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THE TYPE SPECIES OF *ALEURODICUS* DOUGLAS, A WHITEFLY GENUS OF ECONOMIC IMPORTANCE (HOMOPTERA: ALEYRODIDAE)

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Abstract

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Slides prepared from type specimens of *Aleurodicus cocois* (Curtis), held in the Museum of Victoria, Australia, have allowed their microscopic examination, possibly for the first time. A lectotype is designated and an updated species diagnosis is presented. Its status as the type species of *Aleurodicus* is confirmed through validation of its synonymy with *A. anonae* Morgan.

Introduction

Aleurodicus Douglas (in Morgan, 1892) is the type genus of the mostly Neotropical whitefly subfamily Aleurodicinae. It includes several agricultural pest species, most notably *A. dispersus* Russell (1965), a polyphagous and extremely fecund species. This insect has gained particular notoriety by extending its native New World distribution to encompass much of the Pacific, southern Asia and Africa over a period of only 15–20 years, arriving in northern Queensland by 1995 (Martin, 1996). A few *Aleurodicus* species are natives of southern Asia and the western Pacific; *A. destructor* Mackie (1912) is one of this group, occasionally becoming a pest in tropical Australia.

As part of a study of economically important members of the Aleurodicinae in the Caribbean region, it was discovered that Mound and Halsey (1978) had mistakenly credited the Natural History Museum, London (BMNH) as the depository of syntypic specimens of *Aleurodicus cocois* (Curtis, 1846). *A. cocois* has been regarded as the type species of *Aleurodicus* through synonymy (see below) and the purpose of this investigation has been to locate and examine type material in order to assess this status. *A. cocois* was described from coconut in Barbados but material with the relevant data was absent from BMNH. However five slides from Demerara [Guyana] in BMNH, identified as *A. cocois*, bear red labels as if of type status. This Guyanese material may have mistakenly been used as the basis for proposing the synonymy of *A. anonae* Morgan with *A. cocois* (see Discussion, below). Thus it was necessary to locate and examine the true type material of *A. cocois* in order to reappraise this important synonymy.

Depositories. BMNH — The Natural History Museum, London SW7 5BD, UK

NMV — Museum of Victoria, Abbotsford, Melbourne, Vic. 3067, Australia

USNM — United States National Museum of Natural History, Washington DC 20560, USA

Aleurodicus cocois (Curtis)

Figures 1–2

Aleyrodes cocois Curtis, 1846: 284–285. Lectotype here designated

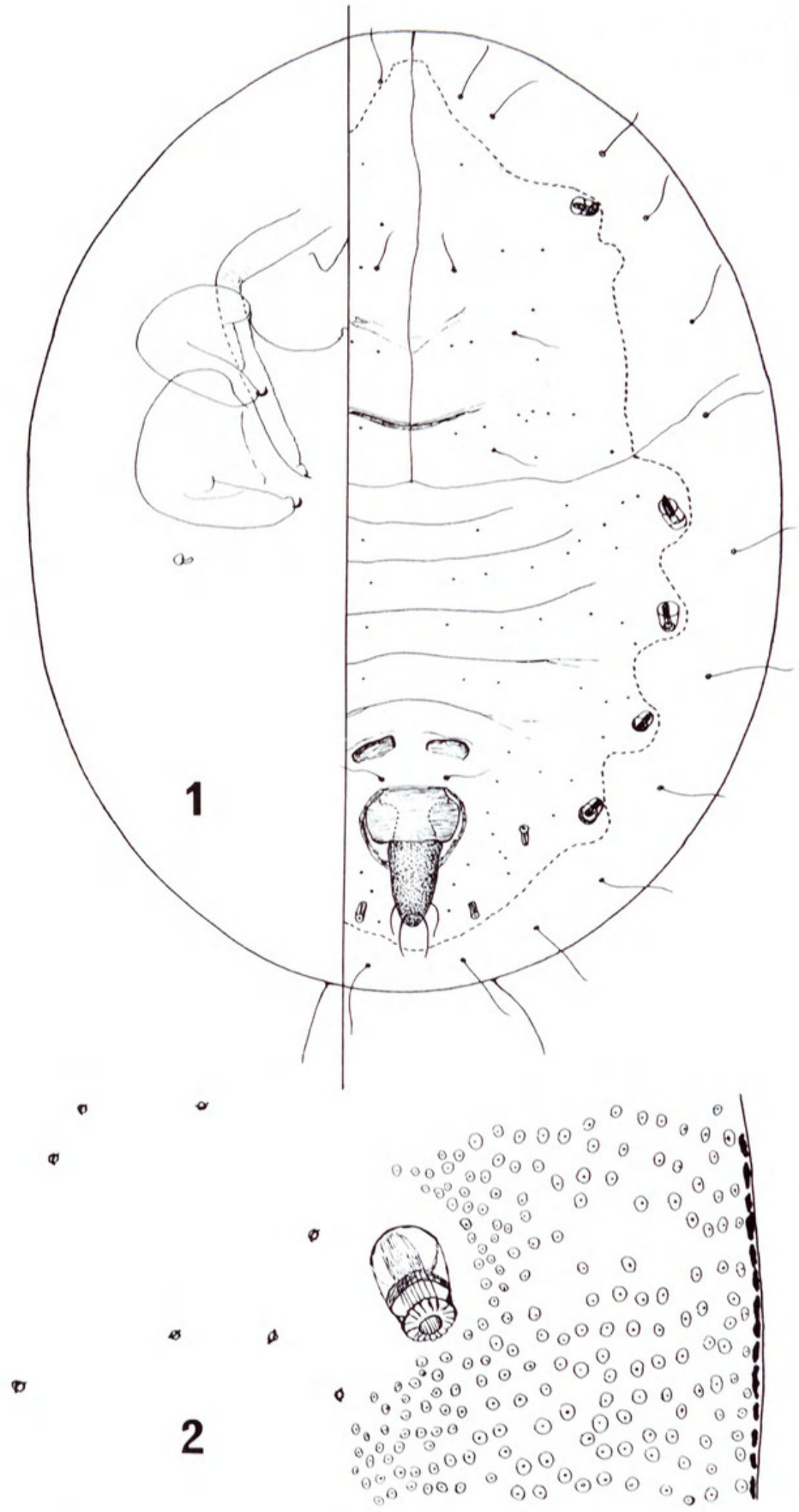
Aleurodicus anonae Morgan, 1892: 32 (Lectotype designated and synonymised with *A. cocois* by Mound and Halsey, 1978: 229).

Aleurodicus cocois (Curtis) Morgan, 1892:32.

Type material examined. Lectotype puparium of *Aleyrodes cocois* Curtis **(here designated)**: Barbados, on coconut tree [*Cocos nucifera*], Sir R Schomburgk, January 1845 (NMV). Paralectotypes of *A. cocois*: 12 puparia, 2 third instar larvae, Barbados, same data as lectotype (NMV, BMNH, USNM). Additional material of *A. cocois*: 1 male, 1 female adult (on 1 slide), several dry adults in rather poor condition and further puparia and third instar larvae on leaf fragments, Barbados, same data as lectotype (all NMV).

Lectotype and paralectotype of *Aleurodicus anonae* Morgan: 2 puparia, Guyana, Demerara, on *Annona muricata*, S.J.McIntire (Douglas collection 1236), 1891 (BMNH).

Diagnosis. Pupal case. Rather evenly oval outline, widest at abdominal segment II, usually 1.00–1.40 mm long, 0.70–1.00 mm wide. Submargin with a broad band of wide-rimmed simple pores (terminology of Russell, 1965); inner margin of this band is very characteristic, on meso- and meta-thorax almost straight and parallel to longitudinal moulting suture (Fig.1), but on abdomen curling around the large compound pores (Figs 1, 2). Dorsal surface mesad of wide-rimmed pore band smooth, punctuated only by scattered septate pores (Fig. 2).



Figures 1, 2. *Aleurodicus cocois*, puparium (after Martin, 1987). 1, whole puparium, dorsal detail to right of line, boundary of submarginal wide-rimmed pore band shown as dashed line; 2, dorsal detail of abdominal segments II/III to show submarginal wide-rimmed pores, scattered subdorsal septate pores and large compound pore in lateral aspect.

Cephalic and anteriormost 4 pairs of abdominal compound pores usually 25–30 μm in diameter, posteriormost 2 abdominal pairs no more than 12 μm (in all cases measured as the width of the cylinder when pores in lateral aspect).

Distribution and host plants. Widely distributed in New World tropics. Usually colonising coconut but host records from 14 plant families are quoted by Mound and Halsey (1978). Material in BMNH from hosts other than Palmae comprises samples from Anacardiaceae, Annonaceae and Lauraceae.

Discussion

Horn et al. (1990) indicated that the collection of John Curtis (who published entomological notes in Gardener's Chronicle under the pseudonym "Ruricola") had been deposited largely in the Museum of Victoria, Melbourne. Ken Walker (pers. comm.) confirmed that the dry material sent to Curtis from Barbados was indeed present in Melbourne, but that no slides appeared to have been made. This dry material, the syntypes of *Aleyrodes cocois*, was kindly loaned to the author. Slides were prepared which have verified that the considerable numbers of specimens in BMNH, identified as *A. cocois* over the years, are conspecific with the type material.

The red-labelled Guyanese specimens in BMNH are also from coconut. They bear J W Douglas's collection number 1246/27, and one slide bears the following note, in Laurence A. Mound's handwriting: "The specimens referred to in Morgan 1892 as from JWD ex-Demerara — see Douglas diary". Consultation of Douglas's diary (BMNH archive) reveals that batch 1246 comprised a number of samples received from Mr S J McIntire in Demerara, 12 October 1891. Sample 27 bears the note "'small fly and fluff found on a cocoanut tree, alive when sent'. *Aleurodes cocois*, Curt. true and diff. from that on *Anona* (sic), no.1236. Those sent alive in a bottle, to Mr Morgan".

Morgan's (1892). paper is confusing and rambling but is of great importance because it was the vehicle for establishment of the genus *Aleurodicus*, which contains several species of great economic significance. "*Aleurodicus* Douglas n.g." was proposed in the middle of Morgan's paper, with an extremely brief diagnosis as a footnote, initialled "J W D". Immediately under the generic heading is Morgan's own description of his new species *Aleurodicus anonae*, although this was only subsequently designated as the type-species of *Aleurodicus*, by Quaintance (1908).

A. cocois is discussed in several places in Morgan's 1892 paper, and the coconut sample detailed in the Douglas diary is mentioned twice, most particularly "Habitat: cocoa-nut palm only, Demerara". However, the fact that Curtis had described. *A cocois* from Barbados is nowhere mentioned, even though Morgan acknowledged McIntire for providing him with a copy of Curtis's descriptive article, sections of which Morgan quoted. I believe that this has been the source of major confusion. Quaintance (1908) quoted *A. cocois* as "also [described] from Demerara" (along with *anonae*), and yet he included Barbados in its distribution data. Although no particular status is claimed on the red labels of the BMNH slides, it is probable that Mound and Halsey, too, attributed unwarranted significance to this Guyanese coconut material from the Douglas collection.

Conclusions

From examination of the type material of *A. cocois* and *A. anonae* the author concludes that *A. anonae* is correctly placed as a junior synonym of *A. cocois*, which is thus the type species of *Aleurodicus* Douglas. Specimens on red-labelled BMNH slides of *A. cocois* from coconut in Demerara, which had been sent by McIntire to Douglas and forwarded to Morgan, were certainly compared by Morgan with other Guyanese material he subsequently described as *A. anonae*: however, they have no type status nor particular significance taxonomically, having only been identified as *A. cocois* through comparison with Curtis's written description.

Acknowledgements

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