

ORIBATID MITES (ACARI: CRYPTOSTIGMATA) FROM SLAPTON WOOD AND THE VICINITY OF SLAPTON LEY

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ABSTRACT

The oribatid mites (Acari: Cryptostigmata) (= moss mites = beetle mites) from Slapton Wood and its vicinity are listed. *Nellacarus petrocoriensis*, *Cepheus tuberculatus*, *Minunthozetes pseudofusiger*, *Liobthionius perfusorius*, *Quadroppia pseudocircumita* and *Quadroppia pseudocircumita galaica* are recorded for the first time in the British Isles. There are now 100 species of oribatid mites listed for Devon, 84 of which are recorded for the first time in this paper.

INTRODUCTION

Slapton Ley is a National Nature Reserve (N.N.R.) in South Devon. Its 211 hectares (521 acres) are owned by the Whitley Wildlife Conservation Trust but are managed by the Field Studies Council, which established Slapton Ley Field Centre as an 'outdoor laboratory' in 1959. It is now the best documented research area in Britain. English Nature provides advice and contributes to the management costs.

The centrepiece of the reserve is Slapton Ley itself, the largest body of fresh water in south-west England. The Ley is backed by a patchwork of farmland and woodland and is enclosed from the open sea by a 3.5 km shingle ridge. The climate of Slapton is mild, with few frosts and enjoys a warm moist atmosphere.

Random collections were made in Slapton Wood and in the general vicinity of Slapton Ley on the 13th and 14th June 1995, respectively, as part of a general survey of the oribatid mite fauna of the British Isles, combined with an ongoing personal familiarisation of the Acari: Cryptostigmata.

There are now 100 species of oribatid mite known from the county of Devon, 84 of which are newly reported in this paper. Of these species, six:- *Nellacarus petrocoriensis*, *Cepheus tuberculatus*, *Minunthozetes pseudofusiger*, *Liobthionius perfusorius*, *Quadroppia pseudocircumita* and *Quadroppia pseudocircumita galaica* are new records for the British Isles.

There are no known published records pertaining to oribatid mites for Slapton and district.

COLLECTING LOCATIONS

A. Slapton Wood (Main Wood).

The wood occupies a steep north-east facing slope. The soil is acid, particularly at the top part of the slope. It has not been managed for many years: there is much fallen timber, many epiphytes and the leaf litter remains undisturbed (Brookes & Burns, 1969). Moss was taken randomly at the soil layer and from fallen logs whilst negotiating the steeply stepped path down into the wood and on either side of the main path through the wood.

B. Leyside Fringes

In several places along the fringes, there are mature trees under which ground flora has developed (Brooks and Burns, 1969). Here, again, random moss samples were taken as accessibility allowed.

C. Northeast facing headland overlooking the Ley at Torcross (not in the NNR).

Moss sievings were taken at random from the edge of paths, from dry stone walls edging fields and off embankments.

SPECIES NEW TO THE BRITISH ISLES

Nellacarus petrocoriensis Grandjean 1936 (Fig. 1).

The superfamily Microzetoidea, family Microzetidae, Grandjean, 1936, is herein newly recorded for the British Isles. The genus *Nellacarus* Grandjean, 1936, is represented in Europe by three further species namely *N. baloghi* Jeleva, 1962 (from south-eastern Europe), *N. pyrenaicus* Travé, 1956 and *N. arstulatus* Travé, 1956 (both from the Pyrenees).

A single specimen was found in moss from Slapton Wood. The features distinguishing it from other members of the genus are: 1, the sejugal suture is not interrupted in the middle and; 2, the exterior apex of the cuspis is considerably longer than the interior one and almost as long as the lamellar setae. Size 260µm long x 145µm wide. Western Europe (Balogh, 1962).

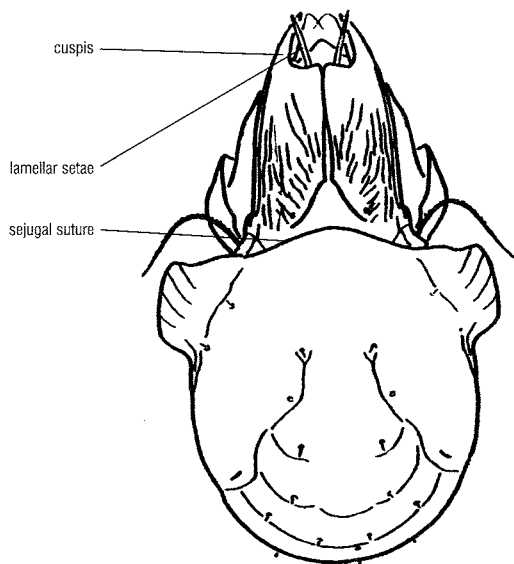


FIG. 1. *Nellacarus petrocoriensis*
(modified from Balogh, 1962).

Cepheus tuberculatus Strenzke, 1951 (Fig. 2).

Three species of the genus *Cepheus* C. L. Koch, 1835 were known to occur in the British Isles: *C. dentatus* (Michael, 1888), *C. latus* C. L. Koch, 1835 and *C. cepheiformis* (Nicolet, 1855) (Luxton 1996). In contrast to all the other known European species of *Cepheus*, the notogaster of *C. tuberculatus* is without irregular ridges. Instead, the ornamentation consists

of numerous small protuberances with circular to elliptical contours (diameter of protuberances 10 - 23 microns) (Strenzke, 1951). Three specimens were taken from moss in Slapton Wood. Size 750 μ m long x 520 μ m wide. Found previously at Dicksee (Holstein), Germany (Strenzke, 1951).

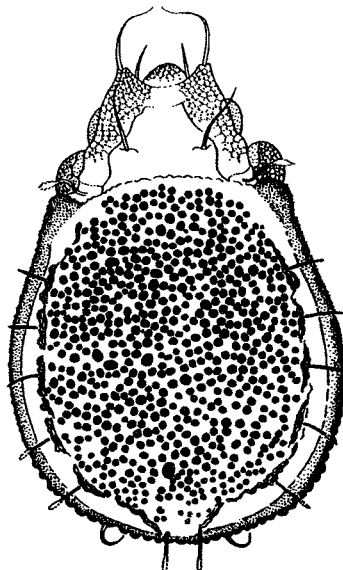


FIG. 2. *Cepheus tuberculatus* (from Strenzke, 1951).

Minunthozetes pseudofusiger Schweizer, 1922 (Fig. 3)

The genus *Minunthozetes* Hull, 1916 has hitherto been represented in the British Isles only by *M. semirufus* (C. L. Koch, 1841) (Luxton, 1996). The features distinguishing *M. pseudofusiger* from *M. semirufus* are the notochaetae with thick bases (appearing as though they were clothed in a sleeve) having curved distal ends and the distinct development of the lamellae and translamellae. The sensilli lack setiform extensions to the capitulum. A total of forty specimens were taken from moss at Locations 'B' and 'C' (combined) compared with only two from Slapton Wood (Location 'A'). Size 280 μ m long x 170 μ m wide. Very common near Bremen, Germany (Willmann, 1931).

Liochthonius perfusorius Moritz, 1976 (Fig. 4).

Nine species of the genus *Liochthonius* were known from the British Isles, namely: *L. evansi* (Forsslund, 1958), *L. horridus* (Sellnick, 1928), *L. simplex* (Forsslund, 1942), *L. neglectus* Moritz, 1976, *L. brevis* (Michael, 1888), *L. leptaleus*, Moritz, 1976, *L. sellnicki* (Thor, 1930), *L. muscorum* Forsslund, 1964, and *L. lapponicus* (Trägårdh, 1910) (Luxton 1996).

Liochthonius perfusorius belongs to the 'lapponicus' group (Moritz, 1976) which includes, from the British list, *L. sellnicki* and *L. muscorum*. In all three, the sensilli terminate in two points, as though cleft, whilst *L. perfusorius* differs in that the notogaster lacks areolar patches and the notochaetae are considerably longer and conspicuously elevated from the notogaster. Size 175 μ m long x 100 μ m wide. Found in Germany and Sweden (Moritz, 1976) and northern Europe (Ghilarov & Krivolutsky, 1975).

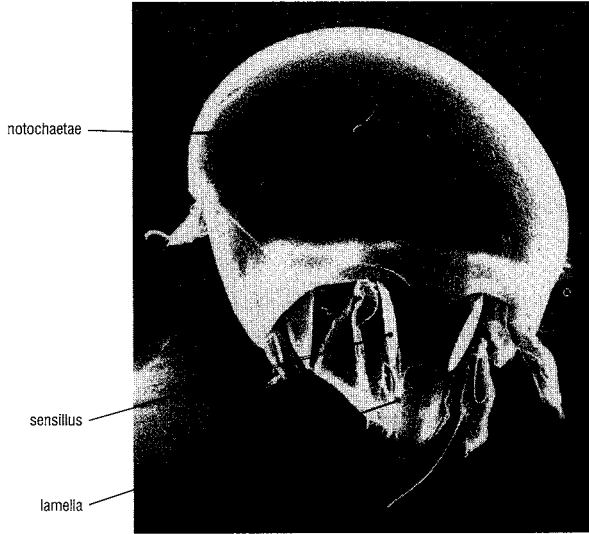


FIG. 3. *Minunthozetes pseudofusiger*.

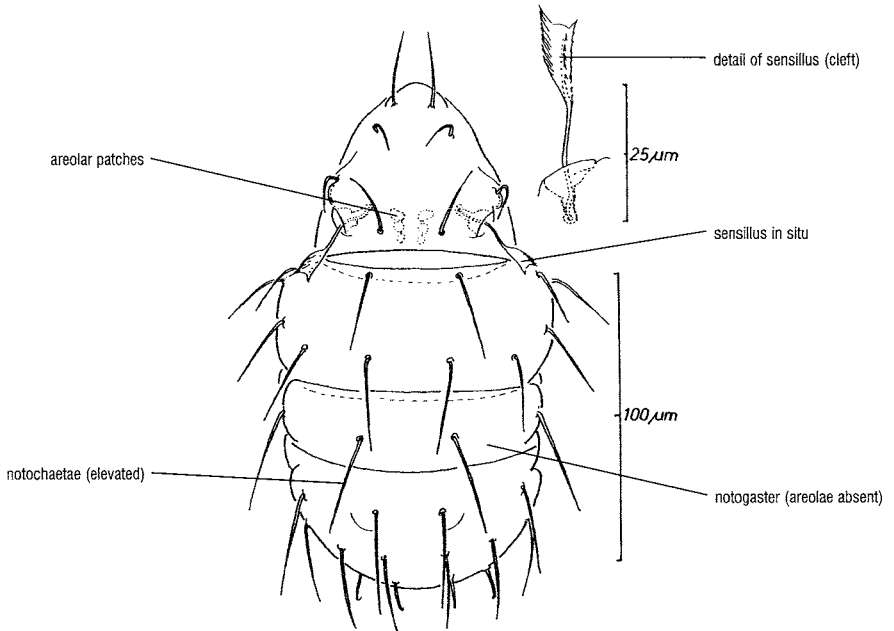


FIG. 4. *Liobthionius perfusorius*.
(from Moritz, 1976).

Quadroppia pseudocircumita Mínguez, Ruiz and Subías, 1985 (Fig. 5).

The genus *Quadroppia* Jacot, 1939 was known to be represented in the British Isles by three species; *Q. quadricarinata* (Michael, 1885), *Q. maritalis* (Lions, 1982) and *Q. bellula* Luxton, 1987 (Luxton, 1996). The features distinguishing *Q. pseudocircumita* are the rostral sculpturing in the form of a 'hairpin' with the convex edge most strongly apparent, on the ventral surface, the internal borders of epimera 3+4 are parallel and completely separate, whilst the notogastral lines from the humeral extensions are approximately the same length on the dorsal surface. Tarsus 2 possesses one solenidium. The sensillar capituli are papillate. Size 220µm long x 130µm wide. Found previously in Spain (Mínguez, Ruiz & Subías, 1985).

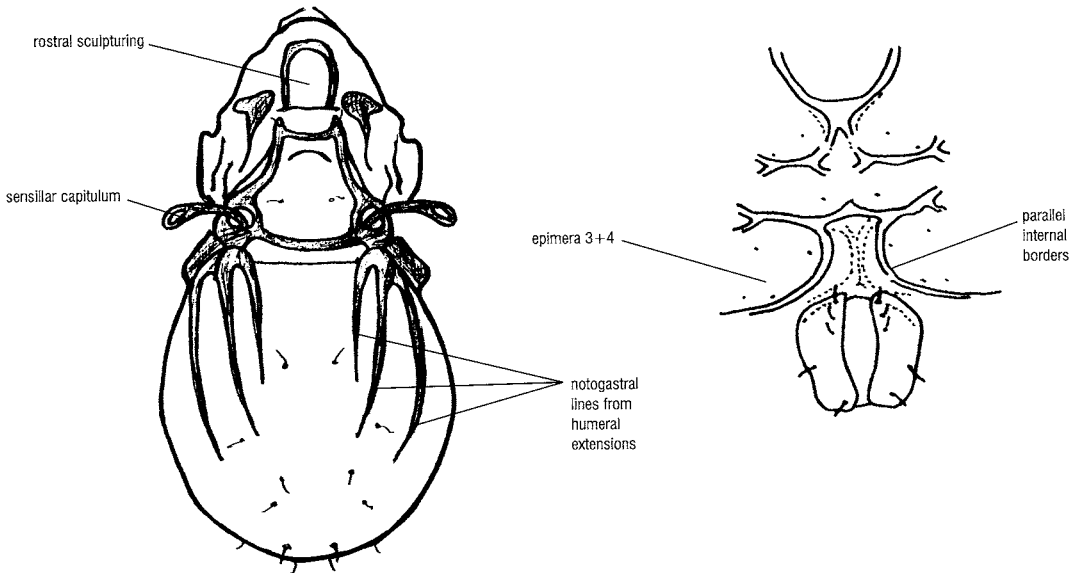


FIG. 5. *Quadroppia pseudocircumita*.

Left; dorsal view. Right; part ventral view (from Mínguez, Ruiz & Subías, 1985)

Quadroppia pseudocircumita galaica Mínguez, Ruiz & Subías, 1985 (Fig. 6)

The rostral sculpturing is completely enclosed, is of uniform thickness and is more or less oval in shape. In addition, the internal borders of epimera 3+4 are very close together and enclose a 'mushroom' shaped space. The notogastral lines from the humeral extensions are of differing lengths, the external ones very much shorter. Tarsus 2 possesses two solenidia. Sensillar capituli are smooth. Size 160µm long x 115µm wide. Found previously in Spain and Cuba (Mínguez, Ruiz & Subías, 1985).

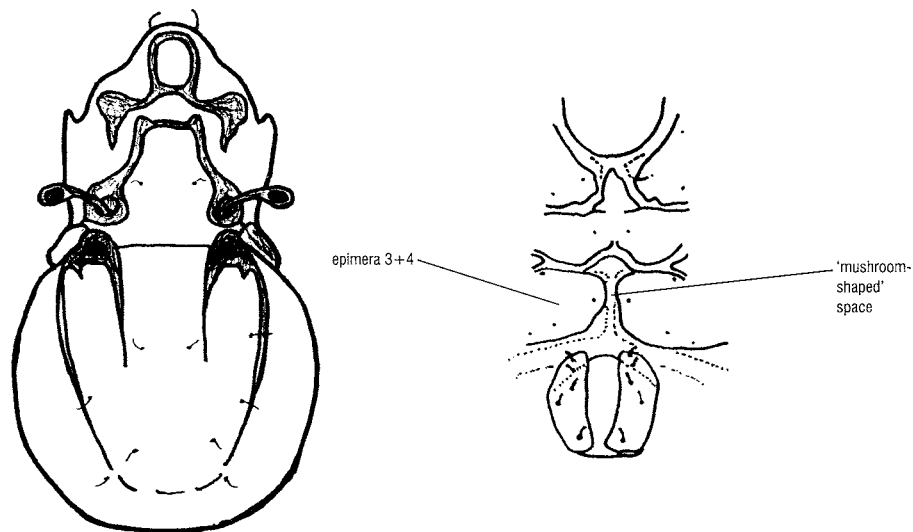


FIG. 6. *Quadroppia pseudocircumita galaica*.
Left; dorsal view. Right; part ventral view (from Mínguez, Ruiz & Subías, 1985).

SPECIES LISTS

NOTE

+ new records for Devon.

* hitherto unpublished records made by the author

All taxa not annotated may be assumed to be widespread and common in the British Isles.

All unattributed records are from the Luxton Data Base (personal communication)

Location A

EUPHTHIRACARIDAE

+ *Rhysotritia duplicata* (Grandjean, 1953).

PHTHIRACARIDAE

+ *Phthiracarus globosus* (C. L. Koch, 1841).

Widespread but local.

Steganacarus magnus (Nicolet, 1855).

BRACHYCHTHONIIDAE

+ *Liobrachycthonius brevis* (Michael, 1888).

Widespread and locally common in the British Isles.

+ *Liobrachycthonius perfusorius* Moritz, 1976.

First record for the British Isles.

+ *Neobrachycthonius marginatus* (Forsslund, 1942).

Previously known only from Yorkshire.

+ *Neobrachycthonius magnus* Moritz, 1976.

Locally distributed in England and known from the Orkney Islands.

ENIOCHTHONIIDAE

- + *Eniochthonius minutissimus* (Berlese, 1904).

Locally abundant.

HYPOCHTHONIIDAE

- + *Hypochthonius rufulus* C. L. Koch, 1835.

HERMANNIIDAE

- + *Hermannia gibba* (C. L. Koch, 1839).

- + *Hermannia scabra* (L. Koch, 1879).

NANHERMANNIIDAE

- + *Nanhermannia coronata* Berlese, 1913.

Widespread and common over most of the British Isles.

- + *Nanhermannia sellnicki* Forsslund, 1958.

Found previously only on the Isle of Man.

CAMISIIDAE

- Camisia spinifer* (C. L. Koch, 1835).

Relatively common everywhere in the British Isles.

- + *Platynoctrus peltifer* (C. L. Koch, 1839).

MALACONOTHRIDAE

- + *Malacocthrus monodactylus* (Michael, 1888).

Widely distributed, especially in wet places.

- + *Malacocthrus processus* van der Hammen, 1952.

Local to wet places.

NOTHRIDAE

- + *Notbrus anauniensis* Canestrini and Fanzago, 1876.

Found in England only.

- + *Notbrus palustris* C. L. Koch, 1839.

DAMAEIDAE

- + *Belba corymopus* (Hermann, 1804).

Found in England and Scotland.

- + *Damaeobelba minutissima* (Sellnick, 1920).

Found in England and Wales.

- + *Damaeus (Damaeus) riparius* Nicolet, 1855.

- + *Damaeus (Paradamaeus) clavipes* (Hermann, 1804).

Metabelba papillipes (Nicolet, 1855).

CARABODIDAE

- + *Carabodes femoralis* (Nicolet, 1855).

Common but local (not Ireland).

- + *Carabodes labyrinthicus* (Michael, 1879).

Odontocephus elongatus (Michael, 1879).

Common in the British Isles (except Wales).

TECTOCEPHEIDAE

Tectocephus velatus (Michael, 1880).

CEPHEIDAE

- + *Cepheus dentatus* (Michael, 1888).

Widespread but local.

- + *Cepheus tuberculatus* Strenzke, 1951.

First record for the British Isles.

- + *Conoppia palmicinctum* (Michael, 1880).

Restricted to south west England, south Wales and southern Ireland.

EREMAEIDAE

- + *Eremaeus oblongus* C. L. Koch, 1835.

HERMANNIELLIDAE

- + *Hermanniella granulata* (Nicolet, 1855).
Local in England and Ireland.
Hermanniella picea (C. L. Koch, 1839).
Local in England and Scotland.

ASTEGISTIDAE

- + *Cultroribula juncta* (Michael, 1885).
Very local in England and the Isle of Man.

CERATOPPIIDAE

- Ceratoppia bipilis* (Hermann, 1804).

GUSTAVIIDAE

- + *Gustavia microcephala* (Nicolet, 1855).
A species local in England and the Isle of Man.

LIACARIDAE

- Adoristes ovatus* (C. L. Koch, 1839).
Adoristes poppei (Oudemans, 1906).
Widespread but local.
+ *Xenillus clypeator* Robineau-Desvoidy, 1839.
Local in England and Wales*
+ *Xenillus tegeocranus* (Hermann, 1804).

LIODIDAE

- + *Poroliodes farinosus* (C. L. Koch, 1839).
Very local (not, as yet, found in Scotland).

OPPIIDAE

- + *Berniniella sigma* (Strenzke, 1951).
Found locally in England and Wales.
Dissorbina ornata (Oudemans, 1900).
+ *Lauropia maritima* (Willmann, 1929).
Found locally in England but probably more widespread.
+ *Lauropia neerlandica* (Oudemans, 1900).
Widespread but not common (not Wales or Ireland).
+ *Lauropia translamellata* (Willmann, 1923).
Very local, previously found in Yorkshire.
+ *Medioppia obsoleta* (Paoli, 1908).
Common (* incl. Wales).
+ *Medioppia subpectinata* (Oudemans, 1900).
Locally common.
+ *Multioppia excisa* Moritz, 1971.
Previously only found at one location in Ireland.
Oppiella nova (Oudemans, 1902).
Widespread and common in England and restricted in Wales.
+ *Quadroppia quadricarinata* (Michael, 1885).
+ *Quadroppia pseudocircumita* Mínguez, Ruiz and Subías, 1985.
First record for the British Isles.
+ *Quadroppia pseudocircumita galaica* Mínguez, Ruiz and Subías, 1985.
First record for the British Isles.

- + *Serratoppia duffyi* (Evans, 1954).
Found only once before, in Ireland.

SUCTOBELBIDAE

- + *Suctobelba trigona* (Michael, 1888).
Widespread but local.
- + *Suctobelbella falcata* (Forsslund, 1941).
Previously 'known' only from Ireland but the writer has found it locally in England and Wales (*).
- + *Suctobelbella sarekensis* (Forsslund, 1941).
- + *Suctobelbella similis* (Forsslund, 1941).
Recorded only locally for England and the Western Isles.
- + *Sucobelbella subcornigera* (Forsslund, 1941).
Widespread and common (not Wales).
- + *Suctobelbella subtrigona* (Oudemans, 1900).
Recorded locally for England only.

THYRISOMIDAE

- Banksinoma lanceolata* (Michael, 1885).
- + *Pantelozetes paolii* (Oudemans, 1913).
Local but widespread in the British Isles.

MICROZETIDAE

A family newly recorded for the British Isles.

- + *Nellacarus petrocoriensis* Grandjean, 1936.

CERATOZETIDAE

- + *Edwardzetes edwardsi* (Nicolet, 1855).
Widespread and locally common.
- Humerozetes rostromellatus* Grandjean, 1936.
Common (not Scotland or Wales).
- + *Melanozetes mollicomus* (C. L. Koch, 1839).
Locally common in the British Isles.

CHAMOBATIDAE

- + *Chamobates schuetzi* (Oudemans, 1902).

EUZETIDAE

- + *Euzetes nitens* (Johnston, 1853).

MYCOBATIDAE

- + *Minunthozetes pseudofusiger* (Schweizer, 1922).
First record for the British Isles.

- + *Minunthozetes semirufus* (C. L. Koch, 1841).

- + *Punctoribates punctum* (C. L. Koch, 1839).

GALUMNIDAE

- + *Acrogalumma longipluma* (Berlese, 1904).
Not widespread or common. Found to associate with ants (Hull, 1922).

ACHIPTERIIDAE

- + *Achipteria coleoptrata* (Linnaeus, 1758).
Widespread in England (not recorded from Scotland or Ireland).
- + *Achipteria nitens* (Nicolet, 1855).
Widespread in England (not recorded from Scotland or Ireland).
- + *Parachipteria punctata* (Nicolet, 1855).
- + *Pseudachipteria magna* (Sellnick, 1928).
Uncommon.

ORIBATELLIDAE

- Ophidiotrichus tecta* (Michael, 1884).
Patchily distributed (not Ireland).
- + *Joelia fiorii* (de Coggi, 1898).
Recorded for Cumbria only, but the author has found it in central Wales and in
and dunes at the Point of Ayr, Clwyd and Ainsdale NNR, Merseyside (*).
- + *Oribatella quadricornuta* (Michael, 1880).
Widely distributed (not Wales).

ORIBATULIDAE

- Phauloppia lucorum* (C. L. Koch, 1841).
- + *Zygoribatula exilis* (Nicolet, 1855).
Generally distributed.

Locations (B) and (C) combined;
consisting of species not found at Location (A).

PHTHIRACARIDAE

- Phtbiracarus membranifer* Parry, 1979.
Local, with few published records.

TRHYPOCHTHONIIDAE

- + *Trhyhochthonius tectorum* (Berlese, 1896).
Very local.

DAMAEIDAE

- + *Damaeus (Adamaeus) onustus* (C. L. Koch, 1841).

CEPHEIDAE

- + *Cepheus latus* C. L. Koch, 1835.
Common in England with just one record for Ireland.
- + *Tritegeus bisulcatus* Grandjean, 1953.
Widespread but local.

ASTEGLISTIDAE

- + *Cultroribula bicultrata* Berlese, 1908.
Only the second record for this species, probably local but widespread.

LIACARIDAE

- + *Liacarus coracinus* (C. L. Koch, 1839).
Locally common (not Wales or Scotland).

CALEREMAEIDAE

- + *Caleremaeus monilipes* (Michael, 1882).
Sparsely recorded for England; one record each from Ireland and Wales (*).

CERATOZETIDAE

- + *Ceratozetes peritus* Grandjean, 1951.
Only recorded previously for Jersey and the Isle of Man.
- + *Sphaerozetes piriformis* (Nicolet, 1855).
Local (not recorded for Wales).

ORIBATULIDAE

- + *Liebstadia similis* (Michael, 1888).
- + *Oribatula tibialis* (Nicolet, 1855).
Widespread and common (not recorded for Ireland).

LICNEREMAEIDAE

- + *Licneremaeus licnophorus* (Michael, 1882).
Previously recorded only once for England but the author has found it in Central Wales and the Point of Ayr, Clwyd (*).

SCUTOVERTICIDAE

- + *Scutovertex minutus* (C. L. Koch, 1835).
Locally common in dry habitats.

PHENOPELOPIDAE

- + *Eupelops acromios* (Hermann, 1804).
The species is generally distributed in Britain and abroad.
- + *Eupelops farinosus* (Nicolet, 1855).
Locally common.
- + *Eupelops hirtus* (Berlese, 1916).
Widespread but not common.
- + *Eupelops plicatus* (C. L. Koch, 1835).
Widespread and common.

DISCUSSION

There were 135 genera and 303 species of moss mite recorded for the British Isles (Luxton, 1996). This survey increases the totals to 136 genera and 309 species.

Is it necessary to rethink the accepted hypothesis for the distribution patterns of two species, *Edwardzetes edwardsi* and *Zygoribatula exilis*, which were believed not to occur south of the latitude 52°N in Britain (Seyd, *et al.*, 1996). The record for *Conoppia palmicinctum* extends its British distribution further east than had been previously recorded. The typical distribution of this species is south Europe with evident extensions into the Lusitanian regions of the British Isles and the warmer Atlantic islands (Luxton, 1990).

Finally, with the exception of the six species recorded here as new to the British Isles, most of the remaining species are regular and well known members of the British fauna. The recently increased interest in the taxonomy of British mites is producing collections that contain species, genera and occasionally families new to the British Isles (the Microzetidae found in this survey is a prime example).

The success of this survey will, it is hoped, prove a stimulus for future work on this site and elsewhere, with a view to furthering our knowledge of oribatids within a European context.

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