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## Review of literature and established mayfly species (Ephemeroptera, Insecta) from Bulgaria

[Übersicht über die Literatur und die festgestellten Eintagsfliegenarten  
(Ephemeroptera, Insecta) in Bulgarien]

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With 1 Table

**Schlagwörter:** Pseudocentroptilum, Ephemeroptera, Insecta, Bulgarien, Faunistik, Bibliographie

A review of the 102 species of Ephemeroptera so far recorded for the Bulgarian fauna and the references is provided. The larva of *Pseudocentroptilum pulchrum* is reported for Bulgaria for the first time.

Es wird eine Übersicht über die bisher festgestellten 102 Ephemeroptera-Arten der bulgarischen Fauna und die zugehörige Literatur gegeben. Die Larve der Art *Pseudocentroptilum pulchrum* wird zum ersten Mal für Bulgarien gemeldet.

The earliest reports of larvae of Ephemeroptera came from the German specialist SCHOENEMUND (1926) who determined 7 genera through material sent to him by W. Arndt. So far 102 taxa of the order of the bulgarian fauna have been published, 26 of them as larvae and imago, 12 as imago and 63 as larvae, comprising 32 genera and 15 families. 99 of them were determined to species and 2 to variety (Table 1).

The report of the find of a larva of *Thraulus* sp. by P. Beron in a pond near Karaach river near the Black Sea Coast (RUSSEV 1971) probably refers to the species *Thraulus thraker* (reported by JACOB 1988 for the Ropotamo, a tributary to the Black Sea). However the larva of this species has not yet been described.

*Pseudocentroptilum pulchrum* reported in this paper for the first time was found by students in April 1987 in the Harmanliiska river at the village of Malovo.

Enormous material of larvae of *Ecdyonurus* and *Rhithrogena* have been gathered in the course of hydrobiological and saprobiological expeditions along all Bulgarian water catchments awaits processing. The published results from this expedition provides faunistic data on the distribution of hydrofauna and larvae of Ephemeroptera in Bulgarian water catchment while the tables of hydrochemical studies and the saprobiological state of the river, indicating the current ecological situation. These studies involved the following rivers or water catchments: the Iskar (RUSSEV 1959; JANEVA & RUSSEV 1989); the rivers of Vitosha, tributaries of the Iskar river (RUSSEV 1961); the Arda (RUSSEV 1964); Maritsa (RUSSEV 1966, 1967; RUSSEV & al. 1981; UZUNOV & al. 1984); Rhodopes mountains (RUSSEV & JANEVA 1975); Ossam (RUSSEV 1977; RUSSEV &

**Tab. 1: Larvae and imagines of mayflies from Bulgarian fauna published for the first time. L = Larvae; I = Imagines**

	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
Autoren	B u r e s c h	C a s s e v	R u s s e v	R u s s e v	R u s s e v	R u s s e v	R u s s e v	ML ee le -u	R u s s e v	J a c l -u	S o c a b	J a c l -e	RJ u s e v	P a n o v	B r a n s c h	Ua r a n o a v	S z u. d s e b s c h	Ra ul s. ca a s e b s c h	JB ar ca al ad as se cv	BS ro al ada as se ch	Ba ro al ada as se cv	BR ru as se cv	Sa ol w. as se v	J a c o b	Ra ul s e v	Rp ur se ss en vt	
Publikationsjahr	1 9 3 6	1 5 5 1	1 5 5 7	1 5 5 9	1 6 6 9	1 6 6 9	1 6 6 9	1 7 7 9	1 7 7 9	1 7 7 9	1 7 7 9	1 7 7 9	& 1	1 7 7 5	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7	1 9 9 7
SIPHONURIDAE																											
<i>Siphlonurus aestivalis</i> (EATON)																											
<i>S. armatus</i> EATON																											
<i>S. lacustris</i> EATON																											
RALLIDENTIDAE																											
<i>Ameletus inopinatus</i> EATON																											
<i>Metreletus balcanicus</i> (ULMER)																											
BAETIDAE																											
<i>Baetis alpinus</i> (PICTET)																											
<i>B. atrebatus</i> EATON																											
<i>B. buceratus</i> EATON																											
<i>B. fuscatus</i> (LINNÉ)																											
<i>B. gemellus</i> EATON																											
<i>B. lutheri</i> MUELLER-LIEBENAU																											
<i>B. macani</i> KIMMINS																											
<i>B. melanonyx</i> (PICTET)																											
<i>B. muticus</i> (LINNÉ)																											
<i>B. niger</i> LINNÉ																											
<i>B. pavidus</i> GRANDI																											
<i>B. pentaphlebodes</i> UJHELYI																											
<i>B. rhodani</i> (PICTET)																											
<i>B. scambus</i> EATON																											
<i>B. sinicus</i> (BOGOESCU)																											
<i>B. tracheatus</i> KEFFERMÜLLER & MACHEL																											
<i>B. tricolor</i> TSCHERNOVA																											
<i>B. vardarensis</i> IKONOMOV																											
<i>B. vernus</i> CURTIS																											
<i>Raptobaetopus tenellus</i> (ALBARDA)																											
<i>Centroptilum luteolum</i> (MUELLER)																											

	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
Pseudocentroptilum nanum (BOGOESCU)						L																			L	L	
P. pennulatum (EATON)																											
P. pulchrum (EATON)																											
Cloeon dipterum (LINNÉ)																											
Cl. simile EATON																											
Procloeon bifidum (BENGTSSON)																											
OLIGONEURIIDAE																											
Oligoneuriella pallida HAGEN							L																				
O. rhenana (IMHOFF)																											
AMETROPODIDAE																											
Ametropus fragilis ALBARDA																											
ISONYCHIIDAE																											I
Isonychia ignota WALKER																											
HEPTAGENIIDAE																											
Epeorus alpicola (EATON)																											
E. sylvicola (PICTET)																											
Iron yougoslavicus SAMAL																											
Rhithrogena braaschi JACOB																											
Rh. bulgarica BRAASCH, SOLDAN & SOWA																											
Rh. buresi SOWA																											
Rh. diaphana NAVAS																											
Rh. hybrida EATON																											
Rh. iridina KOLENATI																											
Rh. loyolaea NAVAS																											
Rh. semicolorata (CURTIS)																											
Rh. sowai PUTHZ																											
Rh. thracica SOWA, SOLDAN & BRAASCH																											
Ecdyonurus affinis (EATON)																											
E. aurantiacus BURMEISTER																											
E. carpaticus vitoschensis JACOB & BRAASCH																											
E. dispar (CURTIS)																											
E. forcipula (PICTET)																											
E. helveticus (EATON)																											
E. insignis (EATON)																											
E. macani THOMAS & SOWA																											
E. picteti MEYER-DUERR																											
E. russevi BRAASCH & SOLDAN																											
E. subalpinus K1APALEK																											
E. submontanus LANDA																											
E. torrentis KIMMINS																											
E. venosus FABRICIUS																											
Electrogena lateralis (CURTIS)	I	LI				L																					
E. macedonica (IKONOMOV)																											
E. quadrilineata (LANDA)																											

	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
<i>Heptagenia coeruleans</i> (ROSTOCK)		L																									
<i>H. flava</i> (ROSTOCK)		L																									I
<i>H. fuscogrisea</i> (RETZIUS)																											
<i>H. longicauda</i> (STEPHENS)								L																			
<i>H. sulphurea</i> (MUELLER)																											
EPHEMERELLIDAE																											
<i>Ephemerella ignita</i> (PODA)							LI																				
<i>Eph. maculocaudata</i> IKONOMOV								L																			
<i>Eph. major</i> (KLAPALEK)								L																			
<i>Eph. mesoleuca</i> (BRAUER)																											
<i>Eph. mucronata</i> BENGTSSON																											
<i>Eph. mucronata unicolorata</i> (IKONOMOV)																											
<i>Eph. notata</i> EATON							L																				
NEOEPHEMERADE																											
<i>Neoephemera maxima</i> (JOLY)																											
CAENIOIDAE																											
<i>Caenis horaria</i> (LINNÉ)							L																				
<i>C. luctuosa</i> BURMEISTER							L																				
<i>C. macrura</i> STEPHENS								L																			
<i>C. rivulorum</i> EATON																											
<i>C. robusta</i> EATON																											
<i>Brachycercus harrisella</i> CURTIS																											
<i>Cercobrachis minutus</i> (TSHERNOV)																											
LEPTOPHELEBIIDAE																											
<i>Choroterpes picteti</i> (EATON)							L																				
<i>Thraulus thraker</i> JACOB								L																			
<i>Thraulus</i> sp.																											
<i>Paraleptophlebia cincta</i> (RETZIUS)																											
<i>P. lacustris</i> IKONOMOV																											
<i>P. submarginata</i> (STEPHENS)																											
<i>Habroleptoides confusa</i> SARTORI & JACOB																											
<i>Habrophlebia eldae</i> JACOB & SARTORI																											
<i>H. fusca</i> (CURTIS)																											
<i>H. lauta</i> EATON																											
POLYMITARCIDAE																											
<i>Ephoron virgo</i> (OLIVIER)																											
PALINGENIIDAE																											
<i>Palingenia longicauda</i> (OLIVIER)	I						L																				
EPHEMERIDAE																											
<i>Ephemera danica</i> MUELLER																											
<i>Eph. lineata</i> EATON																											
<i>Eph. vulgaris</i> LINNÉ	I						L																				
POTAMANTHIDAE																											
<i>Potamanthus luteus</i> (LINNÉ)																											

al. 1984); Tundzha (RUSSEV & al. 1984; JANEVA & RUSSEV 1985); Tsibritsa (RUSSEV & JANEVA 1985); Mesta (KOVACHEV & UZUNOV 1986); Struma (UZUNOV & KOVACHEV 1987); Russenski Lom (RUSSEV & al. 1987, 1988); Ogosta (JANEVA, 1991); Lom (RUSSEV & JANEVA 1991) and Jantra (RUSSEV & JANEVA in print).

Biological data on Ephemeroptera have been published in other studies. On migrations and compensation flights studies of RUSSEV (1959 b, 1972, 1973); on the characteristics of growth related to ecological conditions NACHEV (1979); on the significance of Ephemeroptera as bioindicators RUSSEV (1979) and JANEVA (1979); on productivity of Ephemeroptera in the strech of the Iskar river RUSSEV & DOSHKINOVA (1985); on the ecology of the Danube and the tributaries of the Black Sea RUSSEV (1968) and RUSSEV & al. (1991); on the significance of the Maritsa river in comparison with other benthos groups RUSSEV & JANEVA (1983); on the ecology, biology and distribution of *Palingenia longicauda* RUSSEV (1987); on extinct and threatened Ephemeroptera of Bulgarian fauna RUSSEV (1992).

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