

NEW COUNTY RECORDS AND SOME HABITAT OBSERVATIONS FOR *TRICHONISCOIDES* SPECIES (ISOPODA, ONISCIDEA: TRICHONISCIDAE) FROM BEDFORDSHIRE AND DERBYSHIRE

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INTRODUCTION

Due to their very small size and need for male specimens to confirm species, valid records for woodlice of the genus *Trichoniscoides* are quite scarce (Gregory, 2009). In early 2016, a number of specimens were examined and identified as new county records.

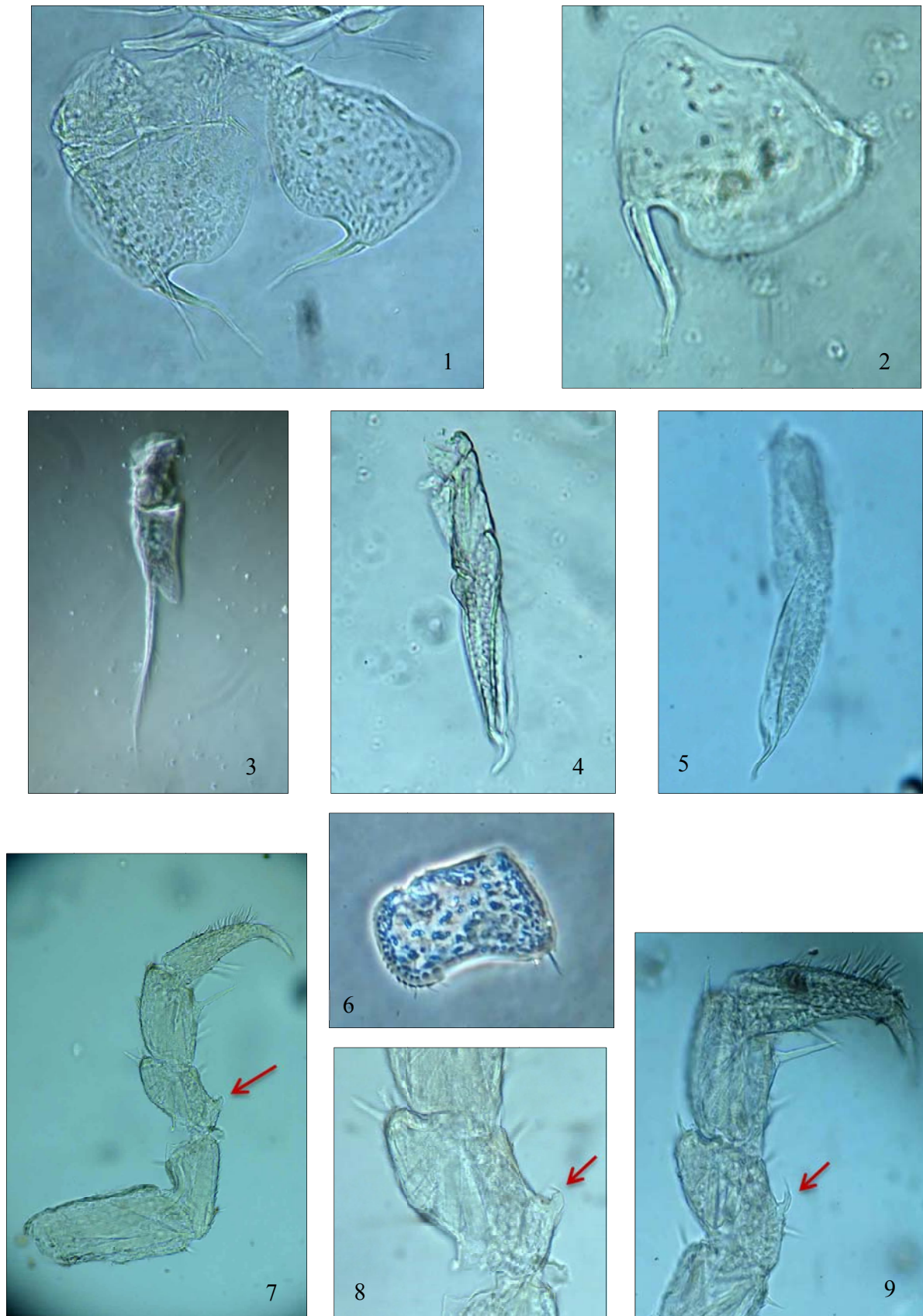
BEDFORDSHIRE

Several specimens of the minute, *Trichoniscoides sarsi* Patience, 1908 were identified from samples taken for the F₃UES project (Fragments, Functions, Flows & Urban Ecosystems: <http://bess-urban.group.shef.ac.uk/>) at the University of Sheffield. The work was undertaken as part of BESS (Biodiversity and Ecosystem Services Sustainability: <http://www.nerc-bess.net/>), a six-year (2011-2017) NERC research programme, designed to answer questions about the functional role of biodiversity in key ecosystem processes at the landscape scale. Over 80 sites across Bedford, Luton and Milton Keynes were extensively studied for soil, plants, invertebrates and multiple environmental factors. The sites represent a variety of permeable green spaces, including parkland, urban woods, road verges, industrial estates and private gardens. Over 550,000 invertebrates have been identified to varying levels of taxonomy, but the woodlice (Isopoda: Oniscidea) have been named to species.

Among the samples there were a few sites with tiny woodlice of the family Trichoniscidae, including *Haplophthalmus*, *Androniscus* and *Trichoniscus* species. There were also a number of tiny, colourless, female *Trichoniscoides*-like specimens. As the eyes lose all diagnostic colouration in alcohol and could not be seen at all in some specimens, identification between *Trichoniscoides* and *Metatrachoniscoides* species was only possible by close examination of male sexual characters (Hopkin, 1991).

Fortunately, at one site multiple individuals were extracted which proved to contain at least four adult male *Trichoniscoides* specimens. These are barely larger than 2mm in length and colourless in alcohol. In life they would have been off-white, suffused with pink-orange, with an eye of a single red ocellus (Fig. 10). The preserved specimens showed barely any sign of the ocelli. Dissection of the pleopods (Figs. 1–6) showed all the males to be *Trichoniscoides sarsi*, with the single hooked or ‘sickle-shaped’ tip to the second endopod and the two exopod processes of different lengths (Oliver & Meechan, 1993). These also clearly showed the characteristic hooked projection on the merus (middle segment) of the last pair of legs (7th pereopods, Figs. 7 – 9), which confirmed the species.

The specimens were collected with a vacuum sampler in an area adjacent to a pond within a domestic garden at The Buntings in sub-urban Bedford on 6th August 2013. This continues to support the theory that *Trichoniscoides sarsi* inhabits synanthropic, disturbed sites, such as established gardens and churchyards (Gregory, 2009). The almost identical relative, *Trichoniscoides helveticus* Carl is found in more semi-natural, calcium rich habitats, including grassland and woodland, in a similar part of the country. Both species are designated as ‘Nationally Scarce’ in the recent species status review (Lee, 2015) and this is the first record of *Trichoniscoides sarsi* for Bedfordshire.



FIGURES 1-9: *Trichoniscoides sarsi*, male, from Bedford

1) First exopods (& endopod); 2) First exopod; 3) First endopod; 4 & 5) Second endopod; 6) Second exopod; 7, 8 & 9) Seventh pereopod showing hooked process (arrowed) on merus.

Both species are generally only recognised by specialists who are experienced with finding tiny woodlice such as this, but are then usually only found in ones and twos. This record is unusual in that 23 individuals were collected in one sample, of which 4 were male. These species are also recognised as being more readily found during frosty weather (e.g. Daws, 1995), so a hot August day is an unusual time to encounter them. The vacuum extracts most things from an area of 1.2m² and only from open litter or the soil surface, so these specimens were not underneath slabs or stones, which would be a more typical habitat in which to find these species. This method of collection is not normally considered the most efficient for locating small, soil dwelling woodlice (Sanders & Entling, 2011), but on this occasion seems to have very effectively captured a good representative sample of these normally elusive creatures. A second sample site within the garden also provided an individual *Trichoniscoides*, but it was female and therefore not identifiable to species. Knowing that the species is not restricted to a single point in the garden, it would be interesting to inspect other adjacent sites, by more traditional hand searching methods, at a more suitable time of year to determine the extent of their distribution in the area.

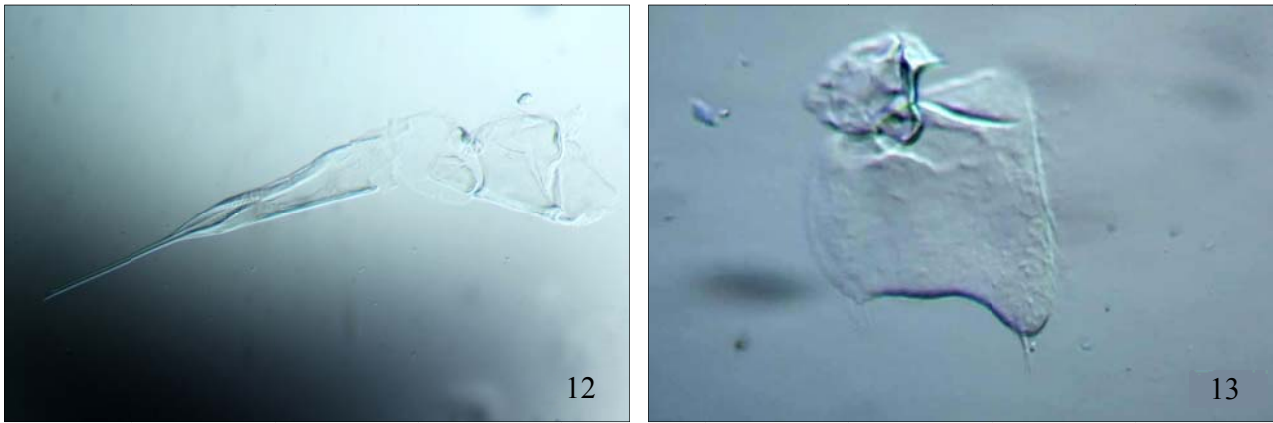
DERBYSHIRE

Following the experience gained from identifying the Bedford specimens, further opportunity was taken to look for more of these tiny woodlice. Given the greater likelihood of finding winter specimens, some churchyard sites on limestone in the Derbyshire Peak District were investigated during February 2016. Alongside other under-recorded species, such as *Haplophthalmus mengii* and *Trichoniscus pygmaeus*, the millipede *Ophiodesmus albonanus* and the springtail *Monobella grassei*, four *Trichoniscoides* specimens were found under stones around the edge of the graveyard in Great Longstone (SK200719). These were all cream coloured and clearly infused with orange-pink, with eyes of a single red ocellus (Fig. 10). Three were female, but one male specimen was also present. Unfortunately, this specimen rapidly died and dried up in the collecting tube (Fig. 11), which made dissection and examination difficult.

The expectation at an inland synanthropic site, would be for *Trichoniscoides sarsi*, however the 7th pereopods did not show the hooked spine on the merus (as shown in Figs. 7-9). Also, the long tapering shape of endopod 2 (Fig. 12), was much more like that of *Trichoniscoides saeroeensis* Lohmander. Due to the dessication of the specimen, it was difficult to recognise Exopod 1, but Exopod 2 (Fig. 13) again looked like *T. saeroeensis*. Other slightly abnormal characters were present, which may have been a result of the condition of the specimen, so fresh individuals were sought.

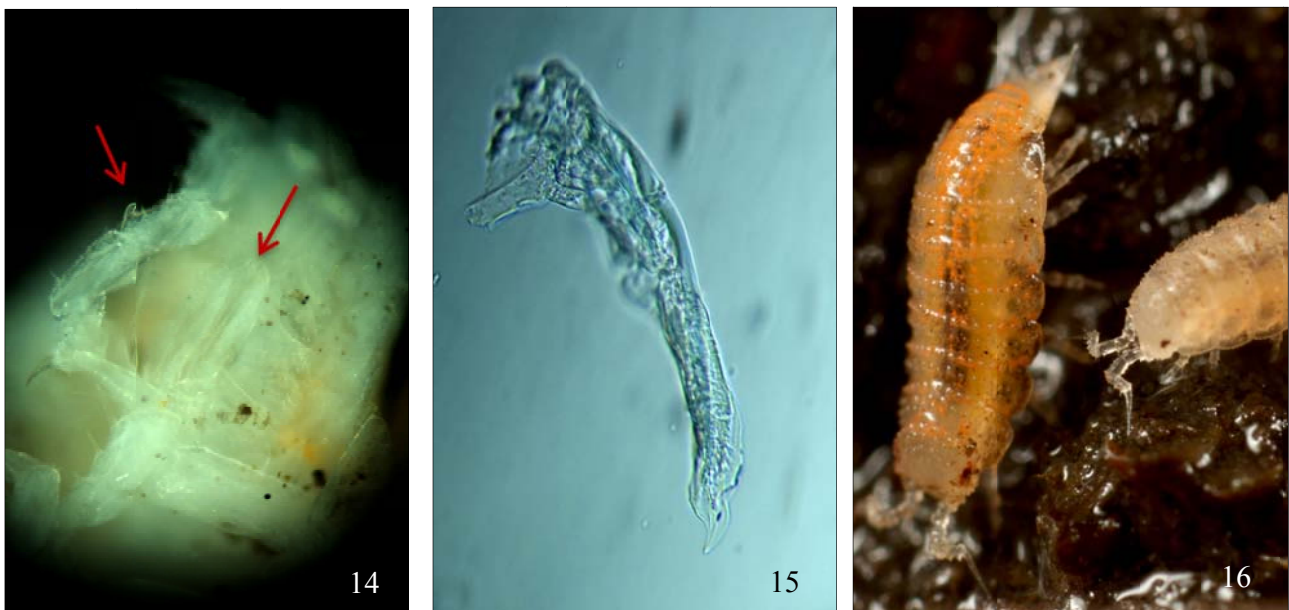


FIGURES 10-11: *Trichoniscoides* specimens from Derbyshire.
10) *T. sarsi*, live female; 11) *Trichoniscoides* sp., dessicated male



FIGURES 12-13: *Trichoniscoides* sp., male, from Derbyshire.

12) Second endopod; 13) Second exopod



FIGURES 14-16: *Trichoniscoides sarsi*, from Derbyshire

14) Male specimen showing hooked process on merus of seventh pereopod (arrowed) and first & second endopods (arrowed); 15) Male second endopod; 16) Live *Trichoniscoides sarsi* (left) with *Trichoniscus pygmaeus* Sars.

A return to the site was rewarded with six further female/immature specimens and two males. The latter clearly displayed the hooked projection on the merus of the 7th pereopods and dissection showed typical *Trichoniscoides sarsi* pleopod characters. This was confirmation of a new county record for this species, but does not resolve the mystery of the abnormal characters shown by the previous male specimen. If *Trichoniscoides saeroeensis* is present, it would be a good distance from its recognised coastal distribution. Some records do occur up to 12km inland, or even on limestone uplands (Gregory, 2009: p61), but this would be the most land-locked record in Britain. The original report of *Trichoniscoides saeroeensis* in Britain (Sheppard 1968) was from limestone cave systems in Lancashire, which are also extensive in Derbyshire. There is a lot of potential to find more of these elusive woodlice within the limestone of the White Peak with its many limestone quarries, caves and churchyards to explore. If further work is undertaken during the winter months, we may be able to more clearly understand which species we are dealing with, their distribution and habitat requirements.

ACKNOWLEDGEMENTS

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