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The taxonomic status of Jean-Jacques Kieffer's type specimens of Afrotropical Cecidomyiidae (Diptera)

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ABSTRACT

Holotypes and syntypes of cecidomyiid genera and species described from the Seychelles and East Africa by J.-J. Kieffer in the early 20th century are held in the collections of the Natural History Museum, London and the Muséum national d'Histoire naturelle, Paris, France. All are specimens caught in flight, so without associated biological data and most are unidentifiable females. Many are in poor condition and inadequate for detailed study and are of little assistance in advancing understanding of the Afrotropical Cecidomyiidae fauna. Following examination of all extant specimens, 16 genera and 59 species are listed and assigned to *nomina dubia*. Six other species that are represented by holotypes or syntypes that still have intact genitalia (which may possibly be recognised in future revisionary studies), are also listed.

KEY WORDS: Afrotropical, Cecidomyiidae, gall midges, Jean-Jacques Kieffer, *nomina dubia*, types.

INTRODUCTION

R.J. Gagné (1994), in an account of the gall midges of the Neotropical Region, provided a brief biography of Jean-Jacques Kieffer (1857–1925), in which he noted that Kieffer published 470 scientific papers, including taxonomic studies of the Cecidomyiidae, Ceratopogonidae, Chironomidae and parasitic Hymenoptera. Gagné also noted that no collection survived at Kieffer's work place in Bitche, Lorraine, France, an observation that was first made by F.W. Edwards in 1938 and confirmed by later searchers (including Gagné himself in 1987). It is, therefore, surprising that types of almost all of the Cecidomyiidae described by Kieffer from tropical Africa have survived, either in Muséum national d'Histoire naturelle, Paris (MNHN) or in the Natural History Museum, London (BMNH). These specimens were collected by two expeditions: the Percy Sladen Trust expedition to the Indian Ocean in 1905, which collected in the Seychelles, and the Alluaud-Jeannel expedition in 1911–12, which collected in East Africa (Kenya and Tanzania). Kieffer's accounts of this material were published in various papers (Kieffer 1911, 1912, 1913*a–f*). All of the specimens were caught in flight, so nothing is known regarding their biology, and most are females, without associated males. These types are, therefore, of very little value in understanding the Afrotropical Cecidomyiidae fauna, but the genus and species names based on them were validly published under provisions of the International Code of Zoological Nomenclature (ICZN 1999).

The specimens in the MNHN were originally stored in alcohol in small glass tubes and those in the BMNH were staged on pins. In the late 1970s they were mostly mounted on microscope slides by KMH and examined during preparation of the Cecidomyiidae entries for the *Catalogue of the Diptera of the Afrotropical Region* (Harris 1980). No revisionary studies were conducted at that time, but some generic names were treated as junior synonyms and some species were reassigned. In particular, the following genera were placed in synonymy: *Properrisia* Kieffer, 1912, *Sphaerolauthia* Kieffer, 1912 and *Nanolauthia* Kieffer, 1913 with *Ledomyia* Kieffer, 1894; *Parasphondylia* Kieffer, 1913 with *Schizomyia* Kieffer, 1889; *Tristephanus* Kieffer, 1913 with *Karshomyia* Felt, 1908;

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Plagiodiplosis Kieffer, 1913 with *Trisopsis* Kieffer, 1912; and *Baeomyza* Kieffer, 1913 and *Jeannellomyia* Kieffer, 1913 with *Stomatosema* Kieffer, 1904. Most of the other genera described by Kieffer from the Seychelles and East Africa were listed by Harris (1980) as valid taxa, pending further study. We have now reassessed the situation during preparation of the chapter on Cecidomyiidae for the forthcoming *Manual of Afrotropical Diptera* and have decided that most of these genera and species named by Kieffer, which have remained unrecognised for almost a century, are unlikely to be recognised with any degree of certainty now or in the future and are best treated as *nomina dubia.*

This is especially true of the many monotypic genera erected by Kieffer on the basis of single, caught, rather than reared, specimens (mostly females); a practice that was acceptable at that time, but not acceptable today. In most cases, Kieffer provided minimal generic descriptions, or no descriptions at all, and almost no comparative diagnoses and, although the type specimens have survived, they are mostly damaged and in poor condition. We, therefore, formally designate all of the genera and species listed below as *nomina dubia.* A few male specimens have distinctive genitalia that may or may not be diagnostic of species. We list them separately, but do not assign them to *nomina dubia*.

Full biographical and other information for all of the species and genera dealt with in this paper is provided in *A Catalog of the Cecidomyiidae (Diptera) of the World* (Gagné 2004) and a digital update, which is available on open access (Gagné 2010). For consistency and ease of amendment, we have listed species names in the format of this catalogue, with the species name preceding the generic assignation. Many cecidomyiid genera erected in sole or joint authorship by Kieffer, mainly in earlier publications, which include Afrotropical representatives, are retained as recognised taxa, notably *Baldratia* Kieffer, 1897; *Clinodiplosis* Kieffer, 1894; *Dicrodiplosis* Kieffer, 1895; *Endaphis* Kieffer, 1896; *Lauthia* Kieffer, 1912; *Ledomyia* Kieffer, 1894; *Lestodiplosis* Kieffer, 1894; *Mitodiplosis* Kieffer, 1914; *Ochnephila* Kieffer, 1914; *Orseolia* Kieffer & Massalongo, 1902; *Procontarinia* Kieffer & Cecconi, 1906; *Schizomyia* Kieffer, 1889; *Stefaniola* Kieffer, 1913; *Stomatosema* Kieffer, 1904; *Trisopsis* Kieffer, 1912; *Trotteria* Kieffer, 1902; and *Zeuxidiplosis* Kieffer, 1904.

TAXONOMY

The following listed genera and species are here regarded as *nomina dubia*:

Subfamily Micromyinae Rondani, 1856

parvula Kieffer, 1919: 198. (*Tricampylomyza*). Cameroon, holotype ♀ (lost).

Subfamily Porricondylinae Kieffer, 1913

abbreviata Kieffer, 1913*e*: 114. (*Epidosis*). Kenya, holotype ♀ (MNHN).
anemotis Kieffer, 1913*e*: 114. (*Epidosis*). Kenya, holotype ♀ (MNHN).
monticola Kieffer, 1913*e*: 113. (*Epidosis*). Kenya, holotype ♀ (MNHN).
mahensis Kieffer, 1911: 327. (*Prowinnwertzia*). Seychelles, holotype ♀ (BMNH).

Subfamily Cecidomyiinae Newman, 1834

Aplecus Kieffer, 1913*e*: 105. Type species: *Aplecus validus* Kieffer (by original designation). Monotypic genus.

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Baeodiplosis Kieffer, 1913*e*: 111. Type species: *Baeodiplosis tropicalis* Kieffer (by original designation). Monotypic genus.

Cacoplecus Kieffer, 1913*e*: 112. Type species: *Cacoplecus brevitarsis* Kieffer (by original designation). Monotypic genus.

Chaetodiplosis Kieffer, 1913*e*: 103. Type species: *Chaetodiplosis tropica* Kieffer (by original designation). Genus based on one caught female; the later addition from Nigeria of *C. gymnastica* Collin, 1922: 507, is currently in unplaced Cecidomyiidi (Gagné 2010).

Conodiplosis Kieffer, 1913*e*: 102. Type species: *Conodiplosis dolichopsis* Kieffer (by original designation). Monotypic genus.

Ctenodiplosis Kieffer, 1913*e*: 109. Type species: *Ctenodiplosis elongatus* Kieffer (by original designation). Two species included.

Holodiplosis Kieffer, 1913*e*: 103. Type species: *Holodiplosis alticola* Kieffer (by original designation).

Lasiodiplosis Kieffer, 1913*a*: 232, as replacement name for *Lepidodiplosis* Kieffer, 1912: 2 (preoccupied by *Lepidodiplosis* Kieffer, 1911: 319). Type species: *Chrysodiplosis homotomus* Kieffer, 1911: 319. Monotypic genus.

Lepidobremia Kieffer, 1913*b*: x. Type species: *Bremia mahensis* Kieffer (by original designation). Monotypic genus.

Lepidodiplosis Kieffer, 1911: 319. Type species: *Lepidodiplosis mahensis* Kieffer (by subsequent designation of Kieffer 1913*f*: 227).

Orthodiplosis Kieffer, 1913*e*: 109. Type species: *Orthodiplosis macrurus* Kieffer (by original designation). Monotypic genus.

Pachydiplosis Kieffer, 1913*e*: 108. Type species: *Pachydiplosis apricans* Kieffer (by original designation). Monotypic genus. This genus was subsequently widely and incorrectly used in applied entomology to accommodate the Asian rice gall midge, *Orseolia oryzae* (Wood-Mason, 1889) (see Krishnaiah 2004).

Perodiplosis Kieffer, 1913*e*: 100. Type species: *Perodiplosis coronata* Kieffer (by original designation). Monotypic genus.

Planodiplosis Kieffer, 1911: 323. Type species: *Planodiplosis insularis* Kieffer (by monotypy). Monotypic genus.

Plecophorus Kieffer, 1913*e*: 104. Type species: *Plecophorus fuscocinctus* Kieffer (by original designation). Monotypic genus.

Trissodiplosis Kieffer, 1913*e*: 101. Type species: *Trissodiplosis longicornis* Kieffer (by original designation). Monotypic genus.

albiventris Kieffer, 1913*e*: 93 (*Asphondylia*). Kenya, holotype ♀ (MNHN).

alluaudi Kieffer, 1913*e*: 94 (*Trisopsis*). Kenya, holotype ♀ (MNHN).

alticola Kieffer, 1913*e*: 104 (*Holodiplosis*). Kenya, holotype ♂ (MNHN). Type species of *Holodiplosis* Kieffer.

apricans Kieffer, 1913*e*: 109 (*Pachydiplosis*). Kenya, holotype ♀ (MNHN). Type species of *Pachydiplosis* Kieffer.

aurofulgens Kieffer, 1911: 316 (*Ledomyia*). Seychelles, syntypes 1♂, 1♀ (MNHN). Assigned to *Lauthia* Kieffer by Gagné (2004).

brevipalpis Kieffer, 1913*e*: 92 (*Asphondylia*). Kenya, holotype ♂ (MNHN).

brevitarsis Kieffer, 1913*e*: 113 (*Cacoplecus*). Kenya, syntypes 4♀ (MNHN). Type species of *Cacoplecus* Kieffer.

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calopus Kieffer, 1911: 323 (*Lepidodiplosis* Kieffer, 1911). Seychelles, holotype ♀ (BMNH).
ciliatipennis Kieffer, 1911: 325 (*Lestodiplosis*). Seychelles, holotype ♀ (BMNH).
cincticornis Kieffer, 1913*e*: 99 (*Lestodiplosis*). Tanzania, holotype ♀ (MNHN).
coronatus Kieffer, 1913*e*: 100 (*Perodiplosis*). Kenya, holotype ♀ (MNHN). Type species of *Perodiplosis* Kieffer.
crassinervis Kieffer, 1913*e*: 92 (*Asphondylia*). Kenya, holotype ♀ (MNHN).
cubitalis Kieffer, 1913*e*: 88 (*Lasioptera*). Kenya, holotype ♀ (MNHN).
dolichopsis Kieffer, 1913*e*: 102 (*Conodiplosis*). Kenya, holotype ♀ (MNHN). Type species of *Conodiplosis* Kieffer.
dubia Kieffer, 1913*e*: 95 (*Lamprodiplosis*). Tanzania, holotype ♀ (MNHN).
elongata Kieffer, 1913*e*: 110 (*Ctenodiplosis*). Kenya, holotype ♀ (MNHN). Type species of *Ctenodiplosis* Kieffer.
filipes Kieffer, 1911: 320 (*Lepidodiplosis* Kieffer, 1911). Seychelles, holotype ♀ (BMNH).
fuscocinctus Kieffer, 1913*e*: 105 (*Plecophorus*). Tanzania, holotype ♀ (MNHN). Type species of *Plecophorus* Kieffer.
gracilipes Kieffer, 1913*c*: 41 (*Jeannellomyia*). Kenya, holotype ♀ (MNHN). Type species of *Jeannellomyia* Kieffer.
gracilis Kieffer, 1913*e*: 97 (*Coprodiplosis*). Tanzania, holotype ♀ (MNHN).
heterotarsus Kieffer, 1913*e*: 113 (*Cacoplecus*). Kenya, holotype ♀ (MNHN).
hirta Kieffer, 1913*e*: 96 (*Coprodiplosis*). Kenya, holotype ♀ (MNHN).
homotomus Kieffer, 1911: 319 (*Chrysodiplosis*). Seychelles, holotype ♂ (BMNH).
imicola Kieffer, 1913*e*: 104 (*Holodiplosis*). Kenya, holotype ♂ (MNHN).
insularis Kieffer, 1911: 323 (*Planodiplosis*). Seychelles, holotype ♂ (BMNH). Type species of *Planodiplosis* Kieffer.
insularum Kieffer, 1911: 326 (*Clinodiplosis*). Seychelles, syntypes 1♂, 1♀ (BMNH).
longicauda Kieffer, 1913*e*: 99 (*Coprodiplosis*). Tanzania, syntypes 2♀ (MNHN).
longicornis Kieffer, 1913*e*: 101 (*Trissodiplosis*). Kenya, holotype ♀ (MNHN). Type species of *Trissodiplosis* Kieffer.
lumiensis Kieffer, 1913*e*: 97 (*Coprodiplosis*). Tanzania, holotype ♀ (MNHN).
macrurus Kieffer, 1913*e*: 109 (*Orthodiplosis*). Kenya, holotype ♀ (MNHN). Type species of *Orthodiplosis* Kieffer.
mahensis Kieffer, 1911: 326 (*Bremia*). Seychelles, holotype ♂ not found (BMNH). Type species of *Lepidobremia* Kieffer.
mahensis Kieffer, 1911: 320 (*Lepidodiplosis* Kieffer, 1911). Seychelles, syntypes 1♂, 1♀ (BMNH). Type species of *Lepidodiplosis* Kieffer, 1911.
monilicornis Kieffer, 1911: 318 (*Ledomyia*). Seychelles, holotype ♂ (BMNH). Assigned to *Lauthia* Kieffer by Gagné (2004).
monticola Kieffer, 1913*e*: 90 (*Baeomyza*). Tanzania, holotype ♀ (MNHN).
nana Kieffer, 1911: 325 (*Trisopsis*). Seychelles, syntypes 2♂, 2♀ (BMNH).
nocticolor Kieffer, 1911: 322 (*Lepidodiplosis* Kieffer, 1911). Seychelles, holotype ♂ (BMNH).
nympha Kieffer, 1913*e*: 96 (*Coprodiplosis*). Tanzania, holotype ♀ (MNHN).
pedicellatum Kieffer, 1913*e*: 90 (*Baeomyza*). Kenya, holotype ♀ (MNHN).
pictipennis Kieffer, 1913*e*: 91 (*Asphondylia*). Kenya, holotype ♂ (MNHN).
scotti Kieffer, 1911: 326 (*Clinodiplosis*). Seychelles, holotype ♀ (BMNH).

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scottianus Kieffer, 1911: 324 (*Lestodiplosis*). Seychelles, holotype ♀ (BMNH).
setosa Kieffer, 1913*e*: 92 (*Asphondylia*). Kenya, holotype ♀ (MNHN).
seychellensis Kieffer, 1911: 320 (*Lepidodiplosis* Kieffer, 1911). Seychelles, syntypes 8♀ (BMNH).
squamosipes Kieffer, 1911: 321 (*Lepidodiplosis* Kieffer, 1911). Seychelles, holotype ♂ (BMNH).
styloptera Kieffer, 1911: 317 (*Ledomyia*). Seychelles, holotype ♀ (BMNH).
subrotunda Kieffer, 1913*e*: 110 (*Ctenodiplosis*). Tanzania, holotype ♀ (MNHN).
subsessile Kieffer, 1913*e*: 89 (*Baeomyza*). Kenya, holotype ♀ (MNHN).
tritomus Kieffer, 1913*e*: 98 (*Coprodiplosis*). Tanzania, holotype ♀ (MNHN).
tropica Kieffer, 1913*e*: 103 (*Chaetodiplosis*). Tanzania, holotype ♀ (MNHN). Type species of *Chaetodiplosis* Kieffer.
tropicalis, Kieffer, 1913*e*: 112 (*Baeodiplosis*). Tanzania, holotype ♀ (MNHN). Type species of *Baeodiplosis* Kieffer.
tropicalis Kieffer, 1913*e*: 98 (*Coprodiplosis*). Tanzania, holotype ♀ (MNHN).
tuberosa Kieffer, 1913*e*: 88 (*Lasioptera*). Tanzania, holotype ♀ (MNHN).
validus Kieffer, 1913*e*: 105 (*Aplecus*). Tanzania, holotype ♀ (MNHN). Type species of *Aplecus* Kieffer.
variicornis Kieffer, 1913*e*: 93 (*Parasphondylia*). Kenya, holotype ♀ (MNHN). Type species of *Parasphondylia* Kieffer.

Types of six of the Cecidomyiinae species described by Kieffer from the Seychelles and East Africa have male genitalia that are reasonably intact and may possibly be recognised again in future revisionary studies. These are not here assigned to *nomina dubia*, but are listed below.

atricauda Kieffer, 1913*e*: 107 (*Tristephanus*). Kenya, syntypes 2♂, 1♀ (MNHN). Type species of *Tristephanus* Kieffer, treated as a junior synonym of *Karshomyia* Felt by Harris (1980).
brevipalpis Kieffer, 1913*e*: 108 (*Microplecus*). Tanzania, holotype ♂ (MNHN). Type species of *Microplecus* Kieffer, 1913.
mahensis Kieffer, 1911: 317 (*Ledomyia*). Seychelles, holotype ♂ (BMNH). Assigned to *Lauthia* Kieffer by Gagné (2004).
monticola Kieffer, 1913*e*: 111 (*Clinodiplosis*). Tanzania, holotype ♂ (MNHN).
pulchricornis Kieffer, 1911: 318 (*Chrysodiplosis*). Seychelles, holotype ♂ (BMNH). Type species of *Chrysodiplosis* Kieffer, 1911.
squamosus Kieffer, 1911: 323 (*Nanodiplosis*). Seychelles, holotype ♂ (BMNH). Type species of *Nanodiplosis* Kieffer, 1913.

The study of Afrotropical Cecidomyiidae is still at a very early stage, probably with most species and genera unknown and a great need for thorough new systematic studies.

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This paper is dedicated to the memory of Brian Stuckenberg, who, as early as the 1960s, was aware of the need for new and comprehensive taxonomic studies of the virtually unknown African Cecidomyiidae. We are grateful to Mathias Jaschhof (Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany) for advising on the status of the Micromyinae and Porricondylinae species and to Erica McAlister (BMNH) and the late Loïc Matile (formerly MNHN) for enabling examination of relevant specimens in their care. Mathias

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