

Checklist of the family Chironomidae (Diptera) of Southern Morava River basin, Serbia

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Abstract:

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This paper presents the first checklist of the family Chironomidae (Diptera) in Serbia, based on literature citations in two periods (1981/82 and 2010/11) and the unpublished data as well as material examined by the authors. Our survey ranges over the Central, Eastern, Southern and Southeastern parts of Serbia (Southern Morava River basin). We have listed 110 taxa distributed in following five subfamilies: Chironominae (39), Diamesinae (3), Orthocladiinae (48), Prodiamesinae (2) and Tanytopodinae (16).

Key words: checklist, Chironomidae, Serbia, Southern Morava River

Introduction

Chironomidae represent the group of flies in the suborder Nematocera (Diptera). This group is usually the most abundant macroinvertebrate group in number of species and individuals, encountered in the majority of fresh-water aquatic habitats. The fauna of family Chironomidae currently consists of 11 described subfamilies and nominally, 22 tribes with 339 genera counting 4147 (sub)species. (Ferrington, 2008).

The family Chironomidae plays the most important role in detritus processing in freshwater ecosystems, recycling natural and introduced organic matter (Hirabayashi & Wotton, 1998; Jones & Grey, 2004). Also, they present an important part of the food chain (Armitage et al., 1995). Considering the characteristics mentioned above, Chironomidae presents a proper candidate for the water quality assessment. Regardless their importance in aquatic ecosystems, little information

on qualitative composition of the chironomid fauna in Serbia is available at the moment. This is particularly true for lotic systems in Central, Eastern, Southern and Southeastern parts of Serbia, where research on this topic has not been conducted for 29 years (1981 - 2010). The first investigation was those of Janković (1985), who sampled across the entire drainage basin of the Southern Morava River, Serbia, in 1981. Recently, Milošević et al. (2012) repeated the survey of Janković (1985) over the same range, with the aim of examining the changes in the Southern Morava River basin. According to the investigations of the authors mentioned above, as well as unpublished data examined by author from the Southern Morava range, we presented the first chironomid check list of Central, Eastern, Southern and Southeastern parts of Serbia.

The checklist should contribute to the research on this unexplored group of insects in

Serbia which have often been proved as useful in the water quality assessment.

Materials and methods

The Southern Morava River, also known as the Binačka Morava, has its source in the Skopska Crna Gora Mountain, Macedonia, and flows roughly towards the north. At km 49 it joins up with the Preševska Moravica and at km 295 it flows into the Morava, which itself eventually flows into the Black Sea. The Southern Morava River has a catchment area of 15,469 km² of which 14,372 km² (92.91%) are situated in Serbia and 1,097 km² (7.09%) in Bulgaria, through this river's right-hand tributary, the river Nišava. The Southern Morava has 157 tributaries most of which dry out during summer. Larger, permanent left-hand tributaries are the Jablanica, Veternica, Toplica and Pusta Reka rivers.

Right-hand tributaries are the Vlasina, Nišava (the longest) and Sokobanjska Moravica rivers (Gavrilović & Đukić, 2002).

We studied the chironomid faunal composition once in the each season of 2010 at 28 localities, chosen across the Southern Morava range to include different stream orders and a variety of habitats (**Fig. 1**). Specimens were identified up to the genus- or species-level with established keys (Smith & Distler, 1981, Wiederholm, 1983, Pillot, 1984a, 1984b, 2009, Vallenduuk & Pillot, 2007). The taxonomy used here is that of Spies & Sæther (2004), with adjustments following H. M. Pillot (pers. comm.). Our survey ranges over the Central, Eastern, Southern and Southeastern parts of Serbia (Marković, 1970).

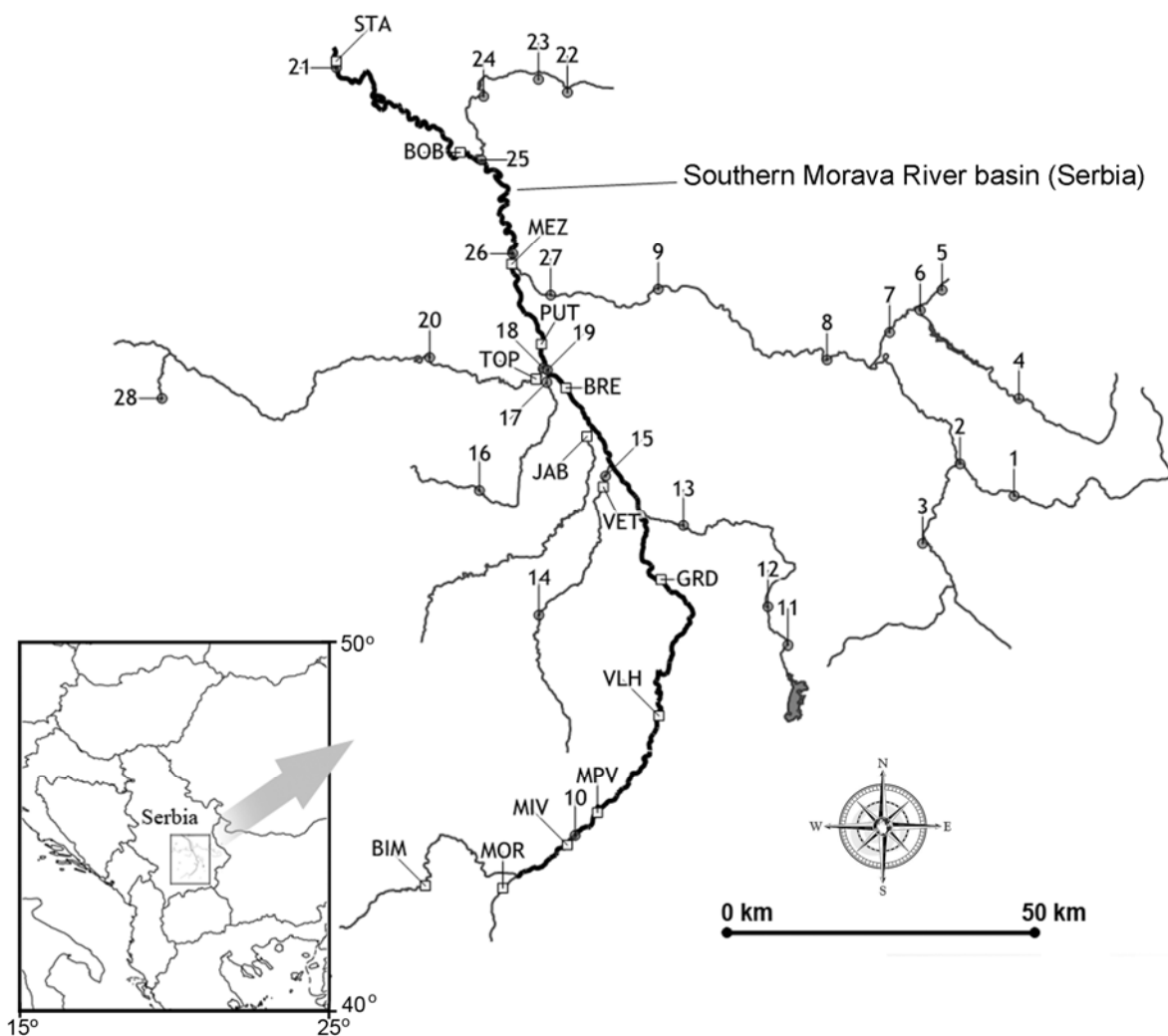


Figure 1. Sampling localities over the Southern Morava River. Squares indicate localities studied in 1981 and circles indicate localities studied in 2010

Results

We have listed 110 taxa distributed into the following five subfamilies: Chironominae (39), Diamesinae (3), Orthocladiinae (48), Prodiamesinae (2) and Tanypodynae (16).

The review of taxa

Subfamily Chironominae

1. *Beckidia zabolotzkyi* (Goetghebuer 1938)
Site: BOB,
2. *Chernovskiiia orbicus* (Townes 1945)
Site: BIM, STA
3. *Chironomus* sp.
Site: GRD, MEZ, STA, BOB, VET, 2, 3, 6, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27
4. *Cladotanytarsus* sp.
Site: BIM, MEZ, BRE, JAB, TOP, 1, 3, 4, 5, 6, 9, 13, 15, 16, 17, 18, 19, 20, 21, 26
5. *Cryptochironomus* sp.
Site: BIM, GRD, MEZ, BRE, JAB, 1, 2, 3, 5, 6, 7, 9, 10, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27
6. *Demicryptochironomus vulneratus* (Zetterstedt 1838)
Site: BIM, BOB, 2, 5, 6, 7, 8, 9, 12, 13, 21
7. *Dicrotendipes nervosus* (Staeger 1839)
Site: 10, 15, 16, 17, 19, 20, 23, 26
8. *Dicrotendipes notatus* (Meigen 1818)
Site: 23
9. *Endochironomus albipennis* (Meigen 1830)
Site: 14, 26
10. *Endochironomus dispar* (Meigen, 1830)
Site: 12
11. *Glyptotendipes cauliginellus* (Kieffer 1913)
Site: VLH, 13
12. *Harnischia fuscimanus* Kieffer 1921
Site: BOB, 1, 10, 13, 18, 19, 21, 27
13. *Microchironomus tener* (Kieffer, 1918)
Site: 19
14. *Micropsectra bidentata* Goetghebuer 1921
Site: 4, 5, 6, 11, 12, 14, 16, 22, 23, 28
15. *Micropsectra* sp.
Site: PUT, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 22, 23, 25, 27
16. *Microtendipes pedellus* (De Geer 1776)
Site: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27
17. *Parachironomus frequens* (Johannsen 1905)
Site: 4
18. *Paracladopelma laminatum* (Kieffer 1921)
Site: 1, 2, 3, 4, 5, 6, 8, 9, 10, 13, 14, 19, 20, 21, 22, 23, 25, 26, 27, 28
19. *Paracladopelma nigrifulum* (Goetghebuer 1942)
Site: MPV, 10, 12, 14, 17, 18
20. *Paralauterborniella nigrohalteralis* (Malloch 1915)
Site: 1, 2, 16, 17
21. *Paratanytarsus austriacus* (Kieffer 1924)
Site: 19
22. *Paratanytarsus dissimilis* (Johannsen 1905)
Site: BRE, PUT, VET, 1, 10, 13, 16, 17, 18, 20, 25, 26, 27
23. *Paratendipes albimanus* (Meigen 1818)
Site: GRD, 1, 2, 4, 5, 6, 7, 8, 9, 11, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28
24. *Phaenopsectra* sp.
Site: GRD, 10, 11, 12, 13, 14, 16, 17, 19, 20, 21, 25, 26, 27
25. *Polypedilum albicorne* (Meigen 1838)
Site: 1, 4, 7, 12, 13, 14, 17, 18, 19, 21, 22, 23, 24, 25, 27, 28
26. *Polypedilum convictum* (Walker 1856)
Site: MEZ, BRE, STA, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
27. *Polypedilum cultellatum* Goetghebuer 1931
Site: 13, 25
28. *Polypedilum laetum* (Meigen 1818)
Site: MIV, 1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 14, 16, 19, 20, 21, 25, 27, 28
29. *Polypedilum pedestre* (Meigen 1830)
Site: GRD, MEZ, BRE, 3, 7, 11, 12, 13, 17, 18, 19, 20, 23, 25, 27, 28
30. *Polypedilum scalaenum* (Schrank 1803)
Site: BIM, MIV, MPV, GRD, MEZ, BRE, STA, BOB, 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28

31. *Polypedilum uncinatum* Goetghebuer 1921
Site: 5, 12
32. *Pseudochironomus prasinatus* (Staeger 1839)
Site: STA
33. *Rheotanytarsus* sp.
Site: JAB, STA, 1, 2, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27
34. *Saetheria reissi* Jackson 1977
Site: 2, 6, 10, 13, 17, 18, 19, 20, 21
35. *Saetheria* sp.
Site: MPV, BRE, JAB, 1
36. *Stempellinella brevis* (Edwards 1929)
Site: 11, 12, 28
37. *Stictochironomus maculipennis* (Meigen 1818)
Site: 5, 6, 10, 11, 12, 26, 28
38. *Stictochironomus pictulus* (Meigen 1830)
Site: 1, 4, 7, 14, 16, 17, 18, 20, 21, 22, 25
39. *Tanytarsus* sp.
Site: GRD, MEZ, BRE, JAB, STA, BOB, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
- Subfamily Diamesinae**
40. *Diamesa* sp.
Site: MIV, 1, 2, 4, 8, 9, 13, 24, 28
41. *Potthastia gaedii* (Meigen 1838)
Site: 1, 2, 3, 4, 5, 6, 7, 14, 20, 22, 23, 25, 27
42. *Potthastia longimanus* Kieffer 1922
Site: 1, 3, 4, 5, 6, 7, 9, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28
- Subfamily Orthoclaadiinae**
43. *Brillia flavifrons* (Johannsen 1905)
Site: 9, 10, 13, 17, 18, 21, 23, 27
44. *Brillia bifida* (Kieffer 1909)
Site: 1, 2, 4, 5, 6, 11, 12, 14, 16, 19, 24, 26, 28
45. *Bryophaenocladus subvernalis* (Edwards 1929)
Site: GRD
46. *Cardiocladus fuscus* Kieffer 1924
Site: 3, 8, 13, 18, 19, 21, 27
47. *Corynoneura celeripes* Winnertz 1852
Site: GRD, MEZ
48. *Corynoneura lobata* Edwards 1924
Site: 2, 4, 5, 6, 7, 12, 14, 28
49. *Corynoneura scutellata* Winnertz 1846
Site: GRD, MEZ, 27
50. *Cricotopus triannulatus* agg. sensu Moller Pillot 1984
Site: MIV, VLH, GRD, MEZ, BRE, STA, VET, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 21, 22, 23, 25, 26, 27, 28
51. *Cricotopus bicinctus* (Meigen 1818)
Site: VLH, GRD, MEZ, BRE, JAB, STA, BOB, VET, TOP, 1, 5, 6, 8, 9, 10, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27
52. *Cricotopus* gr. *sylvestris* sensu Hirvenoja 1973
Site: BRE, 10
53. *Cricotopus tremulus* (Linnaeus 1758)
Site: VLH, BRE, JAB, VET, 3, 4, 13, 24, 25
54. *Cricotopus trifascia* Edwards 1929
Site: MEZ, JAB, 3, 8, 13, 14, 17, 20, 21, 24, 25, 27
55. *Epoicocladus ephemerae* (Kieffer 1924)
Site: 1, 2, 3, 4, 5, 6, 7, 9, 11, 12, 14, 16, 28
56. *Eukiefferiella brevicealcar* (Kieffer 1911)
Site: MOR, 4, 5, 6, 8, 12, 20, 28
57. *Eukiefferiella claripennis* (Lundbeck 1898)
Site: BRE, 22
58. *Eukiefferiella clypeata* (Kieffer 1923)
Site: 4, 5, 8, 9, 10, 12, 14, 18, 19, 26, 27, 28
59. *Eukiefferiella gracei* (Edwards 1929)
Site: MIV, 1, 2, 3, 6, 7, 8, 10, 11, 13, 14, 17, 18, 19, 25, 27
60. *Eukiefferiella ilkleyensis* (Edwards 1929)
Site: 1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27
61. *Eukiefferiella lobifera* Goetghebuer 1934
Site: VLH, BRE, 2, 13, 17, 20, 21, 23, 25, 26, 27
62. *Eukiefferiella minor* (Edwards 1929)
Site: 4
63. *Eukiefferiella* sp.
Site: MIV
64. *Heleniella ornaticollis* (Edwards 1929)
Site: 3, 4, 5, 6, 12, 28

65. *Hydrobaenus* sp.
Site: MOR, MIV, BRE, JAB
66. *Limnophyes* sp.
Site: GRD, 2, 4, 5, 8, 13, 14, 16, 19, 27
67. *Nanocladius bicolor* (Zetterstedt 1838)
Site: 6, 7, 16, 26
68. *Nanocladius rectinervis* (Kieffer 1911)
Site: MEZ, BRE, JAB, TOP, 4, 5, 8, 10, 13, 14, 17, 18, 20, 24, 25, 26, 28
69. *Orthocladius (Euorthocladius)* sp.
Site: MIV, VLH, MEZ, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
70. *Orthocladius (Orthocladius)* sp.
Site: MIV, BRE, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
71. *Orthocladius frigidus* (Zetterstedt 1838)
Site: 2, 3, 4, 5, 6, 8, 11, 12, 13, 14
72. *Orthocladius rivulorum* Kieffer 1909
Site: 2, 3, 4, 5, 6, 7, 8, 13, 14, 16
73. *Paracladius conversus* (Walker 1856)
Site: 1, 2, 3, 6, 9, 16, 18, 19, 21, 25, 27
74. *Paracricotopus niger* (Kieffer 1913)
Site: 4, 22
75. *Parakiefferiella gracillima* (Kieffer 1922)
Site: MOR
76. *Parametriocnemus stylatus* (Spaerck 1923)
Site: 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28
77. *Paratrichocladius rufiventris* (Meigen 1830)
Site: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
78. *Paratrissocladius excerptus* (Walker 1856)
Site: 2, 3, 6, 7, 11, 12, 14, 16, 23, 28
79. *Psectrocladius calcaratus* (Edwards 1929)
Site: MEZ, 1, 6
80. *Pseudosmittia danconai* (Marcuzzi 1947)
Site: VLH, TOP
81. *Rheocricotopus chalybeatus* (Edwards 1929)
Site: 1, 8, 10, 13, 15, 16, 17, 18, 19, 20, 21, 23, 25, 26, 27
82. *Rheocricotopus effusus* (Walker 1856)
Site: JAB, 2, 4, 5, 6, 12, 23, 28
83. *Rheocricotopus fuscipes* (Kieffer 1909)
Site: 3, 4, 5, 6, 7, 9, 11, 12, 14, 22, 24, 28
84. *Rheosmittia spinicornis* (Brundin 1956)
Site: 5, 11, 28
85. *Smittia* sp.
Site: BRE, 20
86. *Synorthocladius semivirens* (Kieffer 1909)
Site: MOR, 1, 2, 4, 5, 6, 7, 8, 9, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27
87. *Thienemanniella clavicornis* (Kieffer 1911)
Site: 2, 3, 4, 5, 6, 9, 11, 12, 14, 16, 20, 21, 24, 25, 27, 28
88. *Thienemanniella majuscula* (Edwards 1924)
Site: JAB, 1, 3, 8, 10, 13, 17, 18, 19, 21, 22, 23, 26
89. *Tvetenia bavarica* (Goetghebuer 1934)
Site: 4, 5, 6, 7, 11, 12, 14, 22, 28
90. *Tvetenia calvescens* (Edwards 1929)
Site: 1, 2, 3, 8, 9, 10, 13, 16, 17, 18, 19, 20, 21, 23, 24, 25, 27
91. *Tvetenia discoloripes* (Goetghebuer & Thienemann 1936)
Site: 2, 3, 4, 5, 6, 10, 11, 12, 17, 19, 23, 25, 28
- Subfamily Prodiamesinae**
92. *Odontomesa fulva* (Kieffer 1919)
Site: 2, 3, 4, 6, 7, 11, 12
93. *Prodiamesa olivacea* (Meigen 1818)
Site: GRD, 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28
- Subfamily Tanypodinae**
94. *Ablabesmyia longistyla* Fittkau 1962
Site: MEZ, 10, 16, 20
95. *Ablabesmyia phatta* (Egger 1864)
Site: 18
96. *Anatopynia plumipes* (Fries 1823)
Site: 4
97. *Apsectrotanypus trifascipennis* (Zetterstedt 1838)
Site: 4, 6, 11, 14, 23

98. *Arctopelopia barbatarsis* (Zetterstedt 1850)

Site: 5, 12

99. *Conchapelopia melanops* (Meigen 1818)

Site: MEZ, JAB, STA, PUT, 1, 2, 3, 5, 6, 7, 9, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 24, 25, 26, 27

100. *Krenopelopia* sp.

Site: 1, 4

101. *Larsia curticalcar* (Kieffer 1918)

Site: MEZ, BRE, JAB

102. *Macropelopia adaucta* Kieffer 1916

Site: 6, 22, 23

103. *Macropelopia nebulosa* (Meigen 1804)

Site: 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 15, 18, 23, 27, 28

104. *Nilotanypus dubius* (Meigen 1804)

Site: 1, 2, 4, 5, 6, 7, 8, 9, 14, 16, 22, 24, 25, 28

105. *Procladius* sp.

Site: GRD, 2, 3, 4, 6, 7, 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27

106. *Rheopelopia* sp.

Site: 1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28

107. *Tanypus punctipennis* Meigen 1818

Site: GRD, STA, BOB, 19, 27

108. *Thienemannimyia* sp.

Site: MEZ, JAB, STA, PUT, 4, 5, 6, 12, 22, 28

109. *Trissopelopia flavida* Kieffer 1923

Site: MEZ, STA

110. *Zavrelimyia* sp.

Site: 7

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