

SHORT COMMUNICATIONS

Two mealybug species on *Alchemilla mollis*, including the second British record of marsh mealybug *Atrococcus paludinus* (Green) (Hemiptera: Pseudococcidae). – Fifteen, live adult female mealybugs were collected from the stems and foliage of *Alchemilla mollis* (Buser) Rothm. (Rosaceae) growing in the rock garden at the Royal Horticultural Society's Garden, Wisley, Surrey (VC17, TQ0658), on 20 September 2012, by the second author, and submitted to The Food and Environment Research Agency (FERA), where they were identified as *Atrococcus paludinus* (Green), the marsh mealybug (Kosztarab & Kozár, 1988). The mealybugs were elongate-oval, dark brownish-purple, with a light dusting of greyish wax, and up to 3.6mm long (this is longer than 2.4mm reported by Kosztarab & Kozár (1988)) (Fig. 1). A repeat sample of plant material was collected from the same location on the 8 November 2012 and found to contain dead post-reproductive adult females with white waxy ovisacs harbouring cream to pale-yellow eggs, which supports the hypothesis that the mealybug overwinters in the immature stage.

This is only the second confirmed record of this mealybug in Britain (Williams, 1962), after a gap of 92 years. The first record of *A. paludinus* in Britain was from Wicken Fen, Cambridgeshire (VC29, TL5627), in September 1920. It is from those specimens that this species was first described by Green (1921), as *Pseudococcus paludinus*. Green's specimens were collected from the lower surface of foliage of various herbaceous plants, including *Convolvulus* sp. (Convolvulaceae), *Eupatorium cannabinum* L. (Asteraceae), *Lysimachia* sp. (Primulaceae), *Symphytum officinale* L. (Boraginaceae), and *Urtica* sp. (Urticaceae). Green also recorded *Spiraea* sp. (Rosaceae) as a host, however; *Spiraea* is now accepted as a genus of ornamental garden plants, and it is probable that this record should refer to *Filipendula* sp., e.g., meadowsweet. *Atrococcus paludinus* was subsequently described under the names *Pseudococcus impeditus*

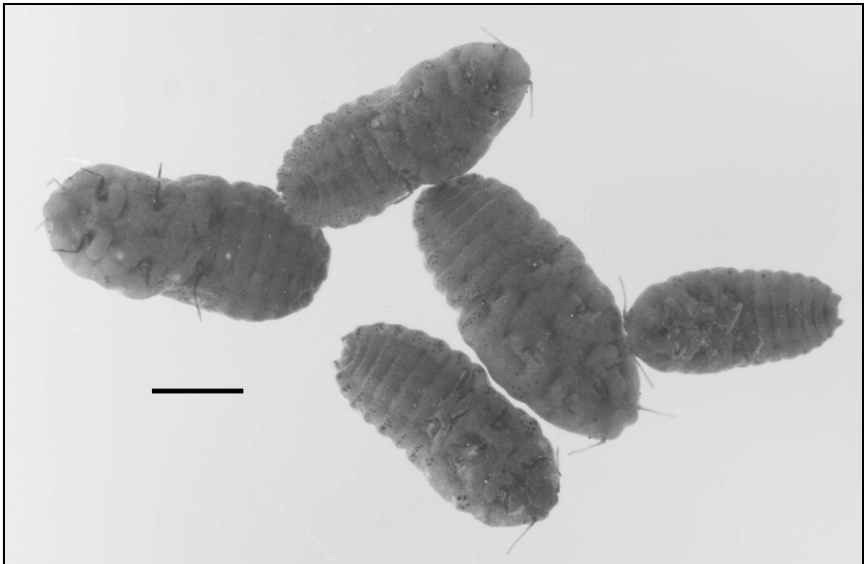


Fig 1 *Atrococcus paludinus* adult female mealybugs preserved in alcohol, showing the characteristic dark brownish-purple colour. Scale bar = 1mm.

Borchsenius and *P. alfredii* Rasina (Danzig, 1978, 1980). *Atrococcus paludinus* may be identified using the keys by Williams (1962) and Kosztarab & Kozár (1988). A record of *A. paludinus* by Green (1934) is referable to *A. cracens* Williams (Williams, 1962).

Atrococcus paludinus is a trans-Palaeartic species that is known to occur from the Mediterranean in the south to Scandinavia in the north, and from Portugal in the west to Russia's Sakhalin region in the east. It also occurs on the Kuril Islands (Russian) in the Pacific. It is broadly polyphagous, feeding mainly on herbaceous plants, and has been recorded on 19 plant families. It exhibits a preference for plants in the Asteraceae and Rosaceae, and is most commonly found on *Rubus* in mainland Europe (Ben-Dov, 2012). It has been recorded feeding on tomato plants in a commercial glasshouse in Ille-et-Vilaine, France (Matile-Ferrero & Germain, 2002), and has the potential to damage other cultivated plants, as its hosts include the economically important genera: *Humulus* (Cannabaceae); *Lactuca* (Asteraceae); *Ribes* (Grossulariaceae); *Rosa* (Rosaceae); and *Medicago* and *Trifolium* (Fabaceae).

The fact that *A. paludinus* has only been recorded twice in Britain is likely to be a reflection of under-recording, rather than an indication of its true status. Many of its host plants, such as *Rubus* spp. (Rosaceae) and *Urtica dioica* L., are very common throughout Britain and it may occur widely but has been overlooked, as the insect is small, cryptic and usually feeds on the undersides of the foliage or at the base of stems (Kosztarab & Kozár, 1988).

Also observed on the roots and lower stems of the same *A. mollis* plants collected on the 8 November 2012 were adult female mealybugs, nymphs, and egg sacs of *Rhizoecus albidus* Goux (Hemiptera: Rhizoecidae), commonly known as white root-mealybug. The adult female mealybugs were elongate-oval, white, and up to 1.5mm long (Fig. 2).

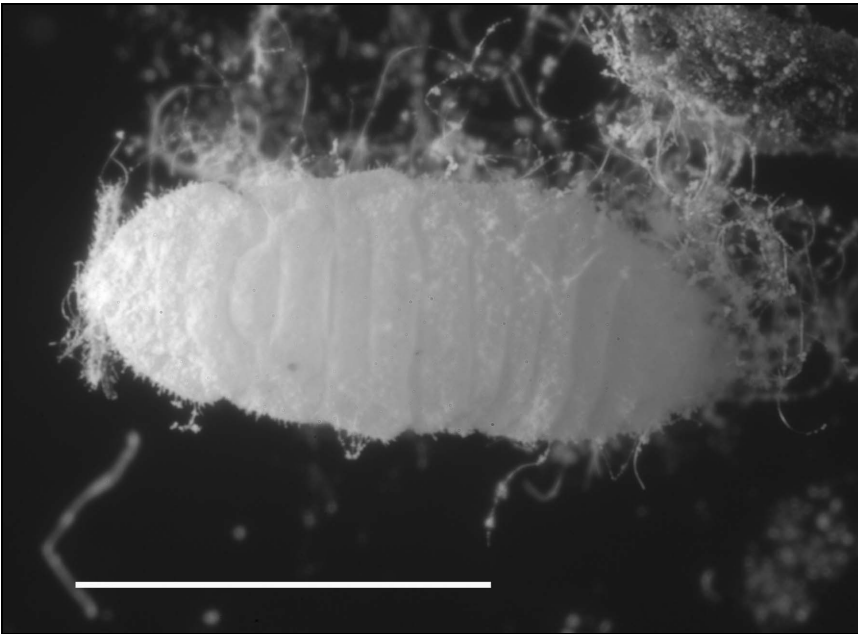


Fig 2 *Rhizoecus albidus* adult mealybug, beginning to produce an ovisac of loose wax filaments. Scale bar = 1mm.

Rhizoecus albidus is usually entirely subterranean and this appears to be the first observation of *R. albidus* feeding on the lower stems and ovipositing among the lower dead leaf whorls, which was probably due to the plants being partially waterlogged after a prolonged wet period.

Rhizoecus albidus was originally described from specimens collected from the roots of *Festuca* sp. (Poaceae) in Besseney, France, by Goux (1942), and subsequently described under the names *R. uniporus* Borchsenius & Tereznikova and *R. gentianae* Panis (Kozár & Konczné Benedicty, 2007). *Rhizoecus albidus* may be identified using the keys by Williams (1962), Kosztarab & Kozár (1988), and Kozár & Konczné Benedicty (2007). It is a trans-Palaearctic species with a similar distribution to *A. paludinus*, although there are fewer records due to its subterranean nature. It is rarely recorded in Britain, but has been found in Vice Counties 17, 20, 36, 39, 40 and 67 (Williams, 1962). The first author recently collected it at Robin Hood's Bay, North Yorkshire (VC62, NZ9504), on the roots of grasses (Poaceae), mosses (Bryophyta), and *Sedum* sp. (Crassulaceae), 20.vi.2010, and at Calton Hill, Edinburgh, Mid Lothian (VC83, NT2674), on the roots of grasses and mosses, 17.ix.2011 (first record from Scotland). It is most frequently found on the roots of grasses and is an occasional pest on the continent. It has also been recorded on the roots of plants belonging to Asteraceae, Crassulaceae, Cyperaceae, Ericaceae, Gentianaceae and Plumbaginaceae (Kozár & Konczné Benedicty, 2007).

Achemilla mollis is a new host for *A. paludinus* and *R. albidus*, and no other mealybug species have been recorded on this plant in Britain.— CHRISTOPHER MALUMPHY, The Food and Environment Research Agency, Sand Hutton, York, YO41 1LZ, & ANDREW HALSTEAD, The Royal Horticultural Society's Garden, Wisley, Woking, Surrey GU23 6QB.

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***Xylota segnis* (L.) (Diptera: Syrphidae) found feeding on human remains.** – As part of a police investigation, a forensic anthropologist at the University of Central Lancashire was sent some human bones to analyse and comment upon. They had been recovered from mixed woodland dominated by sessile oak *Quercus petraea* (Mattuschka) Liebl., south west of Coventry, after being discovered, partly buried, by a passing dog-walker in 2012. The bones transpired to be from a man who had been murdered some three years previously, and were in a state close to skeletalisation but still with small areas of soft tissue. Being buried in the woodland soil had kept the bones relatively moist.

Despite the bones having been cleaned of most soil before several weeks of refrigeration, and having been packaged and posted, a number of dipteran larvae were found feeding upon the remaining soft tissue. There were around 20 *Piophilidae* (*Piophilidae*) and around ten *Xylota segnis* (L.) (Diptera: Syrphidae). *Piophilidae casei*, the cheese-skipper, is a cosmopolitan species commonly found on animal remains in a state of decomposition beyond ‘active decay’ (Byrd & Castner, 2001) but short of skeletalisation. *Xylota segnis* has not been recorded feeding upon human remains previously, but is normally associated with decaying tree sap, including wet situations (Rotheray, 1993). Buried in earth at the base of a tree which had been blown over, the bones were perhaps an extension of habitat already occupied by the species, with the wet decaying soft tissue presenting a suitable alternative food for the *Xylota* larvae. Rearing to adulthood failed for all larvae as they died in various stages of pupation, perhaps as they had spent a considerable time in refrigeration.

Most British non-aphidophagous syrphids feed on decomposing plant tissue (Stubbs & Falk, 1983; Rotheray & Gilbert, 2011) although the genus *Eristalis* Latreille may occur on carrion that is sufficiently wet. This taxon was included in Megnin’s list of insects in the faunal succession of a carcass (Megnin, 1894). It has been proposed that it was adults of the drone fly, *E. tenax* (L.), rather than a honey bee, which was seen emerging from a lion’s carcass in the biblical story, giving rise to the phrase ‘out of the strong came forth sweetness’ (Smith, 1986). This is consistent with an ancient belief that bees could be created from a ‘recipe’; spontaneously emerging from putrefying carcasses (Marshall, 2012).

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