

**FIRST INCURSION OF MANUKA FELT SCALE  
*ACANTHOCOCCUS MARIANNAE* IN BRITAIN  
(HEMIPTERA: ERIOCOCCIDAE)**

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ABSTRACT

In the autumn of 2008 a large infestation of an undescribed species of felt scale (Hemiptera: Eriococcidae) was observed on a single *Leptospermum* sp. plant growing outdoors in a private garden in Essex, England. The insect was subsequently described in 2010 as *Acanthococcus mariannae* Pellizzari from specimens collected from Manuka plants (*Leptospermum scoparium*) in Italy and France (Corsica). This is the first confirmed incursion of the Manuka Felt Scale in Britain. The biology, geographical distribution and economic importance of this scale are discussed.

INTRODUCTION

A single *Leptospermum* sp. (Myrtaceae) plant growing outdoors in a private garden with a southern aspect in Billericay, Essex, England (TQ6795), was found to be covered with small, whitish, felt-like patches during the autumn of 2008 (Plate 3, Fig. 1). A sample was taken by the owner on the 3rd March 2009 and submitted to The Royal Horticultural Society and subsequently forwarded to The Food and Environment Research Agency (FERA), where it was identified as a species of felt scale *Eriococcus* sp. (Hemiptera: Eriococcidae). The specimens did not key out satisfactorily with the pertinent literature (e.g., Hoy (1959), Williams (1985) and other references cited below) and were concluded to represent an undescribed species. Unbeknown to the authors the same species of felt scale had been collected in 2004 from potted Manuka plants (*Leptospermum scoparium* J. R. Forst & G. Forst.) in Genova, Italy, and in 2006 from Manuka plants at two localities in Corsica (France). It was subsequently described from French and Italian specimens under the name *Acanthococcus mariannae* Pellizzari (Pellizzari & Germain, 2010). The population in Essex represents the first confirmed incursion of this species in Britain. However, in March 2000 a *Callistemon* sp. (Myrtaceae) plant imported from Australia to the National Botanic Gardens of Wales, Llanarthney, Carmarthen, was found by the Plant Health and Seeds Inspectorate to host a small population of exotic eriococcids. The majority of specimens were immature and only a single adult female was slide mounted. Whilst all the visible characters of the adult specimen were morphologically consistent with *A. mariannae* it was damaged and the identity could not be confirmed.

The purpose of this communication is to report the first known incursion (an isolated population of a pest recently detected in an area, not known to be established, but expected to survive for the immediate future (FAO, 2012)) of *A. mariannae* in Britain and to assess any potential impact in Britain. Slide mounted specimens of *A. mariannae* are deposited at FERA.

## NOMENCLATURE

***Acanthococcus mariannae* Pellizzari in Pellizzari & Germain, 2010**  
**Synonym: *Uhleria?* nr. *araucaria* Kozár, 2009. Nomen nudum.**

The generic placement of *A. mariannae* is contentious. Recent keys to eriococcid genera assign this species either to the genus *Acanthococcus* (Kozár & Konczné Benedicty, 2008; Hodgson & Miller, 2010), *Eriococcus* (Hodgson *et al.*, 2004; Henderson, 2007) or *Uhleria* (Pellizzari & Kozár, 2011). The species is retained here in the genus *Acanthococcus* until the higher taxonomy has been settled, although it may be re-assigned to the genus *Uhleria* (Pellizzari & Kozár, 2011). The current status of eriococcid taxonomy has recently been reviewed by Kozár & Konczné Benedicty (2008), Kozár (2009), Kozár *et al.* (2009) and Hodgson & Miller (2010).

The common name 'Manuka Felt Scale' is proposed here for use in Britain, after what appears to be its preferred host.

## DETECTION AND IDENTIFICATION

The following description is based on observations made of the British samples. Adult females are elongate oval, grey-brown, and their abdomen shows distinct segmentation. Females usually settle on the upper leaf surfaces to feed but also occur on the lower leaf surfaces, in leaf axils and on apical twigs of the host plant (Plate 3, Figs 1–3). Adult females become enclosed in a felted, whitish, convex egg sac, which is open at the anal end to allow the first instars to escape. The male test (felt-like protective wax cover) is oval, whitish, and usually found on the lower surface of the foliage (Plate 3, Fig. 4). The adult males were not observed but in common with other eriococcid species they are likely to resemble small flies with a single pair of wings. The female covers were larger (3.0–3.25 mm long) than those of the male (1.75–2.0 mm). The female nymphs resemble the adults but are not enclosed in a felted cover (Plate 3, Fig. 5).

*Acanthococcus mariannae* is readily distinguished from all other eriococcids currently found in Britain by the combination of: dorsal spinose setae much shorter than the marginal spinose setae; anal lobe with strong sub-apical setae; and the presence of very large, dorsal macrotubular ducts. It is the only eriococcid species known to feed on *Leptospermum* recorded in Britain. Pellizzari & Germain (2010) provide excellent illustrations, photos and a detailed morphological description of this species.

## HOST RANGE AND BIOLOGY

*Acanthococcus mariannae* feeds on *Leptospermum* spp. and possibly *Callistemon* sp. (Myrtaceae). However, as the species has only recently been described, its host range is unclear. The biology has not been studied in detail but it is assumed to be sexually reproductive. The sex ratio observed in the Essex population was 2 females: 1 male (based on counting the male tests). Females collected from Essex laid an average of 121 eggs (range 58–192,  $n=8$ ). They appeared to have overwintered in the UK in the egg stage as the majority of live specimens observed in March were eggs. Pellizzari & Germain (2010) reported that it is likely to be multivoltine.

## GEOGRAPHICAL DISTRIBUTION

*Acanthococcus mariannae* is probably native to Australia or New Zealand although it has not been collected from either country. It has become established

in France (Corsica) and northern Italy (Genoa) (Pellizzari & Germain, 2010; Pellizzari & Kozár, 2011) and the first known incursion in Britain is reported here.

#### ECONOMIC IMPORTANCE

Large populations may reduce host vigour and lower the value of ornamental plants. A large population of *A. mariannae* is reported to have killed a potted *Leptospermum* plant in Italy (Pellizzari & Germain, 2010). Many *Leptospermum* cultivars are hardy (Cubey, 2013) and can be grown out of doors in sheltered places in southern Britain, but will be damaged by hard frosts. The plants are widely available in the UK and important ornamental garden plants in the south and west of the British Isles (J. Armitage, pers. comm, 2013). There is also a commercial Manuka plantation in Britain located in Cornwall. It produces Manuka honey and Manuka flower herbal tisane ('English tea') for the health food market. It is not anticipated that *A. mariannae* will become a serious economic pest in Britain due to its host specificity (*Leptospermum*, and possibly other Myrtaceae), low natural dispersal potential (adult females are wingless and the main natural dispersal stage are the first instar nymphs), and the climate may be unsuitable for the scale populations to reach damaging levels. There is, however, a high degree of uncertainty regarding its impact due to its biology being largely unknown. It may have a low economic impact on ornamental *Leptospermum*, and on Manuka honey and infusion production in the UK.

#### DISCUSSION

This is the first published incursion of *A. mariannae* in Britain. The status of the population of Manuka Felt Scale in Essex is uncertain as it has not been monitored. The biology of this species is largely unknown but its host range may be restricted to *Leptospermum* spp. and possibly *Callistemon* spp. It appears to be multivoltine (at least in the Mediterranean). The free movement of plants within the European Union means that there is a continual risk of *A. mariannae* being introduced on ornamental *Leptospermum* plants imported from France and Italy. It is unlikely to have a significant economic or environmental impact in Britain although it has the potential to have a low impact on ornamental *Leptospermum*, and on Manuka honey and infusion production.

*Acanthococcus mariannae* is the eleventh species of scale insect found breeding in Britain that is suspected to have originated in Australasia: *Balanococcus diminutus* (Leonardi), *Chionaspis xanthorrhoeae* Fuller, *Fusilasps phymatodidis* (Maskell), *Icerya purchasi* (Maskell), *Leucaspis podocarpi* (Green), *Parlatoria pittospori* Maskell, *Pseudococcus calceolariae* (Maskell), *Pseudococcus longispinus* (Targioni Tozzetti), *Symeria pyriformis* (Maskell) and *Rhizoecus dianthi* Green (Malumphy & Halstead, 2012).

#### ACKNOWLEDGEMENTS

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## SHORT COMMUNICATIONS

***Hydroptila angulata* and *Oxyethira flavicornis* (Trichoptera: Hydroptilidae), caddisflies new to Northern Ireland.** – KGMB has been identifying Irish Microlepidoptera sent to him by collectors from all over the island. Three pinned hydroptilids were found amongst this material and the specimens were given to the senior author for determination. The specimens were cleared in 10% KOH and determined using Marshall (1978) and Barnard & Ross (2012). The hydroptilid fauna of Northern Ireland is poorly known compared with the rest of Ireland. Two species new to Northern Ireland were identified and the details are given here.

***Hydroptila angulata* Mosely**

**Armagh:** Aughinlig near Moy (Irish grid reference H8753), MV light-trap 2♀♀ 26.vii.2008, K. Murphy. The site is near a tributary of the River Blackwater from which the specimens probably originated. There are published Irish records from Counties Galway and Kerry (O'Connor, 1987).

***Oxyethira flavicornis* (Pictet)**

**Fermanagh:** Derryvore Townland near Crom (H3423), MV light-trap ♂ 28.viii.2009, K. Murphy. The site lies on a small peninsula in Upper Lough Erne from which the

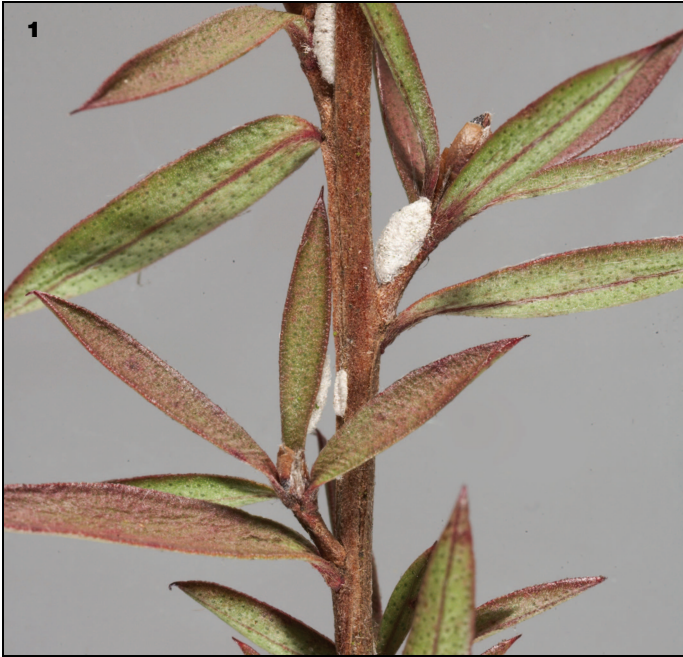


PLATE 3. Fig. 1. *Acanthococcus mariannae* colony on *Leptospermum*. Fig. 2. Female *A. mariannae* enclosed in a felted ovisac. Fig. 3. *A. mariannae* ovisac opened to reveal the orange and pale purple eggs. Fig. 4. *A. mariannae* male tests. Fig. 5. *A. mariannae* second instar nymph. © FERA.