



**DIVERSITY AND DISTRIBUTION OF SPECIES FROM THE GENUS *BARBUS*
IN WATERS OF MONTENEGRO**

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Key words:

genus *Barbus*,
diversity,
distribution,
Montenegro (Crna
Gora).

Ključne riječi:

rod *Barbus*,
diverzitet,
distribucija,
Crna Gora
(Montenegro)

Synopsis

The implemented research has demonstrated that three species from the genus *Barbus* exist in waters of Montenegro: *Barbus balcanicus* Kotlik, Tsigenopoulos, Rab & Berrebi, 2002; *Barbus barbus* (Linnaeus, 1758); *Barbus rebeli* Koller, 1926. *B. balcanicus* is distributed in the waters of Black Sea Drainage Basin, and it has been recorded in watersheds of the rivers Tara, Čehotina and Lim. It has also been registered in the reservoir Otilovići. *B. barbus* has been found only in the main course of the rivers Lim and Čehotina. *B. rebeli* has been found in the rivers Zeta upstream to Danilovgrad and in all of its tributaries, the Morača upstream to Mioska and its tributaries, the Mala Rijeka River, the Sjevernica and the Koštanica, the Cijevna and in smaller tributaries of Skadar Lake, and in the Lake itself, only in the vicinity of river mouths.

Sinopsis

**DIVERZITET I RASPROSTRANJENJE VRSTA IZ RODA
BARBUS U VODAMA CRNE GORE**

Izvršena istraživanja su pokazala da u vodama Crne Gore egzistiraju tri vrste iz roda *Barbus*: *Barbus balcanicus* Kotlik, Tsigenopoulos, Rab & Berrebi, 2002; *Barbus barbus* (Linnaeus, 1758); *Barbus rebeli* Koller, 1926. *B. balcanicus* je rasprostranjena u vodama Crnomorskog sliva, a nađena je u slivovima rijeka Tare, Čehotine i Lima. Registrovana je i u akumulaciji Otilovići. *B. barbus* je nađena samo u glavnom toku rijeka Lima i Čehotine. *B. rebeli* je nađena u rijekama: Zeti uzvodno do Danilovgrada i svim njenim pritokama, Morači uzvodno do Mioske i njenim pritokama, Maloj rijeci, Sjevernici i Koštanicu, Cijevni i manjim pritokama Skadarskog jezera, u Jezeru samo u blizini riječnih ušća.

INTRODUCTION

The genus *Barbus* in Europe represents one of the genera with the largest number of species. By the end of the 20th century the concept of subspecies was deserted and subspecies were brought to the level of species. According to Kottelat (1997) in European waters there exist 20 species from the genus *Barbus*, and according to KOTTELAT & FREYHOF (2007) 23 Barbel species live in European waters. Only the genus *Squalius* for its diversity, with 28 species, is more numerous than the genus *Barbus* (KOTTELAT & FREYHOF, 2007). In earlier literature (BERG, 1949, BANARESCU, 1964, VUKOVIĆ & IVANOVIĆ, 1971) the number of reported species was significantly lower. In the 20th century many nowadays species were reported as subspecies. So BERG (1949), BANARESCU (1964), NIKOLSKII (1971), VUKOVIĆ and IVANOVIĆ (1971), and others report two subspecies (*B. b. barbus* and *B. b. macedonicus*) within the genus *Barbus barbus*. In scope of species *Barbus meridionalis*, above mentioned authors, report 6 subspecies: *B. m. meridionalis* (the Rona drainage basin), *B. m. caninus* (the Po River), *B. m. graelsi* (Spain), *B. m. petenyi* (the Danube watershed), *B. m. rebeli* (Ionian and South Adriatic Drainage Basin), *B. m. peloponessus* (Peninsula Peloponnesus). BANARESCU (1964) in addition to mentioned species reports *B. goktschacus* for the Caspian Lake.

In ichthyological literature treating the fishes of Montenegro, one can see that for our waters three species/subspecies were reported, but sometimes the precision is so poor that from those data it cannot be concluded in which rivers these species live. Also, from all available data, it cannot be concluded what is the number of species dwelling in the waters of Montenegro, respectively which those species are. Imprecise distribution maps on Barbels presented by KOTTELAT & FREYHOF (2007) only indicate the possibility that some Barbel species may be expected in waters of Montenegro.

The objective of this paper is to demonstrate how many species there are in Montenegro's waters, to establish the distribution of each species, that is in which drainage basins, rivers, and lakes they are present.

Description of the Studied Area

The localities on which sampling was performed were selected on basis of their accessibility, with regard of covering as much of the surface as possible in order to obtain better and more accurate results. Several sites along the water courses of larger rivers were treated, as well as some more important tributaries. The following localities were selected:

THE LIM RIVER DRAINAGE BASIN

1. The Grlja – with waters from springs Alpašini izvori make the River Vruja, which meets the Grnčar to create the Ljuča, which empties into the Plavsko Lake;

2. The Ljuča – tributary of Plavsko Lake. Two sites were selected, the first at the beginning, the second one at the very mouth of the Ljuča into Plavsko Lake. The river bottom is covered by a fine sand and tiny stones;
3. Plavsko Lake – sampling on the lake was performed at two sites: the Šarkinovića Bay, and the source of the Lim;
4. Locality Brezojevica – below the bridge, a site at the beginning of the Lim, where the Lim flows out from the Plavsko Lake. The substrate on the left side is sandy, on the right one stony and overgrown by vegetation;
5. The Lim – Monastery in Brezojevica. Mainly rapids, substrate with large pebbles and stones;
6. The Lim – locality bridge, between Andrijevića and Murina. Small rapids and larger whirls, substrate of pebbles and small stones;
7. The Lim – Berane – studies were performed on the locality Buče, where the river bottom is severely degraded owing to pebbles exploitation;
8. Bioče on the Lim – Sampling spot is by the mouth of the Lješnica River into the Lim. Bottom from which the sample was taken is covered by a medium size stones;
9. Njegnjevo – this is the locality downstream Bijelo Polje, middle course of the river, the river is wide and has a somewhat calmer flow. The substrate is predominated by smaller and medium size stones not bigger than a fist;
10. Mouth of the Bistrica – the locality at the mouth of the Bistrica River into the Lim. The substrate is with medium size stones;
11. On the Lješnica River, 5 km upstream the mouth. The substrate is mainly of pebbles and stones;
12. On the Bjelopoljska Bistrica River, near the old bridge. Mainly laminar water flow, bottom is with pebbles;
13. On the Zlorečica River, near the bridge. The water flow is fast with turbulent moving, substrate mainly stony.
14. On the river in the village Kutina (the Kutska rijeka). The substrate consists of large pebbles and smaller stones, banks are overgrown by forest vegetation.

THE TARA RIVERBASIN

- the village Uvač. Mainly rapids with a short flow, followed by whirls and areas with laminar water movement. The bottom is pebbly and stony;
15. The Tara – 2 to 3 km upstream Kolašin. Mainly rapids, bottom pebbly and stony;
 16. The Tara – Sjerogošte. A rapid with larger stones;
 17. The Tara – Stevanovac. The locality is a whirl, bottom pebbly on the left, stony on the right side;
 18. The Tara – locality Dobrilovina. A rapid with larger stones;
 19. The Tara – Šćepan Polje. Samples taken from the left bank which is mainly stony;

20. The Plašnica River – the bridge. Bottom pebbly and stony;
21. Smaller tributaries – the Štitarička River, the Bjelojevića River and the Pčinja.

THE ĆEHOTINA RIVERBASIN

22. The Ćehotina - locality: The Zemunac bridge (mouth to the lake). Bottom mainly made of pebbles with rare stones, bank is stony
23. The Ćehotina - locality: Rabitlje. Water flow is slowed down (around 1m/s) so that the bottom is covered by larger grain size sand and smaller pebbles. Left bank is shallow, the right one deeper and overgrown by vegetation.
24. The Ćehotina - locality: Donje Doganje (Damper bridge). The bottom is plain, mainly made of pebbles, partially covered by water vegetation, water velocity small.
25. The Ćehotina - locality: Gradac (under the bridge). The bottom is mainly of smaller stones and large pebbles. Left bank is shallow, the right one somewhat deeper and overgrown by ligneous vegetation.
26. The Ćehotina - locality: 7 km upstream Gradac. Water is 1-1.5 m deep, banks steep, bottom mainly covered by larger pebbles and smaller stones.
27. The Ćehotina - locality: 20 km upstream Gradac. Water is around 1 m deep, the banks steep, bottom mainly covered by large pebbles, smaller stones, and rarely by sand.
28. The Ćehotina - locality: below the tailing mine impoundment. Water is yellow-brown, as well as the stone protruding from the water. The bottom is mainly stony.
29. The Ćehotina. Locality Lake Otilovići: 1. A cove (near the dam) – The bottom is extremely muddy with hardly any gravel. 2. bay (3 km from the dam) – The bottom is muddy. 3. central part, around 5 km – Bottom muddy with a lot of detritus.
30. The Brvenica River. The bottom is mainly made of pebbles with rare rubbles.
31. The Voloder River (left tributary). In interjacent part of the river small whirls and rapids come one after another. The bottom pebbly and stony.
32. The Vezišnica River near Komin. The water has a grey colour. The bottom is mainly pebbly.

THE MORAČA RIVERBASIN

33. The Morača - Locality: Ljevište. On this profile the river has a relatively slowed flow, but the bottom is mainly covered by large stones. At some places there are rapids and smaller whirls.
34. The Morača - Locality: Dragovića polje (field). The bottom is mainly stony, and water has a turbulent flow (around 1.5 m/s).
35. The Morača - Locality: Ljuta. On this part of the course the width of the river bed is around 15 m, and average water depth around 0.5 m. Water velocity is

- approximately the same as on the previous profile (around 1.5 m/s), but the rate of unmovable rocks decreases to 50% and the share of large stones and rubbles increases to approximately the same percent.
36. The Morača - Locality: The Monastery Morača: The bottom is mainly with rubbles and larger pebbles.
 37. The Morača - Locality: Međurječje. The profile is situated on altitude of only 180 m, river bed width varies from 20 to 25 m, and water depth is to 1 m. Water velocity is great and ranges around 1.5 m/s thus the substrate is primarily made of larger rocks, and to some extent of large stones and rubbles.
 38. The Morača - Locality: Dromira. River bed width on this part of the course is significantly larger than on the other parts of the course and ranges 40-45 m, average depth is 1 m. Water velocity is somewhat lower and ranges around 0.8 m/s. The character of bottom changes so that a fist size stones predominate. The stones are overgrown by moss and covered up to 90%.
 39. The Morača - Locality: Village Duga. Profile is situated at altitude of only 65-70 m, river bed width is 20-30 m, and water depth is around 0.5 m at low water level. Such velocity of water influences the structure of the substrate, therefore relatively smaller fractions made of smaller stones and rubbles are predominating.
 40. The Morača - Locality: Bridge Smokovac. Profile with a very wide river bed (to 40 m), and a relatively small depth (around 0.4 m). The bottom structure is predominated by smaller fractions composed of approximately equal quantities of smaller stones, rubbles and sand.
 41. The Morača. Locality: Rogami – bridge. The profile is situated on the spot of gravel exploitation, at altitude of only 30 meters, and river bed width ranges between 50 and 60 m, whereas the water depth is relatively small and ranges in average 0.3 m. However, the bottom is made of large stones and rubbles.
 42. The Morača - Locality: Gradska plaža (city beech). River bed in this part of the course is up to 40 m wide, and the bottom is made of large rubbles nad gravel.
 43. The Morača - Locality: Dahna. On this part of the course the Morača's river bed is up to 45 m wide. Bottom is made of rubbles, gravel and sand. During the summer period the stones are overgrown by slimy deposits of diatomea, whereas the percent of overgrowing occurs in a very low percent in October.
 44. The Morača - Locality: Botun: The Morača is very wide at this part up to 80 m, and it is relatively shallow (to 0.4 m). River bottom is made of equal part of large stones and gravel. Significant characteristic of this part of the course is a significant presence of periphyton on the stony substrate.
 45. The Morača - Locality: Vukovci. The Morača at this profile is up to 120 m wide, its water is 0.3 to 1 m deep. Bottom is made of larger stones, gravel and sand. An intensive gravel exploitation is performed on this profile.
 46. The tributaries Mala rijeka, Mrtvica, Sjevernica, Koštanica, mainly by the mouths.

THE CIJEVNA RIVER:

47. The Cijevna - Locality: Karaula (watch-tower) – upstream, by the bridge. Water velocity ranges around 1.2 m/s so that the bottom is made of large stones and rocks.
48. The Cijevna - Locality: arojnd six kilometers downstream the watch-tower. River bed is wide and ranges around 40 m, and water is up to 1.5 m deep. Water velocity is not large, ranging only 0.5 m/s, bottom is made of sand and gravel.
49. The Cijevna - Locality: Dinoša – by Rokšped: at the exit of the canyon. Water velocity is greater as compared to the previous profile and ranges around 1 m/s. The bottom is mainly made of rocks nad large stones.
50. The Cijevna - Locality: Milješ: At this part of the course the Cijevna river has a slower flow (0.8 m/s), and river bed width og 20 m, so that the bottom is made of sand and gravel.
51. The Cijevna - Locality: mouth of the Cijevna. River bed width is large and ranges up to 50 m, and water depth is to 2 m. At the exit and entrance in the whirls where the water whiffs the bottom is overgrown by macrovegetation. The bottom is made of smaller stones and gravel.

THE ZETA RIVER:

52. The Zeta - Locality: Glava Zete. The profile represents the source of the Zeta. It is 6-7 m wide, and around 0,3 m deep. Water velocity is significant and ranges around 1.5 m/s. The bottom is made of large rocks totally overgrown by moss.
53. The Zeta - Locality: Slap. Sediment on this profile is mainly of thiny sand, the largest rubbles have up to 2 cm. The river bed width is 50-60 m, and depth to 2 m. The bank is overgrown by thread-like algae and higher plants.
54. The Zeta - Locality around 2 km above Danilovgrad. Whirls, water depth 2 – 3 m.
55. The Zeta - Locality: Danilovgrad – below the bridge. The width of the river at this profile is around 45 m. Water velocity is around 0.8 m., and bottom is mainly made of fist size stones, almost totally overgrown by moss.
56. The Zeta - Locality: Spuž – below the bridge. River bed width ranges around 50 m. This part of the course serves as a beech. The bottom is mainly pebbly and partially overgrown by periphitic algae.
57. The Zeta - Locality: Pričelje. The river is very deep, the banks are overgrown by woody plants.
58. The Zeta - Locality: Rogami – the bridge. Underneath the very bridge water has a high velocity and the bottom is made of large stones, downstream the river bed becomes wider and along the bank there is a thiny sand and smaller stones.
59. Skadar Lake, tributaries: the Crnojevića rijeka River, the Plavnica, the Gostiljska, the Virštica and the Orahovštica. Sampling spots are mainly sandy-muddy. Water velocity is low and along the river banks there is an abundant vegetation.

In addition to these localities the upper course of the Zeta River (the area of Nikšić) was studied as well as the Piva River's basin. Since in these waters the species from the genus *Barbus* were not recorded, studied localities have not been listed and described.

MATERIAL AND METHODS OF WORK

Studied material: Material used in this paper was collected in period from 2003 to 2008. As many as 351 specimens of various size fish were collected. Part of the material was treated while still fresh, remaining one labeled, fixed in 4% formaldehyde and treated in laboratory (152 specimens). Fish were caught by electric shocker, net and angle, and they were determined by application of fish determination key [VUKOVIĆ & IVANOVIĆ (1971) and KOTTELAT & FREYHOF (2007)].

Barbus balcanicus was collected in the rivers Lim, Ćehotina and Tara. Total number of collected individuals was 184: From the Lim watershed there were 98 specimens; watershed of the Ćehotina 34 specimens; watershed of the Tara 52 specimens.

Barbus barbuis was collected in the Lim (11 specimens) and the Ćehotina (2 specimens).

Barbus rebeli was collected in the rivers: Morača (and smaller tributaries) 65 specimens, Cijevna 48 specimens and the Zeta with tributaries 41 specimens.

RESULTS

It was established that three Barbel species are present in Montenegro's rivers, as follows: *Barbus balcanicus* Kotlik, Tsigenopoulos, Rab & Berrebi, 2002 (fig. 1); *Barbus barbuis* (Linnaeus, 1758) (fig. 2); *Barbus rebeli* Koller, 1926 (fig. 3).

The investigations aimed at the elaboration of this paper confirmed the presence of three species in Montenegro's waters. In the Lim and the Ćehotina presence of two species (Fig. 4.) was recorded only in lower river courses.



Figure 1: *Barbus balcanicus* (the Lim)



Figure 2: *Barbus barbus* – the Lim, juvenile specimen



Figure 3: *Barbus rebeli* (the Morača)

Barbel (*B. barbus*) is distributed in waters of the rivers Lim and Ćehotina and it is found only in the main course of the rivers.

Large Spot Barbel (*B. balcanicus*) was found in the rivers of the Black Seabasin, respectively in the watersheds of the rivers: Tara, Ćehotina and Lim and

they are a numerous species. It has also been registered in the Reservoir Otilovići. In the tributaries of the Tara River it has been found in the rivers: Drcka, Bjelojevića rijeka, rijeka Plašnica, Jezerštica and the Štitarička rijeka. In the Čehotina River watershed it has been recorded in three tributaries: the Vezišnica, the Voloder and the Brvenica-mouth. It has been found in the entire course of the Lim River and in several tributaries: the Đurička rijeka, the Zlorečica, the Lješnica, the Ljuboviđa and the Bistrica. In these tributaries it used to be found close to their influx to the Lim River, and in the Lješnica and the Bistrica it enters significantly deeper in their main courses. It is interesting to point out that this species, like *B. barbuis* has not been found in Plavsko Lake and its tributaries (the Ljuča).

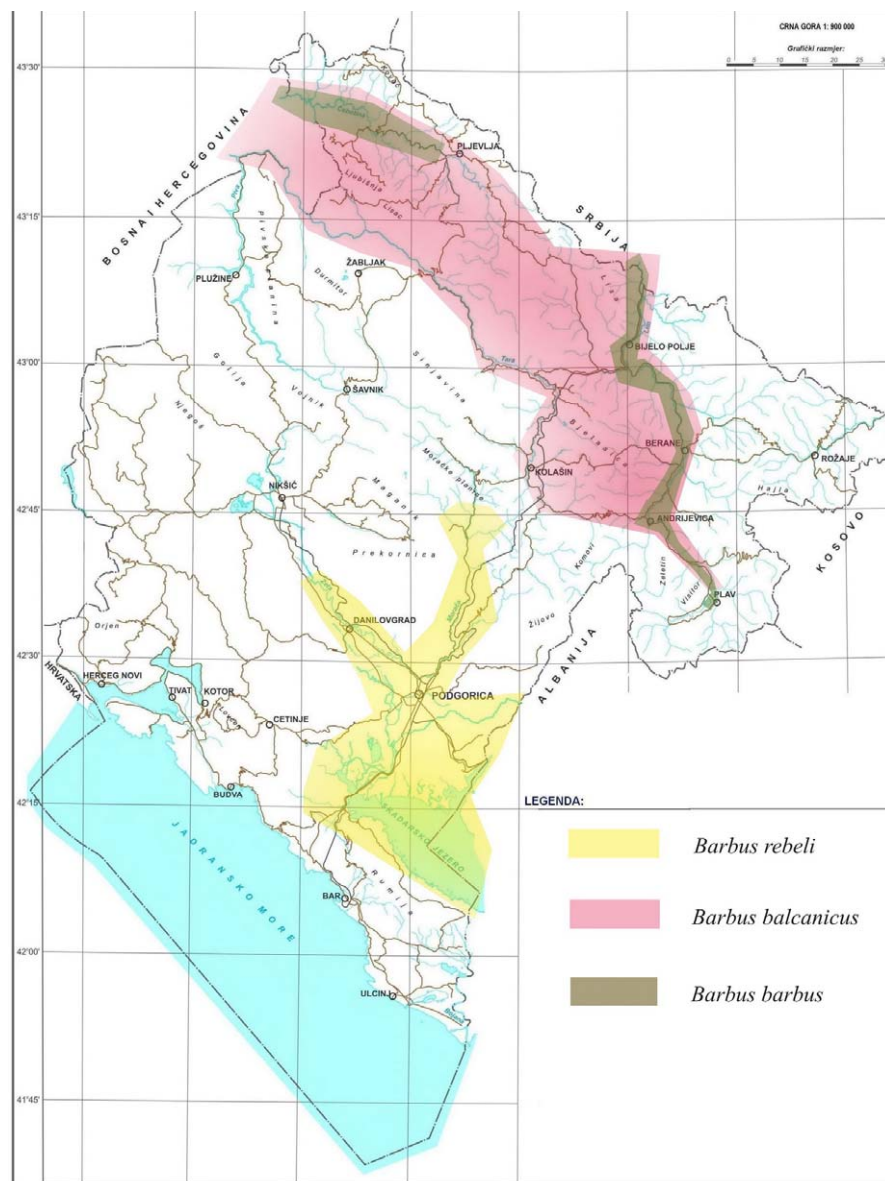


Figure 4: Distribution of species from the genus *Barbus* in waters of Montenegro.

Western Balkan Barbel (*B. rebeli*) populates the drainage basin of Skadar Lake. It has been found in the rivers: Zeta upstream to Danilovgrad and all of its tributaries, the Morača upstream to Mioska and its tributaries the Mala rijeka, the Sjevernica, the Koštanica, the Cijevna and smaller tributaries of Skadar Lake. In the Lake it can be found only in the vicinity of the river mouths. In the Cijevna it has been registered to the border with Albania, in the Koštanica to the main bridge in the settlement, and in other tributaries in mouths to the Morača River.

DISCUSSION

From available literature it was not possible to derive precise data on the number of species in Montenegro and which waters do they populate. It has mainly been accepted that in Montenegro's waters there are Large Spot Barbel, most frequently quoted under the Latin name *Barbus meridionalis* (TALER, 1954; DRECUN, 1962; VUKOVIĆ AND IVANOVIĆ, 1971; KNEŽEVIĆ ET AL. 1978; KNEŽEVIĆ, 1981; KRIVOKAPIĆ & MARIĆ, 1993; MARIĆ, 1995A and others) or as *Barbus peloponnesius* (MARIĆ & KRIVOKAPIĆ, 1997). For Montenegro's waters mentioned authors have mainly reported the presence of two subspecies: ssp. *petenyi* – Black Sea Drainage Basin and ssp. *rebeli* – Adriatic Drainage Basin. Some authors reported presence of one subspecies in both drainage basins (DRECUN, 1962) or presence of two subspecies in one drainage basin (VUKOVIĆ & IVANOVIĆ, 1971). The presence of *B. barbuis* in Montenegro was registered only in several ichthyofaunistic lists (TALER, 1954; DRECUN, 1962 and VUKOVIĆ & IVANOVIĆ, 1971) without more precise data on their distribution. DRECUN (1956) reports it for Plavsko Lake.

Performed investigations have demonstrated that three species exist in the waters of Montenegro, as follows: *Barbus balcanicus* Kotlik, Tsigenopoulos, Rab & Berrebi, 2002; *Barbus barbuis* (Linnaeus, 1758); *Barbus rebeli* Koller, 1926. The table demonstrates, on basis of literature data, the presence of each species in more significant drainage areas.

Table 1: Survey of distribution of species from the genus *Barbus* in five larger water courses (drainage basins) of Montenegro.

Water course-drainage	<i>B. barbuis</i>	<i>B. balcanicus</i>	<i>B. rebeli</i>
The Lim	+	+	-
The Ćehotina	+	+	-
The Tara	+	+	-
The Piva	+	-	-
The Morača	-	-	+

Barbus balcanicus according to KOTTELAT & FREYHOF (2007) is distributed in the following areas: Adriatic Basin: watershed of the Soča (Italy, Slovenia); the Danube watershed: upper course of the Sava, and the Krupa to the rivers Vlasina and Nera on the east. Aegean Basin (Greece, Macedonia). The investigations in Montenegro have confirmed the presence of this species in Montenegro's waters (Fig. 4). Data from former literature (TALER, 1954; DRECUN, 1962; KRIVOKAPIĆ & MARIĆ, 1993 and other) reporting the presence of *B. meridionalis petenyi* or *Barbus peloponnesius* probably refer to *B. balcanicus* since other related species were not found. It is distributed in the waters of Black Sea Drainage Basin, and it was found in the watersheds of the rivers: Tara (localities: 15-22), Čehotina (localities: 23-33) and Lim (localities: 4-13) presenting a numerous species. It was registered in the Reservoir Otilovići.

Barbus barbuis according to KOTTELAT & FREYHOF (2007) populates western, central and eastern Europe (to the Dnyepar River's watershed). It is also present in England. In the Mediterranean Sea tributaries it was recorded only in French rivers. According to TALER (1954) in Montenegro it populates the Tara and the Lim; and according to DRECUN (1962) it dwells in waters of Black Sea Basin: the Piva, the Tara, the Lim and the Čehotina. In these investigations it was found only in the middle and lower course of the River Lim (localities: 6-9) and the Čehotina (localities: 26-29, 32). Although it was not found in the Tara in scope of these investigations it is highly possible that it is present there also nowadays, in its lower course. This assumption is also supported by literature data which report it for Montenegro's waters (TALER, 1954, VUKOVIĆ & IVANOVIĆ, 1971), as well as data according to which this species is present in the entire course of the Drina (SIMONOVIĆ, 2001). Absence of this species from the artificial lake Piva and its drainage basin is reported by KNEŽEVIĆ & MARIĆ (1989) and MARIĆ (1995b).

Barbus rebeli according to KOTTELAT & FREYHOF (2007) is present in: Adriatic Basin from the watershed of the Drim to the watershed of the River Aaos in Greece, including Skadar and Ohrid lakes (Montenegro, Albania, Macedonia, Greece). Presence of this species in Montenegro is cited for the Skadar Lake drainage basin (DRECUN, 1957 and 1962; IVANOVIĆ, 1973; DRECUN et al., 1985). By these investigations it was found in the rivers: Zeta upstream to Danilovgrad (localities: 55-59) and all its tributaries, Morača (localities: 37-46) upstream to Mioska and its tributaries the Mala rijeka, the Sjevernica and the Koštanica, the Cijevna (localities: 48-52) and smaller tributaries of Skadar Lake (locality: 60), and in the lake only in the vicinity of river mouths.

It should be pointed out that in more important and larger water courses in Montenegro covered by this investigation, barbels were not recorded in the watershed of the Piva River, respectively Pivsko Lake, in Plavsko Lake and its tributaries and in the watershed of the upper course of the Zeta River (area of Nikšićko polje Field). According to unreliable data by STEVANOVIĆ (1953) (there are no Latin names) Barbel was registered in Plavsko Lake. For Plavsko Lake and the Piva River, before making the reservoir, it is reported also by DRECUN (1956 and 1962). Since there are no reports on presence of Barbel in the Zeta River in the area of Nikšićko polje Field, it is obvious that it is naturally absent from this area.

Presence, respectively absence of each species, including barbels in certain habitat is caused, in addition to historical, by several ecological factors. Bearing in mind the

characteristics of studied water objects and distribution of species from the genus *Barbus* in them, one could distinguish certain factors that are in direct relation to their distribution. That is primarily the velocity of water and the type of substrate, temperature regime, dissolved oxygen and other. *B. barbus* was found only in the courses where the water is deep, calm, whereas the river bottom was covered by sediment deposit of various fractions-sizes. *B. balcanicus* has been registered along the entire courses of the main rivers and it was numerous also in rapids, with turbulent flow of water, also on the plain terrain with laminar water flow. In typically salmonid waters it was rare or absent, especially in small tributaries. For *B. rebeli* it may be stated to have similar ecological requirements as *B. balcanicus*. Its presence in the rivers Cijevna, Sjevernica and other smaller tributaries of the Morača or in rapids in the middle part of the Morača indicate the above mentioned similarity. However, the presence of *B. Rebeli* in slowly flowing waters, small tributaries of the River Zeta (the Brestnica) or in mouths of smaller rivers in Skadar Lake indicate that this species is very tolerant to many abiotic factors. *B. balcanicus* has not been registered in Plavsko Lake and its tributaries, but it is present in a small number in the Reservoir Otilovići.

In addition to abiotic factors also the biological ones, factors like the competition and predation, may be limiting factors for distribution, respectively spread of species. All the species, with which barbels make fish community, are their competitors for food and space in certain period of life. Barbels survive and they are frequently very numerous in presence of predators. In Black Sea Drainage Basin they are: *Hucho hucho*, *Salmo labrax*, *Lota lota*, *Squalius cephalus*, and in Adriatic Drainage Basin the following are present: *Salmo farioides*, *Anguilla anguilla*, *Salmo marmoratus*, *Squalius squalus*, *Perca fluviatilis* and *Alosa* sp. As a general observation it may be pointed out that barbels are present in the waters with a significantly lower number of species (upper courses of the Tara and the Morača), but also there where the competition (observing the number of species) is extensive (lower courses of the rivers). Since the abundance of species has not been studied in this paper it may not be stated which factors influence it, but it was observed that barbels were not caught or that the lowest number of specimens were caught in small, shallow, rapid and cold waters. According to that the velocity and temperature of water may be the main factors which influence the distribution and numerosity of studied populations, respectively species from the genus *Barbus* in Montenegro's waters.

The investigations carried out with the objective of elaboration of this paper have confirmed the presence of three species in Montenegro's waters, but only in main courses of the rivers Lim and Ćehotina the presence of these two species together has been recorded (Fig. 4.). Among all European species *B. barbus* has the largest distribution areal (KOTTELAT & FREYHOF, 2007). For this reason, overlapping of the areals of this species with other species from the genus *Barbus*, is not a rarity and the sympatria was recorded with several species (DIMOVSKI & GRUPE, 1972, KARAPETKOVA, 1972, KOSORIĆ et al. 1980, JANKOVIĆ, 1982 and 1983, KOTTELAT & FREYHOF, 2007). Presence of three species from the genus *Barbus* in one water course, in Europe, is a rare phenomenon. That has been recorded in the rivers Strumica (VASILEV & PEHLIVANOV, 2002), Vardar (ECONOMIDIS & VOYADJIS, 1985) and Dnyester (KOTTELAT

& FREYHOF, 2007). According to data of KOTTELAT & FREYHOF (2007) *B. rebeli* does not exist in sympatria with other barbels, what has been established in the drainage basin of Skadar Lake.

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Received: 11.03.2010.