Coll. Antropol. **32** (2008) 3: 927–943
Original scientific paper

Plants and Geographical Names in Croatia

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A B S T R A C T

The main purpose of this paper is to present some general observations, regularities and insights into a complex relationship between plants and people through symbolic systems like geographical names on the territory of Croatia. The basic sources of data for this research were maps from atlas of Croatia[1] of the scale 1:100000. Five groups of maps or areas were selected in order to represent main Croatian phytogeographic regions. A selection of toponyms from each of the map was made in which the name for a plant in Croatian language was recognized (phytotoponyms). Results showed that of all plant names recognized in geographical names the most represented are trees, and among them birch and oak the most. Furthermore, an attempt was made to explain the presence of the most represented plant species in the phytotoponyms in the light of general phytogeographical and sociocultural differences and similarities of comparing areas. The findings confirm an expectation that the genera of climazonal vegetation of particular area are the most represented among the phytotoponyms. Nevertheless, there are ample examples where representation of a plant name in the names of human environment can only be ascribed to ethno-linguistic and socio-cultural motives. Despite the reductionist character of applied methodology, this research also points out some advantages of this approach for ethnobotanic and ethnolinguistic studies of greater areas of human environment.

Key words: *plants, geographical names, phytotoponyms, toponyms, Croatia*

Introduction

Since long time ago plants have been shaping the life of man, but man has been influencing plants as well. Ubiquitous testimonies of this evolutionary dance exist in man's cultural being, on both material and the symbolic level. Traces of that relationship can be looked for, among others, in the names used by man to define elements of his surroundings. The names are sings, and sings tell stories.

The aim of this article is to identify plant species in the Croatian geographical names, to quantify their representation and to compare the acquired data with common phytogeographical and socio-cultural features of the investigated areas. The article will try to enlighten the motivation of the local human populations to name the geographical objects after plants. In the further lines, all the names for settlements and other geographical objects (toponyms) in which plant names were recognized, will be referred to as phytotoponyms.

Disclaimer

The peculiarities of the research design of this modest inquiry are shaped by the basic questions to which this article tries to find an answer: What plant species are in overall the most represented in the names of geographical objects in Croatia? What are some most common regularities and observations that can be derived from literature which can explain these findings? In most general sense, what is the interplay between environmental stratum and sociocultural influences that stands behind the man's motivation to include a name of the plant in the name of an object of his natural surroundings?

Pretending to such general observations this line of inquiry is completely blind to the true history of a particular geographical name. Such data can only be discerned by detailed onomastic studies of Croatian toponymy. Examples of the studies like Šimunović 1986[2] and Šimunović 2004[3] on the toponymy of one Croatian island are a true inspiration for such a task. However, with its ethno-

Received for publication February 25, 2008

graphic approach such studies also illustrate how long lasting and tedious process it is to discern or to make an educated speculation about the true story behind a geographic name. Extensive studies like that would surely be the most reliable data for inquiry into representation of plants in toponymy of Croatia, but this kind of research for the whole territory of Croatia is far from being over. With regard to this fact, the authors will further in text point out some of the advantages of methodology applied here.

To conclude, it should be confessed that this study relies completely on the most obvious representations of a name of the plant in the name of a geographical object as given in the most comprehensive publication of the geographical maps of Croatia[1], and as singled out according to authors' surely limited knowledge of the Croatian language. Notwithstanding these limitations, authors still hope that in the absence of more thorough investigations, the results and conclusions of this research will contribute to the knowing how human categorial systems reflect the relationship between man and plant in Croatia.

Sources and Methods

Phytotoponym sources

Basic source for geographical names for the article was »Veliki atlas Hrvatske«[1], a collection of geographical maps of Croatia in the scale 1:100000. In order to better present the biodiversity of local vegetation, five areas, each of approximately the same surface, were selected from the main Croatian phytogeographic regions (Figure 1)[4,5]. Three areas were selected as representatives of the Eurosibirian-Northamerican phytogeographic region which is covering the biggest part of continental Croatia (Figure 2). Among those, one area spreads in eastern Slavonia Region as a part of the planar forest belt of pedunculate oak (*Alno-Quercion roboris* and *Carpinion betuli*); one area in northwest Croatia where planar belts are mixing with coline and montane forests, and one area in middle Velebit and Lika Region, where the major part belongs to coline and montane forest belts. Two other areas were selected in the Mediterranean phytogeographic region: one in Dalmatinska Zagora Region belonging to submediterranean zone and to Mediterranean-montane belt of deciduous forests of oriental and hop hornbeam (*Ostryo-Carpinion)* and one from eumediterranean zone of evergreen forests of holm oak. Four of these areas encompass up to tree consecutive topographical maps from the stated atlas (scale of 1:100000), an overall range of 45' geographical longitude and 15' geographical latitude. The last area from eumediterranean zone of nondecidous vegetation consists of topographical charts of islands of Brač, Hvar and Korčula, which approximate the same overall surface as each of the other areas. This exception is made due to the fact that Croatian eumediterranean vegetation zone lacks continuous, uninterrupted successive area in Croatia (Figure 1). For detailed more better insight, a following chapter will present a short descriptions of the each of the selected areas (Table 1).

From each area all the toponyms were selected in which the name for a plant in Croatian language was recognized. It is important to note that in the process of se-

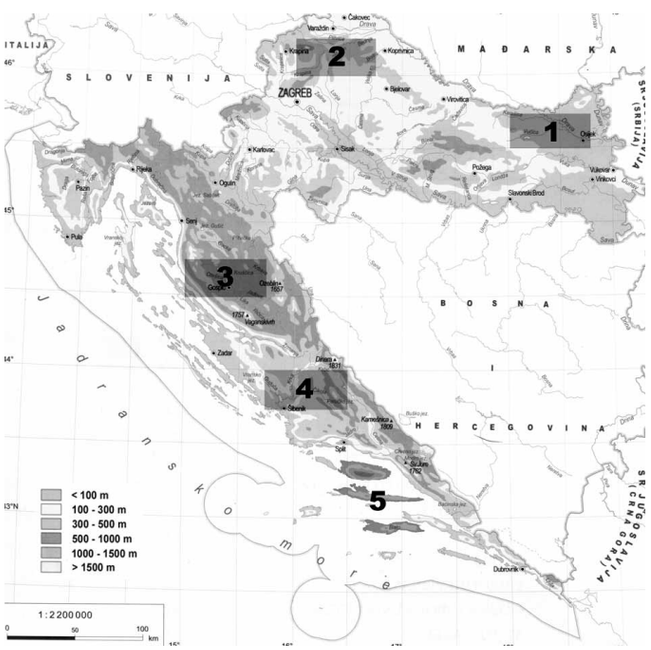

Fig. 1. Location of researched areas on the map of Croatia: 1 – Đurđenovac-Valpovo-Osijek, 2 – Ivanec-Novi Marof-Križevci, 3 – Karlobag-Gospić-Korenica, 4 – Vodice-Drniš-Vrlika, 5 – Brač-Hvar-Korčula. (appropriated from: Veliki atlas hrvatske, Mozaik knjiga, 2002, copyright by Tomislav Jelić)[1].

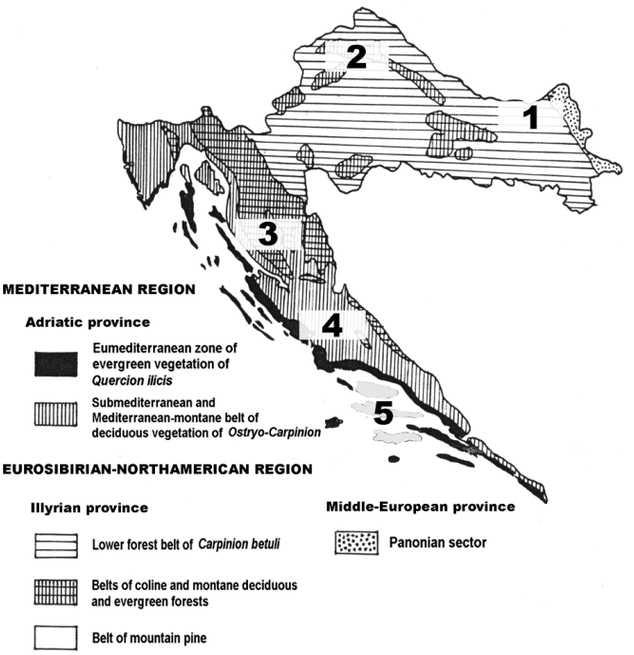

Fig. 2. Phytogeographical regions, zones and belts of Croatia with location of the researched areas: 1 – Đurđenovac-Valpovo-Osijek, 2 – Ivanec-Novi Marof-Križevci, 3 – Karlobag-Gospić-Korenica, 4 – Vodice-Drniš-Vrlika, 5 – Brač-Hvar-Korčula. (appropriated from Šegulja et al. 1998)[5].

TABLE 1
DISPOSITION AND DEFINITION OF THE INVESTIGATED AREAS

Ordinal	Area	No. and name of the topographical map from Veliki atlas Hrvatske (Mozaik knjiga, 2002.)[1]	Geographical coordinates
1.	Đurđenovac-Valpovo-Osijek	52 Đurđenovac	45°45'N18°00'E–45°30'N18°15'E
		53 Valpovo	45°45'N18°15'E–45°30'N18°30'E
		54 Osijek	45°45'N18°30'E–45°30'N18°45'E
2.	Ivanec-Novi Marof-Križevci	11 Ivanec	46°15'N16°00'E–46°00'N16°15'E
		12 Novi Marof	46°15'N16°15'E–46°00'N16°30'E
		13 Križevci	46°15'N16°30'E-46°00'N16°45'E
3.	Karlobag-Gospić-Korenica	122 Karlobag	44°45'N15°00'E-44°30'N15°15'E
		123 Gospić	44°45'N15°15'E-44°30'N15°30'E
		124 Korenica	44°45'N15°30'E-44°30'N15°45'E
4.	Vodice-Drniš-Vrlika	146 Vodice	44°00'N15°45'E-43°45'N16°00'E
		147 Drniš	44°00'N16°00'E-43°45'N16°15'E
		148 Vrlika	44°00'N16°18'E-43°45'N16°30'E
5.	Brač-Hvar-Korčula	160 Sutivan	43°30N16°15'E-43°15'N16°30'E
		161 Omiš	43°30N16°30'E-43°15'N16°45'E
		162 Baška Voda	43°30N16°45'E-43°15'N17°00'E
		169 Hvar	43°15'N16°15'E-43°00'N16°30'E
		170 Stari Grad	43°15'N16°30'E-43°00'N16°45'E
		171 Zastražišće	43°15N16°45'E-43°00'N17°00'E
		172 Podgora	43°15N17°00'E-43°00'N17°15'E
		178 Vela Luka	43°00'N16°30'E-42°45'N16°45'E
		179 Blato	43°00'N16°45'E-42°45'N17°00'E
		180 Korčula	43°00'N17°00'E-42°45'N17°15'E

N – north, E – east

lection of the toponyms there is a possibility that the phytotoponyms comprising some folk, local or dialectical plant names are not recognized. In addition, there is a possibility that some of the recognized toponyms are not originally motivated by plant name but by some other words. Very good example for that is the name *grab* (common hornbeam). In that word and especially in the toponyms comprising it, except for the designation for hornbeam, there is a possibility of other designations, for instance of some act – such as *grabiti* (to grab, to clutch). Therefore, it is not possible to claim that all recognized phytotoponyms are at the same time toponyms historically and etymologically motivated by plants. All the toponyms that were, by the judgment of the authors, suggesting a possibility of a variety of meanings other than plants, were not considered. Good example for that is the toponym *Leskovec* that might suggest name *lijeska* (hazel), but also the words *les* and *lijes* that could mean forest, tree, wooden material, wooden hurdle, but also a coffin. Therefore, during the phytotoponym recognition process, only the names arguably comprising plant species were selected from the maps. All names suggesting plant categories were also excluded. For example, excluded was the term *Žitomir* because the word *žito* (cereal), clearly recognized here, encompasses different genera and species (wheat, corn). Also, the toponym *Dračevica* was excluded because the word *drač* (weed) is a group term for various plant species. Another example is *Donji Gaj*, where the word *gaj* means: little forest or grove. The only exception is the word *vinograd* (vineyard) due to clear and direct reference to the specific plant species, namely the grape vine. Another exclusion pertains to toponyms implicating names of plant parts, for example *Trnovac* from the word *trn* (thorn), *Cvjetići* from the plural diminutive of *cvijet* (flower) etc.

The raw data collected in this process are presented according to five groups of the maps in the Appendix of this text. After the recognition and selection, each phytotoponym was related to the genus or plant species, which allowed for calculation of quantitative data.

Sources of phytocenological data

Forest map of Croatia[6] was the main data source of forest phytocenoses. That map was used to determine dominant forest communities presented in the certain area. Tables 2–6 present the dominant and ancillary plant species populating the tree layer of the forest communities of particular area[7].

Bearing in mind that sometimes the names of the plants in vernacular are consisted of two or more words, like an adjective and a noun (for example *bijeli grab* – oriental hornbeam) phytocenological data were reduced to the purview of characteristic genera. Thus, for example, all maple (in Croatian: *javor*) species that populate forest communities of the areas, (sycamore maple, *Acer pseudoplatanus* L.; field maple, *Acer campestre* L.; Montpellier maple, *Acer monspessulanum* L. and Norway maple, *Acer platanoides* L.), are reduced only to genus name – *javor* (maple, *Acer*). In cases where the phytotoponym strictly specified the plant species, both its full vernacular and Latin name were given (for example in toponyms where the name of *trešnja (*cherry, *Prunus avium* L.) was recognized).

Regional vegetation data sources used included information only about the forest communities. However, it must be clarified why only forest communities were used, when in almost all investigated areas forests are no more dominant phytocenoses. Reason for this lies in the fact that forest communities are climazonal vegetation of these regions. In other words, in these regions in the past, before man's intensive influence on environment, forests were dominant local vegetation. This is of exceptional importance for any investigation analyzing the plant cover influence on cultural and historical elements of human life, especially those formed in the past. Land toponymy does not change very often, and therefore for this investigation it is far more important to keep in mind the historical perspective of the landscape vegetation. This position is additionally corroborated by the results of this research, undoubtedly showing that of all the plants detected in toponyms, trees are by far the most represented.

To avoid making such a vague description of vegetation reduced only to the tables with the lists of plant names, for each area a short description is given with the assessment of the extent of anthropogenic influence on local vegetation.

Descriptions of the Areas

Descriptions of the areas are compiled using data provided in Anonymus 2002[1], Vukelić and Rauš 1998[7], Rauš et al. 1992[8] and Trinajstić et al. 1992[6].

1. area: Đurđenovac-Valpovo-Osijek

The part of the river bead of Drava stretches from north to southeast of this area which makes its relief foundation very homogenous. It consists of alluvial river lowland intersected by numerous canals, water flows, marshes, fish ponds and gravel terrains. This area belongs to Eurosibirian-Northamerican vegetation region close to the border with Pannonian sector. This area is mostly under the influence of Drava River, which makes the soil very fertile and therefore of extensive use in agriculture. The area is rich with agrarian plains formed by hydro melioration, with a very few forest areas.

Today the dominant vegetation of this area consists of cultivated plants, pastures and other non-cultivated vegetation in different degradation and progression stadiums. Numerous human settlements are present on this area and once dominant forest communities are almost entirely sized to small islands. The dominant local tree is pedunculate oak followed by hornbeam, ash, lime, poplar, elm and aider as ancillary plant species in the tree layer (Table 2).

TABLE 2
THE OVERVIEW OF CHARACTERISTIC GENERA AND SPECIFIC PLANT SPECIES IN THE TREE LAYER ACCORDING TO THE FOREST COMMUNITIES OF THE AREA 1. ĐURĐENOVAC-VALPOVO-OSIJEK

The most dominant phytocenoses of area 1. Đurđenovac-Valpovo-Osijek	Dominant genera/species			Ancillary genera/species		
	Cro.	Eng.	Lat.	Cro.	Eng.	Lat.
1. Forest of pedunculate oak and common hornbeam *(Carpino betuli-Quercetum roburis)*	hrast grab	oak hornbeam	*Quercus* *Carpinus*	lipa	lime	*Tilia*
2. Forest of common oak and broom *(Genisto elatae-Quercetum roburis)*	hrast	oak	*Quercus*	jasen joha brijest topola	ash aider elm poplar	*Fraxinus* *Alnus* *Ulmus* *Populus*
3. Forest of narrow leaved ash with summer snowflake *(Leucoio-Fraxinetum angustifoliae)*	jasen	ash	*Fraxinus*			

(according to Trinajstić et al. 1992[6],Vukelić and Rauš 1998[7])
Cro – Croatian, Eng – English, Lat - Latin

2. area: Ivanec-Novi Marof-Križevci

The relief of this area is mainly determined by hilly chains with altitudes less than 800 m. On the northern part of this area East Ivanščica Mountain stretches in direction from west to east. Hills of Zagorje Region are positioned in southwest-southeast direction up to the middle part of the area where they meet the hills of Kalnik which continue to spread in the same line. Southeast part of the area includes south and west borrows of

TABLE 3
THE OVERVIEW OF CHARACTERISTIC GENERA AND SPECIFIC PLANT SPECIES IN THE TREE LAYER ACCORDING TO THE FOREST COMMUNITIES OF THE AREA 2. IVANEC-NOVI MAROF-KRIŽEVCI

The most dominant phytocenoses of region 2. Ivanec-Novi Marof-Križevci	Dominant genera/species			Ancillary genera/species		
	Cro.	Eng.	Lat.	Cro.	Eng.	Lat.
1. Illyrian forest of montane beech with giant dead nettle (*Lamio-orvale-Fagetum*)	bukva	beech	*Fagus*	hrast grab javor mliječ jasen brijest	oak hornbeam maple chyle ash elm	*Quercus* *Carpinus* *Acer* *Acer* *Fraxinus* *Ulmus*
2. Illyrian forest of durmast oak and common hornbeam *(Epimedio-Carpinetum betuli)*	hrast grab	oak hornbeam	*Quercus* Carpinus	bukva javor brijest kesten	beech common maple elm horse chestnut	*Fagus* Acer Ulmus Castanea
3. Submontane beech forest with reed *(Carici pilosae-Fagetum)*	bukva	beech	*Fagus*	hrast grab	oak hornbeam	*Quercus* Carpinus
4. Forest of durmast oak and hornbeam with roadside fescue *(Festuco drymeiae-Carpinetum betuli)*	hrast grab bukva	oak hornbeam beech	*Quercus* *Carpinus* *Fagus*	javor lipa trešnja	common maple lime cherry	*Acer* *Tilia* *Prunus avium*
5. Forest of durmast oak with oak orest wood rush *(Luzulo – Quercetum)*	hrast	oak	*Quercus*			
6. Forest of durmast oak and common hornbeam *(Carpino betuli-Quercetum roburis)*	hrast grab	oak hornbeam	*Quercus* *Carpinus*	lipa	lime	*Tilia*

(according to Trinajstić et al. 1992[6],Vukelić and Rauš 1998[7])
Cro – Croatian, Eng – English, Lat - Latin

TABLE 4
THE OVERVIEW OF CHARACTERISTIC GENERA AND SPECIFIC PLANT SPECIES IN THE TREE LAYER ACCORDING TO THE FOREST COMMUNITIES OF THE AREA 3. KARLOBAG-GOSPIĆ-KORENICA

The most dominant phytocenoses of region 3. Karlobag-Gospić-Korenica	Dominant genera/species			Ancillary genera/species		
	Cro.	Eng.	Lat.	Cro.	Eng.	Lat.
1. Illyrian forest of montane beech with giant dead nettle *(Lamio-orvale-Fagetum and Luzulo-Fagetum)*	bukva	beech	*Fagus*	hrast grab javor jasen brijest	oak hornbeam maple ash elm	*Quercus* *Carpinus* *Acer* *Fraxinus* *Ulmus*
2. Dinaridian forest of beech and european silver fir *(Abieti-Fagetum »dinaricum»)*	bukva jela	beech fir tree	*Fagus* *Abies*	smreka javor	Juniper maple	*Picea* *Acer*
3. Altimontane beech forest with coltsfoot *(Homogyno alpinae-Fagetum)*	bukva	beech	*Fagus*	javor	maple	*Acer*
4. Illyrian forest of durmast oak and common hornbeam *(Epimedio-Carpinetum betuli)*	hrast grab	oak hornbeam	*Quercus* Carpinus	bukva klen, javor brijest kesten	beech common maple elm horse chestnut	*Fagus* *Acer* *Ulmus* *Castanea*
5. Beech forest with autumn blue grass *(Seslerio-Fagetum)*	bukva	beech	*Fagus*	javor grab mukinja, oskoruša jasen	maple hornbeam rowan rowan ash	*Acer* *Ostrya* *Sorbus* *Fraxinus*
6. Forest of downy oak and oriental hornbeam *(Querco-Carpinetum orientalis)*	hrast grab	oak hornbeam	*Quercus* *Carpinus*	jasen javor oskoruša koprivić	ash maple rowan nettle tree	*Fraxinus* *Acer* *Quercus* *Sorbus* *Celtis*
7. Forest of downy oak and hop hornbeam *(Ostryo-Quercetum pubescentis)*	hrast grab	oak horn beam	*Quercus* *Ostrya*	javor oskoruša jasen	maple rowan ash	*Acer* *Sorbus* *Fraxinus*
8. Forest of oak and hop hornbeam *(Ostryo-Quercetum virgilianae)*	dub (hrast) grab	oak hornbeam	*Quercus* *Ostrya*	javor jasen	maple ash	*Acer* *Fraxinus*

(according to Trinajstić et. al. 1992[6],Vukelić and Rauš 1998[7])
Cro – Croatian, Eng – English, Lat - Latin

Bilogora Mountain. From its north and south hill-sides many creeks and small rivers stream down. On these hill-sides, near the streams, and in valleys between the hills a number of settlements are situated, in most cases hosting not more than 500 inhabitants each.

The whole area is under the intense anthropogenic influence, especially the lowland part of the river beds. With numerous human settlements and farm fields to testify this influence, the only forested parts are restricted to uninhabited and less inhabited hilly areas. This especially pertains to the higher and thus inaccessible hill tops. The majority of the plant life in the area is composed of vegetation in various degradation and progressive stadiums such as pasture and farm land and abandoned farm fields. The vegetation belongs to Eurosibirian-Northamerican region of the coline and montane belt. From the list of main forest communities with corresponding composition of the tree layer (Table 3) is clear that durmast oak, common hornbeam and beech are dominant trees. Maple, ash, elm, horse chestnut, lime and cherry are ancillary species of the tree layer.

3. area: Karlobag-Gospić-Korenica

The western part of this, geographically very diverse area, is bounded by the high mountain ridge of Velebit with its peak Kozjak (1629 m altitude) to the northwest of the area and by a small part of Velebit canal in front of the town of Karlobag to the southeast of the area. Ličko

TABLE 5
THE OVERVIEW OF CHARACTERISTIC GENERA AND SPECIFIC PLANT SPECIES IN THE TREE LAYER ACCORDING TO THE FOREST COMMUNITIES OF THE AREA 4. VODICE-DRNIŠ-VRLIKA

The most dominant phytocenoses of region 4. Vodice-Drniš-Vrlika	Dominant genera/species			Ancillary genera/species		
	Cro.	Eng.	Lat.	Cro.	Eng.	Lat.
1. Forest of downy oak and oriental hornbeam *(Querco-Carpinetum orientalis)*	hrast grab	oak hornbeam	*Quercus* *Carpinus*	jasen javor hrast oskoruša	ash maple oak rowan	*Fraxinus* *Acer* *Quercus* *Sorbus*
2. Beech forest with autumn blue grass *(Seslerio-Fagetum sylvaticae)*	bukva	beech		javor grab mukinja, oskoruša jasen	maple hornbeam rowan rowan ash	*Acer* *Ostrya* *Sorbus* *Fraxinus*

(according to Trinajstić et al. 1992[6],Vukelić and Rauš 1998[7])
Cro – Croatian, Eng – English, Lat - Latin

TABLE 6
THE OVERVIEW OF CHARACTERISTIC GENERA AND SPECIFIC PLANT SPECIES IN THE TREE LAYER ACCORDING TO THE FOREST COMMUNITIES OF THE AREA 5. BRAČ-HVAR-KORČULA

The most dominant phytocenoses of region 5. Brač-Hvar-Korčula	Dominant genera/species			Ancillary genera/species		
	Cro.	*Eng.*	*Lat.*	*Cro.*	*Eng.*	*Lat.*
1. Forest of Aleppo pine and holm oak *(Querco-ilicis-Pinetum halepensis)*	bor	pine	*Pinus*	hrast lemprika mirta tetivika borovica	oak lurustinus myrtle bindweed gorse	*Quercus* *Viburnum* *Myrtus* *Smilax* *Juniperus*
2. Forest of holm oak and hop hornbeam *(Ostryo-Quercetum ilicis)*	hrast	oak	*Quercus*	planika lemprika zelenika lovor grab jasen javor	strawberry trees lurustinus phillyrea laurel hornbeam ash maple	*Arbutus* *Viburnum* *Phillyrea* *Larus* *Carpinus* *Ostrya* *Fraxinus* *Acer*

(according to Trinajstić et al. 1992[6],Vukelić and Rauš 1998[7])
Cro – Croatian, Eng – English, Lat - Latin

Polje valley stretches through the middle-southern portion of the area along with Lika River. On its northern and eastern parts the Valley is surrounded by lower mountain chains of Lika Region. Situated on the eastern part of the area, Krbavsko Polje Valley is stretching to the southeast. There are not many settlements present, especially in the Velebit-part of the area. They are generally concentrated around the valleys of Ličko Polje and Krbavsko Polje.

This area extends across the meeting line of two vast phytogeographical regions, namely Mediterranean and Eurosibirian-Northamerican with Velebit massif being the boundary. The greatest part of this area is composed of Eurosibirian-Northamerican phytocenoses (continental site of Velebit, Ličko Polje and Krbavsko Polje) while the Mediterranean region is only partially presented on the sea-orientated mountain sides of Velebit around the town of Karlobag. Lack of settlements and thus diminished anthropogenic influence reflects in the large woodlands of this area. The composition of regional forest communities (Table 4) point out that the dominant trees are downy oak and oriental and hop hornbeam in the submediterranean part and beech and fir in the continental part of the area. Maple, ash, elm, horse chestnut and rowans are some of the ancillary species present in this area.

4. area: Vodice-Drniš-Vrlika

The karstic relief base of this area varies from farm land along Krka River and Prokljansko Jezero Lake to

the west, to high and rocky mountain ridges of Dinara mountain chain to the east, like Kozjak and Svilaja Mountains with altitudes over 1000 meters.

Vegetation of this area entirely possesses submediterranean character whit forests of downy oak and oriental hornbeam forming most important climazonal forest communities. Only in the higher, southwestern parts of the area starting with mountain Svilaja, a coastal beech forest is present. Due to the centuries old utilization of downy oak and oriental hornbeam the vegetation is mostly in some degradation stadium. The composition of the tree layer of the local phytocenoses (Table 5) shows that dominant trees are evidently downy oak and oriental hornbeam; beech also but only for some minor parts of this area. Ash, hop hornbeam, mahaleb cherry, Montpelier maple and rowans make the ancillary plant species.

5. area: Brač-Hvar-Korčula

Islands' phytocenoses belong to eumediterranean evergreen vegetation zone usually dominated by holm oak and Aleppo pine within two most important regional forest communities (Table 6). Montpelier maple, manna ash, prickly juniper, oriental and hop hornbeams, laurel, myrtle, bindweed, pistachio tree, laurustinus, strawberry (bearberry) trees and phyllyrea present the ancillary plant species. The area has been exposed to longstanding anthropogenic influence which is the main reason why substantial parts are in different degradation and progression plant growth stadiums.

Results

Plant names recognized in the phytotoponyms of particular area (Tables 7–12) are listed according to their relative representation in the phytotoponyms (number of phytotoponyms for certain plant / total number of registered phytotoponyms x 100%). Phytotoponyms including terms *hrast* and *dub* (oak) are showed separately and summed up due to the fact that term *dub* is an archaic Croatian term for *hrast*. Plant species of tree layer of the most important forest communities are also given (Tables 7–12 – this is obtained according to Tables 2-6 from the chapter of regional vegetation, and is presented here for easier reference). It should again be stressed that these data pertain only to the climazonal vegetation data of the areas i.e. forest communities that once dominated the areas. Due to human influence vegetation has been in many areas turned into various degradation or pro-

TABLE 7
REPRESENTATION OF PLANT NAMES IN PHYTOTOPONYMS OF THE 1. AREA: ĐURĐENOVAC-VALPOVO-OSIJEK AND OVERVIEW OF DOMINANT AND ANCILLARY SPECIES IN THE TREE LAYER IN MOST IMPORTANT FOREST COMMUNITIES OF THE AREA

Area: 1. Đurđenovac-Valpovo-Osijek

Total number of recognized phytotoponyms: 51

Plant species according to forest vegetation data of the area (Table 2)	Plant in the phytotoponym (genus or species)			Number of phytotoponims	Relative representation (%)
	No.	Croatian name (English name)	Latin name		
	1	dub+hrast (oak)	Quercus	9	17.65
	2	breza (birch)	*Betula*	9	17.65
	3	dub (oak)	*Quercus*	5	9.80
	4	topola (poplar)	*Populus*	5	9.80
	5	brijest (elm)	*Ulmus*	4	7.84
	6	grab (hornbeam)	*Carpinus*	4	7.84
	7	hrast (oak)	*Quercus*	4	7.84
oak	8	lipa (lime)	*Tilia*	4	7.84
hornbeam	9	vinova loza (wine)	*Vitis vinifera*	3	5.88
ash	10	jagoda (strawberry)	*Fragaria*	2	3.92
lime	11	orah (walnut)	*Juglans*	2	3.92
poplar	12	bukva (beech)	*Fagus*	1	1.96
elm	13	glog (hawthorn)	*Crategus*	1	1.96
aider	14	jabuka (apple)	*Malus*	1	1.96
	15	jasen (ash)	*Fraxinus*	1	1.96
	16	kopriva (nettle)	*Urtica*	1	1.96
	17	malina (raspberry)	*Rubus idaeus*	1	1.96
	18	šljiva (plumb)	*Prunus domestica*	1	1.96
	19	trešnja (sweet cherry)	*Prunus avium*	1	1.96
	20	višnja (cherry)	*Prunus cerasus*	1	1.96

TABLE 8
REPRESENTATION OF PLANT NAMES IN PHYTOTOPONYMS OF THE 2. AREA: IVANEC-NOVI MAROF-KRIŽEVCI AND OVERVIEW OF DOMINANT AND ANCILLARY SPECIES IN THE TREE LAYER IN MOST IMPORTANT FOREST COMMUNITIES OF THE AREA

Area: 2. Ivanec-Novi Marof-Križevci

Total number of recognized phytotoponyms: 70

Plant species according to forest vegetation data of the area (Table 2)	Plant in the phytotoponym (genus or species)			Number of phytotoponims	Relative representation *(%)*
	Ordinal	Croatian name (English name)	Latin name		
	1	breza (birch)	*Betula*	15	21.43
	2	dub+hrast (oak)	*Quercus*	8	11.43
	3	grab (hornbeam)	*Carpinus*	6	8.57
	4	dub (oak)	*Quercus*	5	7.14
	5	kesten (chestnut)	*Castanea*	5	7.14
	6	kopriva (nettle)	*Urtica*	5	7.14
	7	drijen (cornelian cherry)	*Cornus*	4	5.71
	8	lipa (lime)	*Tilia*	4	5.71
	9	bor (pine)	*Pinus*	3	4.29
oak	10	bukva (beech)	*Fagus*	3	4.29
beech	11	glog (hawthorn)	*Crategus*	3	4.29
hornbeam	12	hrast (oak)	*Quercus*	3	4.29
maple	13	jasen (ash)	*Fraxinus*	3	4.29
ash	14	orah (walnut)	*Juglans*	3	4.29
elm	15	kruška (pear)	*Pirus*	2	2.86
horse chestnut	16	topola (poplar)	*Populus*	2	2.86
lime	17	vinova loza (grape wine)	*Vitis* vinifera	2	2.86
cherry	18	borovica (juniper)	*Juniperus*	1	1.43
	19	brijest (elm)	*Ulmus*	1	1.43
	20	čičak (budrock)	*Arctium*	1	1.43
	21	jabuka (apple)	*Malus*	1	1.43
	22	javor (maple)	*Acer*	1	1.43
	23	pšenica (wheat)	*Triticum*	1	1.43
	24	šaš (reed)	*Carex*	1	1.43
	25	trešnja (cherry)	*Prunus* avium	1	1.43

gression stadiums. Plant names in the phytotoponyms of all areas together are presented with regard to the total number of all phytotoponyms in which plant names were detected (Table 12). *Dub* and *hrast* are presented separately and summed up as in the other Tables (Tables 7-11).

Discussion

Probably no other plant category instigates such delight in a man as trees do. To a man, trees are source of food, building material, source of various raw materials and medicaments. By putting on the prism of the theory of evolution, it could be contended that this close relationship of man and trees has its ancient roots with our apelike predecessors whose existence was more intimately connected with trees. Trees were man's first home and trough thousands of years of human history, trees have been and still are the resource by which that home is built. Modern building and construction are surely a development of this relationship.

However, besides this material role, for a man the tree bears a tremendous symbolic significance. The tree is a sign, a designation which in innumerable niches of human culture suggests something else. Thus the tree is an analogy and a form of expression. Tree is also an object of religious cult, of magical practices, of folk customs and beliefs and of mythology[9,10]. »Olive branch«, »laurel aureole«, »Christmas tree« are just some of the well known expressions of Western culture that clearly illustrate this. Tree is a model of cognition and classification. »Branch of science«, »branch of society«, »word root« and »tree of knowledge« are just a few phrases used to represent the architecture of a man's thought process by the

TABLE 9
REPRESENTATION OF PLANT NAMES IN PHYTOTOPONYMS OF THE 3. AREA: KARLOBAG-GOSPIĆ-KORENICA AND OVERVIEW OF DOMINANT AND ANCILLARY SPECIES IN THE TREE LAYER IN MOST IMPORTANT FOREST COMMUNITIES OF THE AREA

Area: 3. Karlobag-Gospić-Korenica

Total number of recognized phytotoponyms: 43

Plant species according to forest vegetation data of the area (Table 2)	Plant in the phytotoponym (genus or species)			Number of phytotoponims	Relative representation *(%)*
	No.	Croatian name (English name)	Latin name		
beech oak fir tree hornbeam maple ash elm horse chestnut rowan	1	grab (hornbeam)	*Carpinus*	5	11.63
	2	javor (maple)	*Acer*	5	11.63
	3	vrba (willow)	*Salix*	4	9.30
	4	breza (birch)	*Betula*	3	6.98
	5	bukva (beech)	*Fagus*	3	6.98
	6	jasen (ash)	*Fraxinus*	3	6.98
	7	lipa (lime)	*Tilia*	3	6.98
	8	dub+hrast (oak)	*Quercus*	2	4.65
	9	borovica (juniper)	*Juniperus*	2	4.65
	10	dub (oak)	*Quercus*	2	4.65
	11	jela (fir)	*Abies*	2	4.65
	12	smilje (imortelle)	*Helichrisum*	2	4.65
	13	tisa (yew)	*Taxus*	2	4.65
	14	topola (poplar)	*Populus*	2	4.65
	15	bor (pine)	*Pinus*	1	2.33
	16	brijest (elm)	*Ulmus*	1	2.33
	17	drijen (cornelian cherry)	*Cornus*	1	2.33
	18	jagoda (strawberry)	*Fragaria*	1	2.33
	19	kalina (privet)	*Ligustrum*	1	2.33

TABLE 10
REPRESENTATION OF PLANT NAMES IN PHYTOTOPONYMS OF THE 4. AREA: VODICE-DRNIŠ-VRLIKA AND OVERALL PRESENTATION OF DOMINANT AND ANCILLARY SPECIES IN THE TREE LAYER IN MOST IMPORTANT REGIONAL FOREST COMMUNITIES OF THE AREA

Area: 4. Vodice-Drniš-Vrlika

Total number of recognized phytotoponyms: 22

Plant species according to forest vegetation data of the area (Table 2)	Plant in the phytotoponym (genus or species)			Number of phytotoponims	Relative representation *(%)*
	No.	Croatian name (English name)	Latin name		
oak hornbeam beech ash maple rowan	1	vrba (willow)	*Salix*	5	22.73
	2	dub+hrast (oak)	*Quercus*	4	18.18
	3	dub (oak)	*Quercus*	4	18.18
	4	grab (hornbeam)	*Carpinus*	3	13.64
	5	brijest (elm)	*Ulmus*	2	9.09
	6	drijen (cornelian cherry)	*Cornus*	2	9.09
	7	borovica (juniper)	*Juniperus*	1	4.55
	8	grah (bean)	*Phaseolus*	1	4.55
	9	jasen (ash)	*Fraxinus*	1	4.55
	10	lijeska (hazel)	*Corylus*	1	4.55
	11	lipa (lime)	*Tilia*	1	4.55
	12	ruža	*Rosa*	1	4.55

TABLE 11
REPRESENTATION OF PLANT NAMES IN PHYTOTOPONYMS OF THE 5. AREA BRAČ-HVAR-KORČULA AND OVERVIEW OF DOMINANT AND ANCILLARY SPECIES IN THE TREE LAYER IN MOST IMPORTANT FOREST COMMUNITIES OF THE AREA

Area: 5. Brač-Hvar-Korčula

Total number of recognized phytotoponyms: 55

Plant species according to forest vegetation data of the area (Table 2)	*Plant in the phytotoponym (genus or species)*			Number of phytotoponims	Relative representation *(%)*
	Ordinal	Croatian name (English name)	Latin name		
	1	dub+hrast (oak)		8	14.55
	2	borovica (juniper)	*Juniperus*	7	12.73
	3	maslina (olive)	*Olea*	7	12.73
	4	dub (oak)	*dub*	6	10.91
	5	smokva (figue)	*Ficus* carica	6	10.91
	6	bor (pine)	*Pinus*	5	9.09
oak	7	brijest (elm)	*Ulmus*	4	7.27
pine	8	jagoda (strawberry)	*Fragaria*	3	5.45
ash	9	vrba (willow)	*Salix*	3	5.45
maple	10	grab (hornbeam)	*Carpinus*	2	3.64
gorse	11	grah (bean)	*Phaseolus*	2	3.64
hornbeam	12	hrast (oak)	*Quercus*	2	3.64
laurel	13	kruška (pear)	*Pirus*	2	3.64
	14	vinova loza (grape wine)	*Vitis vinifera*	2	3.64
	15	brnistra (spanish broom)	*Spartium junceum*	1	1.82
	16	bukva (beech)	*Fagus*	1	1.82
	17	jasen (ash)	*Fraxinus*	1	1.82
	18	kupina (blackberry)	*Rubus*	1	1.82

symbolism of a tree. A tree is also an object of man's aesthetic experience. Gardens, paintings and literature are abundant with examples of that.

No other group of plants can take pride on the influence for human life as trees can[11]. A man constantly testifies about this special relationship with trees, and one such evidence can be found in toponymy i.e. in names for settlements and other geographical objects. Visković 2001[11] in his comprehensive work »A Man and a Tree«, highlights many different aspects of human-tree relationship and emphasizes that in toponomy plant terms (phytotoponyms) are much more represented than animal terms. Results of this investigation (Tables 7–11) show that of all plant names recognized in different geographical names the most represented one are trees. Apart form what is being discussed in previous paragraphs one of the most obvious explanation for this lies in the fact that forest phytocenoses are dominant climazonal vegetation of these lands[7,8].

Nevertheless, the inevitable question arises: why did a man give name to certain geographical location after a plant, i.e. tree?. Is it because the tree was the pervading type of vegetation in man's surroundings or was this tree somehow special to a man, or maybe both? It is clear that the precise answer to this question can be given only upon detailed onomastic study of each phytotoponym. However, results of this investigation indicate that geographical objects were named after certain plant due to its some specific value of the plant to the people who came up with geographic name. Abundant presence of a certain tree, for instance oak in the investigated parts, certainly lead to conclusion that human life was also necessarily directed to what was ubiquitous in his environment and at the same time of significant importance. Still, few exceptions display that what had been locally most represented was not always necessarily the most important. Very good example of this is birch.

Birch

Birch is not a dominant tree in any forest community of the investigated areas. Nevertheless the name birch is recognized in phytotoponyms of all areas together only slightly less than the name oak (Table 12). Phytotoponyms in which names *hrast* or *dub* (oak) can be found are present in all five areas, whereas *breza* (birch) can only be found in three of the investigated areas (Tables 7-11). All of them are continental areas, which is understandable considering that birch does not grow in the belt of evergreen deciduous vegetation and on covered karst soil[12] i.e. areas 4 (Vodice-Drniš-Vrlika) and 5 (Brač-Hvar-Rab). So why is birch represented so much in the toponyms? This situation can be explained in two ways.

TABLE 12
TOTAL REPRESENTATION OF PLANT NAMES RECOGNIZED IN PHYTOTOPONYMS OF ALL FIVE REGIONS.

No.	Plant in the phytotoponyms Croatian name (English name)	Areas where phytotoponyms with recognized plant name were found	Total number of recognized phytotoponyms
1	dub+hrast (oak)	1,2,3,4,5	31
2	breza (birch)	1,2,3	27
3	dub (oak)	1,2,3,4,5	22
4	grab (hornbeam)	1,3,4,5	14
5	brijest (elm)	1,2,3,4,5	12
6	lipa (lime)	1,2,3,4	12
7	vrba (willow)	3,4,5	12
8	borovica (juniper)	2,3,4,5	11
9	bor (pine)	2,3,4	9
10	hrast (oak)	1,2,5	9
11	jasen (ash)	1,2,3,4,5	9
12	topola (poplar)	1,2,3	9
13	bukva (beech)	1,2,3,5	8
14	drijen (cornelian cherry)	2,3,4	7
15	maslina (olive)	5	7
16	vinova loza (vine grape)	1,2,5	7
17	javor (maple)	2,3	6
18	kopriva (nettle)	1,2	6
19	smokva (fig tree)	5	6
20	jagoda (strawberry)	1,5	5
21	kesten (chestnut)	2	5
22	orah (walnut)	1,2	5
23	glog (hawthorn)	1,2	4
24	kruška (pear)	2,5	4
25	grah (bean)	4,5	3
26	jabuka (apple)	1,2	2
27	jela (fir)	3	2
28	smilje (immortelle)	3	2
29	tisa (yew)	3	2
30	trešnja (cherry)	1,2	2
31	brnistra (broom)	5	1
32	čičak (budrock)	2	1
33	kalina (privet)	3	1
34	kupina (blackberry)	5	1
35	lijeska (hazel)	4	1
36	malina (raspberry)	1	1
37	pšenica (wheat)	2	1
38	ruža (rose)	4	1
39	šaš (reed)	2	1
40	šljiva (plum)	1	1
41	višnja (sour cherry)	1	1

First explanation follows an argument that birch groves usually appear on the places where once existed a forest of durmast oak or chestnut. Deforestation of dominant vegetation produced surfaces in those three continental areas favorable to birch growth, which consequently made people name more geographical objects after this tree. Birch is a tree that in these parts exists seldom in the form of continuous forests. Due to its modest needs for nutrition, moisture and soil warmth, birch is a pioneering species capable of conquering new terrains for developing forest. Under the protection of its sparse crown, other wood species, such as oak or beech, can thrive and subsequently push the birch out in the process of progression towards climazonal type of vegetation. Namely, birch in its need for light surpasses all other deciduous tree species. Figuratively speaking, we could say that in these three continental areas birch is constantly trying to conquer reclaimed soil for oak forest[7,12].

Other possibility to explain this large percentage of phytotoponyms with name *breza* (birch) recognized in them is to consider the importance that birch has had in the lives of people of these areas. The ways in which a birch is used are numerous. Birch is a »tree for any use« as was called by Visković 2001[11]. In carpentry it is used for producing house furnishings, it is also used as a raw material for many nutritional and construction products as well as medicaments. Birch bark was used for writing. Birch is also useful as a fire wood especially because it can burn easily even while still fresh[11,12]. Birch is used in certain folk customs in Croatia, and according to Vinšćak 2002[10] those customs can be correlated with the beliefs of Siberian and middle-Asian human populations where birch symbolizes a cosmic tree and a way to divine and supernatural. In shamanic rituals birch represents a pillar of the world (*axis mundi, arbor mundi*) and is also a symbol for mystic ascent of the shaman to the otherworld. This symbolism of the birch can also be traced to the Indo-European root of the word *breza* (birch) meaning to shine or to glare.

Willow

Willow (*vrba*) is another example how a presence of a plant in the vegetation environment does not have to be a reason for plant's appearance in the geographical names. According to the results, willow is by its occurrence among top 10 plants identified in the toponyms (Table 12). However, the pyhtotoponyms where *vrba* was recognized were only found in areas 3, 4 and 5. Two of these areas (4 and 5) belong to the Mediterranean vegetation region and one (3) is situated in a transition between Mediterranean and Eurosibirian-Northamerican region (Tables 7-11). In botanical sense the name willow designates a genus of around 300 various species. Willows are found on moist soils with high levels of underground waters. This makes them the most important trees and bushes of damp forests and of coastal river shrubbery[7,12]. The karst soils of areas 3,4 and 5 do not retain water, and even though they contain water flows where willows grow, the biggest portion of these areas are made of soil

which does not suit willow. However, such conditions can be found in area 2, and especially in area 1 which is mostly alluvial valley of river Drava. Surprisingly, not one toponym was found with name *vrba* recognized in it in the area 1 and 2 (Tables 7 and 8). In order to explain this case, it is necessary to better examine relationship between human and willow.

In human use, willow has many purposes. Probably the best known use of willow is in the production of wattled objects like baskets. Willow is especially suitable for making vineyard stakes and pickets and wattled fences. Due to its softness willow wood is very convenient for building rowboats and other objects exposed to hard thrusts. Notable is the usage of willow as a healing herb[11,12]. Willow also occupies an important place in the beliefs of Croats and Serbs. There are numerous examples of symbolic use of willow in folk customs[10].

It can be concluded that willow has been a tree of significant economic and symbolic importance for people of investigated areas. Its importance was more so enhanced for the people living in areas 3 and 4 and especially 5 simply because it was not readily available in the environment to the inhabitants of these areas like it was for the people of areas 1 and 2. It is exactly in this accentuated importance and diminished availability that an explanation might lie why the people honored the elements of their geographical surrounding with the name of *vrba* (willow).

Demonstrated examples show how plant presence in local vegetation is not an exclusive condition for its representation in toponymy of an area. The crucial fact is the importance that a plat plays in the lives of the people. This importance could be grounded on various economical, but symbolical reasons as well. However, it is indisputable fact that not one of the 39 plants recognized in the analyzed phytotoponyms is a plant that does not grow in the area where it was detected. In other words, not even one *maslina* (olive) was recognized in the geographical names of Slavonian area (area 1) nor was *topola* (poplar) found among the names of island areas (area 5). In addition, all dominant species of trees in forest communities of an area, as well as the majority of ancillary species are represented in the phytotoponyms of that area.

The following lines contain further explanation of the results with focus on observing connections between data on forest communities and the presence of plant names in phytotoponyms. At the end of discussion, an attempt to connect the obtained results with phytogeographical features of investigated area will be given.

Oak

In Croatian language, names *hrast* and *dub* are synonyms for oak[13,14]. The results show that the name *dub* is present in the phytotoponyms of all areas whereas the term *hrast* is found mostly in the continental areas (1 and 2) (Tables 7-11). The name *hrast* or *dub* (oak) encompasses several species of genus *Quercus* (pedunculate oak, durmast oak, turkey oak, holm oak, downy oak) distributed according to different environmental conditions in Croatia[13,15]. Regardless of the species, oak is dominant tree in almost all forest communities of the studied areas. This is in line with total representation of the oak in the collected phytotoponyms where it surpasses by far all other plants. Such share of the oak in the phytotoponyms is also justified by numerous economical and symbolical uses of the oak in human living. Oak is used as firewood; also for construction and production of myriad of items that people use or are surrounded by in everyday life. Oak is the source of raw materials for industries and it is important for animal and human nutrition. By the quality of its wood, acorns, size, persistence and oldness oak is considered the most dignified of all trees[11,12]. Indo-Europeans have dedicated oak to supreme gods, making the oak the central plant in folk beliefs. In Slavic mythology oak is dedicated to supreme god Perun – the god of haven, rain and thunder[10,11,13].

Elm and ash

Except for the names *hrast* or *dub* (oak), the tree names that also appear in the phytotoponyms of all investigated areas are *brijest* (elm) and *jasen* (ash) (Tables 2-11). The data on the vegetation of the areas (Tables 2-7) show that genus *Fraxinus (*ash) is presented in woods of all areas. Elm (*Ulmus)* is according to the same data present only in the first three areas even though the description the elm genus areal explain that species of elm tree can thrive on places with very diverse conditions and that they can also be found on warm and dry limestone hillsides[12], such as the ones in areas 4 and 5. The literature also confirms a manifold economical and symbolical exploitation of ash and elm trees[11,12].

Lime, beech and hornbeam

Presence of the name *lipa* (lime) in the phytotoponyms of all areas, except in area 5 (Tables 7-11), is to some extent justified by its presence in local vegetation (Tables 2-6). The appearance of lime in phytotoponyms decreases from area 1 to area 4 which is in accordance with environmental needs of lime. Lime grows best in deep, fresh and soft soils and does not like arid and hard soils mostly found in areas 4 and 5[12]. There is also another possible explanation for such representation of the lime in local geographical names. Lime is according to mythology of most Slavic nations considered to be a holy tree[10,13,14]. Limetree usually grows in the centre of village communities and it is also speculated that some South Slavic nations used to build shrines and churches on the places where once lime grew. The importance of lime tree in the lives of the people of Croatia is evident through the facts that one month of the year has been named after *lipa* (lime), (June – *lipanj* in. Croat.). In addition *lipa* is also a name for centennial currency in the Republic of Croatia.

A detailed insight in results on Tables 7-11 explains that most of the phytotoponyms comprising the name *bukva* (beech) are part of areas 2 and 3 where beech is most present (Tables 2-6). Thus, once again, phytoceno-

logical data corroborate the presence of plants in phytotoponyms.

The name *grab* (hornbeam) implies three different species common in these areas. Common horn beam (*obični grab*), *Carpinus betulus* and oriental hornbeam (in Croatian: *bijeli grab*, literal translation: žwhite' hornbeam), *Carpinus orientalis* belong to the some genus (*Carpinus*). The third species is hop-hornbeam (in Croatian: *crni grab*, literal translation: žblack' hornbeam) belongs to genus *Ostrya*[15]. According to obtained results, the name *grab* (hornbeam) is among top 5 plant names mostly recognized in toponyms of all areas together (Table 12). It is found in the geographical names of all areas. The highest number of toponyms containing the name *grab* was found in area 2.

This popularity of hornbeam is in accordance with distribution of plant species bearing the name *grab*. Similarly to oak, hornbeam (species dependant) is found in great number of Croatian forest communities, if not as a dominant tree, than certainly in the brushwood layer or as ancillary species in the tree or brushwood layer (Tables 2-6)[7]. Wide usage of hornbeam wood justifies this observed popularity in geographical names. In the past, hornbeam used to have a specific role in lives of Indo-Europeans and for that mater also in the lives of Slavic nations. It was used for writing. Namely, specific graphic symbols used to be scribed in on its bark and wood. The testimony for this interesting usage of this wood is hidden in the Indo-European root of the word *grab* which means – to scratch, to draw and to write[11].

Finally, as for the presence of names for genera of climazonal vegetation in toponymy it should be concluded that the only plants found among phytotoponyms of all areas are: oak, hornbeam, elm and ashwood. This fact again is in accord with areal of these plants in Croatia but also with the important role that these trees have had for people.

Cultivated plants

Trees such as: cherry, apple and nut were found only in the names of areas 1 and 2 (Tables 7 and 8), a fact that could be justified by their local economical and dietary importance. Olive and fig phytotoponyms are presented only in area 5, which is also explainable by the significance for food and economy of that area.

It is important to note here that not only trees are present among cultivated plants recognized in geographical names. Grape vine is represented in the toponyms of areas 1, 2 and 5, which is evidently explained by the fact that those areas are known to be one of the most important vine regions of Croatia.

A plant name *grah* (bean) presents a special curiosity. Except for *Phaseolus*, phytotoponyms containing the name *grah* might be connected with other plant genera from the bean family (in Croat.: *grahorice,* or *mahunarke*), such as vetch (*Vicia)*, (in Croat.: *grahorica*), sweet peas (*Lathyrus*, in Croat.: *graholike*) or lentils (*Lens,* in Croat*: leća).* It should also be noted that bean is not an autochthonous plant of these areas. It comes from South and Middle America, and it was started to be grown in Europe in 16 century[14]. However, the phytotoponyms in which the word *grah* (bean) could be identified are found only in areas 4 and 5. This displays a special importance that bean or other bean family species, used to have on Croatian islands and Dalmatinska Zagora area (partially covered by area 4). The reason for this situation might be looked for in the fact that species from bean family are good protein source. Fertile fields and pastures are scarce on rocky coastal parts of Croatia (where areas 4 and 5 are situated) therefore all autochthonous plants from bean family probably played very important role in the diet of humans and animals of these areas.

Another fact which demonstrates human fascination with trees is interestingly enough connected with wheat and cereals. Of all detected phytotoponyms, there is only one in area 2 in which the name for *pšenica* (wheat) could be recognized. In these lands wheat (along with other cereals such as rye, barley and millet) is an old field crop, extremely important for human sustenance. In area 1, today, wheat is probably more present than many of the tree species that once dominated this landscape. Despite this fact, the people of this area didn't feel inspired to honor the importance of the wheat by naming the object of their surroundings after it.

Other fruit plants species recognized in the toponyms are: plum, sour cherry and mulberry (represented only in area 1), pear (areas 2 and 5) and strawberry (areas 1 and 5).

Phytotoponyms and Croatian geo-botanical image

The selection of the areas studied in this survey tried to represent different phytogeographical regions of Croatia. The geographical position of Croatia is especially interesting because its territory entails the meeting line of two big phytogeographical regions: Mediterranean and Eurosibirian-Northamerican region (Figure 1 and 2)[4,7,16].

Table 13 shows that the highest numbers of phytotoponyms are found in the first two continental areas (1 and 2). Those two, along with the third area belong to Eurosibirian-Northamerican phytogeographic region. In areas 4 and 5, belonging to the Mediterranean phytogeographic region, the number of phytotoponyms is somewhat smaller. Possible explanation of this situation must surely imply some topological and vegetational elements of environmental substratum especially valuable for the material and symbolic lives of the people. It can be assumed that people living in the continental and lowland parts of Croatia were more directed to the earth and plants as the main sources of their opulence and well-being. In the coastal, Mediterranean parts of Croatia, a greater role is taken over by the sea which enhances other modes of sustenance and economy like fishing, trade, seafaring etc. If we just compare the visual presence of environmental elements in the everyday lives of the people of those two regions we can obtain a much clearer picture. For continental and lowland parts of Croatia those are forests, fields and plains – in other words mostly plants and green color. Mediterranean

TABLE 13
OVERVIEW OF THE TOTAL NUMBER OF PHYTOTOPONYMS AND PLANT GENERA AND SPECIES DETECTED IN THEM ACCORDING TO SURVEYED AREAS.

Area	No. of phytotoponyms	No. of plant species in the phytotoponyms
1: Đurđenovac-Valpovo-Osijek	51	18
2: Ivanec-Novi Marof-Križevci	76	23
3: Karlobag-Gospić-Korenica	43	18
4: Vodice-Drniš-Vrlika	22	11
5: Brač-Hvar-Korčula	55	16
Total:	247	39*

*The number represents the total number of all plant genera and species recognized in phytotoponyms of all surveyed areas together (Table 12).

landscapes are dominated by entirely different colors and environmental elements like blue and white color – sea and rock, and then green – plants. Such reduced differences between those two parts of Croatia, as daily visual inputs into internal lives of the people must have surely influenced the subsequent associative and thought processes out of which sprung the ideas and choices for the names of geographical objects.

Remarks on methodology

In the Introduction to this paper the deficiencies of this by all means, reductionist methodology applied in this research was acknowledged. The shortcomings of this approach are undoubtedly many: toponyms in this atlas are sometimes not the true names that people use; true motivation behind a phytotoponym may not be plant but some person, object or event that is only indirectly connected to the plant; there is also a question of dialectal names, phytotoponyms that do not appear on the map because the scale of the map, etc.

However, given the insights gained in previous paragraphs, it is in order to once again evaluate this method and to point out some advantages of this line of inquiry. It is clear that analyzing toponyms in the way that it was done in this research may be of use when trying to get an overview of relationships between man and plants over greater territory. Detailed linguistic studies (like Šimunović 1986[2] and Šimunović 2004[3]) as sources of the only reliable data for such ethnolingustic questions take years to complete, especially for vast areas of human environment, so this method can give us some information with easier accessibility but a lesser degree of reliability. As a preliminary research, this approach can provide us with useful indications and starting hypotheses. It can certainly help to point out problems and topics worth pursuing in a more focused ethnobotanic and/or linguistic study.

Conclusion

The research of geographical names surely gives valuable contributions to the understanding of the cultural heritage of a certain geographical space. The results of this investigation show how toponyms, in which the names of the plants can be recognized, mostly represent local climazonal vegetation of an area but also ethno-linguistic and socio-cultural motives embedded in the lives of the people. For the biggest part of the Croatian territory dominant climazonal vegetation are forest communities. Thus, trees are found to be the most represented plants in the geographical names. The most dominant genera are oak and birch: oak not just because of its superiority in Croatian forest vegetation, but also like birch because of the special role that the plant plays in human material and symbolic life of these areas. Thus, this study managed to shed some light on the motive behind the need of people of these areas to name their surroundings after plants. This motive is not only based on the dominance of certain plant species in the local environment but also on the importance and distinguishing role that certain plant entertains in the local human living. In addition this research points out some methodological advantages of this research especially when the aim is to get an overview of the relationships between human population and plant cover of an extensive area of human environment.

Acknowledgements

This work was supported by the following grants: the Croatian Ministry of Science, Education and Sports grants »Population structure of Croatia – anthropogenetic approach« (No. 196-1962766-2751 to P.R.) and Ethnological Database as a Source of Knowledge on Ethnic and National Identities« No. 130-1301679-1325 to B.Đ.

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BILJE I ZEMLJOPISNA IMENA U HRVATSKOJ

S A Ž E T A K

Cilj je ovog istraživanja iznijeti općenita zapažanja, zakonitosti i uvide o složenom odnosu ljudi i biljaka kroz simboličke sustave kao što su zemljopisna imena na teritoriju Hrvatske. Osnovni izvori podataka za ovo istraživanje bile su karte iz atlasa Hrvatske[1] mjerila 1:100000. Izabrano je pet grupa karata odnosno područja kako bi u istraživanju bile zastupljene karte iz glavnih fitogeografskih zona Hrvatske. Sa svake karte odabrani su toponimi u kojima je prepoznato hrvatsko ime za biljku (fitotoponimi). Rezultati pokazuju kako je od svih imena biljaka prepoznatih u geografskim imenima najzastupljenije drveće, i to ponajviše breza i hrast. Nadalje, prisutnost pojedinog biljnog roda odnosno vrste pokušala se objasniti u svjetlu najopćenitijih fitogeografskih i sociokulturnih razlika i sličnosti uspoređivanih područja. Podaci potvrđuju pretpostavku kako su rodovi klimazonalne vegetacije određenog područja najzastupljeniji među fitotoponimima. S druge strane rezultati su ukazali i na mnoge primjere gdje prisutnost imena biljke u imenima čovjekova okoliša može samo biti pripisana etnolingvističkim i sociokulturnim motivima. Usprkos redukcionističkim osobinama primijenjene metodologije, ovo istraživanje ukazuje i na prednosti ovakvog pristupa kod entobotaničkih i etnolingvističkih istraživanja velikih površina čovjekova okoliša.

Appendix: The List of Toponyms

Following is the list of toponyms in which a name of a plant in Croatian was recognized. Phytotoponyms were derived from the geographical maps published in the atlas of Croatia[1] and are presented according to five studied groups of the maps (see Sources and Methods).

1. area: Đurđenovac-Valpovo-Osijek (51 phytotoponyms):

Brešće, Brešće, Breza, Brezik, Brezik Našički, Breznica, Breznica, Breznica Našička, Breznički ribnjak, Brezovac, Brezovica, Briješće, Brijest, Bukovik, Dubina, Dubine, Dubovik, Dubrava, Dubrava, Glogova greda, Gornja Jasenovica, Grabarije, Graberje, Grabik, Grabovac, Hrastik, Hrastina, Hrastovac, Jabučje, Jagodnjak, Kneževi Vinogradi, Koprivnica, Lipik, Lipine, Lipova greda, Lipovac, Lužnjak, Malinovac, Novi Jagodnjak, Orašje, Orešanci, Šljivoševci, Topola, Topolina, Topoline, Topolje, Topolovac, Trešnjica, Vinogradci, Vinogradi, Višnjevac

2. area: Ivanec-Novi Marof-Križevci (76 phytotoponyms):

Borje, Borovka, Borovljani, Brdo Orehovečko, Brestovec, Brežanci, Brezik, Brezine, Brezine, Brezine, Brezine, Brezine šume, Brezje Miholečko, Breznica, Breznički Hum, Brezov Most, Brezovac, Bukovec, Čički, Črešnjevec, Donji Dubovec, Drenovec, Dubovec, Dubovečki Breg, Glogovac, Glogovnica, Glogovnica, Gornji Dubovec, Graberski, Grabičine, Grabrovac, Grabulin, Hraščina, Hrastovec, Hrastovsko, Hruškovac, Hruškovec, Jabučeta, Jales Breznički, Jalševec Svibovečki, Jasenov breg, Jasenovac, Jasenovec, Javorovac, Koprivnica, Koprivnica, Koprivnički Bregi, Koprivnički Ivanec, Kostanj, Kostanjevac, Kostanjevec, Kostanjevec, Kostanjevec Riječki, Lipovčica, Lipovec, Lipovica, Lipovo Brdo, Mali Grabičani, Mirkovec Breznički, Orehovec, Orehovec, Pisana bukva, Pšenac, Retkovec Svibovečki, Rijeka Koprivnička, Šašina šuma, Široko Brezje, Smrček, Srednji Dubovec, Svibovec, Topolovec, Veliki Grabičani, Vinograci, Vinogradi Ludbreški, Vrtana bukva, Zrinski Topolovac

3. area: Karlobag-Gospić-Korenica (43 phytotoponyms):

Borovčeva vodica, Brestov gaj, Brezov do, Brezovo Polje, Brizovac, Bukovac, Bukovac Perušićki, Drinovača, Dubrava, Dubrava, Grabac, Grabar, Grabovača, Grabovo rame, Grabušić, Jagodnje, Jasenov vrh, Jasenova korita, Jasenovača, Jasikovac, Jasikovača, Javorine, Javornik, Javornik, Javorovo bilo, Jelovača, Jelovi vrh, Kalinovača, Klenovac, Kosica bukova, Lipe, Lipovačka brda, Lipovo polje, Smiljanići, Smiljansko polje, Smrčeve doline, Šmrčevica, Tisov vrh, Tisovac, Vrbakovac, Vrbanska Duliba, Vrbanske rape, Vrbas

4. area: Vodice-Drniš-Vrlika (22 phytotoponyms):

Brestovača, Bristovača, Drinovački gaj, Drinovići, Dubrava, Dubrave, Dubrave, Dubravice, Grabovac, Grabovača, Grabovci, Grahovo, Jasenovac, Lipovac, Ljeskova glav, Ružići, Smričnjak, Vrbatovići, Vrbica, Vrbica, Vrbničke krše, Vrbnik

5. area: Brač-Hvar-Korčula (55 phytotoponyms):

Borov rt, Borova, Borova uvala, Borovik, Bristova glava, Bristovi rat, Brnistrova, Bukovo, Dub, Dubi, Dublje, Dubovica, Dubravice, Gluha smokva, Grabak, Grabovac, Grahovišće, Jagodna, Jagodna, Jagodni bad, Jasenovac, Kruška, Krušvice, Lozna, Lozovik, Maslinica, Maslinje, Maslinje, Maslinovik, Pličina bristova, Podsmrčevik, Smokovje, Smokovnik, Smokvica, Smrč, Smrčeva glav, Smrčevik, Smričevac, Smrka, Uvala borak, Uvala bristova, Uvala dubac, Uvala grahova, Uvala kupinova, Uvala mala maslinica, Uvala smokova, Uvala smokvina, Uvala vrbovica, Vela maslinova uvala, Vela smrča, Vrbanjske rudine, Vrbovica, Vrh hrastove, Vrh hrastovik, Zamaslinjak