THE OCCURRENCE OF TWO ELUSIVE WOODLICE, *METATRICHONISCOIDES LEYDIGII* (WEBER, 1880) AND *TRICHONISCOIDES SARSI* PATIENCE 1908, IN SEMI-NATURAL HABITAT IN KENT.

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ABSTRACT

Metatrichoniscoides leydigii (Weber, 1880) and *Trichoniscoides sarsi* Patience, 1908 are recorded from a Site of Special Scientific Interest beside the River Medway in Kent. This is the second British record for *M. leydigii* and its first recorded occurrence from semi-natural habitat. *T. sarsi* is also typically synanthropic in Britain. Figures of male sexual characters, drawn from Kent specimens are given. The occurrence of both species, in close association and in habitat similar to that described for native populations in the Netherlands suggest that this Medway population may be of native occurrence, rather than a recent human-assisted introduction. It is suggested that these elusive species may have been overlooked and may occur more widely along the low-lying eastern parts of Britain.

INTRODUCTION

On current evidence, the trichoniscid woodlice *Metatrichoniscoides leydigii* (Weber, 1880) and *Trichoniscoides sarsi* Patience, 1908 are heavily synanthropic in Britain (Gregory, 2009). First recorded in Britain by the author in 1989, *M. leydigii* was hand sorted from among compost-rich gravel and rubble at a garden centre in Oxford (Hopkin, 1990; Gregory, 2009). It was almost certainly unintentionally introduced to this site and its occurrence here, at its only known British locality, was quite correctly considered to be of 'no conservation significance'. Recently, *M. leydigii* was included on the Non-native Species Register compiled by the GB Non-native Species Secretariat (https://secure.fera.defra.gov.uk/nonnativespecies/), which comprises species introduced into Britain. Across much of its British range *T. sarsi* is also associated with synanthropic sites, such as old gardens or churchyards, typically in the environs of towns and villages (Gregory, 2009). This preference for disturbed sites has been taken to imply that *T. sarsi* is a well-established non-native introduction in Britain.

During the 2011 BMIG spring field-meeting to Kent surveys were undertaken to search for the elusive UK BAP millipede *Metaiulus pratensis*, Blower & Rolfe. On 17th April 2011 a visit was made to Abbey Mead Lakes, near Snodland, part of a larger Site of Special Scientific Interest Holborough to Burham Marshes SSSI, which lies along the flood plain of the River Medway. In addition to flooded gravel pits, which are important for over-wintering wildfowl, there is a variety of other habitats represented at Abbey Mead Lakes, including extensive reedbeds (subject to occasional tidal flooding), open water, fen, grassland, scrub and woodland.

RESULTS

One site surveyed by the author was a reedbed bordering the River Medway (TQ/712613, vc 16, alt. <5m). Lifting a piece of rubble embedded into peaty soil revealed two trichoniscid woodlice. The first, a relatively large (3.5 mm in length) and darkly pigmented species, proved to be a female *Trichoniscoides albidus*. The second specimen was much smaller (about 2 mm) and pure white in colour. Examination with a handlens indicated that the body was covered with conspicuous tubercles and it seemed to lack ocelli. This specimen proved to be a male and dissection of the pleopods

confirmed the identity as *M. leydigii* Weber (Fig. 1). This is the second British record, and the first record from a semi-natural habitat.

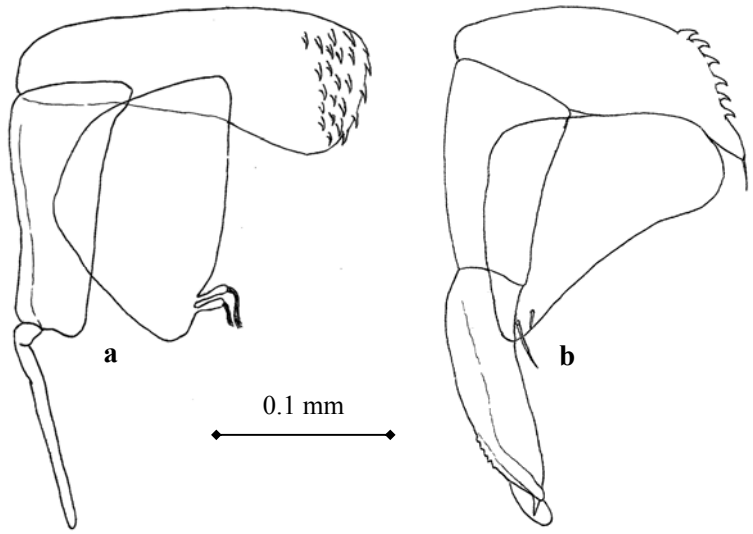

FIGURE 1: *Metatrichoniscoides leydigii* Weber, male, from Abbey Meads Lakes SSSI, Kent.
a) First pleopod; b) Second pleopod

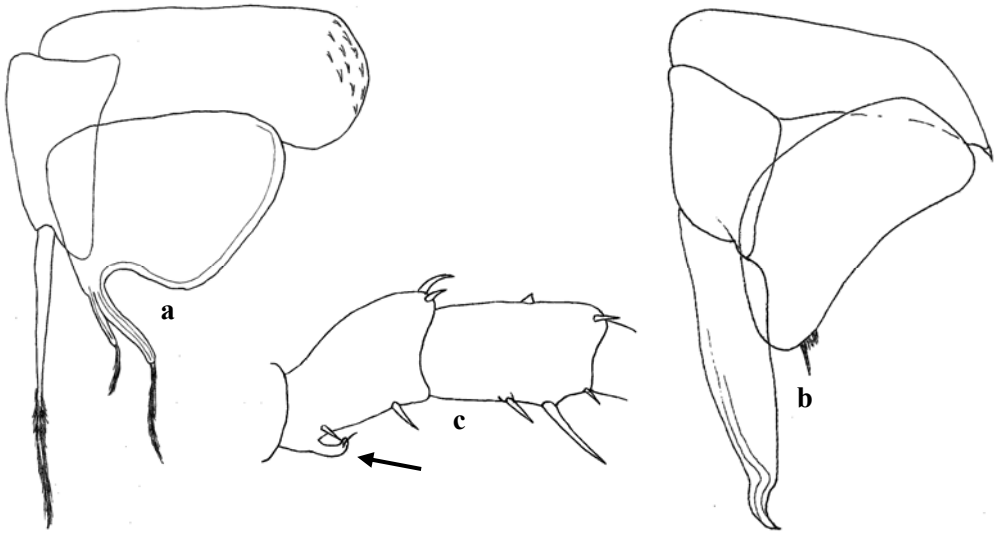

FIGURE 2: *Trichoniscoides sarsi* Patience, male, from Abbey Meads Lakes SSSI, Kent.
a) First pleopod; b) Second pleopod; c) Merus and carpus of seventh pereiopod.
Note prominent hooked spur at base of merus (arrowed).

Nearby hand-sorting strandline debris on the banks of the River Medway revealed *Haplophthalmus danicus* and *Trichoniscus pusillus* sensu lato to be frequent throughout the 10cm depth of strandline debris. However, the removal of stones partially embedded in silty clay below this accumulated strandline revealed two pale orange trichoniscids about 3 mm in length. These were somewhat reminiscent of juvenile *Androniscus dentiger*, but appeared to have red ocelli. Dissection of the male specimen (the second was female) proved the identity to be *Trichoniscoides sarsi* Patience (Fig. 2).

Further examination of the male *T. sarsi* specimen indicates that this species can be readily separated from other species of *Trichoniscoides* known to occur in Britain by examination of the male seventh pereiopod. In *T. sarsi* there is a curved projection protruding from the underside of the merus (Fig.

2c), which can be readily seen without dissection of the specimen. Although clearly figured in Vandel (1960), and mentioned by Oliver & Meechan (1993) and by David Bilton in BISG newsletter 35 (Bilton, 1993), this useful character has never been illustrated in available British identification keys, including Steve Hopkin's AIDGAP key (Hopkin, 1991). This projection is absent in *T. saeroeensis* and *T. helveticus*, which both bear a superficial resemblance to *T. sarsi*. However, it should be borne in mind that there are other species of *Trichoniscoides* in Europe that also have a similar projection on the merus of the seventh male pereiopod (i.e. those species belonging to Vandel's (1960) groupe *aquitano-lanquedocien*, with a distribution centred on the western Pyrenees). Some of these species could be found in Britain, and it is, therefore, always good practice to examine male pleopods.

DISCUSSION

M. leydigii was described new to science from the coast of the Zuidersea in the Netherlands in 1880 and through the recent activities of Dutch 'soilfaunagroup' it has become clear that it is quite widespread and frequent in the Netherlands (Berg *et al*, 2008). T. sarsi also has a wide distribution in the Netherlands, primarily associated with low-lying areas overlain by Holocene deposits of marine origin (Berg *et al*, 2008). Both species share similar habitat preferences, being found deep within clayey soil or beneath embedded rocks along roadsides, riverbanks, ditches, sea dikes, occasionally associated with the supralittoral zone on the coast. Both *M. leydigii* and *T. sarsi* are often associated with each other, and typically occur with other trichoniscids, such as *T. albidus* and *H. mengii*. As native species both are known from north-west Europe: western France (*M. leydigii*), northern France (*T. sarsi*), Belgium (both species), western Germany (both species) and (in the case of *T. sarsi*) as far north as southern Scandinavia (Berg *et al*, 2008; Schmalfuss, 2003). Both have been introduced to other countries, where they sometimes occur inside glass-houses.

Historically there has been much industry in the Medway Valley in the environs of Snodland. Lime workings and paper mills have been active for centuries, and these industries expanded dramatically in the 19th Century when the railway was built. A working paper mill is located adjacent to Abbey Mead Lakes. Thus there has been plenty of scope for introduction for synanthropic species, and it is possible that both *M. leydigii* and *T. sarsi* have been introduced here as a result of human activities (such as reported by Berg *et al* (2008) for *T. sarsi* in the Netherlands). However, there are no obviously dispersal links between the Medway Valley and the low countries of Netherlands and Belgium where these species are known to be native.

A second possibility is that Abbey Meads Lakes supports a native population of both species that have colonised naturally after the end of the last glacial period. In terms of both the habitat, and the associated species, Abbey Meads Lakes (a designated SSSI) is strikingly similar to that described for the native populations of *M. leydigii* and *T. sarsi* in the Netherlands on the opposite side of the North Sea (Berg *et al*, 2008). Thus, it is probable that both species are actually native to at least south-eastern England and further, previously over-looked, populations of *M. leydigii* may be occur in semi-natural habitats in other low-lying areas along the eastern coasts of Kent and East Anglia. In light of Mike Davidson's recent discovery of *T. sarsi* on the coast of Kincardineshire, eastern Scotland (Davidson, 2011), this latter species could prove to be widespread in eastern Britain, in both semi-natural habitat in coastal areas and synanthropic sites inland. Both species have subsequently secondarily colonised synanthropic habitats in Britain (as reported by Gregory, 2009).

It cannot be assumed that all small white woodlice with red eyes found on the coast are *T. saeroeensis.* Reliable determinations can only be based on examination of male specimens. Other species, such as *M. leydigii*, *M. celticus* Oliver & Trew, *T. sarsi*, or even another cryptic species new to Britain, could be present. In the Netherlands, where male specimens are routinely dissected, *T. saeroeensis* has never been recorded. It is possible that this species occupies a different niche to *M. leydigii* and *T. sarsi*, but there is insufficient field data to draw solid conclusions.

Based on its initial recorded occurrence at the garden centre in Oxford (which has been demolished), *M. leydigii* has been included on the Non-native Species Register compiled by the GB Non-native Species Secretariat (https://secure .fera.defra.gov.uk/nonnativespecies/). This list includes invasive non-native species, such as Japanese Knotweed or Harlequin Ladybird, that have the ability to spread causing damage to the environment, the economy, our health and the way we live. The validity of the inclusion of *M. leydigii* on the Non-native Species Register is now in doubt. As a native species its distribution is entirely restricted to the coastal regions of our neighbouring countries on the opposite side of the English Channel and the North Sea. It is not unexpected for it to occur as a native species in Britain. In light of this reported at occurrence of *M. leydigii* at Abbey Mead Lakes it does appear to be native in at least south-east England, but it has undoubtedly been spread beyond its natural range by human activity (as with many invertebrates with synanthropic tendencies). If native these Abbey Mead Lakes populations of *M. leydigii* and *T. sarsi* are likely to be of considerable conservation interest.

ACKNOWLEDGEMENTS

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More information about the woodlouse fauna of the Netherlands can be found at: http://www.pissebeddenproject.nl/ (text in Dutch, but with excellent images of species).

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