

**EARLY COUNTY LISTS OF NON-MARINE ISOPODA AND MYRIAPODA FROM CAMBRIDGESHIRE COMPILED BY THE REV. LEONARD JENYNS**

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**INTRODUCTION**

A long-term project to transcribe, interpret, annotate and publish the Reverend Leonard Jenyns' unpublished *Catalogue of Cambridgeshire Insects* is being edited by Richard Preece and Tim Sparks. Several of Jenyns' notebooks and manuscripts are now held at the University Museum of Zoology at Cambridge, together with many of his surviving associated specimens. Preece and Sparks (2012) have already published *Fauna Cantabrigiensis* (covering vertebrates and molluscs) and a single volume *Entomologia Cantabrigiensis* is in preparation based on Jenyns original three volume *Catalogue of Cambridgeshire Insects*. We are grateful to Richard Preece and Tim Sparks for permission to publish material relating to Isopoda and Myriapoda, which we and Henry Arnold have helped to interpret and annotate for the project.

**THE REVEREND LEONARD JENYNS (1800-1893)**

Preece and Sparks (2012) provide a short biography of Jenyns from which the following summary has been prepared.

Jenyns was the eighth child of the Rev. George Leonard Jenyns of Bottisham Hall, Cambridgeshire. The family was well connected and inherited property including the Bottisham estate. Leonard Jenyns had developed an interest in natural history before going to Eton in 1813 where he acquired a particular fascination with Gilbert White's *A Natural History of Selborne*, which stayed with him in later life. In 1818 Jenyns entered St John's College Cambridge where he came under the influence of J. S. Henslow (Chair of Mineralogy and later Botany at Cambridge). Henslow and Jenyns were jointly responsible for the formation of the Cambridge Philosophical Society's Museum, and in 1823 Henslow married Jenyns' sister Harriet. This period, the 1820s and 1830s, has been regarded as a 'golden age' of natural history in Cambridge. Henslow was an important influence of both Jenyns and the young Charles Darwin, with Jenyns and Darwin gradually developing a friendship which included joint entomological excursions to the fens and the Bottisham area. In 1831, Jenyns was offered, and briefly considered, the role of naturalist with Captain Fitzroy on H.M.S. Beagle, and apparently slightly regretted "his unimaginative decision" to decline in favour of Darwin. Jenyns actively began to publish in 1827, covering a wide range of natural history topics. Perhaps most notable was his monumental *Manual of British Vertebrate Animals*, published in 1835. But the most rigorous and exacting scientific work undertaken by Jenyns is considered to be his work on Darwin's collections of fishes from the Beagle voyage, eventually published in 1842.

Jenyns had been ordained Deacon in London and began a five year curacy at Swaffham Bulbeck near Cambridge, becoming vicar there at the end of 1827. His clerical duties in this small rural parish allowed plenty of time for local natural history. He married in 1844, after which he had less spare time for natural history. His wife's failing health meant that in October 1849, he resigned the incumbency at

Swaffham Bulbeck and they moved to the Isle of Wight and later to the Bath area. From this point onwards Jenyns' work on the natural history of Cambridgeshire was effectively limited to curating his collection and collating his records. Some of his insect collection was presented to the Cambridge Philosophical Society in 1854, and records were assembled into a three volume *Catalogue of Cambridgeshire Insects* in 1868 and 6 volumes of notebooks including the manuscript of *Fauna Cantabrigiensis* in 1869, both of which were deposited at the University Museum of Zoology, Cambridge (Preece & Sparks, 2012).

Leonard Jenyns' life following his move to Bath in 1850 is described by Preece and Sparks (2012), including a full list of his publications. This list is a little surprising in that after 1873 he published as Leonard Blomefield having changed his surname in 1871 to enable him to inherit an estate in Norfolk.

Although the *Catalogue of Cambridgeshire Insects* was sent to Professor Alfred Newton at Cambridge in 1868, it seems probable that the records included in it date mainly from his time in Cambridgeshire, probably beginning in 1818, until his marriage in 1844, or at the latest 1849 when he moved away from Swaffham Bulbeck.

## THE SPECIES LISTS

In the following species lists, we have simplified the approach being taken by Preece and Sparks for publishing the forthcoming *Entomologia Cantabrigiensis* to include the following.

1. The scientific name and authority used by Jenyns (in bold).<sup>1</sup>
2. Jenyns' own comments about the occurrence of the species and related information, these comments are inset, using an italic script font, to distinguish it from the following. For some species Jenyns gives lengths, in inches and lines (abbreviated to inc. and lin., or unc. and lin. in Latin). A line is one twelfth of an inch (2.1 mm).
3. Our interpretation of the name used by Jenyns, following present-day nomenclature.<sup>2</sup>
4. In some cases Jenyns' nomenclature cannot be allocated unambiguously to a single species and in some cases original Latin descriptions are quoted. We comment on the present-day status of the relevant species in Cambridgeshire.

## ISOPODA

### *Asellus aquaticus*, Leach

*Ponds & ditches everywhere.*

*Asellus aquaticus* (Linnaeus, 1758) and/or *Proasellus meridianus* (Racovitza, 1919).

*P. meridianus* was not described as a separate species until 1919. *Asellus* specimens in British collections from before 1919 are known to include both species. Both species occur widely in the county, although the latter is possibly less widespread. Both species occupy similar freshwater habitats.

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<sup>1</sup> Jenyns' manuscript is inconsistent in how authorities are cited and whether dates are included. We have retained these inconsistencies.

<sup>2</sup> Full authority names and dates are included. The following sources were used: Isopoda – Gregory (2009); Diplopoda – Lee (2006); Chilopoda (Geophilomorpha) – Bonato & Minelli (2014), Chilopoda (lithobiids) – Chilobase.

***Philoscia muscorum*, Latr.**

*Under stones & in mosses, common.*

*Philoscia muscorum* (Scopoli, 1763).

Still common in the county.

***Philoscia* ?**

*Seven specimens in the collection of what appears to me to be a distinct species from the above. It is invariably of a brick red colour, & never attains to above one fourth of the size of *P. muscorum*. Not uncommon in rotten wood, & damp places.*

Unknown.

Possibly a *Trichoniscus* species. Given the habitat, it is unlikely to be *Androniscus dentiger* Verhoeff, 1908.

***Oniscus asellus*, Linn.**

*In rotten wood, old walls, & under the bark of trees, very common.*

*Oniscus asellus* Linnaeus, 1748.

Still very common.

***Porcellio scaber*, Latr.**

*In the same places as the last & equally abundant.*

*Porcellio scaber* Latreille, 1804.

Still very common.

***P. variegatus*, Jenyns**

*This appears to me to be a distinct species from the last, differing in the shape of the caudal styles, & in colour. The body is more variegated, & the head black. I first found a specimen at Bottisham, & afterwards observed it in great plenty under old tiles, stones, & other rubbish, at the foot of one of the Stables on Newmarket Heath.*

Probably a *nomen nudum*.

From the description and habitat possibly *Porcellio spinicornis* Say, 1818, which was added to the British list in 1868.

***P. laevis*, Latr.**

*Under stones, & in outhouses, Bottisham Hall: less common than *P. scaber*.*

*Porcellio laevis* Latreille, 1804.

A synanthropic species, usually associated with stables, cattle barns, large dung heaps and mature gardens. It is probably less common now than it appears to have been during the 19<sup>th</sup> century.

***Armadillo vulgaris*, Latr.**

*In moss, & under stones, common. N.B. This genus requires examination. I suspect there are two or three species confounded under the name of *A. vulgaris*. Three specimens in the collection, from*

*Newmarket Heath, appear very distinct. They are much smaller than usual, more varied in colour, with the ground inclining to a yellowish tinge.*

Probably *Armadillidium vulgare* (Latreille, 1804).

*Armadillidium vulgare* is the only one of the six British *Armadillidium* species that is recorded widely in Cambridgeshire. The small specimens from Newmarket Heath are intriguing because they could possibly have been *A. pulchellum* (Zencker, 1798), which has been recorded from a few lowland heaths in south-eastern England but is more common in western Britain.

## MYRIAPODA - DIPLOPODA

### ***Julus sabulosus*, Leach, Zool. Misc. vol. 3. p. 33.**

*Two specimens found under stones, in Whitewood, Gamlingay. Also on the Devil's Ditch. Length 1 inc. 4 lin.*

*Ommatoiulus sabulosus* (Linnaeus, 1758).

A very distinctive species with its pair of dorsal red-orange longitudinal lines and upturned telson tip (Leach: *Jul. nigro-cinereus lineis duabus dorsalibus rufescentibus, segmento ultimo mucronato, pedibus luteus*) and is unlikely to be confused with any other British form. Recorded mainly on light or sandy soils at a few sites in Cambridgeshire.

### ***J. niger*, Leach, Zool. Misc. 3. 34.**

*With the last at Gamlingay. Found also at Bottisham. ~ Length 1 inc. 6 lin.*

*Tachypodoiulus niger* (Leach, 1815).

A large, common and distinctive British species, also with an upturned tip to the telson (Leach: *J. segmento ultimo mucronato*). Recorded widely in Cambridgeshire.

### ***J. punctatus*, Leach, Zool. Misc. 3. 34.**

*One specimen taken at Bottisham, but not in the collection; accidentally destroyed.*

*Cylindroiulus punctatus* (Leach, 1815).

*C. punctatus* has been recorded at several sites in Cambridgeshire, often in woodland. It is probably one of the most commonly found British millipedes and is characteristic of woodland sites. A relatively light brown animal with darker repugnatorial glands along the body and a distinctive telson (Leach: *J. segmento ultimo mucronato....*)

### ***J. pusillus*, Leach, Zool. Misc. 3. 35.**

*Common at Bottisham in rotten wood.*

Uncertain, possibly *Brachyiulus pusillus* (Leach, 1815) which is fairly distinct and which Leach described as *J. segmento ultimo submucronato, corpore cinerascete-nigro aut fusco-brunneo, dorso lineis duabus rufescentibus*.

*B. pusillus* has been recorded at a few sites in Cambridgeshire. It is usually associated with clay soils, and is often found in pastures and agricultural land. It is rarely a species of rotten wood in our experience, indeed Lee (2006) indicates that analysis of habitat data suggests a strong negative relationship with woodland.

***Craspedosoma polydesmoides*, Leach, Zool. Misc. 3. 36. t. 134. fig. 6.**

*Common at Bottisham under bark, &c. and in rotten trees.*

*Nanogona polydesmoides* (Leach, 1814).

Recorded widely in Cambridgeshire and occurs in a wide range of habitats.

***Polyxenus lagurus*, Latr. Leach, Zool. Misc. 3. 38. t. 135. B.**

*Very common, inhabiting the same places as the last.*

*Polyxenus lagurus* (Linnaeus, 1758).

This small and unmistakable millipede has been recorded at a few scattered sites in Cambridgeshire, the nearest locality to Bottisham being at Wicken Fen.

**MYRIAPODA - CHILOPODA*****Lithobius variegatus*, Leach ? Zool. Misc. 3. p. 40.**

*I am not sure that this is the *Lith. variegatus* of Leach, but it is quite distinct from the next species, always much smaller, as well as darker in colour. It inhabits the same places, &c. is far from uncommon at Bottisham.*

Uncertain – could be one of several *Lithobius* species.

*L. variegatus* (Leach, 1814) in life is very distinct with variegations (Leach: *pedibusque variegatus nec coloribus*) which are lost on preservation. It is probably uncommon or absent in Cambridgeshire, as in much of eastern England, although it was recorded commonly at Monks Wood in former Huntingdonshire (Welch, 1969) and at the same location in 2013 (Calum Urquart, pers. comm.). Given Jenyns' description it is likely to be another *Lithobius* species because *L. variegatus* is similar in size to *L. forficatus* and even in the preserved state is hardly darker in colour. *L. melanops*, which was not described until Newport's 1845 account, tends to be relatively light in colour with a distinct darker longitudinal band dorsally. Likely possibilities for a smaller, dark species (other than an immature *L. forficatus*) are *L. crassipes* (described by Koch in 1862), which is common in eastern England, or one of the other smaller *Lithobius* species.

***L. forficatus*, Newport. – *L. vulgaris* Leach**

*Common everywhere, under stones, &c.*

*Lithobius forficatus* (Linnaeus, 1758).

Chilobase includes *Lithobius vulgaris* Leach, 1817 as a synonym of *L. forficatus* (Linnaeus, 1758). *L. forficatus* is the common, large brown *Lithobius* species of most of Britain.

***Arthronomalus longicornis*, Newp. in Linn. Trans. vol. 19. p. 430.**

*Not uncommon at Bottisham, Quy, Cambridge, &c. Distinguished from all the other indigenous species of this family by the length of the antennae.*

*A. longicornis* = *Necrophloeophagus longicornis* (Leach, 1815) = *Geophilus flavus* (De Geer, 1778).

*Geophilus flavus* (De Geer, 1778), as it is now known, is a common and widespread species, with characteristic long antennae.

***A. carpophagus*, Newp. Linn. Trans. 19. 432.**

*Gardens, &c. not uncommon, feeding on decayed fruit.*

*Geophilus carpophagus* was described by Leach (1815) although he did not include an indication of the number of leg-bearing segments. Newport (1845) whom Jenyns cited as authority reported that there were three specimens in the British Museum, in too bad a condition to be correctly described as for colour. One had 51 leg bearing segments. It is now recognised that there are two similar species in Britain, *G. carpophagus* Leach, 1815 *sensu strictu* and *Geophilus easoni* Arthur *et al*, 2001. In principle, Jenyns' species could be either species although the habitat suggests the former; *G. carpophagus* *ss* is frequently associated with buildings, whilst *G. easoni*, the smaller of the two forms, tends to occur in woodland and moorland. Reports of an association with fruit go back to Leach and indeed this is reflected in the name.

***A. maritimus*, ~ *Geoph. maritimus*, Leach, Zool. Misc. 3. p. 44. tab. 140. fig. 1, 2. ??**

*Brunneo- ferrugineus, lateribus violascentibus, capita antennisque ferrugineis, ano pedibusque subflavidis, pedum paribus circiter 51. Long. vix 2 unc. I have referred this to the Geophilus maritimus of Leach, provisionally, but am doubtful whether it be really the same as that species, or whether it may not be a mere variety of A. carpophagus, from which it scarcely differs except in colour. One specimen only is in the collection, taken under stones in Whitewood, Gamlingay.*

This cannot be *Strigamia maritima* (Leach, 1817) which occurs only on the coast and in tidal estuaries. *Strigamia crassipes* (C.L.Koch, 1835) has 49-53 leg pairs and *Geophilus easoni* has 47-51 leg pairs. Both are reddish-brown species, unlike many other British geophilomorpha, which are often yellowish or whitish, so possibly it is one of these. *Geophilus carpophagus* *ss* can also have as few as 51 leg pairs.

***A. gigas*, Jenyns**

*lavus, capite, antennisque, anoque ferrugineis, mandibulorum apicibus, unguibusque nigris; corpore crasso, pedum paribus 55. Long. 2 unc. 6 lin. This appears to me to be a distinct species from all those described by Leach or Newport; characterized by its pale yellow colour, & very stout body (of the same size throughout) compared with its length. One specimen taken in a garden at Cambridge.*

*Nomen nudum.* We cannot refer this to any clearly recognisable British species if, indeed, the colour and leg numbers are correct. Species that might be described as pale yellow and very stout body and likely to be found in gardens include *Stenotaenia linearis* (C.L.Koch, 1835), *Geophilus electricus* (Linnaeus, 1758) and *Haplophilus subterraneus* (Shaw, 1794) but these all have more than 55 leg pairs. Of yellowish species that can have 55 pairs, there is the pale yellow but elongate rather than stout *Geophilus alpinus* Meinert, 1870 and *Geophilus flavus* (above). The pale *Henia brevis* (Silvestri, 1896) with 53-57 pairs is elongate rather than stout whilst *Geophilus osquidatum* Brölemann, 1909 is mostly found in western Britain.

A species named *Geophilus gigas* was described from Iran by Attems in 1951.

***Geophilus acuminatus*, Leach, Zool. Misc. 3. p. 45.**

*Occasionally met with in the Shrubbery at Bottisham Hall, under stones, &c. Length 1 inc. 6 lines. Three specimens in the collection.*

Probably *Strigamia acuminata* (Leach, 1815):

This species occurs widely in Cambridgeshire. Leach in his descriptions of this species does not seem to give the number of leg pairs, so the possibility of it being the similar species *Strigamia crassipes* (C.L.Koch, 1835) cannot be excluded.

### ***G. complanatus*, Jenyns.**

*Ferrugineus; corpore valde depresso, posticè lato, anticè attenuato; pedum paribus 51. Long. 1 unc. 3 lin. Apparently an undescribed species, distinguished from the last by its greatly depressed body, dilated behind, & more numerous pairs of feet. One specimen taken at Bottisham, & highly luminous.*

*Nomen nudum.* We cannot be sure which species is being referred to here. Segment number and colour suggest *Strigamia crassipes* or *Geophilus easoni*. Males of *S. crassipes* have very much dilated last legs indicating the former, but we are not aware of this synonym for that species and it does not occur in Chilobase. Several species of British geophilomorphs have been reported at various times as luminous including *S. crassipes*.

### ***G. electricus*, Jenyns**

*Flavo-fulvescens; capite antennisque saturatoribus; hæ articulis apice pallidis; pedibus flavis; pedum paribus circiter 50. Long. 1 unc. 3 lin. Somewhat depressed, body rather narrower towards the anterior extremity: head fulvous, with the mouth paler; antennæ with the apex of each articulation sensibly pale. Body nearly of one uniform yellowish fulvous colour, with the anus & underside paler, but free from any tinge of brown or violet; feet pale yellow with the ungues dark. On the upper surface of the body a longitudinal line on either side rather of a deeper colour than the rest of the body, but no abbreviated impressed lines on the segments.*

*The above description is taken from three specimens in the collection ~ (numbered 117, 118, 119, on blue paper) all of which were taken together on the night of Sept. 8, 1831, by the roadside between Bottisham and Swaffham, shining brilliantly. A fourth specimen, without a number, was taken elsewhere, the exact locality not known, & possibly may be different. ~ Perhaps, however, it may be questioned whether any of them are specifically distinct from the *G. complanatus* last described? I have called this species *Electricus*, but I am not sure that it is the *Scolopendra electrica* of authors.*

*Nomen nudum.* This is definitely not the *Geophilus electricus* of Linneaus if the leg numbers are even approximately correct (all geophilomorpha have an odd number of pairs in practice). The true *G. electricus* has between 65 and 73 pairs and, in fact, despite its name, there is some doubt as to whether it is luminous. Barber (2014) noted that caution is needed in interpreting older records of “*Geophilus electricus*”. What, in fact, is being referred to here is obscure. *G. carpophagus* sl is known to be luminous sometimes (as are also *Haplophilus subterraneus* and *Geophilus flavus*) but the colour is quite wrong. On the author’s own descriptions, this is distinct in colour from his *G. complanatus* but *S. crassipes* (which that may be) can show luminescence.

### ***Geophilus subterraneus*, Leach, Newport.**

*Very common in gardens, often turned up with the spade.*

In the absence of any diagnostic characters being given, we cannot be absolutely certain that this is *Haplophilus subterraneus* (Shaw, 1794) but that species is often dug up in gardens. Leach (1817) describes it as *Habitat in Angliæ hortis*.

## CONCLUSIONS

Given that Jenyns' field work in Cambridgeshire could not have been any later than 1849 and his work on collating his records no later than 1868, it is clear that his knowledge of Isopoda and Myriapoda was up-to-date. This would not be remarkable if these taxonomic groups were his principal interest, but, as has been shown in *Fauna Cantabrigiensis* and will be in the *Entomologia Cantabrigiensis* volume when published, Jenyns covered many faunal groups with considerable depth of knowledge.

In the case of the Isopoda, his list is probably the earliest county list to be compiled, but it was not published at that time, so the first published county lists are probably those for Devon by Stebbing (1874, 1879).

As with Isopoda, work on compiling lists of British millipedes and centipedes began with the work of W.E. Leach (1790-1836). Clearly Jenyns is using Leach as one of his principal references and indeed all the millipedes are actually referred to Leach's *Zoological Miscellany* (1817). For centipedes he uses both that source along with work by George Newport (1803-1854) notably his *Linnean Society Transactions* monograph (1845) as well as adding species of his own naming. It is possible to be reasonably certain as to which millipedes he is referring to but with the centipedes correlation with presently known species varies from clearly identifiable types to almost completely obscure ones, as is indicated in our comments for each. There are several cases where the species name used by Jenyns (as the author of the species) is not a valid name, has never been properly published or lacks sufficient descriptive information to satisfy the criteria for availability. We have recorded these as being *nomina nuda*, although they may also be *nomina non rite publicatum* i.e. not properly published names.

There are several species of myriapod that we might have expected to be included. For millipedes, these could include *Glomeris marginata* (Villers, 1789) and *Polydesmus angustus* Latzel, 1884, both of which are included in the Leach *Zoological Miscellany* (the latter as *Polydesmus complanatus* from which it was subsequently separated). For centipedes, with the confusion of names, it is more difficult although perhaps it is surprising that *Cryptops hortensis*, described by Donovan in 1810 and also included in Leach's account, was not found.

For myriapods, credit for the first "county list" should be given to George Johnston (1835) for his list for Berwickshire. The first English list published for a specific county would seem to be that of Parfitt (1874) for Devon although there had been a list for the Falmouth area of Cornwall published by Cocks more than twenty years earlier (Cocks, 1849, 1851).

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