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Aquatic Empididae Fauna (Diptera)  
in Bosnia and Herzegovina

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v Bosni in Hercegovini

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## Aquatic Empididae Fauna (Diptera) in Bosnia and Herzegovina

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I wish to dedicate the present paper to the suffering peoples of Bosnia and Herzegovina, trapped in the tragic circumstances of war.

**ABSTRACT** – Thirty-five aquatic dance flies species (Clinocerinae, Hemerodromiinae) are recorded in Bosnia and Herzegovina (BIH). Twelve species are new to the fauna of BIH: *Clinocera (Clinocera) schremmeri* (Vaillant, 1964), *Clinocera (Hydrodromia) wesmaeli* (Macquart, 1835), *Clinocera (Kowarzia) plectrum* Mik, 1880, *C. (K.) tenella* (Wahlberg, 1844), *Wiedemannia (Wiedemannia) andreevi* Joost, 1982, *W. (W.) braueri* (Mik, 1880), *Wiedemannia (Chamaedipsia) aequilobata* Mandaron, 1964, *W. (Ch.) beckeri* (Mik, 1889), *W. (Ch.) thienemanni* Wagner, 1982, *Wiedemannia (Philolutra) fallaciosa* (Loew, 1873), *W. (Ph.) wachlii* (Mik, 1880), and *Wiedemannia (Eucelidia) zetterstedti* (Fallen, 1826). A new clinocerid fly, *Wiedemannia (Philolutra) kacanskae* sp.n. is described and illustrated. The species distribution is shown in the 50 km UTM grid of Bosnia and Herzegovina.

**IZVLEČEK** – FAVNA VODNIH MUH EMPIDIDAE (DIPTERA) V BOSNI IN HERCEGOVINI – V Bosni in Hercegovini (BIH) je ugotovljenih petintrideset vrst vodnih muh poplesovalk (Clinocerinae, Hemerodromiinae). Za favno BIH je novih dvanajst vrst: *Clinocera (Clinocera) schremmeri* (Vaillant, 1964), *Clinocera (Hydrodromia) wesmaeli* (Macquart, 1835), *Clinocera (Kowarzia) plectrum* Mik, 1880, *C. (K.) tenella* (Wahlberg, 1844), *Wiedemannia (Wiedemannia) andreevi* Joost, 1982, *W. (W.) braueri* (Mik, 1880), *Wiedemannia (Chamaedipsia) aequilobata* Mandaron, 1964, *W. (Ch.) beckeri* (Mik, 1889), *W. (Ch.) thienemanni* Wagner, 1982, *Wiedemannia (Philolutra) fallaciosa* (Loew, 1873), *W. (Ph.) wachlii* (Mik, 1880) in *Wiedemannia (Eucelidia) zetterstedti* (Fallen, 1826). Opisana in ilustrirana je nova vrsta vodnih muh poplesovalk *Wiedemannia (Philolutra) kacanskae* sp.n. Razširjenost vrst prikazujejo UTM mreže (50 × 50 km) Bosne in Hercegovine.

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### 1. Introduction

In the past, the aquatic Empididae fauna of Bosnia and Herzegovina was studied fragmentarily by few entomologists. STROBL (1900) cited twelve species in BIH (see references). BEZZI (1904) described *Wiedemannia* (*Pseudowiedemannia*) *microstigma*, and ENGEL (1940) added *Wiedemannia* (*Wiedemannia*) *dinarica* to the list. In 1981, WAGNER described *Wiedemannia* (*Wiedemannia*) *balkanica*. HORVAT (1990) recorded six Hemerodromiinae species in BIH (see references).

On the basis of several collecting trips to BIH (October 1986, September 1987, October 1988, May 1990, and October 1990), organized by the Slovene Museum of Natural History (leg. Bogdan Horvat and Dr. Ignac Sivec), a more detailed overview of the BIH aquatic Empididae fauna is presented in this paper. Older data from the literature are also included in the text and distribution maps. STROBL (1900) also added *Chelifera monostigma* (Meigen, 1822) to the fauna of BIH, proceeding from the determination of a single female at his disposal; this species also lives in Northern and Western Europe, so it is not included in the present study.

### 2. Material and Methods

A total of 1605 aquatic empidids (768 ♂♂, 837 ♀♀) were examined. The specimens, preserved in alcohol, were dissected. The abdomens were boiled in hot KOH and washed in acetic acid. Then they were transferred into clove oil. The genitalia and their structures were studied in dorsal and lateral views in glycerin. The abdomens were stored in plastic microvials, joined together with labels and the rest of the animals, and preserved in 75 % alcohol. The material is deposited in the scientific collection of the Slovene Museum of Natural History in Ljubljana.

All recent faunal data on the aquatic Empididae species in Bosnia and Herzegovina are presented according to the international UTM (Universal Transverse Mercator) grid (SIVEC 1980) and marked with black circles. The records from the literature are marked with black quadrats.

### 3. List of Localities

The localities in Bosnia and Herzegovina are designated with 50 and 10 km UTM squares, their positions are shown in Fig. 1. The altitudes are added to the localities that we visited in October 1990.

#### XK4:

1. Jajce, XK81 (ENGEL 1940);
2. Skender Vakuf, 820 m, XK92;
3. r. Vrbanja, Grabavica, Kotor Varoš, 470 m, XK93;
4. r. Vrbanja, Borci, Kotor Varoš, 410 m, XK93;
5. Luke, Viševce, Kotor Varoš, 360 m, XK93;
6. r. Ugar, Vlatkovići, Ranča Mts., 500 m, XK92 (WAGNER pers. com.);

#### YK2:

7. 3 km N Šiprage, Kotor Varoš, 540 m, YK03;
8. Šiprage, Kotor Varoš, 670 m, YK02;
9. 3 km S Šiprage, Kotor Varoš, 580 m, YK02;
10. r. Ugar, Vitovlje, Travnik, Vlašić Mts., 770 m, YK01;

11. Šišava, Travnik, Vlašić Mts., 1050 m, YK00;  
 12. Vlašić Mts., YK10 (STROBL 1900);  
 13. Travnik, YK10 (STROBL 1900);

## BQ3:

14. r. Lukavica, Lukavica, Doboј, Trebovac Mts., 240 m, BQ75;  
 15. Doborovci, Gračanica, 430 m, BQ85;

## BQ4:

16. Blagojevići, Ozren Mts., 390 m, BQ73;  
 17. 3 km N Donji Rakovac, Maglaj, Ozren Mts., 430 m, BQ73;  
 18. Donji Rakovac, Maglaj, 290 m, BQ73;  
 19. Jablanica, Maglaj, 190 m, BQ73;  
 20. r. Krivaja, Kovač, Zavidovići, 240 m, BQ72;  
 21. Kamenica, Zavidovići, Ravan Mts., 480 m, BQ71;  
 22. 9 km S Kamenica, Zavidovići, Ravan Mts., 600 m, BQ70;  
 23. Tajan, Kamenica, Zavidovići, Ravan Mts., 650 m, BQ70;

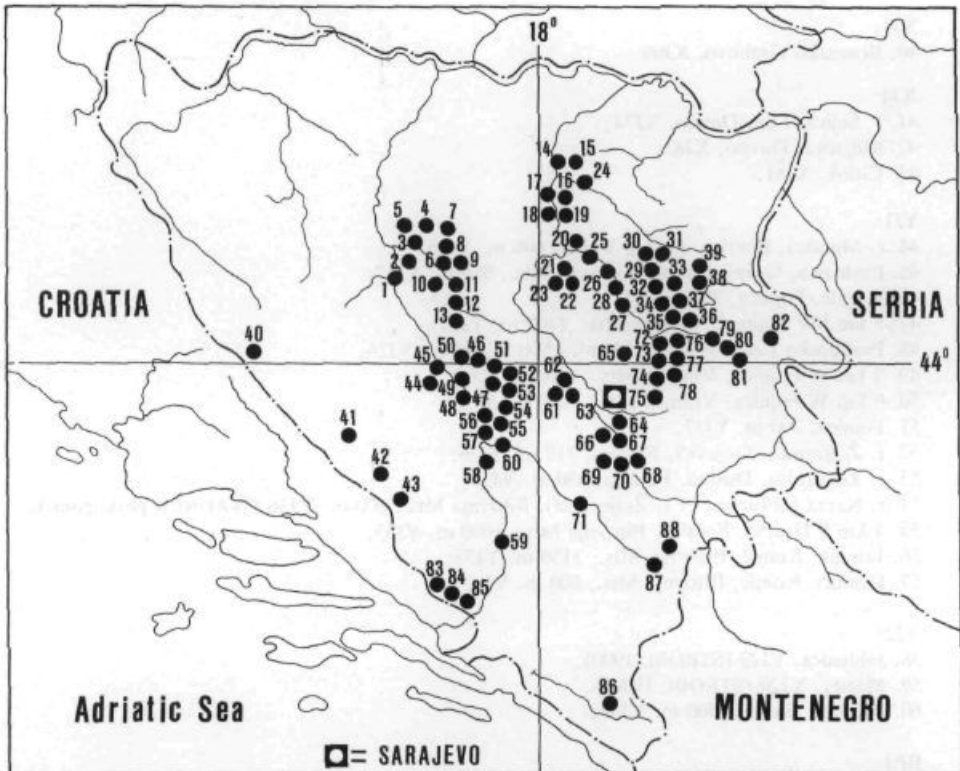


Fig. 1. Map of Bosnia and Herzegovina: the sampling points are marked with black circles and numbers (see list of localities).

Sl. 1. Zemljevid Bosne in Hercegovine: mesta zbiranja materiala so označena s temnimi krogi in številkami (glej pregled lokalitet).

24. Manastir, Ozren, Ozren Mts., 860 m, BQ84;
25. Hrge, Zavidovići, 250 m, BQ82;
26. Ribnica, Zavidovići, 380 m, BQ91;
27. r. Krivaja, Kamensko, 420 m, BQ90;
28. Rijeka, Ribnica, 540 m, BQ90;

## CQ2:

29. Krabašnica, Konjuh Mts., 540 m, CQ01;
30. Ravna Zlaća, Mačkovac, Konjuh Mts., 620 m, CQ01;
31. Mačkovac, Konjuh Mts., 340 m, CQ01;
32. 5 km S Mačkovac, Konjuh Mts., 600 m, CQ00;
33. r. Drinjača, Budim Potok, Konjuh Mts., 800 m, CQ00;
34. 17 km N Kladanj, Konjuh Mts., 1020 m, CQ00;
35. 16 km N Kladanj, Konjuh Mts., 890 m, CQ00;
36. 15 km N Kladanj, Konjuh Mts., 830 m, CQ00;
37. 19 km N Kladanj, Konjuh Mts., 890 m, CQ10;
38. r. Drinjača, Brateljevići, Kladanj, 680 m, CQ10;
39. Brlošci, Tuzla, 520 m, CQ10;

## XJ1:

40. Bosansko Grahovo, XJ09;

## XJ4:

41. r. Šujica, Lug, Duvno, XJ74;
42. Miljacka, Duvno, XJ82;
43. Čitluk, XJ81;

## YJ1:

44. r. Mutnica, Bistrica, Gornji Vakuf, 690 m, YJ06;
45. Pavlovica, Gornji Vakuf, Radovan Mts., 950 m, YJ17;
46. Ragale, Fojnica, 790 m, YJ27;
47. 5 km SW Fojnica, Vranica Mts., 1400 m, YJ27;
48. Prokopsko Lake, Fojnica, Vranica Mts., 1680 m, YJ26;
49. 8 km W Fojnica, Vranica Mts., 1410 m, YJ26;
50. 6 km W Fojnica, Vranica Mts., 1210 m, YJ26;
51. Fojnica, 700 m, YJ37;
52. r. Željeznica, Gojevići, Fojnica, 710 m, YJ36;
53. r. Željeznica, Dusina, Fojnica, 830 m, YJ36;
54. r. Nevra (affluence of r. Željeznica), Bitovnja Mts., 800 m, YJ36 (WAGNER pers. com.);
55. 4 km S Dusina, Fojnica, Bitovnja Mts., 1000 m, YJ35;
56. Jasenik, Konjic, Bitovnja Mts., 1130 m, YJ35;
57. Džanići, Konjic, Bitovnja Mts., 800 m, YJ35;

## YJ2:

58. Jablanica, YJ23 (STROBL 1900);
59. Mostar, YJ20 (STROBL 1900);
60. Podhum, Konjic, 500 m, YJ34;

## BP3:

61. Kreševo, Kiseljak, Volujak Mts., 690 m, BP65;
62. Kiseljak, Sarajevo, 470 m, BP66;
63. Zabrdje, Bukovica, Sarajevo, 550 m, BP75;
64. Trebević Mts., Sarajevo, BP95 (STROBL 1900);
65. r. Krivaja, Čuništa, 450 m, BP99;

## BP4:

66. Trnovo, BP93 (STROBL 1900, (BEZZI 1904);  
 67. Tošići, Sarajevo, BP93 (HORVAT 1990);  
 68. Dobro Polje, BP92 (HORVAT 1990);  
 69. Rogoj, Dobro Polje, BP92 (HORVAT 1990);  
 70. Krbaljine, BP92, (STROBL 1900);  
 71. Obrnja, Kalinovik, BP80 (HORVAT 1990);

## CP1:

72. Radačići, Kladanj, 680 m, CP09;  
 73. Boganovići, Kladanj, 570 m, CP08;  
 74. Olovo, 500 m, CP08 (WAGNER pers. com.);  
 75. r. Mokranjska Miljacka, 20 km E Sarajevo, CP06 (WAGNER 1981);  
 76. r. Drinjača, Kladanj, 620 m, CP19;  
 77. Kovačići, Kladanj, 760 m, CP19;  
 78. Kovačići Pass, Kladanj, 920 m, CP19;  
 79. r. Stupčanica, Čude, Kladanj, 680 m, CP18;  
 80. r. Stupčanica, Petrovići, Kladanj, 780 m, CP28;  
 81. r. Stupčanica, Pjenovac, Kladanj, 980 m, CP38;

## CP3:

82. r. Kravica, Kravica, Zvornik, CP69;

## XH3:

83. Orahovlje, Veljaci, Čapljina, XH99;

## YH1:

84. Proboj, Čapljina, YH08 (HORVAT 1990);  
 85. r. Studenčica, D. Studenci, Čapljina, YH18;

## BN4:

86. Drieno, Trebinje, BN83 (STROBL 1900, WAGNER 1985);

## CN1:

87. r. Sutjeska, Grab, CN09 (STROBL 1900, HORVAT 1990);  
 88. Suha, CN19 (STROBL 1900);

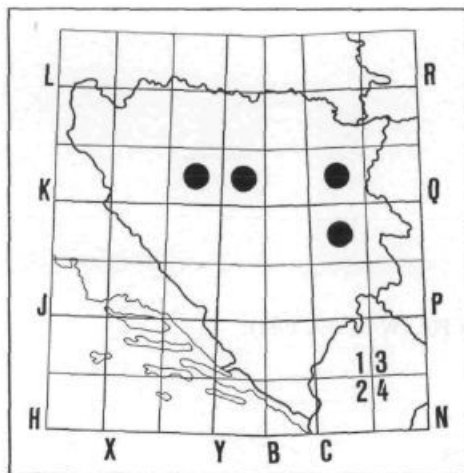
## 4. Faunistics

### 4.1. Subfamily Clinocerinae

#### *Clinocera (Clinocera) nigra* Meigen, 1804

Material examined: XK4: Skender Vakuf, 820 m, 19.X.1990, 1 ♂, YK2: 3 km N Šiprage, Kotor Varoš, 540 m, 19.X.1990, 2 ♂♂, 3 ♀♀; CQ2: Krabašnica, Konjuh Mts., 540 m, 13.X.1990, 1 ♂; CQ2: 16 km N Kladanj, Konjuh Mts., 890 m, 14.X.1990, 1 ♂; CQ2: 19 km N Kladanj, Konjuh Mts., 890 m, 14.X.1990, 1 ♂; CP1: Boganovići, Kladanj, 570 m, 15.X.1990, 1 ♂;

Remarks: *C. (C.) nigra* is a wide-spread species in Europe (CHVÁLA & WAGNER 1989). Its distribution in BIH is shown in Fig. 2.



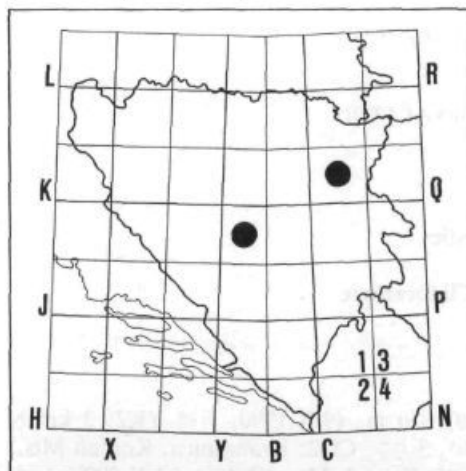
**Fig. 2.** *Clinocera (Clinocera) nigra* Meigen, 1804 in BIH: 50 km UTM grid.

**Sl. 2.** *Clinocera (Clinocera) nigra* Meigen, 1804 v BIH: UTM mreža 50 × 50 km.

***Clinocera (Clinocera) schremmeri* (Vaillant, 1964)**

Material examined: CQ2: 16 km N Kladanj, Konjuh Mts., 890 m, 14.X.1990, 1 ♂, 1 ♀; YJ1: Ragale, Fojnica, 790 m, 17.X.1990, 5 ♂♂, 1 ♀; YJ1: 5 km SW Fojnica, Vranica Mts., 1400 m, 17.X.1990, 26 ♂♂, 23 ♀♀; YJ1: Prokopsko Lake, Fojnica, Vranica Mts., 1680 m, 17.X.1990, 3 ♂♂, 8 ♀♀; YJ1: 8 km W Fojnica, Vranica Mts., 1410 m, 17.X.1990, 1 ♂; YJ1: 6 km W Fojnica, Vranica Mts., 1210 m, 17.X.1990, 2 ♂♂; YJ1: Fojnica, 700 m, 17.X.1990, 2 ♂♂; YJ1: 4 km S Dusina, Fojnica, Bitovnja Mts., 1000 m, 18.X.1990, 1 ♂;

Remarks: *C. (C.) schremmeri* is distributed in Northern and Central Europe (WAGNER pers. com.). It is new to the fauna of BIH (Fig. 3).



**Fig. 3.** *Clinocera (Clinocera) schremmeri* (Vaillant, 1964) in BIH: 50 km UTM grid.

**Sl. 3.** *Clinocera (Clinocera) schremmeri* (Vaillant, 1964) v BIH: UTM mreža 50 × 50 km.

***Clinocera (Hydrodromia) stagnalis* (Haliday, 1833)**

References: STROBL (1900): YJ2: Jablanica; YJ2: Mostar; WAGNER (pers. com.): XK4: r. Ugar, Vlatkovići, Ranča Mts., 500 m, 26.V.1990, 1 ♂; CP1: Olovo, 500 m,



14.VI.1991, 2 ♀♀;

New records: XJ1: Bosansko Grahovo, 1.V.1990, 5 ♂♂, 10 ♀♀; XJ4: r. Šujica, Lug, Duvno, 1.V.1990, 1 ♂;

Remarks: *C. (H.) stagnalis* is a widely distributed and common species in Europe (CHVÁLA & WAGNER 1989). Its distribution in BIH is shown in Fig. 4.

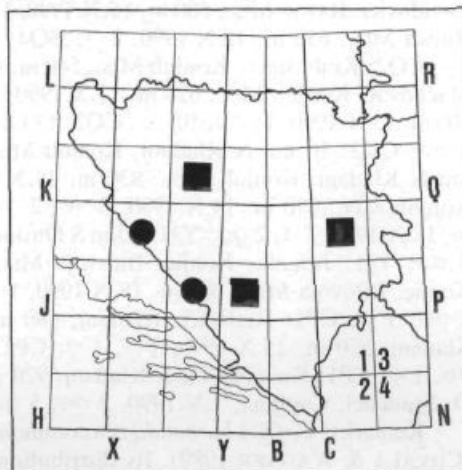


Fig. 4. *Clinocera (Hydrodromia) stagnalis* (Haliday, 1833) in BIH: 50 km UTM grid.

Sl. 4. *Clinocera (Hydrodromia) stagnalis* (Haliday, 1833) v BIH: UTM mreža 50 × 50 km.

*Clinocera (Hydrodromia) wesmaeli* (Macquart, 1835)

Material examined: XK4: Skender Vakuf, 820 m, 19.X.1990, 1 ♂; YK2: 3 km N Šiprage, Kotor Varoš, 540 m, 19.X.1990, 1 ♀; CQ2: 19 km N Kladanj, Konjuh Mts., 890 m, 14.X.1990, 1 ♀; YJ1: Pavlovica, Gornji Vakuf, Radovan Mts., 950 m, 18.X.1990, 1 ♂; YJ1: Ragale, Fojnica, 790 m, 17.X.1990, 1 ♂; YJ1: 5 km SW Fojnica, Vranica Mts., 1400 m, 17.X.1990, 1 ♂, 6 ♀♀; YJ1: Jasenik, Konjic, Bitovnja Mts., 1130 m, 18.X.1990, 2 ♂♂, 1 ♀;

Remarks: *C. (H.) wesmaeli* is a wide-spread species in Europe (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 5).

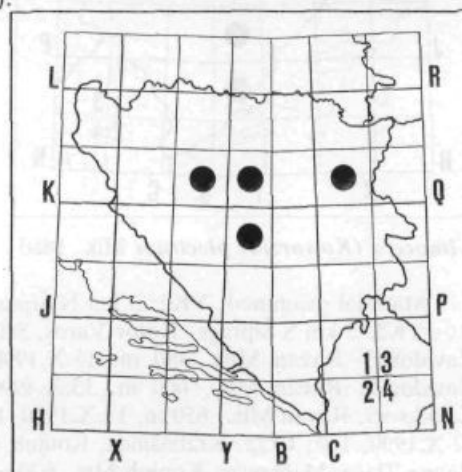


Fig. 5. *Clinocera (Hydrodromia) wesmaeli* (Macquart, 1835) in BIH: 50 km UTM grid.

Sl. 5. *Clinocera (Hydrodromia) wesmaeli* (Macquart, 1835) v BIH: UTM mreža 50 × 50 km.

*Clinocera (Kowarzia) barbatula* Mik, 1880

References: STROBL (1900): YJ2: Mostar;

New records: BQ3: Doborovci, Gračanica, 430 m, 11.X.1990, 1 ♂, 1 ♀; BQ4: Kamenica, Zavidovići, Ravan Mts., 480 m, 15.X.1990, 2 ♂♂, 1 ♀; BQ4: 9 km S Kamenica, Zavidovići, Ravan Mts., 600 m, 15.X.1990, 1 ♂, 2 ♀♀; BQ4: Tajan, Kamenica, Zavidovići, Ravan Mts., 650 m, 15.X.1990, 1 ♂; BQ4: Rijeka, Ribnica, 540 m, 15.X.1990, 4 ♂♂, 2 ♀♀; CQ2: Krabašnica, Konjuh Mts., 540 m, 13.X.1990, 10 ♂♂, 10 ♀♀; CQ2: Ravna Zlaća, Mačkovac, Konjuh Mts., 620 m, 13.X.1990, 3 ♂♂; CQ2: 5 km S Mačkovac, Konjuh Mts., 600 m, 13.X.1990, 14 ♂♂, 10 ♀♀; CQ2: 17 km N Kladanj, Konjuh Mts., 1020 m, 14.X.1990, 2 ♂♂; CQ2: 16 km N Kladanj, Konjuh Mts., 890 m, 14.X.1990, 5 ♂♂, 7 ♀♀; CQ2: 15 km N Kladanj, Konjuh Mts., 830 m, 14.X.1990, 6 ♂♂, 3 ♀♀; CQ2: 19 km N Kladanj, Konjuh Mts., 890 m, 14.X.1990, 3 ♂♂, 2 ♀♀; YJ1: r. Željeznica, Gojevići, Fojnica, 710 m, 18.X.1990, 1 ♂, 2 ♀♀; YJ1: 4 km S Dusina, Fojnica, Bitovnja Mts., 1000 m, 18.X.1990, 3 ♂♂; YJ1: Jasenik, Konjic, Bitovnja Mts., 1130 m, 18.X.1990, 2 ♂♂; YJ1: Džanići, Konjic, Bitovnja Mts., 800 m, 18.X.1990, 1 ♂; YJ2: Podhum, Konjic, 500 m, 18.X.1990, 2 ♂♂, 1 ♀; CP1: Radačići, Kladanj, 680 m, 15.X.1990, 1 ♂, 2 ♀♀; CP1: Boganovići, Kladanj, 570 m, 15.X.1990, 1 ♂, 1 ♀; CP1: r. Drinjača, Kladanj, 620 m, 13.X.1990, 2 ♂♂, 1 ♀; CP1: Kovačići Pass, Kladanj, 920 m, 14.X.1990, 1 ♂, 1 ♀; YH1: r. Studenčica, D. Studenci, Čapljina, 1.V.1990, 2 ♂♂, 5 ♀♀;

Remarks: *C. (K.) barbatula* is a common species in Central and South-Eastern Europe (CHVÁLA & WAGNER 1989). Its distribution in BIH is shown in Fig. 6.

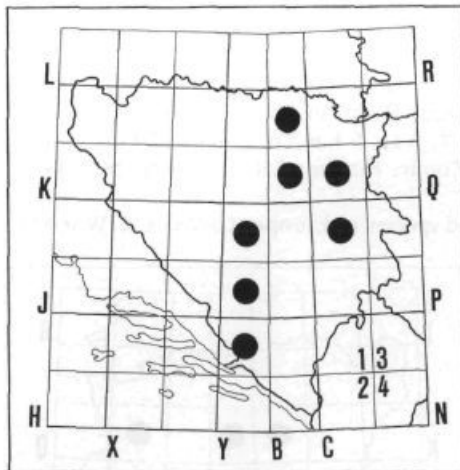


Fig. 6. *Clinocera (Kowarzia) barbatula* Mik, 1880 in BIH: 50 km UTM grid.

Sl. 6. *Clinocera (Kowarzia) barbatula* Mik, 1880 v BIH: UTM mreža 50x50km.

*Clinocera (Kowarzia) plectrum* Mik, 1880

Material examined: YK2: 3 km N Šiprage, Kotor Varoš, 540 m, 19.X.1990, 4 ♂♂, 4 ♀♀; YK2: 3 km S Šiprage, Kotor Varoš, 580 m, 19.X.1990, 1 ♂, 2 ♀♀; BQ4: Kamenica, Zavidovići, Ravan Mts., 480 m, 15.X.1990, 6 ♂♂, 7 ♀♀; BQ4: 9 km S Kamenica, Zavidovići, Ravan Mts., 600 m, 15.X.1990, 7 ♂♂, 11 ♀♀; BQ4: Tajan, Kamenica, Zavidovići, Ravan Mts., 650 m, 15.X.1990, 1 ♂, 4 ♀♀; BQ4: Ribnica, Zavidovići, 380 m, 12.X.1990, 1 ♂; CQ2: Krabašnica, Konjuh Mts., 540 m, 13.X.1990, 8 ♂♂, 9 ♀♀; CQ2: Ravna Zlaća, Mačkovac, Konjuh Mts., 620 m, 13.X.1990, 3 ♂♂;

Konjuh Mts., 600 m, 13.X.1990, 14 ♂♂, 21 ♀♀; CQ2: r. Drinjača, Budim Potok, Konjuh Mts., 800 m, 14.X.1990, 1 ♂; CQ2: 17 km N Kladanj, Konjuh Mts., 1020 m, 14.X.1990, 2 ♂♂; CQ2: 16 km N Kladanj, Konjuh Mts., 890 m, 14.X.1990, 27 ♂♂, 24 ♀♀; CQ2: 15 km N Kladanj, Konjuh Mts., 830 m, 14.X.1990, 10 ♂♂, 7 ♀♀; CQ2: 19 km N Kladanj, Konjuh Mts., 890 m, 14.X.1990, 44 ♂♂, 42 ♀♀; CQ2: r. Drinjača, Brateljevići, Kladanj, 680 m, 13.X.1990, 1 ♂; YJ1: Ragale, Fojnica, 790 m, 17.X.1990, 1 ♂, 7 ♀♀; YJ1: 5 km SW Fojnica, Vranica Mts., 1400 m, 17.X.1990, 6 ♂♂, 6 ♀♀; YJ1: Prokopsko Lake, Fojnica, Vranica Mts., 1680 m, 17.X.1990, 3 ♂♂, 6 ♀♀; YJ1: 6 km W Fojnica, Vranica Mts., 1210 m, 17.X.1990, 3 ♂♂, 1 ♀; YJ1: r. Željeznica, Dusina, Fojnica, 830 m, 18.X.1990, 15 ♂♂, 3 ♀♀; CP1: Radačići, Kladanj, 680 m, 15.X.1990, 1 ♂;

Remarks: *C. (K.) plectrum* lives in Central Europe (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 7).

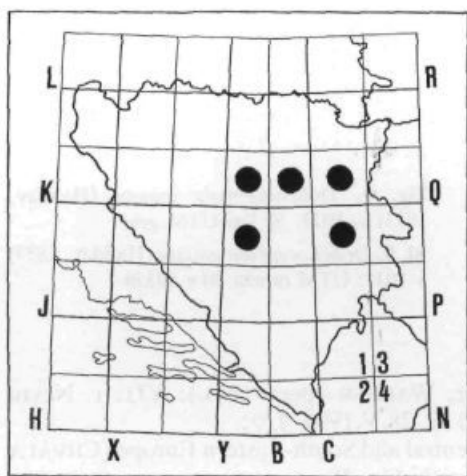


Fig. 7. *Clinocera (Kowarzia) plectrum* Mik, 1880 in BIH: 50 km UTM grid.

Sl. 7. *Clinocera (Kowarzia) plectrum* Mik, 1880 v BIH: UTM mreža 50 × 50 km.

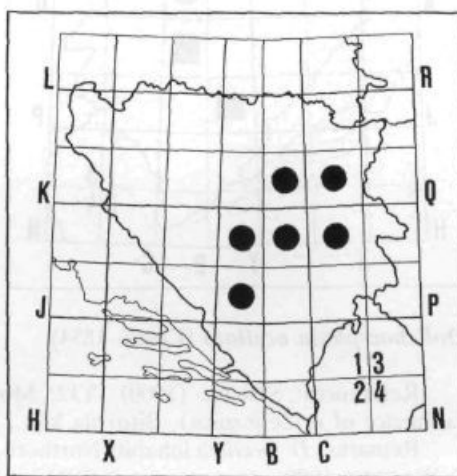


Fig. 8. *Clinocera (Kowarzia) tenella* (Wahlberg, 1844) in BIH: 50 km UTM grid.

Sl. 8. *Clinocera (Kowarzia) tenella* (Wahlberg, 1844) v BIH: UTM mreža 50 × 50 km.

### *Clinocera (Kowarzia) tenella* (Wahlberg, 1844)

Material examined: BQ4: Rijeka, Ribnica, 540 m, 15.X.1990, 1 ♂, 1 ♀; CQ2: 15 km N Kladanj, Konjuh Mts., 830 m, 14.X.1990, 3 ♂♂, 1 ♀; YJ1: 4 km S Dusina, Fojnica, Bitovnja Mts., 1000 m, 18.X.1990, 2 ♂♂, 1 ♀; YJ2: Podhum, Konjic, 500 m, 18.X.1990, 3 ♂♂, 3 ♀♀; BP3: Kreševo, Kiseljak, Volujak Mts., 690 m, 17.X.1990, 3 ♂♂; CP1: Radačići, Kladanj, 680 m, 15.X.1990, 1 ♂, 2 ♀♀;

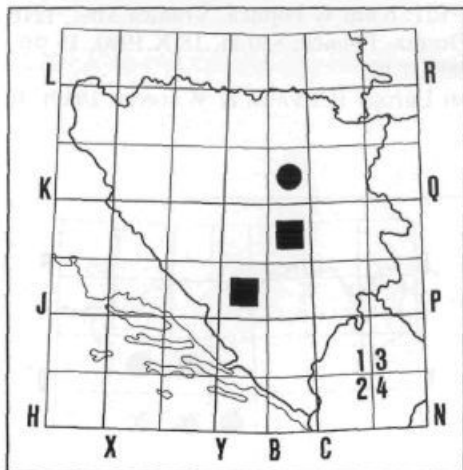
Remarks: *C. (K.) tenella* is distributed in Northern, Western and Central Europe (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 8).

***Dolichocephala guttata*** (Haliday, 1833)

References: STROBL (1900): YJ2: Mostar; BP3: Trebević Mts., Sarajevo;

New record: BQ4: Rijeka, Ribnica, 540 m, 15.X.1990, 1 ♀;

Remarks: *D. guttata* lives from Northern to Southern Europe (CHVÁLA & WAGNER 1989). Its distribution in BIH is shown in Fig. 9.



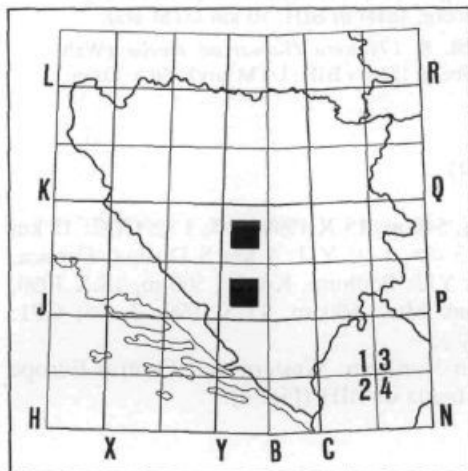
**Fig. 9.** *Dolichocephala guttata* (Haliday, 1833) in BIH: 50 km UTM grid.

**Sl. 9.** *Dolichocephala guttata* (Haliday, 1833) v BIH: UTM mreža 50 × 50 km.

***Dolichocephala ocellata*** (Costa, 1854)

References: STROBL (1900): YJ2: Mostar; WAGNER (pers. com.): YJ1: r. Nevra (affluence of r. Željeznica), Bitovnja Mts., 800 m, 28.V.1990, 1 ♀;

Remarks: *D. ocellata* inhabits Northern, Central and South-Eastern Europe (CHVÁLA & WAGNER 1989). Its presence in BIH is shown in Fig. 10.



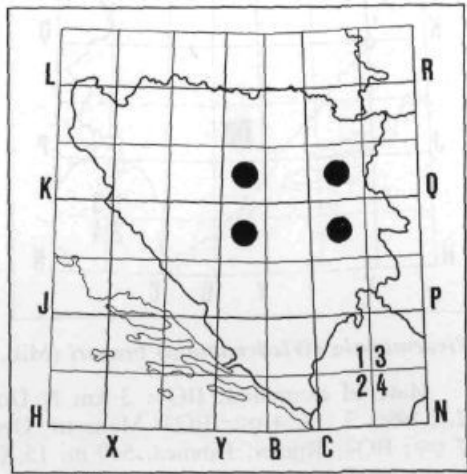
**Fig. 10.** *Dolichocephala ocellata* (Costa, 1854) in BIH: 50 km UTM grid.

**Sl. 10.** *Dolichocephala ocellata* (Costa, 1854) v BIH: UTM mreža 50 × 50 km.

***Wiedemannia (Wiedemannia) andreevi* Joost, 1982**

Material examined: YK2: Šišava, Travnik, Vlašić Mts., 1050 m, 19.X.1990, 1 ♂, 1 ♀; CQ2: r. Drinjača, Brateljevići, Kladanj, 680 m, 13.X.1990, 1 ♂, 2 ♀♀; YJ1: r. Željeznica, Gojevići, Fojnica, 710 m, 18.X.1990, 1 ♂, 3 ♀♀; YJ1: r. Željeznica, Dusina, Fojnica, 830 m, 18.X.1990, 2 ♂♂, 5 ♀♀; YJ1: Džanići, Konjic, Bitovnja Mts., 800 m, 18.X.1990, 1 ♂, 4 ♀♀; CP1: Boganovići, Kladanj, 570 m, 15.X.1990, 2 ♂♂, 1 ♀; CP1: r. Stupčanica, Čude, Kladanj, 680 m, 14.X.1990, 1 ♂, 4 ♀♀; CP1: r. Stupčanica, Petrovići, Kladanj, 780 m, 14.X.1990, 1 ♂, 2 ♀♀;

Remarks: *W. (W.) andreevi* has so far been known from Bulgaria (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 11).



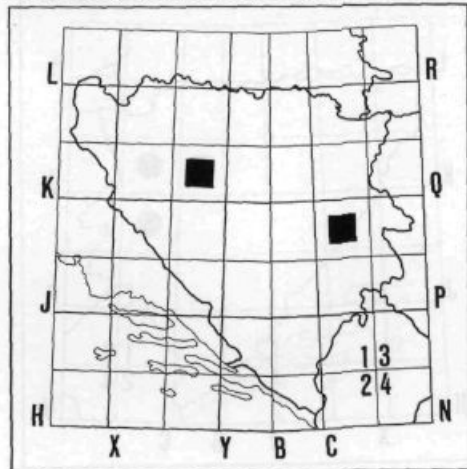
**Fig. 11.** *Wiedemannia (Wiedemannia) andreevi* Joost, 1982 in BIH: 50 km UTM grid.

**Sl. 11.** *Wiedemannia (Wiedemannia) andreevi* Joost, 1982 v BIH: UTM mreža 50 x 50 km.

***Wiedemannia (Wiedemannia) balkanica* Wagner, 1981**

References: WAGNER (1981): CP1: r. Mokranjska Miljacka (in litt. error: Mokranjska Miljoko), 20 km E Sarajevo, TYPE LOCALITY; WAGNER (pers. com.): XK4: r. Ugar, Vlatkovići, Ranča Mts., 500 m, 26.V.1990, 1 ♂, 7 ♀♀;

Remarks: *W. (W.) balkanica* is an endemic species, known only from two localities in BIH (Fig. 12).



**Fig. 12.** *Wiedemannia (Wiedemannia) balkanica* Wagner, 1981 in BIH: 50 km UTM grid.

**Sl. 12.** *Wiedemannia (Wiedemannia) balkanica* Wagner, 1981 v BIH: UTM mreža 50 x 50 km.

*Wiedemannia (Wiedemannia) bistigma* (Curtis, 1834)

References: STROBL (1900): YJ2: Mostar;

Remarks: *W. (W.) bistigma* is a common species in Northern and Central Europe (CHVÁLA & WAGNER 1989). Its presence in BIH is shown in Fig. 13.

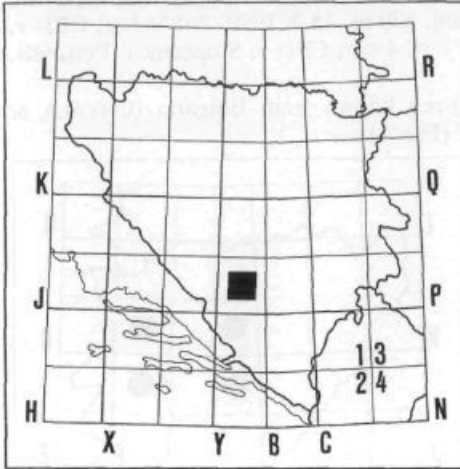


Fig. 13. *Wiedemannia (Wiedemannia) bistigma* (Curtis, 1834) in BIH: 50 km UTM grid.

Sl. 13. *Wiedemannia (Wiedemannia) bistigma* (Curtis, 1834) v BIH: UTM mreža 50 × 50 km.

*Wiedemannia (Wiedemannia) braueri* (Mik, 1880)

Material examined: BQ4: 3 km N Donji Rakovac, Maglaj, Ozren Mts., 430 m, 12.X.1990, 3 ♂♂, 4 ♀♀; BQ4: Manastir, Ozren, Ozren Mts., 860 m, 11.X.1990, 18 ♂♂, 27 ♀♀; BQ4: Rijeka, Ribnica, 540 m, 15.X.1990, 1 ♂, 1 ♀; CQ2: r. Drinjača, Budim Potok, Konjuh Mts., 800 m, 14.X.1990, 4 ♂♂, 5 ♀♀; CQ2: r. Drinjača, Brateljevići, Kladanj, 680 m, 13.X.1990, 5 ♂♂, 5 ♀♀; CP1: r. Drinjača, Kladanj, 620 m, 13.X.1990, 3 ♂♂, 12 ♀♀;

Remarks: *W. (W.) braueri* lives in Central and Eastern Europe (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 14).

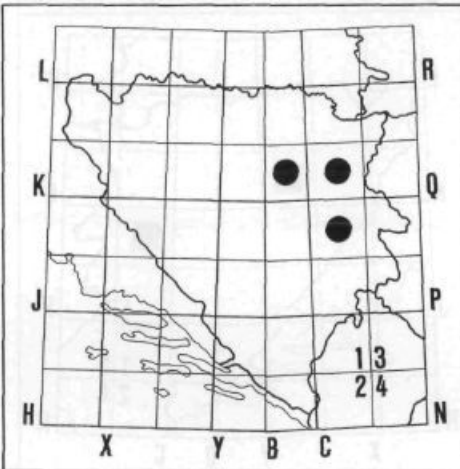


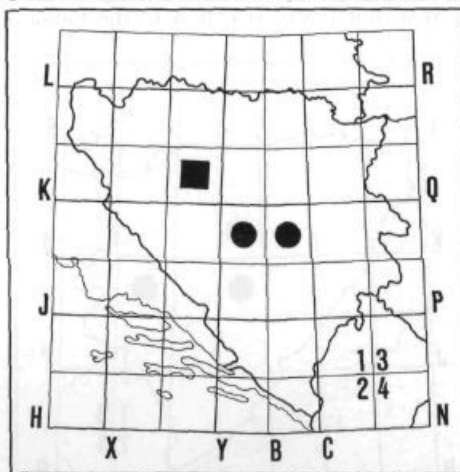
Fig. 14. *Wiedemannia (Wiedemannia) braueri* (Mik, 1880) in BIH: 50 km UTM grid.

Sl. 14. *Wiedemannia (Wiedemannia) braueri* (Mik, 1880) v BIH: UTM mreža 50 × 50 km.

***Wiedemannia (Wiedemannia) dinarica* Engel, 1940**

References: ENGEL (1940): XK4: Jajce, TYPE LOCALITY;

New records: YJ1: r. Mutnica, Bistrica, Gornji Vakuf, 690 m, 18.X.1990, 3 ♂♂, 4 ♀♀; YJ1: Džanići, Konjic, Bitovnja Mts., 800 m, 18.X.1990, 1 ♂; BP3: Zabrdje, Bukovica, Sarajevo, 550 m, 16.X.1990, 2 ♂♂, 3 ♀♀;

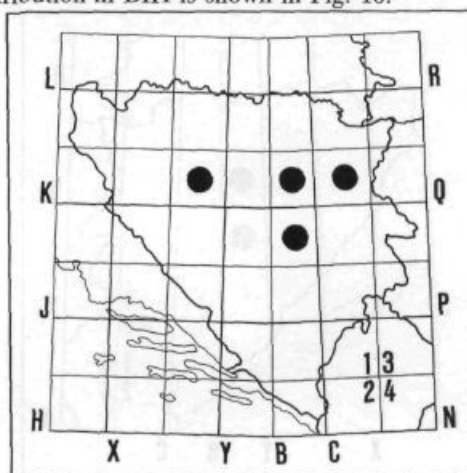
Remarks: *W. (W.) dinarica* inhabits the entire Balkan Peninsula. Its distribution in BIH is shown in Fig. 15.

**Fig. 15.** *Wiedemannia (Wiedemannia) dinarica* Engel, 1940 in BIH: 50 km UTM grid.

**Sl. 15.** *Wiedemannia (Wiedemannia) dinarica* Engel, 1940 v BIH: UTM mreža 50 × 50 km.

***Wiedemannia (Wiedemannia) tricuspadata* (Bezzi, 1905)**

Material examined: XK4: r. Vrbanja, Grabavica, Kotor Varoš, 470 m, 19.X.1990, 3 ♂♂, 16 ♀♀; XK4: r. Vrbanja, Borci, Kotor Varoš, 410 m, 19.X.1990, 6 ♂♂, 12 ♀♀; BQ4: r. Krivaja, Kovač, Zavidovići, 240 m, 12.X.1990, 8 ♂♂, 19 ♀♀; BQ4: Hrge, Zavidovići, 250 m, 12.X.1990, 2 ♂♂, 9 ♀♀; BQ4: r. Krivaja, Kamensko, 420 m, 15.X.1990, 4 ♂♂, 2 ♀♀; CQ2: r. Drinjača, Bratjeljevići, Kladanj, 680 m, 13.X.1990, 1 ♂; BP3: r. Krivaja, Čuništa, 450 m, 15.X.1990, 27 ♂♂, 69 ♀♀;

Remarks: *W. (W.) tricuspadata* is a common species in Central and South-Eastern Europe (CHVALA & WAGNER 1989). Its distribution in BIH is shown in Fig. 16.

**Fig. 16.** *Wiedemannia (Wiedemannia) tricuspadata* (Bezzi, 1905) in BIH: 50 km UTM grid.

**Sl. 16.** *Wiedemannia (Wiedemannia) tricuspadata* (Bezzi, 1905) v BIH: UTM mreža 50 × 50 km.

*Wiedemannia (Chamaedipsia) aequilobata* Mandaron, 1964

Material examined: YK2: Šišava, Travnik, Vlašić Mts., 1050 m, 19.X.1990, 2 ♂♂, 4 ♀♀; YJ1: Fojnica, 700 m, 17.X.1990, 1 ♂, 2 ♀♀; CP1: r. Stupčanica, Petrovići, Kladanj, 780 m, 14.X.1990, 1 ♂, 2 ♀♀;

Remarks: *W. (Ch.) aequilobata* has so far been known from the French Alps (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 17).

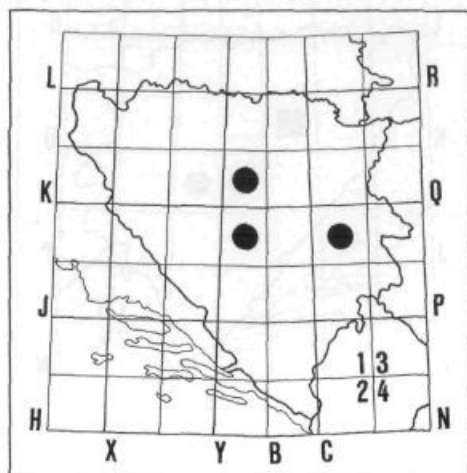


Fig. 17. *Wiedemannia (Chamaedipsia) aequilobata* 1880 v BIH: UTM mreža 50 × 50 km.

Sl. 17. *Wiedemannia (Chamaedipsia) aequilobata* Mandaron, 1964 v BIH: UTM mreža 50 × 50 km.

*Wiedemannia (Chamaedipsia) beckeri* (Mik, 1889)

Material examined: YK2: Šišava, Travnik, Vlašić Mts., 1050 m, 19.X.1990, 1 ♂; YJ1: 5 km SW Fojnica, Vranica Mts., 1400 m, 17.X.1990, 6 ♂♂;

Remarks: *W. (Ch.) beckeri* lives in Central Europe (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 18).

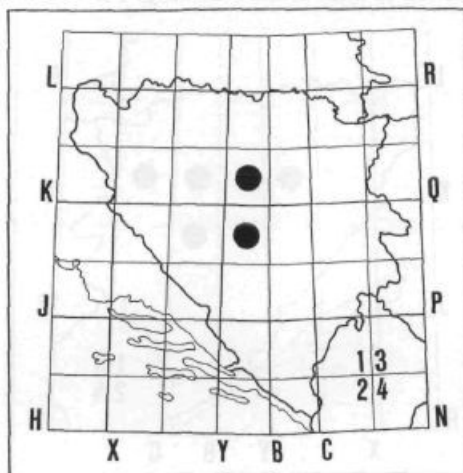


Fig. 18. *Wiedemannia (Chamaedipsia) beckeri* (Mik, 1889) in BIH: 50 km UTM grid.

Sl. 18. *Wiedemannia (Chamaedipsia) beckeri* (Mik, 1889) v BIH: UTM mreža 50 × 50 km.



***Wiedemannia (Chamaedipsia) thienemanni* Wagner, 1982**

Material examined: CQ2: 15 km N Kladanj, Konjuh Mts., 830 m, 14.X.1990, 1 ♂; YJ1: 8 km W Fojnica, Vranica Mts., 1410 m, 17.X.1990, 2 ♂♂, 2 ♀♀; YJ1: 6 km W Fojnica, Vranica Mts., 1210 m, 17.X.1990, 1 ♂; YJ1: 4 km S Dusina, Fojnica, Bitovnja Mts., 1000 m, 18.X.1990, 4 ♂♂; CP1: r. Stupčanica, Petrovići, Kladanj, 780 m, 14.X.1990, 1 ♂;

Remarks: *W. (Ch.) thienemanni* has so far been known from the Austrian Alps (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 19).

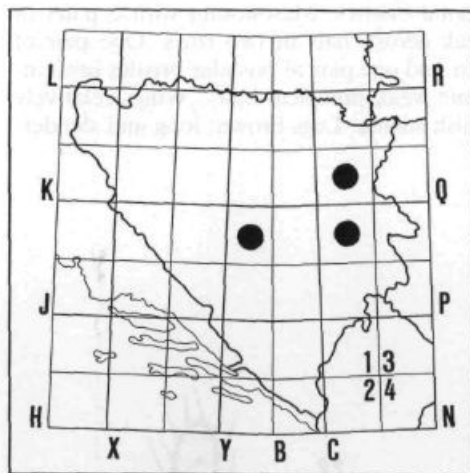


Fig. 19. *Wiedemannia (Chamaedipsia) thienemanni* Wagner, 1982 in BIH: 50 km UTM grid.

Sl. 19. *Wiedemannia (Chamaedipsia) thienemanni* Wagner, 1982 v BIH: UTM mreža 50 × 50 km.

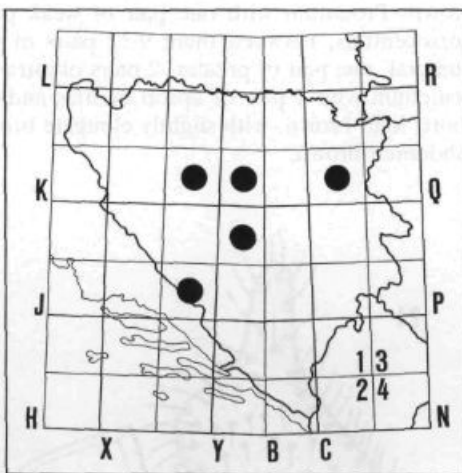


Fig. 20. *Wiedemannia (Philolutra) fallaciosa* (Loew, 1873) in BIH: 50 km UTM grid.

Sl. 20. *Wiedemannia (Philolutra) fallaciosa* (Loew, 1873) v BIH: UTM mreža 50 × 50 km.

***Wiedemannia (Philolutra) fallaciosa* (Loew, 1873)**

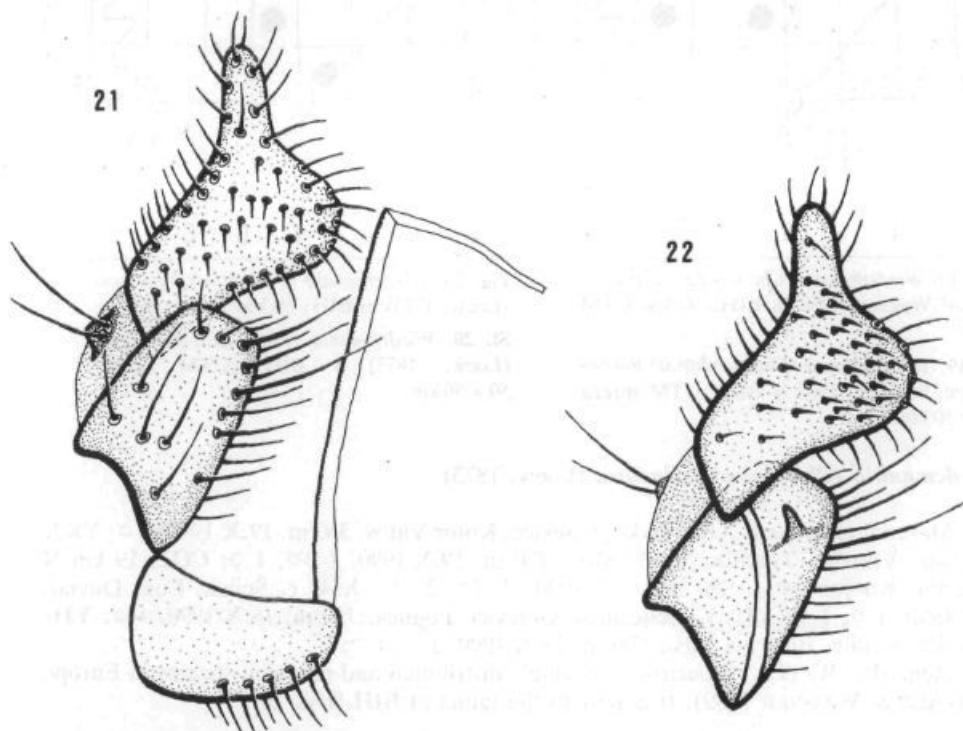
Material examined: XK4: Luke, Viševce, Kotor Varoš, 360 m, 19.X.1990, 1 ♂; YK2: r. Ugar, Vitovlje, Travnik, Vlašić Mts., 770 m, 19.X.1990, 2 ♂♂, 1 ♀; CQ2: 19 km N Kladanj, Konjuh Mts., 890 m, 14.X.1990, 2 ♂♂, 2 ♀♀; XJ4: r. Šujica, Lug, Duvno, 1.V.1990, 1 ♂, 1 ♀; YJ1: r. Željeznica, Gojevići, Fojnica, 710 m, 18.X.1990, 1 ♂; YJ1: Džanići, Konjic, Bitovnja Mts., 800 m, 18.X.1990, 1 ♂, 1 ♀;

Remarks: *W. (Ph.) fallaciosa* is a widely distributed and common species in Europe (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 20).

*Wiedemannia (Philolutra) kacanskae* sp.n. (Figs. 21-22)

Material examined: Holotype ♂: BOSNIA AND HERZEGOVINA, BP3: Kreševo, Kiseljak, Volujak Mts., 690 m a.s.l., 17.X.1990, leg. Horvat and Sivec, (UTM: BP65). The holotype is preserved in 75 % alcohol and deposited in the Slovene Museum of Natural History, Ljubljana. Paratypes: 1 ♂, 3 ♀♀, BIH, YJ1: r. Željeznica, Dusina, Fojnica, 700 m a.s.l. (SW Ostra Glava, YJ 36 62), 28.V.1990, leg. Gerecke, (UTM: YJ36) (in coll. Dr. R. Wagner, Schlitz, Germany).

Description ♂: Head roundish, dark brown, proboscis short, eyes black. One pair of ocellar, 3 pairs of short interocular bristles and 5-7 pairs of postocular bristles. Thorax brown. Pronotum with one pair of weak pronotal bristles. Mesonotum with 5 pairs of dorsocentrals, between them 9-12 pairs of weak acrostichals in two rows. One pair of humeral, one pair of prealar, 2 pairs of intra-alar and one pair of postalar bristles present. Scutellum with 1 pair of apical bristles and some weak preapical hairs. Wings relatively short, light brown, with slightly elongate brownish stigma. Legs brown, long and slender. Abdomen brown.



**Figs. 21-22.** *Wiedemannia (Philolutra) kacanskae* sp.n.: 21 - male hypopygium, left lateral view, 22 - inner side of the right gonostyle and gonocoxite.

**Sl. 21-22.** *Wiedemannia (Philolutra) kacanskae* sp.n.: 21 - hipopigij samčka, levi stranski pogled, 22 - notranja stran desnega gonostila in gonokoksita.

Genitalia ♂, left lateral view (Fig. 21): hypandrium and aedeagus without specific features. Gonocoxite elongate rectangular, covered with numerous long bristles. Gonostyle basally rectangular, distally bipartite, covered with several weak hairs and bristles. Anterior part of the dististyle is a long prolongation, posterior part is rounded. Cerci with a few bristles, reduced in size, represented by small sclerites. Inner side of the right gonostyle and gonocoxite (Fig. 22): gonostyle covered with numerous strong short bristles. Gonocoxite with a short secondary prominence. Measurements ♂: body length 3.2 mm, wing length 3.5 mm.

Relation: the closest relative of the above species is *W. (Ph.) zwicki* Wagner, 1982, living in France and Italy. They differ in the shape of the gonostyle appendages. The presence of the new species in BIH is shown in Fig. 23.

Etymology: it is named after Dr. Dragica Kačanski, Institute of Biology, University of Sarajevo.

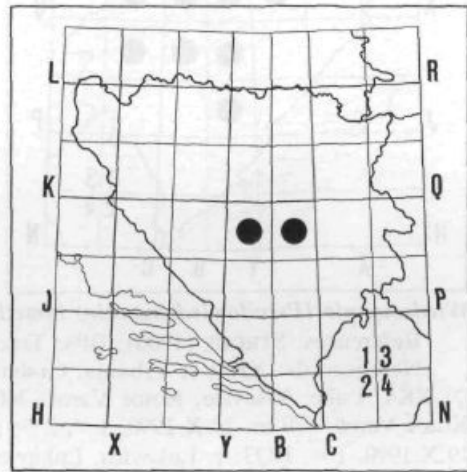


Fig. 23. *Wiedemannia (Philolutra) kacanskae* sp.n. in BIH: 50 km UTM grid.

Sl. 23. *Wiedemannia (Philolutra) kacanskae* sp.n. v BIH: UTM mreža 50 x 50 km.

### *Wiedemannia (Philolutra) wachtli* (Mik, 1880)

Material examined: XK4: Skender Vakuf, 820 m, 19.X.1990, 10 ♂♂, 2 ♀♀; YK2: 3 km N Šiprage, Kotor Varoš, 540 m, 19.X.1990, 1 ♂; YK2: Šiprage, Kotor Varoš, 670 m, 19.X.1990, 8 ♂♂, 11 ♀♀; BQ4: Kamenica, Zavidovići, Ravan Mts., 480 m, 15.X.1990, 4 ♂♂, 7 ♀♀; BQ4: 9 km S Kamenica, Zavidovići, Ravan Mts., 600 m, 15.X.1990, 1 ♂, 2 ♀♀; BQ4: Tajan, Kamenica, Zavidovići, Ravan Mts., 650 m, 15.X.1990, 34 ♂♂, 40 ♀♀; CQ2: Krabašnica, Konjuh Mts., 540 m, 13.X.1990, 7 ♂♂, 1 ♀; CQ2: Ravna Zlaća, Mačkovac, Konjuh Mts., 620 m, 13.X.1990, 1 ♂; CQ2: 5 km S Mačkovac, Konjuh Mts., 600 m, 13.X.1990, 1 ♂, 2 ♀♀; CQ2: r. Drinjača, Budim Potok, Konjuh Mts., 800 m, 14.X.1990, 1 ♂, 1 ♀; CQ2: 15 km N Kladanj, Konjuh Mts., 830 m, 14.X.1990, 1 ♂, 1 ♀; YJ1: Ragale, Fojnica, 790 m, 17.X.1990, 9 ♂♂, 6 ♀♀; YJ1: 8 km W Fojnica, Vranica Mts., 1410 m, 17.X.1990, 1 ♂, 4 ♀♀; YJ1: 6 km W Fojnica, Vranica Mts., 1210 m, 17.X.1990, 6 ♂♂, 4 ♀♀; YJ1: Fojnica, 700 m, 17.X.1990, 9 ♂♂, 12 ♀♀; YJ1: r. Željeznica, Gojevići, Fojnica, 710 m, 18.X.1990, 6 ♂♂, 10 ♀♀; YJ1: r. Željeznica, Dusina, Fojnica, 830 m, 18.X.1990, 7 ♂♂, 3 ♀♀; YJ1: 4 km S Dusina, Fojnica, Bitovnja Mts., 1000 m, 18.X.1990, 10 ♂♂, 16 ♀♀; YJ1: Jasenik, Konjic, Bitovnja Mts., 1130 m, 18.X.1990, 15

♂♂, 12 ♀♀; YJ1: Džanići, Konjic, Bitovnja Mts., 800 m, 18.X.1990, 1 ♂, 8 ♀♀; YJ2: Podhum, Konjic, 500 m, 18.X.1990, 3 ♂♂, 1 ♀; BP3: Kreševo, Kiseljak, Volujak Mts., 690 m, 17.X.1990, 4 ♂♂; CP1: Boganovići, Kladanj, 570 m, 15.X.1990, 38 ♂♂, 41 ♀♀; CP1: Kovačići Pass, Kladanj, 920 m, 14.X.1990, 14 ♂♂, 10 ♀♀; CP1: r. Stupčanica, Petrovići, Kladanj, 780 m, 14.X.1990, 1 ♂;

Remarks: *W. (Ph.) wachtli* is a common species in Western and Central Europe (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 24).

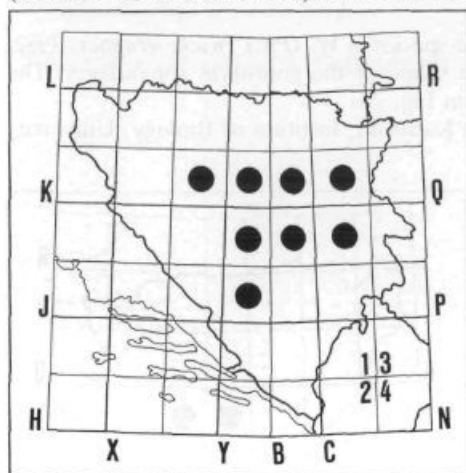


Fig. 24. *Wiedemannia (Philolutra) wachtli* (Mik, 1880) in BIH: 50 km UTM grid.

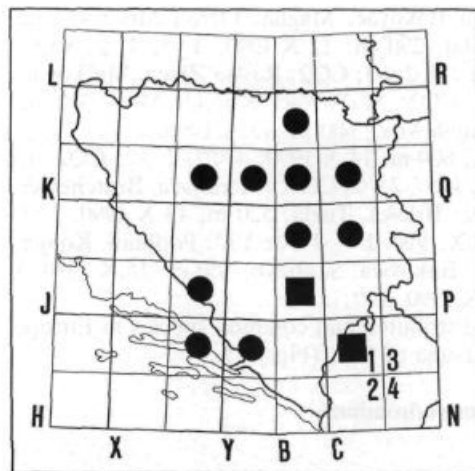
Sl. 24. *Wiedemannia (Philolutra) wachtli* (Mik, 1880) v BIH: UTM mreža 50 × 50 km.

***Wiedemannia (Pseudowiedemannia) lamellata* (Loew, 1869)**

References: STROBL (1900): BP4: Trnovo; CN1: Suha;

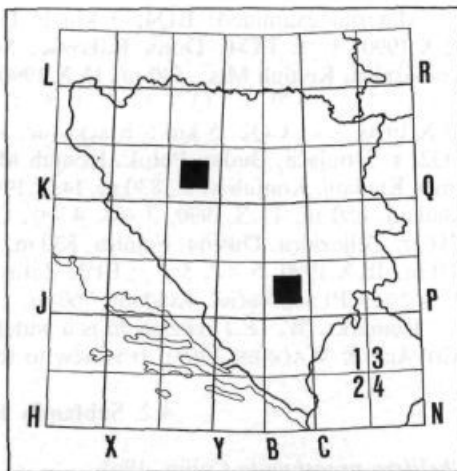
New records: XK4: r. Vrbanja, Grabavica, Kotor Varoš, 470 m, 19.X.1990, 1 ♂, 1 ♀; XK4: Luke, Viševce, Kotor Varoš, 360 m, 19.X.1990, 6 ♂♂, 9 ♀♀; YK2: Šiprage, Kotor Varoš, 670 m, 19.X.1990, 1 ♂, 2 ♀♀; YK2: 3 km S Šiprage, Kotor Varoš, 580 m, 19.X.1990, 1 ♂; BQ3: r. Lukavica, Lukavica, Dobož, Trebovac Mts., 240 m, 11.X.1990, 14 ♂♂, 18 ♀♀; BQ4: Blagojevići, Ozren Mts., 390 m, 12.X.1990, 1 ♂, 3 ♀♀; BQ4: 3 km N Donji Rakovac, Maglaj, Ozren Mts., 430 m, 12.X.1990, 3 ♂♂, 1 ♀; BQ4: Donji Rakovac, Maglaj, 290 m, 12.X.1990, 6 ♂♂, 6 ♀♀; BQ4: Jablanica, Maglaj, 190 m, 12.X.1990, 2 ♂♂, 1 ♀; BQ4: r. Krivaja, Kovač, Zavidovići, 240 m, 12.X.1990, 2 ♂♂; BQ4: 9 km S Kamenica, Zavidovići, Ravan Mts., 600 m, 15.X.1990, 1 ♂, 4 ♀♀; BQ4: Manastir, Ozren, Ozren Mts., 860 m, 11.X.1990, 3 ♂♂, 2 ♀♀; BQ4: Ribnica, Zavidovići, 380 m, 12.X.1990, 14 ♂♂, 15 ♀♀; BQ4: Rijeka, Ribnica, 540 m, 15.X.1990, 7 ♂♂, 6 ♀♀; CQ2: 5 km S Mačkovac, Konjuh Mts., 600 m, 13.X.1990, 6 ♂♂, 3 ♀♀; CQ2: r. Drinjača, Budim Potok, Konjuh Mts., 800 m, 14.X.1990, 1 ♂, 1 ♀; CQ2: r. Drinjača, Brateljevići, Kladanj, 680 m, 13.X.1990, 2 ♂♂, 1 ♀; XJ4: r. Šujica, Lug, Duvno, 1.V.1990, 1 ♂; XJ4: Miljacka, Duvno, 1.V.1990, 6 ♂♂, 16 ♀♀; XJ4: Čitluk, 1.V.1990, 1 ♂, 2 ♀♀; BP3: Kiseljak, Sarajevo, 470 m, 16.X.1990, 2 ♂♂; BP3: Zabrdje, Bukovica, Sarajevo, 550 m, 16.X.1990, 3 ♂♂, 7 ♀♀; BP3: r. Krivaja, Čuništa, 450 m, 15.X.1990, 1 ♂, 1 ♀; CP1: r. Drinjača, Kladanj, 620 m, 13.X.1990, 1 ♂; CP1: Kovačići, Kladanj, 760 m, 14.X.1990, 3 ♂♂, 3 ♀♀; CP1: r. Stupčanica, Pjenovac, Kladanj, 980 m, 14.X.1990, 2 ♂♂, 1 ♀; XH3: Orahovlje, Veljaci, Čapljina, 1.V.1990, 6 ♂♂, 3 ♀♀; YH1: r. Studenčica, D. Studenci, Čapljina, 1.V.1990, 9 ♂♂, 7 ♀♀;

Remarks: *W. (Ps.) lamellata* is a wide-spread and common species throughout Europe (CHVÁLA & WAGNER 1989). Its distribution in BIH is shown in Fig. 25.



**Fig. 25.** *Wiedemannia (Pseudowiedemannia) lamellata* (Loew, 1869) in BIH: 50 km UTM grid.

**Sl. 25.** *Wiedemannia (Pseudowiedemannia) lamellata* (Loew, 1869) v BIH: UTM mreža 50 × 50 km.



**Fig. 26.** *Wiedemannia (Pseudowiedemannia) microstigma* (Bezzi, 1904) in BIH: 50 km UTM grid.

**Sl. 26.** *Wiedemannia (Pseudowiedemannia) microstigma* (Bezzi, 1904) v BIH: UTM mreža 50 × 50 km.

***Wiedemannia (Pseudowiedemannia) microstigma* (Bezzi, 1904)**

References: (BEZZI (1904): BP4: Trnovo, TYPE LOCALITY; WAGNER (pers. com.): XK4: r. Ugar, Vlatkovići, Ranča Mts., 500 m, 26.V.1990, 2 ♂♂, 5 ♀♀;

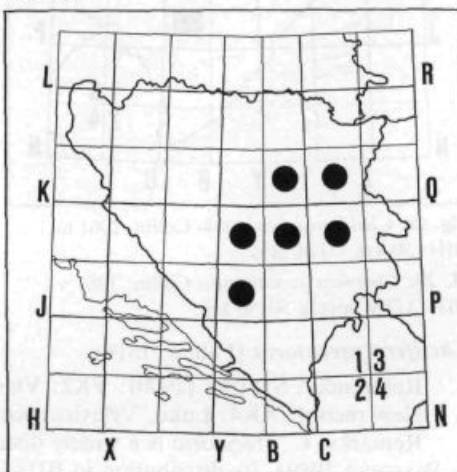
Remarks: *W. (Ps.) microstigma* inhabits the entire Balkan Peninsula. Its presence in BIH is shown in Fig. 26.

***Wiedemannia (Eucelidia) zetterstedti* (Fallen, 1826)**



**Fig. 27.** *Wiedemannia (Eucelidia) zetterstedti* (Fallén, 1826) in BIH: 50 km UTM grid.

**Sl. 27.** *Wiedemannia (Eucelidia) zetterstedti* (Fallén, 1826) v BIH: UTM mreža 50 × 50 km.



Material examined: BQ4: 3 km N Donji Rakovac, Maglaj, Ozren Mts., 430 m, 12.X.1990, 1 ♂; BQ4: Donji Rakovac, Maglaj, 290 m, 12.X.1990, 1 ♂, 1 ♀; CQ2: Krabašnica, Konjuh Mts., 540 m, 13.X.1990, 3 ♂♂, 2 ♀♀; CQ2: Ravna Zlaća, Mačkovac, Konjuh Mts., 620 m, 13.X.1990, 1 ♂, 1 ♀; CQ2: Mačkovac, Konjuh Mts., 340 m, 13.X.1990, 1 ♂; CQ2: 5 km S Mačkovac, Konjuh Mts., 600 m, 13.X.1990, 7 ♂♂, 2 ♀♀; CQ2: r. Drinjača, Budim Potok, Konjuh Mts., 800 m, 14.X.1990, 4 ♂♂, 2 ♀♀; CQ2: 15 km N Kladanj, Konjuh Mts., 830 m, 14.X.1990, 4 ♂♂, 2 ♀♀; CQ2: r. Drinjača, Brateljevići, Kladanj, 680 m, 13.X.1990, 3 ♂♂, 4 ♀♀; CQ2: Brlošci, Tuzla, 520 m, 13.X.1990, 1 ♂; YJ1: r. Željeznica, Dusina, Fojnica, 830 m, 18.X.1990, 1 ♂, 7 ♀♀; YJ2: Podhum, Konjic, 500 m, 18.X.1990, 5 ♂♂, 5 ♀♀; BP3: Zabrdje, Bukovica, Sarajevo, 550 m, 16.X.1990, 1 ♂, 3 ♀♀; CP1: Kovačići, Kladanj, 760 m, 14.X.1990, 1 ♂;

Remarks: *W. (E.) zetterstedti* is a widely distributed and common species in Europe (CHVÁLA & WAGNER 1989). It is new to the fauna of BIH (Fig. 27).

#### 4.2. Subfamily Hemerodromiinae

##### *Chelifera precabunda* Collin, 1961

References: HORVAT (1990): CQ2: Brlošci, Tuzla; BP4: Tošići, Sarajevo; BP4: Rogoj, Dobro Polje;

New record: BQ4: Jablanica, Maglaj, 190 m, 12.X.1990, 2 ♂♂, 2 ♀♀;

Remarks: *C. precabunda* is a wide-spread, common species in Europe (CHVÁLA & WAGNER 1989, HORVAT 1990). Its distribution in BIH is shown in Fig. 28.

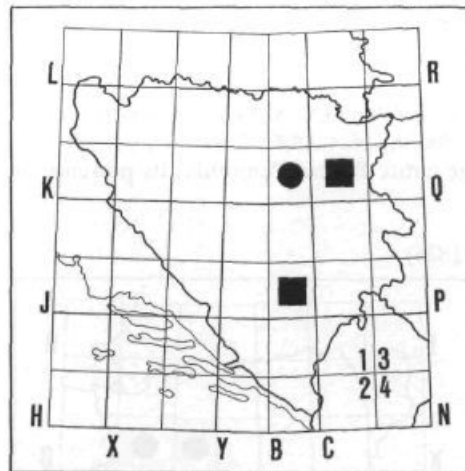


Fig. 28. *Chelifera precabunda* Collin, 1961 in BIH: 50 km UTM grid.

Sl. 28. *Chelifera precabunda* Collin, 1961 v BIH: UTM mreža 50x50 km.

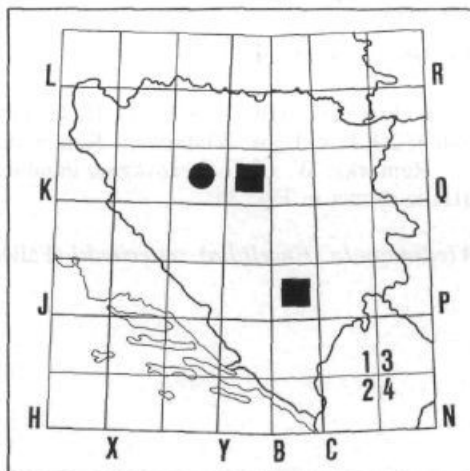


Fig. 29. *Chelifera precatorea* (Fallén, 1816) in BIH: 50 km UTM grid.

Sl. 29. *Chelifera precatorea* (Fallén, 1816) v BIH: UTM mreža 50 x 50 km.

##### *Chelifera precatorea* (Fallén, 1816)

References: STROBL (1900): YK2: Vlačić Mts.; YK2: Travnik; BP4: Trnovo;

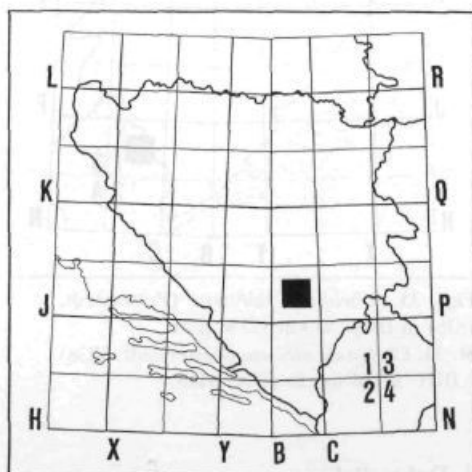
New record: XK4: Luke, Viševce, Kotor Varoš, 360 m, 19.X.1990, 2 ♂♂;

Remarks: *C. precatorea* is a widely distributed, common species in Europe (CHVÁLA & WAGNER 1989). Its distribution in BIH is shown in Fig. 29.

***Chelifera pyrenaica* Vaillant, 1981**

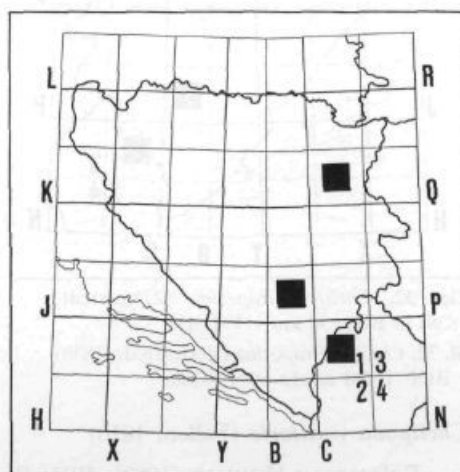
References: HORVAT (1990): BP4: Dobro Polje; BP4: Rogoj, Dobro Polje;

Remarks: *C. pyrenaica* is known from Germany, France, Spain, Switzerland (CHVÁLA & WAGNER 1989), and the Balkan Peninsula (HORVAT 1990). Its presence in BIH is shown in Fig. 30.



**Fig. 30.** *Chelifera pyrenaica* Vaillant, 1981 in BIH: 50 km UTM grid.

**Sl. 30.** *Chelifera pyrenaica* Vaillant, 1981 v BIH: UTM mreža 50x50 km.



**Fig. 31.** *Chelifera stigmatica* (Schiner, 1862) in BIH: 50 km UTM grid.

**Sl. 31.** *Chelifera stigmatica* (Schiner, 1862) v BIH: UTM mreža 50 x 50 km.

***Chelifera stigmatica* (Schiner, 1862)**

References: HORVAT (1990): CQ2: Brlošci, Tuzla; BP4: Tošići, Sarajevo; BP4: Rogoj, Dobro Polje; CN1: r. Sutjeska, Grab;

Remarks: *C. stigmatica* is a widely distributed and common species in Europe (CHVÁLA & WAGNER 1989). Its distribution in BIH is shown in Fig. 31.

***Chelifera trapezina* (Zetterstedt, 1838)**

References: HORVAT (1990): BP4: Obrnja, Kalinovik; CN1: r. Sutjeska, Grab;

Remarks: *C. trapezina* is a wide-spread, common species in Europe (CHVÁLA & WAGNER 1989). Its distribution in BIH is shown in Fig. 32.

***Chelipoda albiseta* (Zetterstedt, 1838)**

References: STROBL (1900): CN1: Suha;

Remarks: *C. albiseta* is known from Northern, Eastern and Central Europe (CHVÁLA & WAGNER 1989). Its presence in BIH is shown in Fig. 33.

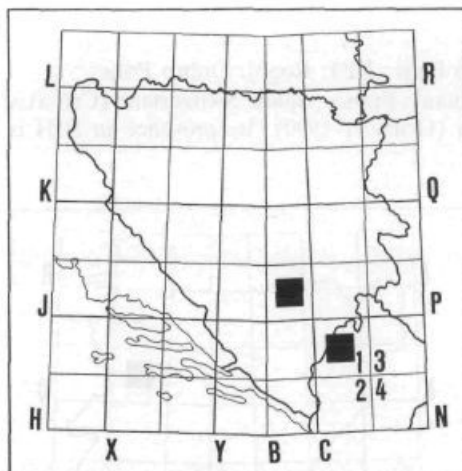


Fig. 32. *Chelifera trapezina* (Zetterstedt, 1838) in BIH: 50 km UTM grid.

Sl. 32. *Chelifera trapezina* (Zetterstedt, 1838) v BIH: UTM mreža 50 × 50 km.

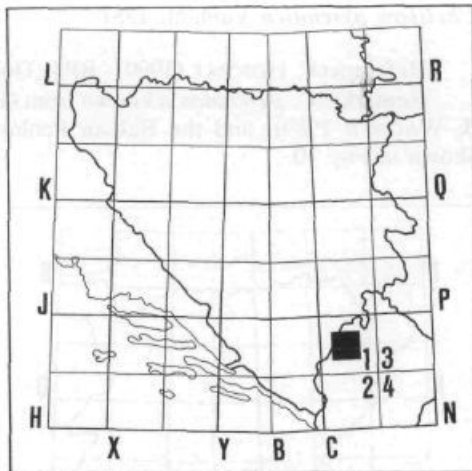


Fig. 33. *Chelipoda albiseta* (Zetterstedt, 1838) in BIH: 50 km UTM grid.

Sl. 33. *Chelipoda albiseta* (Zetterstedt, 1838) v BIH: UTM mreža 50 × 50 km.

***Chelipoda vocatoria* (Fallen, 1816)**

References: HORVAT (1990): BP4: Rogoj, Dobro Polje;

Remarks: *C. vocatoria* is a widely distributed species in Europe (CHVÁLA & WAGNER 1989, HORVAT 1990). Its presence in BIH is shown in Fig. 34.

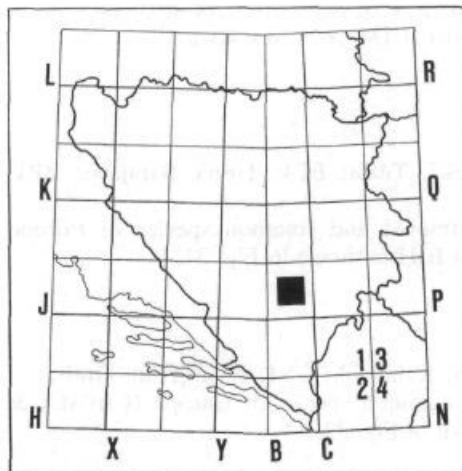


Fig. 34. *Chelipoda vocatoria* (Fallen, 1816) in BIH: 50 km UTM grid.

Sl. 34. *Chelipoda vocatoria* (Fallen, 1816) v BIH: UTM mreža 50x50 km.

***Heleodromia immaculata* Haliday, 1833**

References: STROBL (1900): BP3: Trebević Mts., Sarajevo;

Remarks: *H. immaculata* is a wide-spread species in Europe (CHVÁLA & WAGNER 1989, WAGNER 1985). Its presence in BIH is shown in Fig. 35.



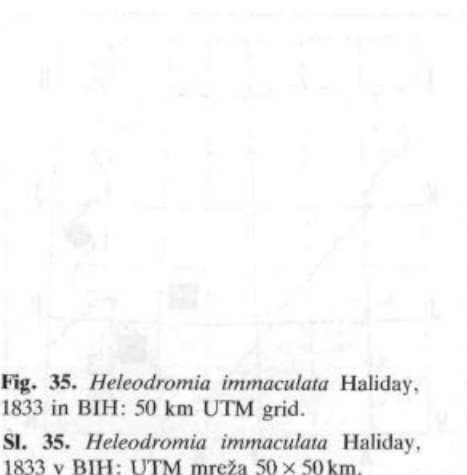
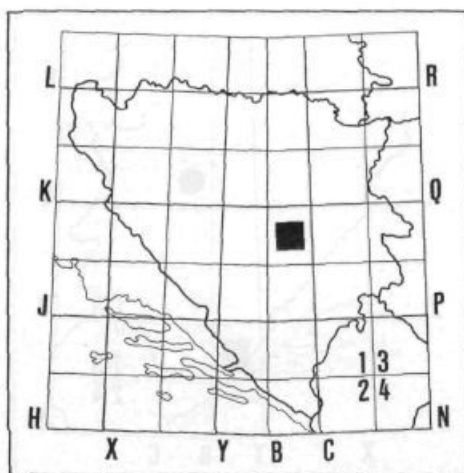


Fig. 35. *Heleodromia immaculata* Haliday, 1833 in BIH: 50 km UTM grid.

Sl. 35. *Heleodromia immaculata* Haliday, 1833 v BIH: UTM mreža 50 × 50 km.



***Heleodromia pectinulata* (Strobl, 1898)**

References: STROBL (1900), WAGNER (1985): YJ2: Jablanica; BN4: Drieno, Trebinje, TYPE LOCALITIES;

Remarks: *H. pectinulata* is an endemic species, known only from two localities in BIH (Fig. 36).

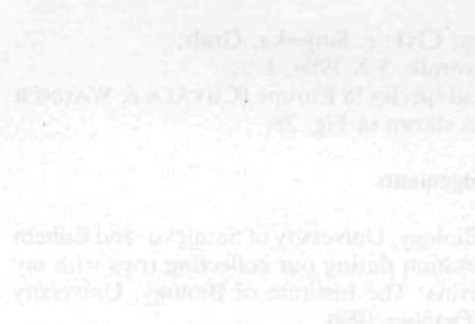
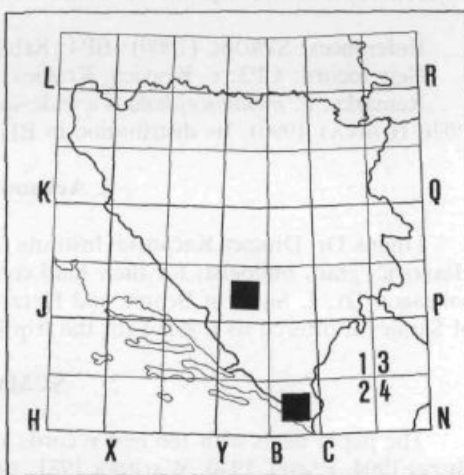


Fig. 36. *Heleodromia pectinulata* (Strobl, 1898) in BIH: 50 km UTM grid.

Sl. 36. *Heleodromia pectinulata* (Strobl, 1898) v BIH: UTM mreža 50 × 50 km.



***Hemerodromia oratoria* (Fallen, 1816)**

References: HORVAT (1990): YH1: Proboj, Čapljina; YH1: r. Studenčica, D. Studenci, Čapljina;

New record: BQ4: Jablanica, Maglaj, 190 m, 12.X.1990, 1 ♀;

Remarks: *H. oratoria* is a widely distributed and common species in Europe (CHVÁLA & WAGNER 1989, HORVAT 1990). Its distribution in BIH is shown in Fig. 37.

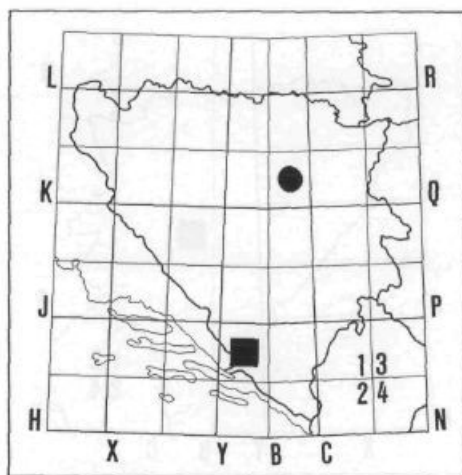


Fig. 37. *Hemerodromia oratoria* (Fallén, 1816) in BIH: 50 km UTM grid.

Sl. 37. *Hemerodromia oratoria* (Fallén, 1816) v BIH: UTM mreža 50 × 50 km.

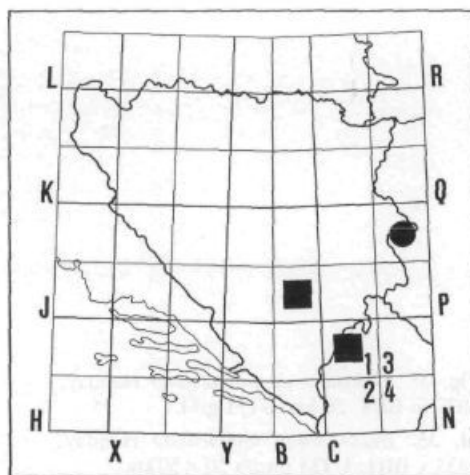


Fig. 38. *Phyllodromia melanocephala* (Fabricius, 1794) in BIH: 50 km UTM grid.

Sl. 38. *Phyllodromia melanocephala* (Fabricius, 1794) v BIH: UTM mreža 50 × 50 km.

### *Phyllodromia melanocephala* (Fabricius, 1794)

References: STROBL (1900): BP4: Krbljine; CN1: r. Sutjeska, Grab;

New record: CP3: r. Kravica, Kravica, Zvornik, 5.X.1986, 1 ♀;

Remarks: *P. melanocephala* is a wide-spread species in Europe (CHVÁLA & WAGNER 1989, HORVAT 1990). Its distribution in BIH is shown in Fig. 38.

## 5. Acknowledgements

I thank Dr. Dragica Kačanski, Institute of Biology, University of Sarajevo, and Edhem Hasković, grad. biologist, for their kind cooperation during our collecting trips with my colleague Dr. I. Sivec in Bosnia and Herzegovina. The Institute of Biology, University of Sarajevo, offered us a grant for the trip in October 1990.

## SUMMARY

The paper deals with 186 new records and 40 data from the literature (STROBL 1900, BEZZI 1904, ENGEL 1940, WAGNER 1981, 1985, pers. com., HORVAT 1990) on 35 aquatic Empididae (Diptera) species from Bosnia and Herzegovina. The empidids as studied belong to two subfamilies (Clinocerinae, Hemerodromiinae), and 8 genera: *Clinocera* (7 species), *Dolichocephala* (2), *Wiedemannia* (15), *Chelifera* (5), *Chelipoda* (2), *Heleodromia* (2), *Hemerodromia* (1), and *Phyllodromia* (1 species).

Twelve species are new to the aquatic Empididae fauna of Bosnia and Herzegovina: *Clinocera* (*Clinocera*) *schremmeri* (Vaillant, 1964), *Clinocera* (*Hydrodromia*) *wesmaeli* (Macquart, 1835), *Clinocera* (*Kowarzia*) *plectrum* Mik, 1880, *C. (K.) tenella* (Wahlberg, 1844), *Wiedemannia* (*Wiedemannia*) *andreevi* Joost, 1982, *W. (W.) braueri* (Mik, 1880),

*Wiedemannia (Chamaedipsia) aequilobata* Mandaron, 1964, *W. (Ch.) beckeri* (Mik, 1889), *W. (Ch.) thienemanni* Wagner, 1982, *Wiedemannia (Philolutra) fallaciosa* (Loew, 1873), *W. (Ph.) wachli* (Mik, 1880), and *Wiedemannia (Eucelidia) zetterstedti* (Fallen, 1826).

*Wiedemannia (Philolutra) kacanskae* sp.n. is described and figured.

The presence of the species is shown in the 50 km UTM grid of Bosnia and Herzegovina.

### POVZETEK

Članek obravnava 186 novih podatkov in 40 podatkov iz literature (STROBL 1900, BEZZI 1904, ENGEL 1940, WAGNER 1981, 1985, pers. com., HORVAT 1990) o 35 vrstah vodnih muh Empididae (Diptera) v Bosni in Hercegovini. Obravnane vodne muhe poplesovalke pripadajo dvema poddružinama (Clinocerinae, Hemerodromiinae) in 8 rodovom: *Clinocera* (7 vrst), *Dolichocephala* (2), *Wiedemannia* (15), *Chelifera* (5), *Chelipoda* (2), *Heleodromia* (2), *Hemerodromia* (1) in *Phyllodromia* (1 vrsta).

Dvanajst vrst je novih za favno vodnih Empididae v Bosni in Hercegovini: *Clinocera (Clinocera) schremmeri* (Vaillant, 1964), *Clinocera (Hydrodromia) wesmaeli* (Macquart, 1835), *Clinocera (Kowarzia) plectrum* Mik, 1880, *C. (K.) tenella* (Wahlberg, 1844), *Wiedemannia (Wiedemannia) andreevi* Joost, 1982, *W. (W.) braueri* (Mik, 1880), *Wiedemannia (Chamaedipsia) aequilobata* Mandaron, 1964, *W. (Ch.) beckeri* (Mik, 1889), *W. (Ch.) thienemanni* Wagner, 1982, *Wiedemannia (Philolutra) fallaciosa* (Loew, 1873), *W. (Ph.) wachli* (Mik, 1880) in *Wiedemannia (Eucelidia) zetterstedti* (Fallen, 1826).

Opisana in ilustrirana je *Wiedemannia (Philolutra) kacanskae* sp.n.

Prisotnost vrst je prikazana na UTM mreži (50 × 50 km) Bosne in Hercegovine.

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