Elevation of Village Settlements by Municipalities in the River Basin of Crna Reka and Their Importance for Development of Tourism in the Republic of Macedonia*

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The drainage area of Crna Reka is a spatial area that extends into two states in the southwestern part of the Republic of Macedonia. The boundaries of Macedonia and the northern part of the Republic of Greece are naturally clearly defined. The drainage area of Crna Reka in the Republic of Macedonia extends between 40°51'56" and 41°36'20" s.š.i 20°56'45" and 22°4'58". The total length of Crna Reka is 207 km², with a total area of the catchment area (in both countries) of 5,774.99 km², of which the Republic of Macedonia belongs the largest part of 4,869.72 km², while the Republic of Greece belongs 905.27 km². The research paper presents 335 village settlements located in 13 municipalities in the Crna Reka Basin in the Republic of Macedonia. Macedonia and another 50 settlements settlement plus the city of Lerin are located in the neighboring Republic of Greece. Let us see how spatial and which rural settlements are located in the Crna River Basin in both countries. The villages will be represented by municipalities according to their main characteristics, municipal belonging, and altitude.

Keywords: river basin, village settlements, altitude

Introduction

The rural settlements differ from the cities according to their physiognomy, or type, size, and population, have different construction and urban design, after the occupation of the population where the main activity is agriculture and the modest beginnings for the development of rural tourism in the villages of infrastructure facilities. In the Crna River Basin, there are 335 villages and three towns that belong to 13 municipalities in the Republic of Macedonia and 50 villages and plus the city of Lerin in the neighboring Republic of Greece. To see the spatial distribution of rural settlements in the Crna Reka Basin will be presented the villages according to their municipal belonging and altitude (Koteski, 2011, pp. 178-194).

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The height distribution of rural settlements is a very important element in the study of settlements,

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especially for road infrastructure, the size of arable land, urbanization of rural settlements, migrations, and other characteristics. To see the distribution of the villages according to the altitude of the Black River Basin in the Republic of Macedonia, their categorization was done in the villages from: 0-600 m, 600-700 m, 700-900 m, and above 900 m elevation (Koteski, 2011, pp. 203-209). Field research for 50 villages in the neighboring Republic of Greece is conducted due to the bad political relations between the Republic of Macedonia and the Republic of Greece.

Table 1

A Review of the Villages That Are Located From 0-600 m, 600-700 m, 700-900 m, and above 900 m, in the River Basin of Crna Reka in Municipalities and Settlements in the Republic of Macedonia

Municipality and settlements	0-600 m	Municipality and settlements	600-700 m	Municipality and settlements	700-900 m	Municipality and settlements	Над 900 m
Municipality of Bitola	sea level	Municipality of Bitola	sea level	Municipality of Bitola	sea level	Municipality of Bitola	sea level
Gorno Egri	585 m	Baresani	690 m	Bratindol	830 m	Gopes	1,140 m
Dolno Egri	572 m	Bistrica	630 m	Brusnik	860 m	Drevenik	1,200 m
Dolno Orizari	577 m	Velusina	695 m	Bukovo	720 m	Zlokukani	980 m
Dragarino	590 m	Gabalevci	660 m	Dihovo	830 m	Magarevo	1,040 m
Zabeni	585 m	Gorno Orizari	605 m	Dolenci	790 m	Maloviste	1,140 m
Karamani	574 m	Graesnica	680 m	Gavato	860 m	Nizepole	1,030 m
Kravari	587 m	Dragozani	620 m	Kazani	880 m	Oblakovo	1,100 m
Kremenica	588 m	Dragos	680 m	Kisava	860 m	Ostrec	970 m
Logovardi	578 m	Kanino	670 m	Krstoar	700 m	Rotino	920 m
Novo	595 m	Krkline	670 m	Lavci	760 m	Sviniste	1,200 m
Zmirnov		Kukurecani	680 m	Lera	750 m	Snegovo	1,100 m
Opticari	578 m	Lazec	660 m	Lopatica	780 m	Trnovo	960 m
Posevo	578 m	Lisolaj	700 m	Megitlija	820 m	Capari	1,010 m
Porodin	600 m	Oleveni	650 m	Metimir	820 m	Municipality of Gradsko will not villages of this group	
Sredno Egri	576 m	Sekirani	665 m	Orehovo	720 m	Municipality Demir Hisar	
Trn	573 m	Crnovec	650 m	Ramna	820 m	Bazernik	950 m
Crnobuki	600 m	Municipality Gradsko		Rastani	780 m	Boiste	910 m
		Podles	640 m	Srpce	900 m	Brezovo	940 m
				Staro	850 m	Velmevci	950 m
				Zmirnov	740 m	Golemo Ilino	980 m
				Strezevo		Zasle	1,220 m
Municipality of Gradsko will not villages of this group		Municipality Demir Hisar		Municipality of Gradsko there are no villages in this group		Leskovo	1,000 m
The municipality of Demir Hisar has no villages in this group		Barakovo	620 m	Municipality Demir Hisar		Malo Ilino	910 m
Municipality Dolneni		Belce	650 m	Babino	750 m	Radovo	1010 m
Zapolzani		Vardino	660 m	Virovo	840 m	Cerovo	970 m
Municipality Drugovo does not have villages from this group		Graiste	610 m	Dolenci	700 m	The municipality of Dolneni has no villages in this group	
Municipality Kavadarci		Edinakovci	670 m	Zelesnec	730 m	Municipality Drugovo	
Begniste		Zvan	690 m	Kociste	730 m	Golemo Crsko	1,000 m
Brusani		Zurce	700 m	Mrenoga	760 m	Malo Crsko	980 m
Vozarci		Zagorice	674 m	Obednik	750 m	Cer	1,010 m
Dabniste		Kutretino	650 m	Rastoica	720 m	Municipality Kavadarci	
Dobrotino		Novoselo	670 m	Sveta	710 m	Rozden	920 m
Drenovo		Pribilci	670 m	Sloestica	770 m	The municipality of Krivogastani has no villages in this group	
Kosani		Rakitnica	690 m	Smilevo	880 m	Municipality Krusevo	
Mrezicko		Sladuevo	635 m	Strugovo	710 m		
		Slepce	680 m	SuvoGrlo	720 m		
		Sopotnica	670 m				
		Suvodol	670 m				
		Utovo	690 m				
				Municipality Dolneni			

Raec	300 m			Gorno Selo	750 m	Birino	970 m
Resava	330 m	Municipality Dolneni		Gostirazni	740 m	PustaReka	940 m
Faris	415 m			Drenovci	770 m	Selce	920 m
Sivec	180 m			Zrze	720 m	Municipality of Mogila has no villages in this group	
Municipality Krivogastani		Belopole	610 m	Lazani	780 m	Municipality Novaci	
		Brailovo	660 m	MaloMramorani	715 m	Grumazi	1,090 m
Borotino	590 m	Vrance	603 m	Margari	760 m	Iveni	940 m
Vrbjani	548 m	Dabjani	605 m	Strovija	720 m	Polog	940 m
Kruseani	597 m	Debreste	680 m	Municipality Drugovo does not have villages from this group		Sovic	1,080 m
Obrsani	589 m	Desovo	680 m	Municipality Kavadarci		Municipality Prilep	
Pasino Ruvci	585 m	Dolgaec	700 m	Bojanciste	900 m	Zivovo	920 m
Slavej	600 m	Dolneni	622 m	Galiste	740 m	Krstec	1,080 m
The municipality of Krusevo has no villages in this group		Dupjacani	660 m	Klinovo	770 m	Pletvar	990 m
		Zabjani	630 m	Kumanicevo	900 m	Polciste	910 m
		Zitose	630 m	Majden	780 m	Prisad	940 m
		Zabrcani	660 m	ОпштинаКривогаштани немаселаодоваагрупа		The municipality of Rosoman has no villages in this group	
		Kostinci	620 m	Municipality Krusevo		Municipality of Caska has no villages in this group	
		Kosino	690 m	Belusino	880 m		
		Kutlesevo	660 m	Gorno	800 m		
Municipality Mogila		Lokveni	625 m	Divjaci			
		Nebregovo	700 m	Dolno	860 m		
		Novoselani	620 m	Divjaci			
Budakovo	525 m	Pestalevo	610 m	Jakrenovo	730 m		
Vasarejca	584 m	Rilevo	660 m	Norovo	785 m		
Gorna Carlja	583 m	Ropotovo	610 m	Ostrilci	860 m		
Dedebalci	592 m	Sarandinovo	610 m	Municipality Mogila			
Dobrusevo	594 m	Sekirci	620 m	Mojno	710 m		
Dolna Carlja	582 m	Senokos	623 m	Municipality Novaci			
Loznani	600 m	Slepce	700 m	Armatus	840 m		
Mogila	582 m	Slivje	625 m	Brnik	740 m		
Nospal	588 m	Sredorek	602 m	Brod	740 m		
Radobor	531 m	Crnliste	662 m	Budimirci	800 m		
Trap	573 m			Gnilez	840 m		
Municipality Novaci		Municipality of Drugovo does not have villages from this group of villages		Gradesnica	800 m		
		Municipality Kavadarci		Grunista	800 m		
Biljanik	580 m	Garnikovo	680 m	Dolno	720 m		
Gneotino	577 m	Grbovec	670 m	Orehovo			
GornoAglarci	590 m	Dradnja	610 m	Zivojno	710 m		
Dalbegovci	592 m	Dragozel	610 m	Meglenci	740 m		
Dobroveni	580 m	Kesendre	670 m	Orle	830 m		
Dobromiri	575 m	Pravednik	650 m	Paralovo	820 m		
DolnoAglarci	582 m	Seskovo	620 m	Petalino	800 m		
Novaci	576 m	Municipality Krivogastani		Staravina	850 m		
Ribarci	540 m	Bela Crkva	603 m	Tepavci	750 m		
Skocivir	600 m	Vogani	603 m	Municipality Prilep			
Municipality Prilep		Godivje	650 m	Belovodica	800 m		
Gugakovo	580 m	Korenica	623 m	Besiste	900 m		
Dren	570 m	Krivogastani	607 m	Varos	830 m		
Erekovci	600 m	MirceAcev	609 m	Veprcani	800 m		
Klepac	590 m	Municipality Krusevo		Vitoliste	830 m		
Nikodin	600 m	Aldanci	645 m	Volkovo	780 m		
Podmol	600 m	Arilevo	660 m	Vrpsko	800 m		
Topolcani	600 m						
Trojaci	600 m						
Trojkrsti	600 m						
Cepigovo	600 m						

Municipality Rosoman		Borino	690 m	Kokre	720 m		
Debriste	300 m	Bucin	607 m	Krusevica	759 m		
Kamen Dol	260 m	Vrboec	640 m	Leniste	780 m		
Krusevica	280 m	Milosevo	651 m	Lopatica	750 m		
Manastirec	145 m	Presil	640 m	Malo Ruvci	740 m		
Mrzen	570 m	Sazdevo	650 m	Marul	780 m		
Oraovec		SvetoMitrani	670 m	Oreovec	860 m		
Palikura	140 m	Municipality Mogila		Prilepec	830 m		
Ribarci	150 m	Alinci	604 m	Selce	740 m		
Rosoman	135 m	Beranci	640 m	Caniste	720 m		
Sirkovo	300 m	Dolno Srpci	640 m	Cumovo	860 m		
Trstenik	140 m	Ivanjevci	630 m	Stavica	800 m		
Municipality of Caska has no villages in this group		Musinci	630 m	The municipality of Rosoman has no villages in this group			
		Novo Selani	610 m	Municipality of Caska has no villages in this group			
		Podino					
		Puturus					
		Sveta Tadori					
		Trnovci					
		Crnicani					
		Municipality Novaci					
		Baldovenci	690 m				
		Bac	620 m				
		Vele Selo	700 m				
		Vranjevci	660 m				
		Germijan	610 m				
		Zovik 1	680 m				
		Zovik 2	680 m				
		Makovo	700 m				
		Novo Selo	700 m				
		Rapes	700 m				
		Slivica	610 m				
		Suvodol	650 m				
		Municipality Prilep					
		Alinci	670 m				
		Berovci	628 m				
		Bonce	620 m				
		Veselcani	613 m				
		Galicani	617 m				
		Golem	620 m				
		Radobil					
		Golemo	607 m				
		Konjari					
		Dabnica	605 m				
		Dunje	690 m				
		Zagorani	612 m				
		Kadino Selo	612 m				
		Kalen	640 m				
		Kanatlarci	620 m				
		Mazuciste	660 m				
		Mal Radobil	620 m				
		Malo Konjari	613 m				
		Manastir					
		Novo	690 m				
		Lagovo	640 m				
		Pestani					
		Rakle	670 m				
		Smolani	700 m				
		Staro Lagovo	650 m				
		Toplica	685 m				
		Carevik					

		Seleverci	680 m 696 m 635 m				
		The municipality of Rosoman has no villages in this group					
		Municipality Caska					
		Popadija—700 m					

Notes. ^aPanov, M. (1998). Encyclopaedia of the villages in the Republic of Macedonia, Skopje; ^bMilitary Geographic Institute (1972). Printing maps with scale 1: 25000 (Gaus Kriger's projection) for the territory of the Republic of Macedonia (216 sections), Belgrade.

For a clear view of the height distribution of rural settlements by municipalities and their total number of villages, especially for each category of altitude in the Crna Reka River Basin in the Republic of Macedonia, we will use the data from Table 2.

Table 2

Total Number of Villages by Municipalities According to the Categories of Altitude in the Black River Basin in the Republic of Macedonia

Општина	0-600м.н.в	600-700м.н.в.	700-900м.н.в.	над 900м.н.в	Total
Bitola	16	16	19	13	65
Gradsko	/	1	/	/	1
DemirHisar	/	17	14	10	40
Dolneni	1	28	8	/	37
Drugovo	/	/	/	3	3
Kavadarci	12	7	5	1	25
Krivogastani	6	6	/	/	12
Krusevo	/	9	6	3	18
Mogila	11	11	1	/	23
Novaci	10	12	15	4	41
Prilep	10	25	19	5	59
Rosoman	10	/	/	/	10
Caska	/	1	/	/	1
Total	76	133	87	39	335

Notes. ^aPanov, M. (1998). Encyclopaedia of the villages in the Republic of Macedonia, Skopje; ^bMilitary Geographic Institute (1972). Printing maps with scale 1: 25000 (Gaus Kriger's projection) for the territory of the Republic of Macedonia (216 sections), Belgrade; ^cThe calculations are from the author.

According to the results from Table 2, we find that the largest number of villages 133 is located at an altitude of 600-700 m, in the Crna Reka Basin in the Republic of Macedonia.

Second place is 87 villages at an altitude of 700-900 meters, in the Black River Basin in the Republic of Macedonia; In the third place, there are 76 villages at an altitude of 0-600 m, in the river basin of Crna Reka in the Republic of Macedonia; and in the fourth place, there are 39 villages at an altitude above 900 meters, in the Crna Reka River Basin in the Republic of Macedonia.

The rural settlements located in the groups with altitudes 0-600 and 600-700 meters above sea level make up 209 villages as flatland in the river Crna Reka in the Republic of Macedonia. In these villages, there are favorable conditions for the development of agriculture, especially the cultivation of cereals, tobacco production, sunflower, and viticulture. In the plain part, there are also good conditions for growing large livestock and producing milk in small family farms. The rural settlements located in the groups with an altitude

of 700-900 and above 900 meters above sea level comprise 126 villages as a hilly mountain in the river Crna Reka in the Republic of Macedonia. In these villages, there are favorable conditions for development of horse-breeding, sheep breeding, forestry, herbalism, and development of rural tourism. The Crna Reka Basin includes part of the National Park Pelister and the village Nizhepole where there are ski lifts, hotels, and private houses for weekend tourists. In the basin of Crna Reka, it is quite interesting for the development of mountain and hunting tourism, the Mariovo region, which extends to the territory of three municipalities: Novaci, Prilep, and Kavadarci. In the Mariovo region, in the municipalities of Novaci and Prilep, there are large reserves of coal. The largest Mining Energy Combine (REK) located in the Municipality of Novaci where Thermo Power Plant works and produces more than 80% of the electricity in the Republic of Macedonia.

Conclusion

In the Crna River Basin in the Republic of Macedonia, there are 335 villages.

According to the obtained data in the group of villages with altitude of 0-600 m, there are 76 villages in the Crna Reka Basin.

In the group of villages at an altitude of 600-700 meters, in the basin of Crna Reka, there is the largest number of 133 villages.

In the group of villages with an altitude of 700-900 meters, in the basin of Crna Reka, there is a second group of 87 villages.

In the group of villages with an altitude above 900 meters, in the basin of Crna Reka, there is the smallest group of 39 villages.

We can freely conclude that in both groups of villages with an altitude of 700-900 m and over 900 m, there are good conditions for the development of rural tourism in the Black River Basin in the Republic of Macedonia.

Figure 1. Figure of the Black River Basin in the Republic of Macedonia and the height distribution of the settlements.

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