

NEW RECORDS OF MAYFLIES FROM GALICIA
(EPHEMEROPTERA)

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ABSTRACT

A number of species belonging to the order Ephemeroptera were collected from several localities in the Galicia region in northwest Spain, during the period 1986-1989. Among them, eleven species are cited for the first time in this region; two of which, *Baetis estrelensis* Müller-Liebenau, 1974 and *Habroleptoides thomasi* Sartori, 1986, described in Portugal, are also new records for Spain. These new data contribute to the knowledge of mayfly species distribution in the Iberian Peninsula, since few studies have looked at this order in Galicia.

INTRODUCTION

Studies on Ephemeroptera in Galicia started at the beginning of the twentieth century, with the works of Navas (1904, 1917, 1921, 1924, in Alba-Tercedor, 1981). No more studies were carried out in the region until 1974, when Müller-Liebenau cited some species captured in two localities in the Orense province where investigating Baetidae species from Portugal, Spain and the South of France. Similarly, Margaleff et al. (1977, in Alba-Tercedor, 1981) includes some references of species found in the Forcadas and Fervenza reservoirs (La Coruña). Recently, Puig (1983) listed the Ephemeroptera from the River Tambre (La Coruña), and Sartori (1986) reported finding *Habroleptoides nervulosa* Eaton, 1883-88 in this river. These contributions indicate a total number of 35 species for this region.

During several sampling campaigns carried out by the authors in some galician rivers over a three year period (1986-1989), large numbers of mayflies were captured, including the species considered in this work. Eleven species are reported here for the first time in Galicia, two of which: *Baetis estrelensis* Müller-Liebenau, 1974 and *Habroleptoides thomasi* Sartori, 1986, are new for Spain as well. With this contribution the number of species cited for Galicia is increased to 46.

Simultaneous captures of adults and nymphs were made. Nymphal sampling was qualitative, in some cases with a surber net. Some nymphs were reared in an aquarium to sub-imago and imago. The cited material was sampled by Pardo, except for the cases cited in the text. Specimens have been deposited in the entomology collection of the Department of Animal Biology, at the University of Santiago de Compostela.

LOCALITIES

The following collecting sites were sampled (including the name of the locality and stream, its U.T.M. coordinates -Transversal Universal de Mercator-, and altitude).

- St. 1.- Cepeda, Pontevedra, Louro River, 29TNG332749, 320m.
- St. 2.- Nespereira, Pontevedra, Louro River, 29TNG344779, 200m.
- St. 3.- Os Valos, Pontevedra, Louro River, 29TNG334767, 130m.
- St. 4.- Acebal, Pontevedra, Louro River, 29TNG332749, 100m.
- St. 5.- Zapateira, Pontevedra, Louro River, 29TNG331737, 80m.
- St. 6.- Mos, Pontevedra, Louro River, 29TNG329730, 60m.
- St. 7.- Porriño, Pontevedra, Louro River, 29TNG311681, 30m.
- St. 8.- Eidos, Pontevedra, Louro River, 29TNG311671, 25m.
- St. 9.- Cerquido, Pontevedra, Louro River, 29TNG305606, 20m.
- St.10.- Tuy, Pontevedra, Louro River 29TNG303574, 20m.
- St.11.- Arrayal, Pontevedra, Louro River, 29TNG304563, 20m.
- St.12.- Fillaboa, Pontevedra, Tea River, 29TNG400596, 20m.
- St.13.- Cristiñade, Pontevedra, Tea River, 29TNG403663, 20m.
- St.14.- Puenteareas, Pontevedra, Tea River, 29TNG402713, 30m.
- St.15.- Mondariz, Pontevedra, Tea River, 29TNG443765, 60m.
- St.16.- Vilanova, Pontevedra, Tea River, 29TNG496774, 80m.
- St.17.- Maceira, Pontevedra, Tea River, 29TNG535805, 360m.
- St.18.- Budiño, Pontevedra, Pozo de Regadeiro stream, 29TNG333631, 100m.
- St.19.- Ribadelouro, Pontevedra, San Simón stream, 29TNG296610, 40m.
- St.20.- Salceda, Pontevedra, stream, 29TNG349625, 140m.
- St.21.- Bouzòn, Pontevedra, stream, 29TNG292619, 40m.
- St.22.- Centeans, Pontevedra, Centeans stream, 29TNG295639, 50m.
- St.23.- Cerquido, Pontevedra, Beceira stream, 29TNG312602, 20m.
- St.24.- Louriña, Pontevedra, Centeans stream, 29TNG292647, 70m.
- St.25.- Paredes, Pontevedra, Deikas stream, 29TNG289590, 100m.
- St.26.- Pontellas, Pontevedra, Laxas stream, 29TNG307661, 50m.
- St.27.- Rebordans, Pontevedra, Deikas stream, 29TNG300577, 20m.
- St.28.- Rebordans, Pontevedra, Rebordans stream, 29TNG293575, 40m.
- St.29.- Invernadeiro, Orense, Puxo de Mogos stream, 29TPG379698, 1,100m.
- St.30.- Invernadeiro, Orense, Ribera Grande River, 29TPG375682, 1,000m.
- St.31.- Invernadeiro, Orense, stream, 29TPG410653, 900m.
- St.32.- Invernadeiro, Orense, Ribera Pequeña River, 29TPG369643, 1,000m.

- St.33.- Invernadeiro, Orense, Ribera Grande River, 29TPG403656, 860m.
 St.34.- Invernadeiro, Orense, Puxo de Mogos stream, 29TPG379689, 1,100-1,200m.
 St.35.- Invernadeiro, Orense, Ribera Grande River, 29TPG369686, 920m.
 St.36.- Invernadeiro, Orense, Ribera Pequeña River, 29TPG366648, 920m.
 St.37.- Invernadeiro, Orense, Dos Colados stream, 29TPG399662, 920m.
 St.38.- Invernadeiro, Orense, Beigarro stream, 29TPG403661, 1,000m.
 St.39.- Invernadeiro, Orense, Ribera Grande stream, 29TPG379677, 980m.
 St.40.- Invernadeiro, Orense, Ribera Grande River, 29TPG412647, 900m.
 St.41.- Cabeza de Manzaneda, Orense, De los Campos stream, 29TPG899385, 1,700m.
 St.42.- Ribadavia, Pontevedra, Avia River, 29TNG715845, 80m.
 St.43.- Renche, Lugo, Sarria River, 29TPH402337, 600m.
 St.44.- Quintela, Orense, Limia River, 29TNG744208, 600m.
 St.45.- Souto, Coruña, stream, 29TNH837577, 460m.
 St.46.- Pobra de San Xiao, Lugo, Neira River, 29TPH281474, 400m.

LIST OF SPECIES NEW TO THE GALICIA REGION

FAMILY SIPHLONURIDAE

Siphonurus lacustris (Eaton, 1870)

Material: St.41, 4-VI-89, 1N, 26-VI-89, 1 male, 1 exv., 4-VII-89, 2 males, 1 female, 3 exv., 7-VII-89, 11 exv., 10-VII-89, 3 males, 2 females, 12-VII-89, 3 males, 3 males, 15-VII-89, 1 sub-female, 1 exv.

Distribution: *S. lacustris* is a Eurasian species. Its distribution for the Iberian Peninsula is shown in Figure 1. This species has been found at great altitude in little tarns of a stream, whose waters stem from thaw. This pattern is consistent with the altitudinal distribution reported for the Iberian Peninsula, ranging from 1,300 and 2,410m above sea level (Alba-Tercedor, 1981). In the laboratory larvae, were reared at constant temperature (21,2° C), to its transformation in imago instar.

FAMILY BAETIDAE

Baetis alpinus Pictet, 1843-45

Material: St.1, 28-V-86, 7N; St.2, 15-II-86, 11N, 8-V-86, 19N, 28-V-86, 4N, 27-VI-86, 3N, 11-VII-86, 2N; St.3, 28-V-86, 66N, 27-VI-86, 53N, 11-VII-86, 10N; St.4, 28-V-86, 20N, 27-VI-86, 11N, 11-VII-86, 9N; St.5, 28-V-86, 9N, 27-VI-86, 9N, 11-VII-86, 1 male; St.6, 28-V-86, 1N, 27-VI-86, 1N, 11-VII-86, 13N; St.7, 11-VII-86, 2N; St.21, 15-IV-86, 8N; St.24, 13-VI-86, 14N; St.25, 8-V-86, 1N; St.29, 23-IV-88, 4N; St.30, 23-IV-88, 1N; St.32, 23-IV-88, 1N; St.34, 16-VI-88, 1 male, 4N.

Distribution: This is a Middle European species. Its distribution for the Iberian Peninsula is illustrated in Figure 2. This species is present at the headwaters of rivers and streams where water temperature does not reach 18,4° C in summer, according to Müller-Liebenau (1969).

Baetis estrelensis Müller-Liebenau, 1974

Material: St.13, 4-III-88, 1N; St.15, 4-III-88, 2N, 23-V-88, 20N; St.16, 25-XI-87, 22N, 4-III-88, 54N, 23-V-88, 1N; St.17, 4-III-88, 10N; St.32, 24-IV-88, 2N.

Distribution: Iberian species, North of Portugal and Northwest of Spain, see Figure 3. This species was captured in a mountain stream and in the high and medium zone of Tea River, co-occurring with *B. rhodani*, *B. alpinus*, *B. maurus*, and *B. melanonyx*, as was also reported in Serra da Estrela (Portugal), (Müller-Liebenau, 1974).

Baetis maurus Kimmins, 1938

Material: St.17, 4-III-88, 17N; St.29, 23-IV-88, 3N; St.32, 24-IV-88, 1N; St.34, 6-V-88, 2N, 16-VI-88, 2N.

Distribution: This species is reported from Spain and North Africa; its distribution for the Peninsula is illustrated in figure 4. Navarra cites (North-East Spain) correspond to *B. cfr. maurus* cited by Müller-Liebenau in 1974.

B. maurus inhabited small mountain streams and River Tea headwaters in sites where currents were fast and the dominant substrate was formed of blocks and cobbles.

Baetis muticus intermedius Alba-Tercedor, 1983

Material: St.7, 6-IV-87, 1N; St.30, 24-IV-88, 1N; St.32, 17-VI-88, 1N; St.33, 6-V-89, 1N; St.40, 5-V-89, 1N; St.45, 20-V-87, 4N.

Distribution: An Iberian subspecies, its distribution for the Iberian Peninsula is shown in figure 5. Reports of *B. m. intermedius* are recent, since Alba-Tercedor only described it in 1983. Therefore its distribution in the Iberian peninsula is probably broader, as it may be included in other reports of *B. muticus*. Recently, Sartori and Thomas (in this volume) establish the synonymy of *B. muticus intermedius* with *B. muticus muticus*. This subspecies has been found from altitudes of 20m to 1,000m, inhabiting small order rivers and streams.

FAMILY HEPTAGENIIDAE

Ecdyonurus lateralis (Curtis, 1834)

Material: St.30, 14-VII-88, 1N; St.31, 24-IV-88, 2N, 16-VI-88, 10N; St.33, 13-VII-88, 4N; St.35, 17-VI-88, 4N, 24-IX-88, 1N.

Distribution: South-Central European species. Its distribution for the Iberian Peninsula can be seen in Figure 6. It has only been captured above 860m elevation, in streams and a small order river, living all along its cobbly margins.

FAMILY EPHEMERELLIDAE

Eurylophella iberica Keffermüller and Terra, 1978

Material: St.5, 28-V-86, 1N; St.6, 27-VI-86, 1N, 11-VII-86, 1N; St.7, 28-V-86, 5N, 27-VI-86, 4N; St.8, 28-V-86, 3N; St.9, 28-V-86, 5N; St.10, 28-V-86, 13N, 11-VII-86, 1N; St.11, 28-V-86, 7N, 1 sub-male; St.19, 15-IV-

86, 18N; St.22, 15-IV-86, 3N; St.23, 15-IV-86, 1N, 13-VI-86, 3N; St.26, 15-IV-86, 2N; St.27, 15-IV-86, 90N, 1 sub-female; St.28, 8-V-86, 21N.

Distribution: This is an Iberian species. Its distribution in the Iberian Peninsula is in Figure 7. This species has a preference for rivers and streams with lentic characteristics. In some of these streams large population co-occur with *Siphonurus aestivalis* in places where detritus and submerged vegetation are abundant.

FAMILY CAENIDAE

Caenis luctuosa (Burmeister, 1839)

Material: St.4, 27-VI-86, 1N; St.6, 27-VI-86, 2N, 11-VII-86, 2N; St.7, 28-V-86, 8N, 27-VI-86, 3N, 11-VII-86, 5N; St.11, 28-V-86, 1N, 11-VII-86, 1N; St.12, 23-V-88, 38N; St.13, 23-V-88, 11N; St.14, 15-IX-88, 3 males, 3 females, 23-V-88, 9N; St.15, 15-IX-88, 1 female; St.18, 8-V-86, 1N; St.19, 15-IV-86, 1N; St.20, 8-V-86, 18N; St.23, 15-IV-86, 2N, 13-VI-86, 1N; St.42, 10-X-87, 32 males, 2 females, 17-VII-86, 1 sub-male, 4N (Leg. X. González); St.46, 28-VIII-86, 6N (Leg. X. González).

Distribution: This is a South-Central European species. Its distribution in the Peninsula can be seen in figure 8. *C. luctuosa*, inhabits lotic and lentic areas of Rivers.

FAMILY LEPTOPHLEBIIDAE

Habroleptoides thomasi Sartori, 1986

Material: St.31, 12-VII-88, 4 males; St.33, 14-VII-88, 3 males; St.34, 12-VII-88, 6 males, 1 female, 6N; St.37, 13-VII-88, 2 males, 1N; St.38, 13-VII-88, 1 male, 1 female, 1N; St.39, 13-VII-88, 2 sub-males, 1 sub-female, 3N.

Distribution: This is an Iberian species, present in Portugal and North-west of Spain, (Fig. 9). It has been captured in little mountain streams, living together with another Leptophlebiidae: *Calliarcys humilis* Eaton, at elevations from 860 to 1,200m.

Thraulius bellus Eaton, 1881

Material: St.43, 23-III-86, 1N.

Distribution: This is a Southwest European species. Its distribution in the Iberian Peninsula is shown in Figure 10. *T. bellus* was found at the margins of a small order river, of sandy and gravelly substrate and slow flow, at 600m elevation.

FAMILY EPHEMERIDAE

Ephemera lineata Eaton, 1870

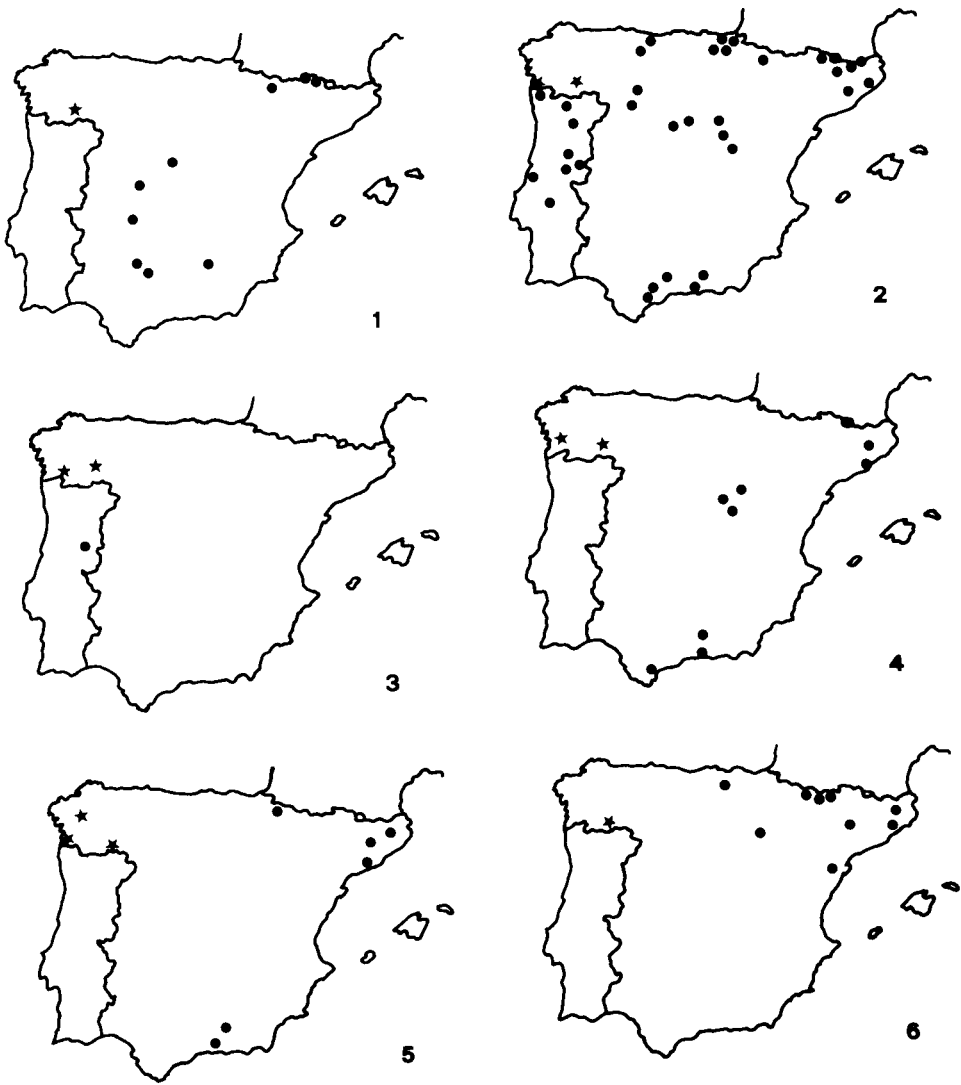
Material: St.2, 30-XI-85, 1N, 8-V-86, 2N, 11-VII-86, 2N; St.5, 28-V-86, 1N; St.33, 14-VII-88, 1 sub-male; St.36, 13-VII-88, 8 males, 15 females, 8 exv., 5-V-89, 7N.

Distribution: This species is Palaearctic. Its distribution in the Iberian Peninsula is shown in Figure 11. It inhabits rivers backwaters, buried in the

mud of the margins.

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Figs. 1-6. Distribution in the Iberian Peninsula of: 1, *Siphonurus lacustris* (Eaton 1870); 2, *Baetis alpinus* Pictet 1843-45; 3, *Baetis estrelensis* Müller-Liebenau, 1974; 4, *Baetis maurus* Kimmins, 1938; 5, *Baetis muticus intermedius* Alba-Tercedor, 1983; 6, *Ecdyonurus lateralis* (Curtis, 1834). (*) New records from Galicia.



Figs. 7-11. Distribution in the Iberian Peninsula of: 7, *Eurylophella iberica* Keffermüller y Terra, 1979; 8, *Caenis luctuosa* (Burmeister, 1839); 9, *Habroleptoides thomsi* Sartori, 1986; 10, *Thraulius bellus* Easton, 1881; 11, *Ephemera lineata* Eaton, 1870. (*) New records from Galicia.