

Baetis species from Kuopio Museum, Finland (Ephemeroptera, Baetidae)

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Abstract

MÜLLER-LIEBENAU, INGRID & SAVOLAINEN, EINO: Baetis species from Kuopio Museum, Finland (Ephemeroptera Baetidae). — Notulae Entomol. 55:93—96. 1975.

Baetis material in the collections of the Department of Natural History in Kuopio Museum was examined. There were specimens from 29 localities in Finland and two localities in northern Norway. The following species were found: *B. lapponicus*, *B. rhodani*, *B. vernus*, *B. macani*, *B. subalpinus*, *B. fuscatus*, *B. scambus*, *B. niger* and *B. muticus*. *B. subalpinus* is reported for the first time within the present boundaries of Finland. Fifteen finds are new to one of the Finnish biogeographical provinces.

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The genus *Baetis* of the family Baetidae includes about 30 European species of freshwater insects. The nymphs live mostly in rivers and streams on, under, or between stones, sand and gravel; some live in vegetation in rivers or along their banks. A few species inhabit lake shores or small slow-running waters.

The females of all species are very similar and extremely difficult to identify. The same is true for the subimagos.

Since the exact identification of the nymphs and males of some species is still difficult, the rearing of material is very useful (see MÜLLER-LIEBENAU 1969).

Material and methods

The material is deposited in the collections of the Department of Natural History in Kuopio Museum. The main part used in this work had been collect-

ed by the author Savolainen, and had been netted at random, without quantitative methods or any attempt to find all the species occurring at each locality. Specimens collected by several other persons were also examined. The following abbreviations of the collectors' names are used in the text:

MH	= Matti Haapasaaari
IJH	= Ismo J. Holopainen
EJ	= Esko Jaakkola
AL	= Ari Lyytikäinen
AR	= A. Ruotsalainen
JS	= Jouko Sarvala
JS & MS	= Jouko and Maija Sarvala
ES	= Eino Savolainen

The entire material was identified by the author Müller-Liebenau. The localities are shown in Fig. 1, and the sampling sites are shortly described in the following list (coordinates according to the uniform grid system, Grid 27°E):

FINLAND

1. *Ta*: Lammi, 677:39, lake Pääjärvi, Pappilantahti. Pääjärvi is a fairly large, deep, dysotrophic lake, with mainly stony shores. The sampling site is a shallow bay with some vegetation and a sandy or oozy bottom.
2. *Ta*: Kuhmoinen, 683:40.
3. *Sa*: Sääminki, 684:61, Lake Pihlajavesi, Pataselkä, Pöllänsaari. Pataselkä is oligotrophic and very clear, and has stony shores. The sample was taken in shallow water on a barren, stony bottom.
4. *Kl*: Parikkala, 682:62, Lake Simpele, Särkisalmi. Simpele is a large, fairly shallow, dark lake. The sampling site is in shallow, slightly polluted water with a sandy bottom and some aquatic vegetation.
5. *Kl*: Parikkala, 683:63, Lake Simpele, Siikalahti. The sampling site is similar to loc. 4, but the aquatic vegetation is abundant.
6. *Tb*: Vesanto, 6981:453, Lake Keitele, Ritoltahti. Keitele is a large fairly clear, oligotrophic lake with mostly stony shores. Ritoltahti is a shallow, sandy bay with a dense *Carex* stand at its head.
7. *Sb*: Vehmersalmi, 696:55, Suvasvesi. Lake Suvasvesi is large and oligotrophic with stony shores.
8. *Sb*: Kuopio, 6977:522, the Kaislasenpuro. The Kaislasenpuro is a shallow, stony stream, ca. 1.5 m broad and 100 m long, with very dark water. In the sampling site the flow is fairly rapid.
9. *Sb*: Maaninka, 701:50, Korkeakoski. A 1.5–2 m-broad stream fairly rich in humus.
10. *Kb*: Kaavi, 697:59, Maarianvaara, the Syrjäjoki. The Syrjäjoki is ca. 5.5 km long, 1.5–10 m broad, partly rapidly flowing, mostly shallow. The bottom varies from stony to sandy and oozy. The water is dark and rich in humus, with few aquatic plants. The larvae were collected in a rapidly flowing, stony site.
11. *Kb*: Kaavi, 697:59, Maarianvaara, Lake Rikkavesi, Riihilahti. Rikkavesi is a large, dysotrophic lake with mostly stony shores. Riihilahti is a shallow bay with a sandy—oozy bottom and fairly abundant aquatic vegetation.
12. *Kb*: Kaavi, 697:59, Maarianvaara, Lake Rikkavesi, Kalliolahti. Kalliolahti is a bay in a ca. 600-m-long island; it is small but resembles Riihilahti, described above.
13. *Kb*: Kaavi, 697:59, Maarianvaara, Hautakorpi. A shallow, 0.5–1-m-broad, stony brook. Its water is dark-coloured and has a high humus content, coming partly from bogs, partly from springs. There are no vascular plants, only mosses.

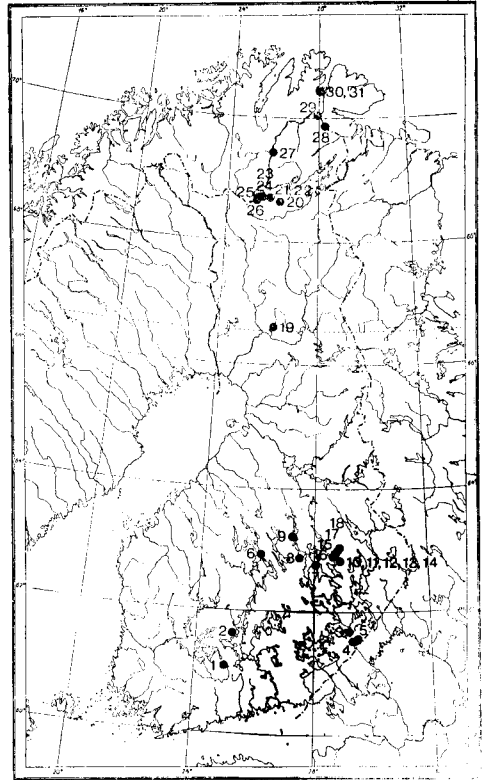


FIG. 1. Sampling localities. See the text for numbering.

14. *Kb*: Kaavi, 697:59, Maarianvaara, Riihilampi. The brook described in 13., ca. 0.5 km from Hautakorpi.
15. *Kb*: Kaavi, 6996:594, the Vaikkojoki, Pitkäkoski. The Vaikkojoki system is ca. 70 km long and comprises several small lakes. In its lower reaches the river is 15–20 m broad. The bottom is mainly stony and there are some rapids. The water comes from boggy districts; it is dark-coloured and has a high humus content. The Pitkäkoski rapids are ca. 0.5 m deep and 10 m broad; the flow is rapid and the bottom is stony.
16. *Kb*: Kaavi, 698:58, Meltusvirta. Rapidly flowing part of the Vaikkojoki system, in its lower reaches. The sample was taken in a ca. 20-m-broad, stony place, where the current is weak.
17. *Kb*: Juuka, 7002:593, the Vaikkojoki, Myllykoski. Like loc. 15

18. *Kb*: Juuka, 7018:593, the Vaikkojoki, Tammisahki. In the sampling site the river flows slowly.
19. *Ob*: Rovaniemi, 739:46, the Raudanjoki, Vikaköngäs. Ca. 10—15-m-broad, stony rapids with deep, dark-coloured water.
20. *Li*: Inari, 761:47, Sarvveskuovdiloaivi fjeld, a tributary of the Menesjoki. Ca. 1.5-m-broad, shallow, rather dark brook in a bog on the slope of the fjeld.
21. *Li*: Inari, 762:45, Ravadasköngäs. Rapids in the clear, ca. 10—15-m-broad Ravadasjoki. In the sampling site the water foams between two vertical cliffs ca. 3 m apart.
22. *Li*: Inari, 762:45, Morgamojan Kultala, the Morgamoja. 1.5—2-m-broad, shallow brook; sample taken where the flow is rapid.
23. *Li*: Inari, 762:43, the Postijoki. Sampling site shallow, stony, 6—8 m broad; water rapid, fairly dark-coloured.
24. *Li*: Inari, 762:43, the Vaskojoki. The Vaskojoki is a big, 10—30-m-wide river. The sample was taken where the current is strong.
25. *Li*: Inari, 762:42, S side of the fjeld Jäkäläpää, headspring of a tributary of the Vaskojoki. Small, 0.5-m-broad ditch in a bog, with dark, humus-rich water.
26. *Li*: Inari, 761:42, the Kietsimäjoki. In the sampling site the river is rapid and ca. 5 m broad.
27. *Li*: Utsjoki, 770:45, Karigasniemi.
28. *Li*: Utsjoki, 775:54, Tsuomasvarri. A stony, shallow, clear strait, ca. 300 m long and 1.5—3 m broad, between the Tsuomasjärvi lakes.
29. *Li*: Utsjoki, 777:53, Nuorgam. By a ca. 1-m-broad, stony, rapidly flowing brook in the subalpine birch zone, near the treeless summit of the fjeld.

NORWAY

30. *Fn*: Tana, 781:52, Storelva. Very clear, shallow, ca. 10—15-m-broad, rapidly flowing river.
31. *Fn*: Tana, 781:52, Jiertasjokka. A tributary of the preceding river, ca. 10 m broad. As above.

Species

The results of this study are given in the following order: number of locality, date, number of collected individuals, and the initials of the collector. They

are followed by the biogeographical provinces of Eastern Fennoscandia from which there are previous records.

Baetis lapponicus (Bengtsson 1912)
21, 1969-07-24, 3 subim. ♀♀, ES. — 22, 1969-07-25, 7 nymphs, JS.

TIENSUU (1939) (*Acentrella lapponica* Bgtn); *Lk, Le, Li, Lps, Lv, Lp.*

Baetis rhodani (Pictet 1843—45)
10, 1968-07-01, 1 ♂, ES. — 31, 1971-08-13, 43 ♂♂, ES.

New for *Kb*.

TIENSUU (1939) (*B. rhodani, B. pusillus* Bgtn and *B. wallengreni* Bgtn): *Al, Ab, N, Kl, Tb, Ob, Le, Li, Lps, Lim, Lt.* HIRVENOJA (1964): *Ta.* BAGGE (1965): *Li.*

Baetis vernus Curtis 1834

15, 1974-07-10, 2 nymphs, AL.

New for *Kb*.

TIENSUU (1939) (*B. vernus* and *B. tenax*): *Ob, Le, Li, Lps, Lv.* HIRVENOJA (1964) (*B. tenax*, D. E. Kimmins det) *Ta.* BRANDER (1966) (*B. tenax*, L. Tien-suu det) *Ta.*

Baetis macani Kimmins 1957

3, 1969-06-29, 1 ♂, ES. — 5, 1969-08-25, 1 ♂, IJH. — 5, 1969-07-03, 9 ♂♂, IJH. — 6, 1974-07-25, 4 nymphs, ES. — 13, 1967-07-15, 3 nymphs, ES. — 20, 1971-08-11, 10 ♂♂, ES. — 25, 1969-07-27, 1 ♂, ES. — 28, 1970-07-11, 52 ♂♂, ES.

New for *Sa, Kl, Tb* and *Kb*.

KIMMINS (1957): *Le.* MACAN (1957): *Ta, Le.* BAGGE (1965): *Li.* MÜLLER-LIEBENAU (1969): *Le.*

Baetis subalpinus Bengtsson 1917

10, 1968-07-01, 12 ♂♂, IJH. — 10, 1968-07-01, 2 ♂♂, ES. — 10, 1968-07-01, 12 ♂♂, ES. — 10, 1973-06-19, 71 nymphs, ES. — 13, 1967-07-15, 22 nymphs, (? *subalpinus*), ES. — 17, 1974-06-30, 65 nymphs, AL. — 17, 1974-06-30, 62 nymphs, AL. — 18, 1974-07-11, 18 nymphs, AL. — 20, 1971-07-11 1 ♂, ES. — 22, 1969-07-25, 4 nymphs (? *subalpinus*), JS. — 23, 1969-07-26, 5 nymphs (? *subalpinus*), ES.

New for Finland (present boundaries), provinces *Kb* and *Li*.

TIENSUU (1939) (*B. subalpinus* and *B. saliens*): *Ka*, *Kl*, *Lps*.

Baetis fuscatus (Linnaeus 1761)

1, 1967-07-25, 1 nymph, ES. — 6, 1973-07-27, 1 nymph, ES. — 6, 1974-07-06, 1 nymph, ES. — 6, 1974-07-25, 4 nymphs, ES. — 15, 1974-07-10, 1 nymph, AL. — 16, 1974-06-30, 2 nymphs, ES. — 17, 1974-06-30, 10 nymphs, AL. — 23, 1969-07-26, 1 nymph, ES. — 24, 1969-07-26, 2 nymphs, JS.

New for *Tb* and *Li*.

TIENSUU (1939) (*B. venustulus* Etn and *B. bioculatus* L., Brekke det): *Al*, *Ab*, *N*, *St*, *Ta*, *Kl*, *Sb*, *Kb*, *Ob*, *Lmur*. BRANDER (1966) (*B. bioculatus*, L. Tien-suu det): *Ta*. LÄHDESMÄKI (1970) (*B. bioculatus*): *Oa*.

Baetis scambus Eaton 1870

1, 1967-07-30, 7 ♂♂, ES. — 1, 1967-07-23, 7 ♂♂, ES. — 1, 1967-07-23, 4 ♂♂, IJH. — 4, 1967-06-26, 2 ♂♂, ES. — 4, 1967-06-23, 3 ♂♂, IJH. — 5, 1968-06-11, 1 ♂, IJH. — 5, 1969-06-27, 3 ♂♂, IJH. — 11, 1967-07-15, 5 ♂♂, ES. — 11, 1967-07-15, 5 ♂♂, ES.

New for *Ta* and *Li*.

TIENSUU (1939): *Ik*, *Kl*, *Sb*, *Kb*, *Ok*, *Lk*, *Lt*, *Lmur*.

Baetis niger (Linnaeus 1761)

10, 1967-07-03, 4 ♀♀, IJH. — 10, 1968-06-16, 6 ♂♂, 1 ♀, ES. — 10, 1969-06-13, 3 ♂♂, ES. — 10, 1967-06-11, 2 nymphs, ES. — 10, 1967-06-11, 3 nymphs, IJH. — 14, 1968-06-27, 1 nymph, ES. — 14, 1968-06-27, 1 nymph, IJH. — 20, 1971-08-11, 1 ♂, ES. — 26, 1969-06-29, 2 ♂♂, ES.

New for *Kb*.

TIENSUU (1939): *Ab*, *N*, *St*, *Kl*, *Tb*, *Ok*, *Lk*, *Le*, *Li*. HIRVENOJA (1964): *Ta*.

Baetis muticus (Linnaeus 1758)

10, 1967-07-03, 5 ♀♀, ES. — 19, 1970-08-03, 2 ♂♂, ES. — 24, 1969-07-26, 1 nymph, JS. — 29, 1970-07-04, 2 ♂♂, ES. — 30, 1971-08-15, 1 ♂, ES.

New for *Kb* and *Ob*.

TIENSUU (1939): *Kl*, *Le*, *Li*, *Lps*, *Lmur*. BAGGE (1965): *Li*.

Baetis spp.

1, 1967-07-23, 1 subim. ♂, 1 subim. ♀, *B. sp.*, ES. — 2, 1970-08-17, 16 nymphs, *B. sp.*, *Vernus* group, JS & MS. — 3, 1969-06-29, 1 nymph, *B. sp.*, ES. — 5, 1969-06-27, 1 ♀, *B. sp.*, IJH. — 7, 1972-08-01, 1 subim. ♀, *B. sp.*, MH. — 8, 1973-09-20, 1 nymph, ES. — 9, 1901-07-01, nymphs, *B. sp.*, AR. — 10, 1967-07-03, 2 ♀♀, *B. sp.*, ES. — 10, 1968-06-26, 4 subim. ♀♀, *B. sp.*, ES. — 23, 1969-07-26, 1 nymph, *B. sp.*, JS & MS. — 24, 1969-07-26, 10 ♀♀, *B. sp.*, JS. — 27, 1969-06-27, 13 ♀♀, *B. sp.*, EJ. — 28, 1970-07-11, 1 ♀, *B. sp.*, ES.

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