

Lathrotelidae Clarke, 1971: a rehabilitated name deserving subfamily rank (Lepidoptera, Crambidae)

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Abstract. – The (previously undescribed) abdominal morphology of the male of *Lathroteles obscura* Clarke, 1971, permits to assign this Polynesian taxon to a new subfamily, which seems to be a close relative of the Acentropinae (Pyraloidea: Crambidae). Core Lathrotelinae include the genera *Sufetula*, *Diplopseustoides*, *Diplopseustis* and *Lathroteles*. A few autapomorphies can characterize the subfamilies Acentropinae (larva primarily aquatic; pupa with two or three pairs of enlarged spiracles), Lathrotelinae (imaginal head without chaetosemata; gnathos lost), and Midilinae (cephalad shifting of the lineae which delimit the tympana anteriorly).

Résumé. – **Lathrotelidae Clarke, 1971 : un nom qui doit être réhabilité et mérite le rang de sous-famille (Lepidoptera, Crambidae).** La morphologie abdominale du mâle de *Lathroteles obscura* Clarke, 1971 (jusqu'ici non décrite), permet d'attribuer ce taxon polynésien à une sous-famille pauciculaire, probablement étroitement apparentée aux Acentropinae (Pyraloidea, Crambidae). Le noyau central des Lathrotelinae comprend les genres *Sufetula*, *Diplopseustoides*, *Diplopseustis* et *Lathroteles*. Quelques autapomorphies sont susceptibles de caractériser les Acentropinae (chenille fondamentalement aquatique ; chrysalide avec deux ou trois paires de stigmates hypertrophiés), les Lathrotelinae (tête sans chaetosemata ; perte du gnathos) et les Midilinae (déplacement vers l'avant des *lineae* qui bordent les tympana antérieurement).

Keywords. – Acentropinae, Lathrotelinae, Midilinae, *Diplopseustis*, *Diplopseustoides*, *Lathroteles*, *Leechia*, *Sufetula*, Monocotyledonae, Polynesia, abdominal morphology, tympanal organs, wing venation.

The family Lathrotelidae Clarke, 1971, was described as a monotypic group based on *Lathroteles obscura* Clarke, 1971, a small micromoth from the Polynesian island of Rapa (ca 27°37'S - 144°20'W). The original description of the species only took into account two female specimens (holotype, paratype), no males being known at that time (CLARKE, 1971: 59). A few years later, J. F. Gates Clarke managed to get four additional specimens of *Lathroteles obscura* (two males, two females) and sent them to the late Michael Shaffer [The Natural History Museum (BMNH), London], who kindly suggested that I should dissect the abdomen of one of the males. I accepted willingly and was able to study the main characters of the abdomen and genitalia, noticing in particular the presence of two minute tympanal organs along the anterior edge of sternum A2. Since Clarke had distinguished the “Lathrotelidae” from the Pyralidae *s. l.* (= Pyraloidea) on account of an alleged complete absence of these organs in the former, it became necessary to synonymize the Lathrotelidae with one of the two pyraloid families (MINET, 1991: 85), namely the Crambidae owing to the tympanal cases, which clearly belong to the “open type” (terminology as in MINET & SURLYKKE, 2003). At subfamily level, Clarke's group was even tentatively synonymized with the “Nymphulinae” (MINET, 1991) — *i. e.* Acentropinae — but this concept should now be reconsidered in the light of two recent articles (SPEIDEL *et al.*, 2007; HAYDEN, 2013).

As a matter of fact, the above-mentioned four specimens of *Lathroteles* Clarke, 1971, were unfortunately lost by the postal services when returned by M. Shaffer to J. F. G. Clarke (Smithsonian Institution, Washington, DC) (“I should have kept them”, told me the former — “they were actually intended as a gift to the BMNH...”). Under these circumstances, I have decided to publish here, very succinctly, the few notes and drawings I made in the BMNH after

dissecting a male abdomen of *Lathroteles obscura* (these drawings should be fairly accurate, although they were made without the help of a camera lucida).

As suspected by Dr James E. Hayden (pers. comm.), the genus *Lathroteles* turns out to be a close relative of *Diplopseustis* Meyrick, 1884. The male genitalia are strikingly similar in both genera (fig. 3 and 4; cf. fig. 3 in PHILPOTT, 1929, and fig. 3-5 in SPEIDEL *et al.*, 2007); possible synapomorphies include genital features — such as a pair of strongly spiculate processes attached to the dorsocaudal extremity of the phallus (fig. 3, arrow — paired condition nevertheless not checked in *Lathroteles*), a ventrally concave juxta whose “posterior wall” (fig. 4, arrow) has a large, V-shaped dorsal edge, and an internal surface of the valva with numerous, close-set setae that tend to be directed cephalo-dorsad — but also two traits of the forewing venation: the stalked condition of Rs2+3 and Rs4 on the one hand, of M2 and M3 on the other hand. These five apomorphies are absent in another closely related genus, namely *Diplopseustoides* Guillermet, 2013, a taxon with strongly modified male genitalia (GUILLERMET, 2010: 502, and 2013: fig. 8). It should be noted that the spiculate “processes” lying caudad of the phallus in the first two genera constitute just a modified region of the manica, which is evenly and moderately spiculate in *Diplopseustoides*, as also in a few other Crambidae (HAYDEN, 2013: 13 and fig. 26). *Lathroteles*, *Diplopseustis* and *Diplopseustoides* share two synapomorphies in the male A8 segment: the tergum is T-shaped or subtriangular, with a median or posterior constriction followed, more caudally, by a weakly sclerotized, transversely enlarged region (a spatulate area in *Lathroteles*: fig. 2); the sternum has its lateral edges more heavily pigmented (moreover, in *Lathroteles* and *Diplopseustis*, most of the sternal surface is membranous and the lateral edges tend to form a pair of “rods”).

By contrast, a fourth genus of the same group — *Sufetula* Walker, 1859 — has a triangular tergum A8 (without constriction) and a rectangular, evenly pigmented sternum A8 (HAYDEN, 2013: fig. 25 and 28). An obvious difference between *Lathroteles* and the other three genera lies in the extreme reduction of the tympanal organs, which characterizes the male sternum A2 of the former (fig. 1). Indeed, the minute tympanal cases are remote from each other, the lobuli seem to be completely absent (the scoloparia inserting directly on the dorsal walls of the cases) and there is no distinct praecinctorium between the tympanal organs. Narrow conjunctivae are perhaps present along the lineae (fig. 1, arrow), although I did not manage to see them distinctly. *Lathroteles* also differs from *Diplopseustis* in the shape of the maxillary palpi (not triangularly scaled: CLARKE, 1971: fig. 60 b), the forewing venation (Rs4 reaching the costa, not the termen; CuA with just one free branch), the hindwing venation (CuA with a single free branch), the vesica, which is apparently unarmed (fig. 3), and the absence of a distinct uncus (fig. 4 — whereas a narrow, inconspicuous, setose uncus does occur in *Diplopseustis*).

In the forewing pattern, the presence of two or three lunules (or small round spots) along the costa can be regarded as a synapomorphy of *Sufetula* (HAYDEN, 2013: fig. 6), *Diplopseustoides*, *Diplopseustis*, and *Lathroteles*. These genera form the core of a larger group (considered by HAYDEN, 2013: 13), which would also include a number of taxa showing no lunules to the forewing costa (e. g. *Leechia* South, 1901).

As previously noticed (HAYDEN, 2013), *Sufetula* and its relatives cannot be maintained within the Spilomelinae: *Diplopseustoides*, for instance, has retained a subcostal retinaculum at the base of the male forewing (unlike true Spilomelinae) and, contrary to a statement in the original description, its female genitalia possess a scobinate signum, which is almost rhomboidal (*i. e.* somewhat reminiscent of a pyraustine signum). In fact, the *Sufetula*-group, whose known larvae feed on monocots, probably belongs to the clade gathering Scopariinae, Crambinae, Midilinae, Schoenobiinae and Acentropinae (REGIER *et al.*, 2012). Indeed, in each of these subfamilies, the larvae primarily are monocot feeders (incl. in Acentropinae, whose

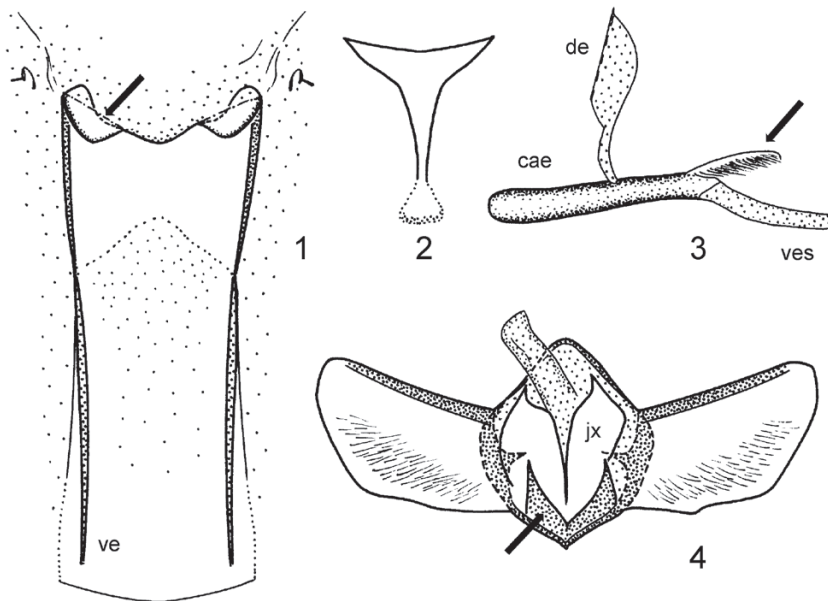


Fig. 1-4. – *Lathroteles obscura* Clarke, ♂. – 1, Sternum A2 (with linea tympani arrowed). – 2, Tergum A8. – 3, Phallus in lateral view with spiculose process(es) arrowed. – 4, Genitalia in posterior view after phallus removal (the arrow shows the posteroventral wall of the juxta). *cae*, caecum penis; *de*, ductus ejaculatorius; *jx*, juxta; *ve*, venula; *ves*, vesica.

larvae often feed on Alismatales). Two synapomorphies of sternum A2 suggest a sister-group relationship between the *Sufetula*-group and the Acentropinae, namely the dorsal (*not* lateral) position of the lobulus and the presence of well-developed venulae secundae, which are, caudad, either parallel (fig. 1) or more or less divergent. In lateral view, the ovipositor is somewhat conical, often longitudinally elongate, in the *Sufetula*-group and most Acentropinae. Nevertheless, this trait cannot constitute a synapomorphy since certain Acentropinae retain a type of ovipositor — clearly plesiomorphic within Crambidae — whose papillae anales ventrally form well developed, transverse lobes (e. g. *Paracymoriza vagalis* (Walker, 1866) and *Potamomusa aquilonia* Yoshiyasu, 1985 — fig. 74 and 80, respectively, in YOSHIYASU, 1985). The *Sufetula*-group differs from the Acentropinae in possessing two autapomorphies (chaetosemata absent; male genitalia without a gnathos) and in retaining several plesiomorphies, notably: non-aquatic larvae, pupae without conspicuously enlarged spiracles (while Acentropinae possess such spiracles on A2-A4 or A3-A4 — SPEIDEL, 1981; YOSHIYASU, 1985), and well developed tympanal organs in the imaginal ground plan (e. g. as in the male of *Sufetula carbonalis* Hayden, 2013 — see original description: fig. 18). Unlike the Midilinae, which are characterized by a displacement of the linea tympani towards the thorax (each linea lying approximately in the plane defined by the secondary arms of the metafurca), the *Sufetula*-group has lineae whose inner sections lie distinctly caudad of the “secondary arms” plane (see definition of these arms in BROCK, 1971). Moreover, it differs from the other crambid subfamilies in the non-lateral position of its lobuli.

As suggested by HAYDEN (2013), the *Sufetula*-group deserves subfamily status and Lathrotelinae Clarke, 1971 (originally “Lathrotelidae”) turns out to be the only available name for it. As mentioned above, the core-group within Lathrotelinae is composed of *Sufetula*, *Diplopeustoides*, *Diplopeustis* and *Lathroteles*, but more genera will probably be assigned to this subfamily in the near future.

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