultures, to the present day. There is abundant historiographical material and numerous sources have been preserved about the population, which simplifies and improves the quality of holistic anthropological research. This type of research, which has been carried out by researchers at the Institute for Anthropological Research for decades, traces evidence that explains trends in the biological and cultural evolution of populations on Dalmatian islands and the specific qualities of their micro-evolutionary paths<sup>1–15</sup>. The population structure of this area today is a result of many known and unknown natural and socio-cultural factors and this research is an example of how population structure can successfully be studied in various ways and at various levels. It must be emphasized that these are small and relatively isolated communities both connected to and separated from the mainland population by the sea and it is precisely these characteristics that make these communities suitable models for anthropologists specialising in diverse fields. The populations on Croatia's islands were capable of accepting and absorbing external influences and at the same time of adapting them to their local, ecological, economic and cultural living conditions. This enabled them to become an important and active part of the Mediterranean world.

This paper investigates the population structure of Ugljan Island by demographic research. It makes use of data on marital migrations from the Registers of Marriages for the villages of Preko, Kali, Kukljica, Lukoran and Ugljan dating from 1858 to 2001. The data was collected during fieldwork performed by the author of this article in the summer of 2008, at the Registrar's Office in Preko on the island of Ugljan.

## The Basic Geographical and Natural Characteristics of Ugljan Island

Dalmatia is a historical and geographical region in the south Croatian Adriatic area, which comprises 11 770 square metres spanning from the Croatian Littoral in the north-west to the border with Montenegro in the south-east. The Dinara – Kamešnica – Zavelin mountain region stretches along the mainland and at the same time functions as the border with Bosnia and Herzegovina<sup>16</sup>. According to its natural and geographical characteristics, Dalmatia consists of a string of islands, a coastal area and an inland (Zagora) area, and it encompasses all of Croatia's islands, except for those in the Kvarner Bay. With 79 islands, 526 islets and 641 rocks and rocks awash, Croatia is the second largest archipelago in the Mediterranean<sup>17</sup>.

In this study paper, we will analyse the structural elements of the population of Ugljan, the most populated and the second largest island (after Pag) of the Zadar archipelago and the county in which, according to the 2001 census, there were 162 045 inhabitants<sup>A</sup>. The Zadar archipelago, as a northern part of North-Dalmatian islands group, comprises 15 major islands: Olib, Silba, Premuda, Ist, Škarda, Molat, Zverinac, Sestrunj, Rivanj, Dugi Otok, Ugljan, Iž, Rava, Pašman, Vrgada, 155 islets and 64 rocks<sup>18</sup>, which makes it the most numerous and the most compact group of Adriatic islands. The coast of the Zadar archipelago is extremely well-indented and is divided into two major strings of islands. The island of Ugljan belongs to the central string, i.e. to the Ugljan-Pašman group, which is further divided into the northern fragmented group, the Ugljan-Pašman group and the Dugi Otok (Long Island) group. The island is located between the Zadar coastal zone and the island of Iž, and its end coordinates are: 44° 00' 51" (Suhi vrh) to 44° 09' 52" of northern geographical latitude and 15° 03' 31" (by Plovanija) – 15° 15' 37" (the cape of Zaglav) of east geographical latitude from Greenwich<sup>19</sup>. Ugljan is 22 kilometres long and it lies north-west/south-east (i.e. in the direction of the Dinara mountain), which makes it a typical example of the Dalmatian type of coastline. The island's maximum width is 3.8 km, it has an area of 51.85 km<sup>2</sup> and it is considered a medium-sized inhabited island of the Republic of Croatia<sup>19</sup> (Figure 1). At the end of 19<sup>th</sup> century, a canal connecting the islands of Ugljan and Pašman was dug and in 1974 a bridge was built making these two islands a geographical whole, morphologically and functionally.

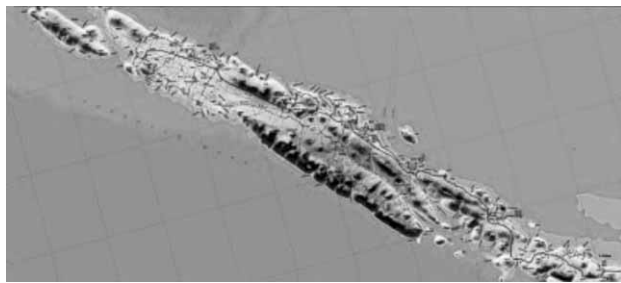


Fig. 1. The island of Ugljan.

The island's geological structure is all-carbonate, the rocks are strictly calcareous and dolomitic (approx. 2/3 of the island) and there are no flysch zones. The climate is typically characterized by summer droughts with high temperatures and fairly mild and rainy winters, due to the pronounced cyclonic activity. The physical characteristics of the sea (slow warming and cooling) result in lower temperature amplitudes between the warmest month (July) and the coolest month (January). Most of the precipitation on Ugljan Island occurs in autumn, with a peak in October and November, while in the spring and summer periods, when plants need water the most for normal growth, it is at its lowest. It should be

pointed out that the karst ground base allows water to run through and large amounts of it are lost. Nevertheless the islanders adjusted to their habitat a very long time ago by building a large quantity of water tanks<sup>19</sup>.

The major winds are the Bura (Bora) and the Jugo. The Bura is somewhat more frequent; with its physical impact it dries out the natural and cultivated vegetation, and with its mechanical force it influences its growth. It blows mostly from the north-east and brings cold, dry and clear weather. The Jugo is a slightly weaker wind that brings rain and humid weather. The climatic and vegetative features of Ugljan are markedly Mediterranean; however, the Mediterranean vegetation has been degraded and has changed with time, especially due to the devastation of the holm-oak forests. In addition to the autochthonous Mediterranean vegetation, olive trees, grape vines, citrus fruits, almond and pomegranate trees are the most widely spread species on the island.

The geomorphological structure of the island has shaped the specific social and economic character of the island, and is responsible for the development of settlements mainly on the north-east side of the island, where the coast is more suitable for habitation with its moderate slopes and numerous bays and ports. The steep slopes of south-west Ugljan have been terraced for centuries (by numerous dry stone walls) and in this way have been partly adapted for the cultivation of olives and grape vines, however they are scarcely inhabited<sup>20</sup>.

### The Settling of Ugljan Island Throughout History

By analysing the settlement processes of an area, it is possible to monitor the biological and sociocultural conditions of the development of a population and to investigate the causative and modifying mechanisms which have, directly or indirectly, affected the population structure. Historical research and information available about the past of Ugljan Island has revealed a number of interesting processes that have significantly affected the formation of the genetic, demographic, linguistic and political structure as well as the contemporary living conditions on the island. Ugljan was first mentioned in the works of Pliny the Elder, while the names of particular villages have been found in documents from the Middle Ages. Preko, Kali (the meaning probably comes from the Celtic word *cale* i.e. port) and Poljana are toponyms of Croatian origin; according to Skok<sup>38</sup>, Lukoran is derived from the Late Roman name *Lucurus*, and the name Ugljan probably also arose in ancient times. Sutomišćica was named after the church of Saint Euphemia in the Middle Ages<sup>21</sup>. Archaeological research has confirmed that Ugljan Island had already been inhabited in the Neolithic period, while the abundant tumuli and remnants of the material culture indicate a dynamic life on the whole of the Zadar archipelago during the Illyrian period, when the island was inhabited by the Liburnians<sup>22</sup>. At that time the population of the island was engaged in agriculture, cattle raising and the shipping industry.

After the Romans conquered the Croatian coast, the island underwent significant social and economic transformations. The proximity of Zadar always played a significant role in the islanders' lives, and during this period the north-west part of Ugljan even became a formal constituent of the Zadar ager. After centurization (a method of dividing arable land), cultivation of grape vines and olive trees on the island was promoted. In Muline, the remnants of a big Roman estate with an oil mill have been discovered, while the remains of the luxurious »villae rusticae« have been found in Preko, Ugljan and Lukoran. During this period the population of the island was Romanised and actively participated in the material and spiritual culture of antiquity. After the fall of the Roman Empire Dalmatia changed several rulers, and the next significant period in its history was the colonization of the Slavonic and Avar tribes at the beginning of the 7<sup>th</sup> century. The arrival of the new population meant the beginning of a new historical, political, ethnic and genetic grouping. Although the Byzantine emperor Constantine Porphyrogenet VII mentioned in his famous work »De administrando imperio« that none of the Zadar islands except Vrgada were populated<sup>23</sup>, this fact actually implies that even then the Croatian population was already dominant on the islands, that is, that the old Roman population adopted Croatian ethnic identity. With respect to the political situation, there were constant fights between the Croatian rulers and Venice, while the islanders were still engaged in agriculture and the shipping industry. The population was colonized and the land was owned mainly by the Zadar aristocracy and the church. During that period, various attempts at conquering Zadar increased the geostrategic importance of Ugljan and rendered life on the island more difficult. After Dalmatia had been sold to the Venetians at the beginning of the 13<sup>th</sup> century, a fortress was built on the site of the former Benedictine monastery of Saint Michael (St. Mihovil) in order to control Zadar better, and Preko became the Zadar military commander's headquarters and the centre of all Venetian overseas estates. Numerous reports and documents that have been preserved describe the extremely difficult living conditions for the islanders [dd1] under the Venetians. Factors that contributed to these difficult living conditions included recruiting men for the army and for work on galleys. Not only did this result in a decrease in the total number of inhabitants, but it also altered the demographic reproduction and weakened the economic vitality of the island because no one remained to cultivate the land. The following is stated in a document preserved from the middle of the 16<sup>th</sup> century: »... (the Zadar) islands have become public gardens for the Venetian galleys, because every time they run short of people, they supply themselves in such a way that these miserable islands end up almost losing their population.«<sup>24</sup>.

In all of Dalmatia the period between the 15<sup>th</sup> and 18<sup>th</sup> centuries was characterized by the Turkish expansion into south-east Europe. The first Turkish invasions into Dalmatia were documented in 1463, and the Zadar

region was already attacked by the Turks in 1471. The attacks and plundering of the population continued with different intensities throughout that period and the pronounced population shifts were their direct consequence. The population of Ravni Kotari migrated to the Zadar islands and many people migrated further, to Italy and elsewhere. New inhabitants arrived on Ugljan in several waves: in 1520, 1525, 1646 and 1658. These migrations increased the number of inhabitants abruptly and upset the existing demographic balance on the island. The new situation pointed to the limitations of the island's ecological niche and the scarcity of its natural resources. Not enough food could be produced, so famine and epidemics were frequent occurrences. Father Šimun Glavić, a Glagolitic priest, noted in 1529 that »... the famine was such that 500 people died in Lukoran and Sutomišćica during Lent only, whilst in the City it is hard to even tell the number...«<sup>21</sup>. Those were also the centuries of the big Cretan and Morean Wars (Wars of Candia and Morea), which caused further substantial demographic losses and mass emigration. This was a long period of general poverty, famine and insecurity with far-reaching consequences for the island's population structure.

Linguistic research indicates that the first settlers on Ugljan spoke the chakavian (čakavian) dialect, so there were no linguistic differences within the population, which undoubtedly made acclimatisation to and cohabitation on the island easier. In the 17<sup>th</sup> century, a new wave of refugees speaking the shtokavian (štokavian) dialect arrived on Ugljan from the Ravni Kotari hinterland. Linguistic traces of these events have been preserved to this very day. An oral tradition related to these events and of the immigration of people to Ugljan from Karin and Kruševo (by the Karin Sea) was still alive in the 1930s.

At the beginning of the 19<sup>th</sup> century, Venetian rule was replaced by Austrian rule, which, save for a short period of French reign, continued until 1918. Austria treated Dalmatia in the first place as a strategic base so the modernization processes taking place in the rest of the Monarchy were either felt poorly here or not at all. The population's income was still coming mostly from agriculture, cattle raising and the cultivation of fruits and vegetables. Villagers from Kale and Kukljica were engaged in the fishing industry, and the leading members of the shipping trade were from Sutomišćica. There were several salt pans in function on the island and men were also engaged in the transport of goods. Karaman rightly concluded that this was a period of economic stagnation that didn't bring about recovery or improvement in the life of the province<sup>27</sup>. The conditions in Dalmatia were made worse by the world crisis in the shipping industry and viticulture. While the vine pest was spreading throughout Dalmatian vineyards, Austria signed an extremely unfavourable trade agreement with Italy, which made the incursion of cheap Italian wines into the Croatian market possible. This agreement, also known as »the wine clause« gave rise to great political, economic and demographic changes. Although the agreement was

in effect for only ten years, viticulture and wine production, which was the existential base for the Dalmatian villager, were not restored. This is a period when poverty still caused famine and the predominantly agricultural land could not feed its population. The consequences of these events were mass migrations from Dalmatian islands; according to Nejašmić<sup>28</sup>, from the middle of the 19<sup>th</sup> century to the first world war, 100 000 people emigrated from Dalmatia. People from Ugljan for the most part emigrated overseas (to the USA, Australia, New Zealand, and later also to Latin America). A demographic catastrophe was prevented because the rate of natural increase was still high at the time, but the consequences of these events are visible even today.

After the fall of the Austro-Hungarian Monarchy, Ugljan became a part of the Kingdom of Serbs, Croats and Slovenes, and then of the Kingdom of Yugoslavia, while the city of Zadar became a part of Italy. The sea, which had been the link between the island and the mainland for centuries, became the state border, while Preko took over the governmental and administrative functions and became the centre of the district. The life of the islanders was aggravated by the fact that they now had to pay customs duties if they wanted to sell their products on the Zadar market. During the course of the 20<sup>th</sup> century the process of depopulation continued due to the two World Wars, pandemic of Spanish flu and Croatian Independence War.

### An Analysis of the Demographic Characteristics of the Ugljan Island Population

Ugljan Island shares the following basic characteristics of the demographic development of Croatia's islands during the last 150 years with the rest of the islands of the Zadar archipelago: long-term depopulation, an unfavourable age structure of the population and a gradual disappearance of some smaller villages on the islands.

According to the 2001 census<sup>A</sup>, Ugljan Island had a total population of 6182, while the population of the villages researched were as follows: Kali 1731, Kukljica 650, Lukoran 492, Ošljak 18, Poljana 270, Preko 1351, Sutomišćica 354 and the village of Ugljan 1316. In the second half of the 19<sup>th</sup> century, or more precisely from 1857, the year when Austria conducted its first official census of the Croatian population, fewer people lived in the Ugljan Island villages than today; then there were 4459 inhabitants<sup>28</sup>. Nowadays only Kali, Preko and Ugljan have more inhabitants than in the 19<sup>th</sup> century, while Kukljica, Lukoran, Sutomišćica and Ošljak have documented a significant fall in the total number of inhabitants in their villages. During the 19<sup>th</sup> century and up until the 1948 census, the population of all of Ugljan Island's villages steadily increased with only mild oscillations, and the total number of inhabitants of the island doubled in that period. The largest population increases were documented in Kali and Preko as can be seen clearly in figure 2 and 3. During that period, Kali reached its maximum

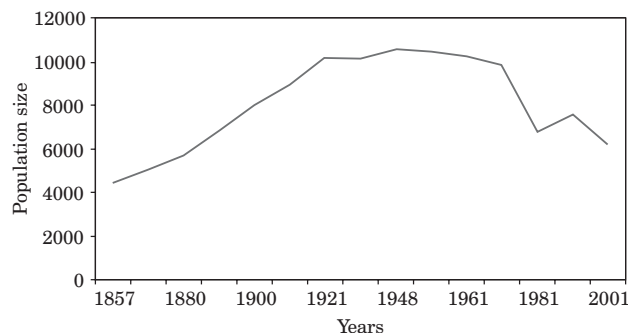


Fig. 2. Population size on the island of Ugljan from 1857 to 2001.

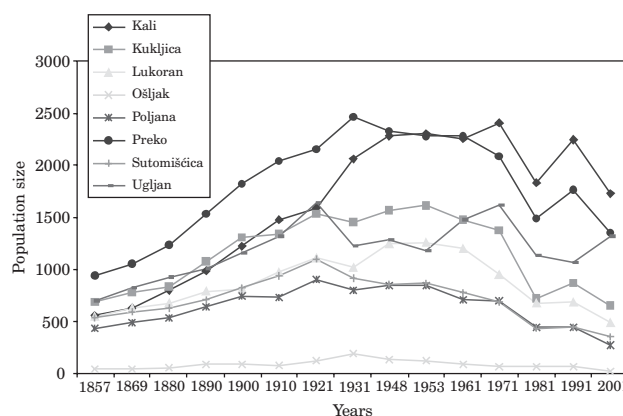


Fig. 3. Population size of the villages on the island of Ugljan from 1857 to 2001.

total number of inhabitants and according to the 1931 census it had a population of 2462. Population change on the island was identical to trends throughout the southern Adriatic Littoral and throughout Croatia, where the greatest increase in population during the period between 1780 and 1981 occurred during the last two decades of the 19<sup>th</sup> century<sup>29</sup>. The increase in Ugljan Island's population during that period was primarily determined by the fact that the population entered a demographic transition. This was a period characterized by high birth-rates and decreasing mortality rates. The mortality rates were decreasing because of better health care and the general improvement of living conditions. These are also factors that conceal the negative consequences of the island's demographic development due to large emigrations that were occurring at the same time. The residents of Ugljan emigrated largely to the USA, Australia and New Zealand and at the beginning of the 20<sup>th</sup> century the emigration was so extensive that it began taking on characteristics of a rural exodus. People were leaving because of bad socio-economic living conditions, wine grape diseases, agrarian over-population and the bad political situation in the country. The decline in population after the 1948 census and the process of depopulation has continued to this day.

[dd1] An increase in population was recorded between 1981 and 1991; however this increase was not genuine.



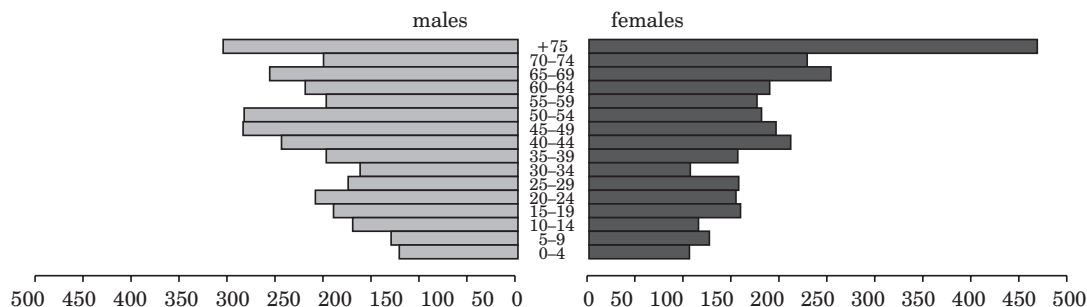


Fig. 4. Population distribution of the island of Ugljan in 2001 according to age and sex.

According to the 1991<sup>E</sup> census methodology it was possible for immigrants who had been living abroad for a longer period or for those who had summer houses on the island to be registered as inhabitants of the island. The census that followed, in 2001, which defined inhabitants as only those people who were actually living on the island showed that the population of Ugljan Island was continuing to decline.

Figure 3 shows that Kukljica, Lukoran, Sutomišćica and Poljana sustained the biggest demographic losses; in Poljana the population was halved. There were smaller decreases in population in Preko, which was the administrative and political centre of the island and the main island's port, and in Kali, where work at the dry dock and in tourism ensured the population's existence. Kali is the main economic centre of the island. During the whole period under analysis, the natural increase on Ošljak was equal to zero and therefore it wasn't shown in the accompanying figures.

The causes of the present demographic changes on the island of Ugljan are a result of the events on the island that have already been mentioned. The migrations at the beginning of 20<sup>th</sup> century were large, but were also distinctive because of the types of people who were leaving. These were sex- and age-selective migrations; the majority of emigrants were able-bodied men. This fact influenced the general depopulation on the island, but also left its trace in the form of an unfavourable age and sex structure of the population. Figure 4 shows the age and sex structure of the island in 2001<sup>B</sup>. The total number of male and female inhabitants is approximately the same. However, differences in the age characteristics of the population are evident. The female population is dominant in the older age groups, while men are dominant in the younger age groups. This phenomenon is possible to interpret as a consequence of long-term emigration with more men leaving in its first phase, and more women leaving later in the second phase. This is often the case in rural communities where a decrease in the total number of residents leads to the emigration of women. Men stay on the island in the hope that they will be able to preserve the land and the estate. Assuming that the population is divided into the following age groups: children (0–14 year olds), parents (15–49 years old) and grandparents (over 50 year olds), Sundberg<sup>36</sup> differentiates three basic types of age structures of a population: progressive, stationary and regressive. The results visible in Figure 4 show that Ugljan Island belongs to the regressive type of

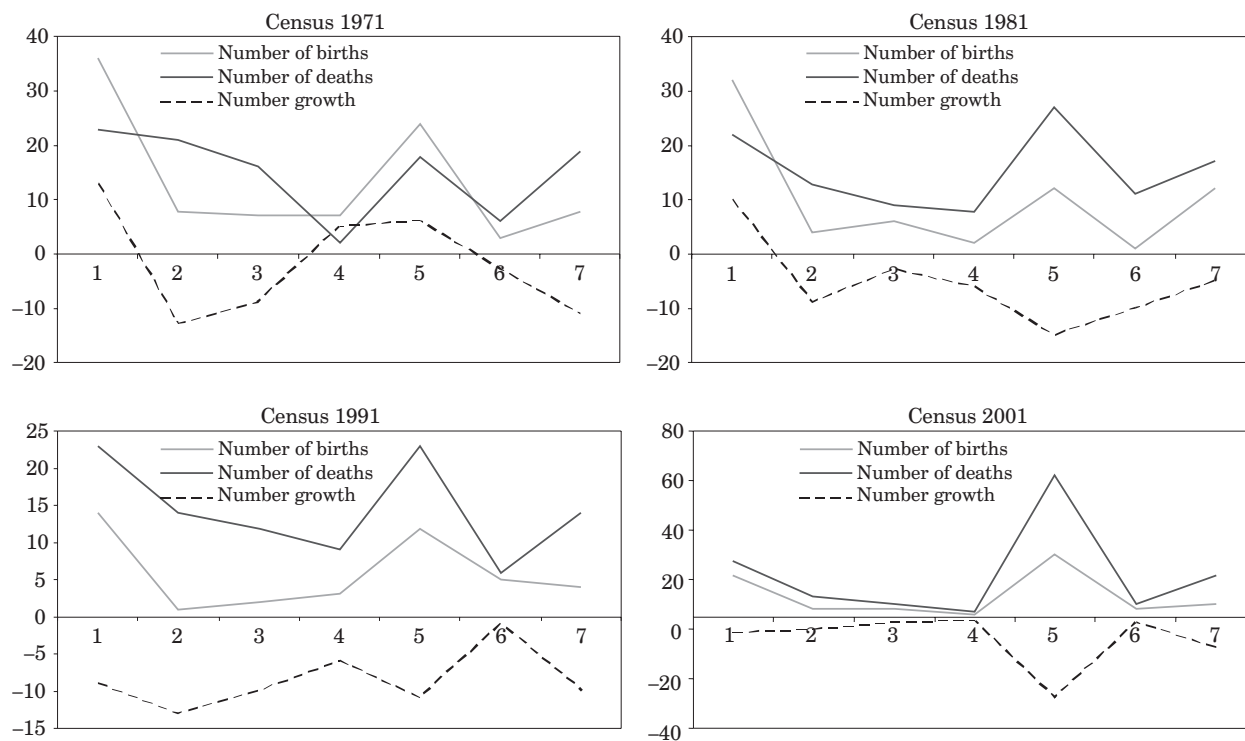
population, which indicates a natural decrease in population and a process of depopulation.

In the next part of the research we examined the numbers of births and deaths on the island, and on the basis of this we calculated the natural increase on the island in the period from 1971 to 2001<sup>A,C,D,E</sup>. These data are shown in figure 5 and they clearly demonstrate that the natural population change on the island has continually been negative with low birth rate values. There were a few more births than deaths in Kali, Poljana and Preko between 1971 and 1981 and during the following inter-census period more births than deaths were recorded only in Kali. Unfortunately, between 1991 and 2001 all the villages on the island of Ugljan experienced a negative natural increase, that is, a natural decrease in the population was recorded. The direct consequences of such a situation are a decrease in the number of inhabitants and an imbalance in the age and economic structures, which, in the long run, weaken the economic vitality of the island and the island's demo-reproductive potential. Human resources are the foundation for the demographic and economic recovery and advancement of the island.

Demographic characteristics of the islanders during the second half of the 19<sup>th</sup> and during the 20<sup>th</sup> century testify to the population stability due to lack of larger immigration influx. The island of Ugljan has limited population size and thus can be successfully used as a model in anthropological investigations.

### Marital Migrations on the Island of Ugljan (1858–2001)

The movement of individuals from one place to another and the reasons for their movement comprise one of the most important aspects of human population structure and major forces affecting the frequency, spatial pattern and spread of human genes. That is why migration studies are especially important in the investigation of micro-evolutionary processes and in many other scientific disciplines ranging from history, geography, economics, politics, to art. Anthropology seeks to combine and interpret this heterogeneous research. In this paper, marital migrations on the island of Ugljan are the base for anthropological analysis and we will try to interpret the historical and demographical data through a biological description of the population



Legend: 1 Kali; 2 Kukljica; 3 Lukoran; 4 Poljana; 5 Preko; 6 Sutomišćica; 7 Ugljan

Fig. 5. Number of births, number of deaths and natural growth of the population of the Island of Ugljan from 1971 to 2001.

The sample of marital migrations on the island of Ugljan that was studied consists of 5 244 married couples, that is, the origins of 10 488 people who got married in the period from 1858 to 2001. The origin of married men and women is shown separately, based on their places of birth. The interviewees were divided into categories according to their different locations on the island, and a special category, consisting of married couples living outside the island, was formed. The bulk of the data was found in the Registers of Marriages for the following villages: Kali, Kukljica, Lukoran, Preko and Ugljan<sup>F-Za</sup>. A separate Register of Marriages was kept for each village

from the middle of the 19<sup>th</sup> century to 1994, and the Registers encompass four periods. Since 1994, a joint Register of Marriages has been kept for all villages. The oldest Register of Marriages is from 1858 and it belongs to the village of Ugljan<sup>Q</sup>, the second oldest is from Kali (1885)<sup>J</sup>, the next oldest is from Preko from 1893<sup>G</sup>, and the earliest preserved Registers that are available for Kukljica<sup>N</sup> and Lukoran<sup>W</sup> date from the beginning of the 20<sup>th</sup> century (see Tables 1, 2, 3, 4, 5, 6). Pages from the Kali Register of Marriages for the period from 1885 to 1946 are in quite poor condition and had to be used very carefully.

TABLE 1  
CHANGES IN GROOMS AND BRIDES NUMBERS IN DIFFERENT PERIODS IN PREKO

Period	1893–1933		1933–1946		1947–1958		1959–1993	
	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides
Kali	6	17	0	0	0	0	0	1
Kukljica	1	1	0	8	0	0	0	3
Lukoran	2	3	5	13	3	5	6	2
Ošljak	15	6	2	7	1	6	1	4
Poljana	4	10	0	1	1	2	0	6
Preko	602	585	159	147	156	157	166	133
Sutomišćica	0	8	0	6	0	3	2	3
Ugljan	1	16	0	6	0	0	0	4
Outside the Island	66	51	73	51	35	23	200	219
Total	697	697	239	239	196	196	375	375

**TABLE 2**  
CHANGES IN GROOMS AND BRIDES NUMBERS IN DIFFERENT PERIODS IN LUKORAN

Period	1901–1940		1941–1946		1946–1958		1959–1993	
	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides
Kali	3	0	1	1	0	0	0	8
Kukljica	4	0	0	0	0	0	0	0
Lukoran	78	116	124	138	268	264	130	94
Ošljak	0	0	0	0	0	0	0	0
Poljana	5	1	1	2	0	2	0	6
Preko	6	1	1	0	0	0	0	7
Sutomišćica	15	4	6	4	2	3	3	11
Ugljan	5	0	5	5	0	0	0	4
Outside the Island	49	43	18	6	26	27	40	43
Total	165	165	156	156	296	296	173	173

**TABLE 3**  
CHANGES IN GROOMS AND BRIDES NUMBERS IN DIFFERENT PERIODS IN UGLJAN

Period	1858–1903		1904–1946		1947–1958		1959–1993	
	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides
Kali	1	0	1	0	1	0	0	6
Kukljica	0	0	0	0	0	0	0	0
Lukoran	1	5	3	4	0	3	0	5
Ošljak	0	0	0	0	0	0	0	0
Poljana	0	1	5	4	1	1	0	5
Preko	2	0	11	2	1	1	0	2
Sutomišćica	0	0	3	2	1	2	0	2
Ugljan	74	47	31	64	26	21	60	21
Outside the Island	34	59	61	39	18	20	41	60
Total	112	112	115	115	48	48	101	101

**TABLE 4**  
CHANGES IN GROOMS AND BRIDES NUMBERS IN DIFFERENT PERIODS IN KUKLJICA

Period	1904–1935		1936–1946		1947–1958		1959–1993	
	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides
Kali	12	2	4	1	0	0	1	8
Kukljica	394	435	163	179	130	129	117	84
Lukoran	1	0	0	0	0	0	0	0
Ošljak	1	0	0	0	0	0	0	0
Poljana	1	2	1	0	0	0	0	1
Preko	2	0	0	0	0	2	0	0
Sutomišćica	3	1	0	0	0	0	0	0
Ugljan	0	0	0	0	0	0	0	3
Outside the Island	36	10	17	5	15	14	67	89
Total	450	450	185	185	145	145	185	185

Even though historical and linguistic analyses were not the primary aims of this research, it was interesting to observe how political changes affected the language used in the Registers of Marriages. The oldest registers belong to the church administration and they were kept

by the parish offices for individual parishes. After the 2<sup>nd</sup> world war and up until the time of the Croatian War of Independence, the task of keeping the registers was conducted by the people's committees of communist Yugoslavia. Since then, the Preko District office, which is a

**TABLE 5**  
CHANGES IN GROOMS AND BRIDES NUMBERS IN DIFFERENT PERIODS IN KALI

Period	1885–1946		1947–1958		1959–1982		1983–1993	
	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides
Kali	595	590	243	234	250	163	98	80
Kukljica	2	4	1	5	0	4	0	2
Likorán	1	1	0	1	0	0	0	4
Ošljak	2	0	0	1	0	0	0	0
Poljana	1	3	0	0	0	0	0	3
Preko	51	53	0	2	0	2	0	1
Sutomišćica	0	1	0	1	0	1	0	1
Ugljan	0	0	1	0	0	0	0	2
Outside the Island	21	25	31	32	126	206	31	36
Total	673	673	276	276	376	376	129	129

**TABLE 6**  
CHANGES IN GROOMS AND BRIDES NUMBERS IN DIFFERENT PERIODS IN ALL VILLAGES 1994–2001

Period	1994–2001	
	Grooms	Brides
Kali	40	33
Kukljica	21	6
Lukoran	9	11
Ošljak	0	0
Poljana	7	6
Preko	39	37
Sutomišćica	11	8
Ugljan	19	12
Outside the Island	194	227
Total	340	340

part of the Zadar-Knin County Registrar and which is responsible for Ugljan Island, has been responsible for keeping the registers. The registers were written in Latin script in Croatian and Italian (with the Treaty of London in 1915, the Triple Entente promised Italy a part of Dalmatia, while Istria, Cres, Lošinj, Lastovo, the city of Zadar and later Rijeka were officially assigned to Italy by the Treaty of Rapallo), while the Preko Register of Marriages from 1945 was written in Cyrillic script.

And now a few points about the institution of marriage which Leach defines as »a bundle of rights« which include: legal fatherhood, legal motherhood, a monopoly of sexual access between married parents, rights to domestic services and other forms of labour, rights over property. Goody pointed out the different functions of the domestic group as production, reproduction, consumption, and shelter. A variety of demographic, economic, and social factors like systems of inheritance, land division, and care of the elderly influence the specific form of families. For physical anthropologists the most important thing is to analyze how marriage influ-

ences fertility, reproduction, and inbreeding and to try to predict the genetic consequences of those processes.

The legal basis of the family on the territory of the Croatian islands was the clan system as defined in classical Roman law, by which clan affiliation was recognized only through the paternal line. According to the islanders, the clan consists of descendants of a single paternal ancestor, who passes on his name, property and the clan traditions from one generation to another<sup>32</sup>. These customs and habits were applicable to all members of society regardless of their social and economic status and the statutes of Dalmatian cities paid special attention to matrimonial policies. Anthropological research of Dalmatian islands has so far shown that these rules affected the socio-cultural structure of the family and its patrilocal characteristics and has also proved that it was mainly women who migrated as a result of marriage<sup>33</sup>. Another historical event was of utmost importance for the study of marriage, marital migrations and other characteristics of the population<sup>34</sup>. During the Trident Council (1545–1565), the Church decided that all Catholic countries be obliged to record all births, marriages, deaths and religious services. Since this decision applied to Croatia, lots of source material has been preserved, and as a result it has made this research possible, too.

The results of the analysis indicate that the majority of weddings in Preko, Kali and Kukljica occurred from 1893–1933. 697 couples got married in Preko, 673 in Kali and 450 in Kukljica. On the other hand, in the following inter-census period, these same villages sustained the biggest decrease in the number of marriages. The number more than halved in all three villages. Most of the weddings in the village of Ugljan took place between 1904 and 1946 and in Lukoran between the 1946 and 1958 censuses. Unfortunately, only 340 weddings were recorded in the period from 1994 to 2001 in all the villages on the island. Such results correspond to the demographic processes discussed in the previous section, where the demographic transition of the population was also analyzed with respect to the change in the number



of new marriages on the island. Using the numerical data and by performing simple mathematic operations we calculated the percentages of marital migrations during the periods under research. The aim was to identify the number of marriages between marital partners originating from the same village. Considering the historical and demographic development of the population, there are good reasons for assuming that these couples shared the same gene pool and originated from the same population of founders. The results shown in tables 7–11 indicate extremely large shares of married couples originating from

**TABLE 7**  
PERCENTAGE OF MARRIAGES CONTRACTED BY COUPLES  
BOTH ORIGINATING FROM PREKO

Period	1893–1933	1934–1946	1947–1958	1959–1993
	percent	percent	percent	percent
Preko	85	64	80	40

**TABLE 8**  
PERCENTAGE OF MARRIAGES CONTRACTED BY COUPLES  
BOTH ORIGINATING FROM LUKORAN

Period	1901–1940	1941–1946	1947–1958	1959–1993
	percent	percent	percent	percent
Lukoran	58	79	90	65

**TABLE 9**  
PERCENTAGE OF MARRIAGES CONTRACTED BY COUPLES  
BOTH ORIGINATING FROM UGLJAN

Period	1858–1903	1904–1946	1947–1958	1959–1993
	percent	percent	percent	percent
Ugljan	54	40	49	40

**TABLE 10**  
PERCENTAGE OF MARRIAGES CONTRACTED BY COUPLES  
BOTH ORIGINATING FROM KUKLJICA

Period	1904–1935	1936–1946	1947–1958	1959–1993
	percent	percent	percent	percent
Kukljica	92	92	89	54

**TABLE 11**  
PERCENTAGE OF MARRIAGES CONTRACTED BY COUPLES  
BOTH ORIGINATING FROM KALI

Period	1885–1946	1947–1958	1959–1982	1983–1993
	percent	percent	percent	percent
Kali	88	86	67	69

the same village, and the respective percentages range from 40% to even 92%. Extremely high values were recorded in all the villages, while the highest were recorded in Kukljica and Kali. The smallest amplitudes in values were recorded in the village of Ugljan, even though the

percentage of marriages between the partners from the same village still ranged from 40% to 54%.

The percentage of marriages with partners born outside the island ranges from 2% to 59%. Kali and Kukljica have the lowest percentage of partners from outside the island – even from 1885 to 1946 it was still as low as 11%. In the village of Ugljan, the percentage of »imported« marital partners, who are mostly women, ranges from 20% and 59%. These results also confirm the assumption that the population of the island of Ugljan is closed and keen on preserving traditional forms of marriage.

The results (Tables 7 to 11) even though they were derived by processing the historical and demographic data from the Registers of Marriages, and thus indirectly, clearly show a high level of endogamy in all villages and during all census periods. It is also possible to conclude indirectly that there is a high level of inbreeding within the population in question. Such studies can contribute a lot to the field of anthropological genetics and enable us to monitor processes shaping the population structure over a long period. Marital migrations are genetically significant movements and have four basic components: name, distance, magnitude and orientation<sup>35</sup>. For an isolated island population such as the one analyzed in this paper, orientation does not play a significant role. The important variables are distance and magnitude. Magnitude has already been mentioned, while migration distances are geographically characterized by short range migration. The distance between Kukljica and Ugljan is the longest – 17.5 kilometres, and the shortest is between Preko and Kali – only 4 kilometres, so the general conclusion is that the distances between the villages on the island are short. In spite of this fact, marital migrations (see tables 1–6) between the sub-populations of villages within the island are insignificant and have very low values. It is obvious that geographical distances haven't significantly influenced the characteristics of mate selection on the island of Ugljan. The choice of marital partner, age of marriage, time and place of mating are highly circumscribed by cultural norms. It may be concluded that the analysed population is isolated both biologically and socio-culturally with limited marital migrations in terms of short geographic distances. Further analysis of the island's population should be directed to new socio-cultural research of the family, and its function and influence on marital processes. It would also be useful to create a pool of genealogies in order to examine isonymy and inbreeding consanguinity, as well as the genetic consequences of this for the population structure.

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A. Malnar

Institute for Anthropological Research, Gajeva 32, Zagreb, Croatia  
e-mail: amalnar@inanthro.hr

## **POPULACIJSKA STRUKTURA NA OTOKU UGLJANU – DEMOGRAFSKI PROCESI I MARITALNA MIGRACIJA**

### **S A Ž E T A K**

U okviru dugogodišnjih antropoloških istraživanja populacijske strukture na hrvatskim otocima u ovom radu provedeno je istraživanje osnovnih demografskih procesa i bračnih migracija stanovništva na otoku Ugljanu u razdoblju od 1857. do 2001. godine. Analiza se temelji na obradi porijekla 5 244 bračnih parova iz Preka, Kalija, Kukljice, Lukorana i Ugljana prema podacima sačuvanim u starim matičnim knjigama vjenčanih. Rezultati pokazuju visok stupanj endogamije i reproduktivne izoliranosti populacije svih naselja i potvrđuju značaj historijsko – demografskih izvora u istraživanjima oblikovanja populacijske strukture.