



## Nematodes from galls on Myrtaceae. II. *Fergusobia*/*Fergusonina* from small axillary bud ('stem') and leaf ('pea') galls in Australia, with descriptions of two new species

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### Abstract

Two new species of *Fergusobia*, collected from small multilocular axillary vegetative bud ('stem') and unilocular leaf 'pea' galls on, respectively, *Eucalyptus camaldulensis* from South Australia, and an unknown species of *Corymbia* growing in sub-coastal north-eastern NSW, Australia, are described. *Fergusobia camaldulensae* n. sp. Davies is characterized morphologically by an almost straight to open-C shaped parthenogenetic female with a broadly conoid tail, an arcuate infective female with a hemispherical tail tip, and males of varying shape with weakly sclerotised angular spicules and bursa arising at mid-body length. *Fergusobia rileyi* n. sp. Davies is characterized morphologically by the combination of an almost straight to arcuate parthenogenetic female with a broadly conoid tail, an arcuate infective female with relatively narrow tail with a pointed tip, and arcuate males with arcuate spicules, a relatively slender tail, and long peloderan bursa. These species are associated with larvae of undescribed fly species having dorsal shields of the 'transverse bars' form or lacking. Other apparently related forms of *Fergusobia*/*Fergusonina* associations from small 'stem' and 'shoot' galls and unilocular leaf 'pea' galls are reported, the larval shield morphology of their associated mutualistic fly species is discussed where known, and their possible relationships are outlined. DNA sequence analyses of the domain 2 and 3 segments of the large subunit rDNA gene (D2/D3) and mitochondrial DNA cytochrome oxidase subunit 1 (mtCOI) supported the new species status and their phylogenetic relationships with other sequenced species in *Fergusobia*.

**Key words:** Nematoda, Neotylenchidae, galls, *Corymbia*, *Eucalyptus*, Fergusoninidae, flies, morphology, taxonomy, DNA sequencing, molecular phylogeny

### Introduction

In a mutualistic association, nematodes of the genus *Fergusobia* Currie 1937 (Tylenchida: Neotylenchidae) and flies of the genus *Fergusonina* Malloch 1924 (Diptera: Fergusoninidae) form galls on some Myrtaceae (Currie 1937, Giblin-Davis *et al.* 2004a, b, Taylor 2004, Taylor *et al.* 2005). Host genera for the association include *Eucalyptus* L'Heritier 1788 (Tonnoir 1937), *Syzygium* R. Brown ex Gaertner 1828 (Harris 1982), *Melaleuca* Linnaeus 1767, nom. cons. (Taylor 2004, Davies & Giblin-Davis 2004), *Angophora* Cavanilles 1797 (Colbran 1964; Taylor *et al.* 2005), *Metrosideros* Banks ex Gaertner 1788 (Taylor *et al.* 2007), *Leptospermum* Forster & Forster 1776 (Robin Adair pers. com.), and *Corymbia* Hill & Johnston 1995 (Currie 1937, Taylor *et al.* 2005).

*Fergusobia* is known to occur in Australasia, India and the Philippines (Currie 1937; Siddiqi 1986, 1994; Taylor *et al.* 2005, 2007), and is a speciose genus, with 17 described species, and many more undescribed species represented in the WINC collection (Davies *et al.* 2010a, b). At the time of writing this paper, 82 morphospecies