

## TOWARDS A BETTER KNOWLEDGE OF THE FRENCH CENTIPEDE FAUNA: REVIEW

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One of the aspects of the study of myriapods by British workers has been an interest in the fauna of neighbouring areas of mainland Europe especially that of northern France. There have been a variety of studies of the centipedes of that country and Brolemann's Faune de France *Chilopodes* (1930) was a standard work for UK use until Ted Eason's book (Eason, 1964) set the tone for a whole new outlook on the British fauna. However, Brolemann's data on the northern départements was very sketchy, going back to some of his own earlier studies and those of Gadeau de Kerville on Normandy, Chausey, etc. from the end of the 19<sup>th</sup> century. Demange's *Les Millepattes* (1981) added very little to the centipede data, that part of the book being largely based on Brolemann.

In the 1930s, 1940s and 1950s there were a small number of short papers by Legendre, Delamare-Deboutteville and Razet & Barbotin relating to Brittany, not necessarily well known or easily accessible to British workers.

In a BMG Newsletter Andy Keay reported *Lithobius variegatus* from France (Brittany) for the first time (Keay, 1983 *unpub.*; Barber, 1986) and in early issues of the Bulletin of the British Myriapod Group (Volumes 3-5) were notes by various British workers including a report of *L.variegatus* from Normandy by John & Sheila Lewis (Kime *et.al.*1987), *Schendyla peyerimhoffi* from Brittany (Blower, 1987) and *Geophilus gracilis* (*Geophilus fucorum seurati* of Eason, 1964) also from Brittany (Lewis & Kime, 1988). In the Memorial Volume of this *Bulletin*, Des Kime (Kime, 2003) reported on various centipedes identified by Ted Eason from France and elsewhere although none appear to be from the present area.

In 2000, Alain Livory, a naturalist whose interests included myriapods, published an account of records of *Scutigera coleoptrata* on the French coast and Isles of Chausey. Meanwhile, in France, Jean-Jacques Geoffroy has been collating aspects of the many species of French myriapods and their distribution.

It was in about 2002 that another French worker, Etienne Iorio started to publish a series of papers on chilopods, including, in 2005 a *Contribution à la connaissance des chilopodes de Bretagne* and in 2006 *La faune des Chilopodes du Massif Armoricaïn, Biologie, liste préliminaire et détermination des espèces (Chilopoda)* and the following year *Nouvelles données sur la morphologie et la distribution géographique des Chilopodes du Massif Armoricaïn (Chilopoda)*. Now British workers have a good starting point for comparing the centipede fauna of Southern Britain with that of Northern France.

Parallel to the various other studies on centipedes, Etienne was also developing an interest in the French species of *Cryptops*. In BMG Bulletin 16 (Barber, 2000) the three British species of that genus were described and names of a few other European ones mentioned. France has a few more species than Britain overall and also two species of *Scolopendra*. In January 2008 Etienne Iorio & Jean-Jacques Geoffroy published *Les Scolopendromorphes de France (Chilopoda Scolopendromorpha): Identification et Distribution Géographique des Espèces* .

It would seem useful to look at both the Massif Armoricaïn and the Scolopendromorpha papers in more detail.

## CENTIPEDES OF THE MASSIF ARMORICAIN

The first part of the 2006 booklet is an Introduction, describing the nature of the Massif Armoricain (Brittany, Pays de la Loire, Western Normandy). There is then an introduction to the biology of centipedes.

A table of species occurring in the three areas mentioned then follows and a complete preliminary listing. Most of these names will be familiar to British workers even if some are restricted in their distribution in this country. However there are some whose status in Britain is doubtful (*L. agilis*), is based on a really small number of records (*Pachymerium ferrugineum*) or are not on the UK list (e.g. *Lithobius aeruginosus*,) (Table 1). *Geophilus pusillifrater* is added here to the French list. There are also comments on *Lithobius dentatus*, *L. lucifugus*, *L. nicoeensis*, *L. mutabilis*, *Geophilus proximus*, *Himantarium gabrielis*, *Stigmatogaster arcis-herculis*, *Geophilus carpophagus* / *G. easoni*, *G. fucorum*, *G. osquidatum* / *G. joyeuxi*, *G. truncorum ribauti* / *G. pusillus*.

**Table 1:** Armorican and British species comparison

Armorican species widespread in Britain	Armorican species rarely found or $\pm$ regional in Britain	Armorican species not yet found in Britain	British species not yet found in Massif Armoricain
<i>Stigmatogaster subterranea</i>	<i>Scutigera coleoptrata</i>	<i>Geophilus algarum</i>	<i>Stigmatogaster brevior</i>
<i>Hydroschendyla submarina</i>	<i>Henia vesuviana</i>	<i>Geophilus inopinatum</i>	<i>Schendyla dentata</i>
<i>Schendyla peyerimhoffi</i>	<i>Pachymerium ferrugineum</i>	<i>Geophilus gavoyi</i>	<i>Henia brevis</i>
<i>Schendyla nemorensis</i>	<i>Geophilus linearis</i>	<i>Schendyla monodi</i>	<i>Eurygeophilus pinguis</i>
<i>Strigamia acuminata</i>	<i>Geophilus osquidatum</i>	<i>Lithobius aeruginosus</i>	<i>Nothogeophilus turki</i>
<i>Strigamia crassipes</i>	<i>Geophilus pusillifrater</i>	<i>Lithobius agilis</i> (?in Britain)	<i>Geophilus proximus</i>
<i>Strigamia maritima</i>	<i>Lithobius muticus</i>	<i>Lithobius pelidnus</i>	<i>Arenophilus peregrinus</i>
<i>Geophilus carpophagus sl</i>	<i>Lithobius piceus</i>		<i>Lithobius lapidicola</i>
<i>Geophilus electricus</i>	<i>Lithobius pilicornis</i>		<i>Lithobius lucifugus</i>
<i>Geophilus flavus</i>	<i>Lithobius tricuspis</i>		(?armori)
<i>Geophilus gracilis</i>			<i>Lithobius peregrinus</i>
<i>Geophilus truncorum</i>			<i>Lithobius tenebrosus</i>
<i>Cryptops anomalans</i>			
<i>Cryptops hortensis</i>			
<i>Cryptops parisi</i>			
<i>Lamyctes emarginatus</i>			
<i>Lithobius borealis</i>			
<i>Lithobius calcaratus</i>			
<i>Lithobius crassipes</i>			
<i>Lithobius curtipes</i>			
<i>Lithobius forficatus</i>			
<i>Lithobius macilentus</i>			
<i>Lithobius melanops</i>			
<i>Lithobius microps</i>			
<i>Lithobius variegatus</i>			

There are hints on collection and keys for the determination of species. The geophilomorph key includes *Geophilus gavoyi* which has second maxillae with a peg rather than a claw as in *G. insculptus*, the latter not occurring in the area but with a note on how to distinguish it. There is a tabular geophilomorph key giving numbers of leg pairs for males and females followed by a series of figures. The key for scolopendromorphs covers the three *Cryptops* species found in Britain &

separates *C. hortensis* and *C. parisi* on the basis of labrum structure. The lithobiomorph key is followed by tables of body sizes and of spinulation and figures.

A section follows on determining sex in the three orders, a description of *Scutigera*, techniques for manipulation of specimens to examining mouthparts / labrum and a description of *Geophilus pusillifrater*. An extensive set of references is given.

Intended only as a preliminary work intended to prompt further studies, the 74 page booklet is likely to be of interest to British workers, especially those in the south and west both as a supplement to existing works and as a guide to what might be found when visiting the Brittany / Normandy area or to possible additional species that might occur in the Channel Islands or even SW England.

The 2007 paper provides lists of localities and additional notes for distinguishing some species. Interesting to note that *Lithobius variegatus* is now recorded from Pays-de-la-Loire as well as Brittany and Normandy but appears to be relatively infrequent and certainly not as common as it is in many parts of western Britain.

## FRENCH SCOLOPENDROMORPHA

There are a total of eight, possibly nine species of this order reported from France, including Corsica, by the authors. The present key, based on existing works and recent papers by the two authors, aims to provide a solid base (une solide base de travail) for this group.

The species are clearly separated into the large (40-120mm) *Scolopendra* species and the relatively smaller (10-50mm) and more slender *Cryptops*. Of the former, *Scolopendra cingulata* (Southern France) is by far the larger and is distinguished from *S. oraniensis* (= *S. canidens oraniensis* of Brolemann, 1930) on the basis of the last tergite and projections and spines on the last legs. The latter occurs in Corsica. Further afield, *S. cingulata* is reported from much of Southern Europe, the Near East, Iran, Tadjikistan and North Africa with *S. oraniensis* from Italy, Malta, Portugal, Spain, Algeria, Morocco. There are coloured pictures of *S. cingulata* and *Cryptops parisi*.

The *Cryptops* key begins with the characteristics of the first tergite and its sutures (with appropriate illustrations), something familiar to us from our *C. anomalans*. A single arc-shaped transverse groove but without any other longitudinal or diagonal grooves leads to *C. sublittoralis*, a species of uncertain status described by Verhoeff from Alpes-Maritimes.

The first tergite with both transverse and longitudinal grooves leads to *C. umbricus*, *C. anomalans* and *C. trisulcatus*. *C. umbricus* is a distinctive cavernicolous species from Alpes-Maritimes, Alpes-de-Haute-Provence and Italy. *C. anomalans* has the characteristic X-shaped sutures whilst *C. trisulcatus* has the two longitudinal sutures but they do not cross, coming together only as they join the transverse one. *C. anomalans* is recorded widely both in France and in Southern Europe, *C. trisulcatus*, a Mediterranean species, from the South, from Spain, Greece, Italy, Portugal, Roumania, Turkey, Algeria & the Canaries.

The three remaining species, without grooves on the first tergite, are separated initially on the character of the labrum (not always easy for a beginner to see but in the final analysis, with "problem specimens", the critical determination between *C. hortensis* and *C. parisi* in Britain). *C. parisi*, widespread in France and much of Europe has a tridentate labrum whilst *C. lobatus* and *C. hortensis* have a unidentate one (illustrated).

The final separation of these latter two species is based on the shape of the forcipular coxosternite, the presence of spines on this and the characteristics of the claw. *C. lobatus* is reported from Var and Alpes-Maritimes as well as the Italian Riviera, and the familiar *C. hortensis* from much of France and widely in Europe. On the basis of the distributions given here, it seems unlikely that new species of scolopendromorph will be found outdoors in Britain unless there is significant climatic change and that the only other types likely to therefore be found could be hothouse exotics such as *Cryptops doriae* (Lewis, 2007) or specimens brought in with fruit or other goods.

For each of the species a list of synonyms is given, including *Cryptops savignyi* (of Leach = *C.hortensis*: *sensu* Brolemann & Demange = *C.anomalans*). There is an extensive list of references.

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