A new species of *Eurytoma* (Hymenoptera: Eurytomidae) attacking *Quadrastichus* spp. (Hymenoptera: Eulophidae) galling *Erythrina* spp. (Fabaceae), with a summary of African *Eurytoma* biology and species checklist

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Abstract

*Eurytoma erythrinae* Gates and Delvare, new species, is described and illustrated. This species was reared from field-collected galls on *Erythrina* spp. (Fabaceae) induced by *Quadrastichus* spp. (Hymenoptera: Eulophidae), in Tanzania, Ghana, and South Africa. It is compared with very similar African species, *Eurytoma radicicola* Risbec. Afrotropical species classified in *Eurytoma* are reviewed and twenty-seven new combinations are proposed: *Aximopis acaciacola* (Hedqvist) comb. n., *A. caryedocida* (Rasplus) comb. n., *A. lamtoensis* (Rasplus) comb. n., *A. mateui* (Hedqvist) comb. n., *A. mimosarum* (Rasplus) comb. n., *A. obocki* (Risbec) comb. n., *A. oryzivora* (Delvare) comb. n., *A. saharenensis* (Hedqvist) comb. n., *A. senegalensis* (Risbec) comb. n., *A. tropicana* (Risbec) comb. n., *Bruchophagus conopionis* (Rasplus) comb. n., *Fronsoma ellenbergeri* (Risbec) comb. n., *Gibsonoma amboraraha* (Risbec) comb. n., *G. aphloiae* (Risbec) comb. n., *G. bararaka* (Risbec) comb. n., *G. eugeniæ* (Risbec) comb. n., *G. mandraka* (Risbec) comb. n., *G. pauliani* (Risbec) comb. n., *G. lectronia* (Risbec) comb. n., *G. tavolae* (Risbec) comb. n., *Philolema arachnovora* (Hesse) comb. n., *P. arnoldi* (Waterston) comb. n., *P. bambeyi* (Risbec) comb. n., *P. braconidis* (Ferrière) comb. n., and *P. syleptae* (Ferri_re) comb. n., *Phylloxeroxenus cressoni* (Howard) comb. n., and *Sycophila lectronia* (Risbec) comb. n. Lectotypes are designated for ten species: *Eurytoma perinæi* Risbec, *E. radicicola* Risbec, *E. toddaliae* Risbec, *Gibsonoma amboraraha* (Risbec), *G. aphloiae* (Risbec), *G. eugeniæ* (Risbec), *G. mandraka* (Risbec), *G. pauliani* (Risbec), *G. tavolae* (Risbec), and *P. bambeyi* (Risbec). We also provide a checklist of Afrotropical species that are or were classified in *Eurytoma* and tabulate the known host/associations of these species with references.

Key words: *Eurytoma*, *Quadrastichus*, *Erythrina*, parasitic wasps, description, host relationship, checklist

Introduction

The genus *Eurytoma* is species-rich and widely divergent in its host range (Noyes 2003). Of approximately 700 nominal species worldwide, 301 are known from the Palaeartic Region and 61 from Africa (Noyes 2003). The African taxa are compiled in checklist form (see below), along with nomenclatural changes. Forty-seven African species have documented host/associate records (Table 1), of which seven are known to attack Hymenoptera. Of these seven species, only two are documented as parasitoids of Chalcidoidea (known hosts in parentheses): *E. risbecomaphaga* Rasplus (*Risbecoma capensis* (Walker), *R. pigrae* Rasplus; Eurytomidae) and *E. cressoni* Howard (*Eurytoma attiva* Burks). Neither of the chalcidoid hosts form galls, rather they attack bruchines (Coleoptera) on *Acacia* spp. and *Albizia* spp. (*R. capensis*), seeds of *Mimosa pigra* (*R. pigrae*) (Rasplus 1988), or seeds of *Cordia* spp. (Boraginaceae) (*E. attiva*). Of the remaining five species, one attacks Vespidae (Eumeninae): *Eurytoma pletiodropo* Delvare (*Eumenes caffer* (L.)) and four attack Braconidae: *E. apantelesi* Risbec (Apanteles ghesquierei de Saegar); *E. braconidis* Ferrière (Aleiodes, Apanteles, Braco, Euvipio, and Microbracon species); *E. syleptae* Ferrière (Apanteles spp.) and *E. verbena* Ferrière (*Rhaconotus sudamensis* Wilkinson). Only two species have been recorded from Tanzania (country containing
type locality of *E. erythrinae*: *E. braconidis* and *E. oryzivora*.

The Erythrina gall wasp, *Quadrastichus erythrinae* Kim (Eulophidae), was recently described by Kim *et al.* (2004) in response to its spread as an invasive gall inducer of coral-bean trees (*Erythrina* spp.; Fabaceae). This wasp produces galls on shoots, twigs, leaves and petioles of several species of *Erythrina*, including *E. variegata* (L.) (= *E. indica*), *E. fusca* Lour., *E. subumbrans* (Hassk.) Merr., *E. cristagalli* L., and *E. sandwicensis* O. Deg., and results in loss of coral-bean trees wherever it is introduced. Of particular note is the devastating impact it is having on the Hawaiian endemic, *E. sandwicensis*. Coral-bean trees are used worldwide as ornamentals, windbreaks, and for soil/water conservation (Rotar *et al.* 1986). Plant parts, such as seeds, bark, wood, and roots, have also been used in folk remedies for various ailments (Hartwell 1967–1971, List and Horhammer 1969–1979, Perry 1980).

*Quadrastichus erythrinae*, thought to be native to Africa, is now recorded from Mauritius, La Réunion, Singapore, Hawaii, Taiwan, Hong Kong, China, India, Thailand, American Samoa, Guam, Okinawa and, most recently, Florida (USA). The first two collections were made in the Miami Metro Zoo, October 5 & 17, 2006 on *E. variegata*, and currently it is known from two counties (Miami-Dade, Broward) where stems of *E. variegata* were galled and seriously damaged (J. Wiley, pers. comm.). It has spread rapidly to the other islands of Hawaii since its discovery on Oahu in April 2005 (Kim *et al.* 2004, Yang *et al.* 2004, Heu *et al.* 2006, Nami *et al.* 2007).

In this paper, we describe a new species of *Eurytoma* Illiger associated with galls of *Quadrastichus* spp. (Hymenoptera: Eulophidae) in Africa. Details of this parasitoid’s biology are unknown, nevertheless, it currently is being considered for biological control of *Q. erythrinae* in Hawaii.

**Methods.** Structures not visible on the holotype but shown in the figures are indicated by brackets. Abbreviations used for depositories are USNM (National Museum of Natural History, Smithsonian Institution, Washington, D.C.), MNHN (France, Paris, Muséum National d’Histoire Naturelle, Paris), BPBM (Bernice P. Bishop Museum, Honolulu, Hawaii), ANIC (Australia, Australian Capital Territory, Canberra City, CSIRO), SAMC (South African Museum, Capetown, South Africa), ORSTOM (Office de la Recherche Scientifique et Technique d’Outre-Mer Bondy, France), CIRAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Montpelier, France), FSCA (Florida State Collection of Arthropods, Gainesville, Florida), and NCSU (North Carolina State University, Raleigh, North Carolina).

One of us (GD) compared the newly described species with *Eurytoma* spp. that were described by Risbec (1951, 1952, 1953, 1955, 1956, 1957a, 1957b). The types of the species described by Risbec, deposited in MNHN, are often mounted dried in welled slides on which the coverslips are ringed with paraffin, wax or sometimes Canada balsam. Those types newly designated as lectotypes were remounted on cards after removing the coverslips. Some of the Madagascan material that Risbec used in his descriptions was collected by André Seyrig in the 1930s, in which case they are pinned or glued on cards.

*Eurytoma erythrinae* Gates and Delvar, new species

(Figs. 1–16)

**Female holotype.** Body length 2.4 mm. Color: Black except for the following straw yellow—scape, pedicel mesally and apically, anterolateral spot on pronotum, pro- and mesocoxae, front leg entirely, meso- and metatibiae, meso- and metafemora, and ovipositor sheaths (Fig. 1); fusaceous—pedicel laterally and dorsally, flagellum, tegula, profemoral spot laterally, metafemoral band mediolaterally, and metacoxa; whitish—tarsomeres and wing veins.

Head 1.4X as broad as high, punctured with short radiating striae originating from oral fossa; anterior tentorial pits small but present; genal carina present, gena effaced-microreticulate, outline in frontal view straight on upper half and slightly convex below (Fig. 2); malar space 0.71X eye height, asetose; scrobal basin cari-
nate laterally, carina raised into a short lobe dorsal to the antecaudal spine, and to the posterior part of the mesosoma. Mesosoma umbilicate (Fig. 3), 1.80X as long as broad, midlobe of mesoscutum 1.17X as long as broad; scutellum 1.33X as long as broad; notaulli complete, shallow; axillary grooves with pit at mid length; lateral surface of prepectus triangular, broadly rounded posteriorly, smooth; subventral carinae of prepectus Y-shaped, joined posteriorly, ventral surface of prepectus without median tooth. Mesepimeron reticulate ventrally, dorsally delimited from femoral depression by fine carina with femoral depression reticulate at mid-height. Mesepisternum anterior to femoral depression umbilicate (Fig. 7), epicnemium imbricate, flattened, with superficial submedial, shallow depressions to receive procoxae (Fig. 7) [discrimen visible as anteromedial ovate depression]. Metapleuron and lateral areas of propodeum (Figs. 4, 5) shallowly umbilicate, propodeum broadly flattened, medially smooth, bordered mediolaterally by numerous carinae forming irregular asetose cells, these bordered laterally by setose cells (Fig. 5), basal carina clearly visible, raised into small teeth at anterior corners of median groove; cluster of setae anterolateral nucha; spiracle about 1/3 its greatest diameter from dorsellum. Procoxa imbricate except anterior surface smooth, superficially depressed anteriorly for reception of lower head, the depression margined dorsally by very faint ridge (Fig. 6). Mesoxoa lacking lamella. Metacoxa elongate-reticulate anteriorly, becoming reticulate posteriorly, lacking dorsal hairs basally. Forewing with ratio of marginal vein:postmarginal vein:stigmal vein as 21:15:12 (Fig. 12). Metasoma smooth, Gt 6 and syntergum weakly microreticulate (Fig. 8); petiole 0.7X as long as broad in dorsal view, with projecting lateral teeth as well as mediodorsal prong (Fig. 9); transverse ridge between petiole and Gs1 absent; gaster teardrop-shaped in lateral view, ovipositor angled at about 30° dorsal horizontal axis (Fig. 8); measurements of gastric terga along midline as 15:16:26:35:8:5:12; Gt4 emarginate posteriorly in dorsal view; Gt6 parabolic in cross section.

**Male.** Body length 1.9 to 2.3 mm (n=7). **Color:** black, yellow areas as described for female (Fig. 13). Sculpture as described for female. Antennal with funicular segments (Fig. 14) pedicellate, each with 2 or more rows of erect setae and about 1.5X as long as width of segment; ratio of scape (minus radicile):pedicel:anellus:F1:F2:F3:F4:F5:club as 21:7:1:12:11:11:10:18; scape with ventral plaque in apical half (Fig. 15), cellular structures visible beneath cuticle. Gastric petiole in lateral view cylindrical (Fig. 16), in dorsal view length about 3X as long as greatest width, subequal in length to metacoxa; evenly reticulate dorsally and ventrally, smooth laterally.

**Variation.** Females vary in length from about 2.7 to 3.0 mm. In females, the fuscous area on the profemur can form a band in the middle half of the femur (but discontinuous medially), the gena adjacent to the malar carina can tend toward being completely smooth with microreticulation almost completely effaced. The epicnemial carina is sometimes incomplete in the anterior half. The procoxa may be marked with dark brown on the anterior surface. The pro- and mesoxoa may be entirely dark brown. The South African specimens (Nelspruit Bot. Garden) have shallower setigerous punctuation overall and a more finely punctate, less defined median channel on the propodeum. Some South African males have a more yellowish coloration to the facial setation, and the hind femur can range from golden to having a brownish band in the medial half. A male...
from Ghana displays a condition similar to material from the Nelspruit Bot. Garden in terms of sculpture reduction, and its metamemur is almost entirely brown.


**Eymology** This epithet is a noun in apposition, feminine singular, and named for Erythrina (Fabaceae), the genus of plant with which it is associated.

**Host.** Reared from field populations of the gall-forming Quadrastichus spp. Note: There appear to be more than one species of Quadrastichus associated with galls from which E. erythrinae emerged (J. LaSalle, pers. comm.).

**Distribution.** Ghana, Tanzania, and South Africa.

**Discussion.** The bilobed clypeus, habitus of the intertoral space, fusiform funicular segments, Y-shaped subventral carinae of the prepectus, flat epinemum, ornamentation of the propodeum, long gastral tergite 4 indicates that E. erythrinae is a member of the dentata species group as defined by Lotfalizadeh et al. (2007). However, it differs from most species in this group by lacking produced postgenal laminae that converge ventrally and a prococxal carina anteriorly, though there is a depression. Most members of the dentata-species group, where biology is known, attack Cecidomyiidae (Lotfalizadeh et al. 2007). Eurytoma dentata Mayr (1878) was reared from several gall-midges (Boucek 1977), especially of the genus Asphondylia (Parnell 1964, Noyes 2003). Another species of the same group was reared in Senegal from another Asphondylia gall-inding ovaries of the plant Solanum aethiopicum L./Torner (Solanaceae) (Etienne & Delvare 1987). However, at least one species of the group is phytophagous, the larvae developing in pods of Haematoxylon campechianum L. (Fabaceae) in Guadeloupe (J. Etienne, pers. comm.). Examination of type material of Eurytoma species described from Africa by Risbec (1951, 1952, 1955, 1956, 1957a, 1957b) showed that it most closely resembles E. radicicola Risbec (1952), but is differentiated as follows (condition in E. erythrinae in parentheses): E. radicicola with moderately converging genae, straight in frontal view (convex in frontal view), elevated genal carina (elevation not discernible), F2–F5 longer than broad (subquadrate), median channel of propodeum delimited by carina laterally (poorly delimited), prococxa with oblique carina anteriorly (carina very faint), marginal vein 2X as long as postmarginal vein (subequal in length), and gastral profile straight along terga 3 and 4 (regularly convex). Eurytoma radicicola was collected in Madagascar from galls on the roots of orchids (Risbec 1952).

**Classification.** Based upon the recent morphological phylogenetic analysis of Lotfalizadeh et al. (2007), several genera have been re-characterized. Not surprisingly, the speciose genus Eurytoma proved polyphyletic and the genus was redefined based upon four putative synapomorphies. Eleven species groups are included in their Eurytoma s.s. Other genera were redefined based upon synapomorphic support and numerous nomenclatural changes proposed in Lotfalizadeh et al. (2007). Those changes proposed in the checklist below are based upon the redefined generic concepts of Lotfalizadeh et al. (2007), but were beyond the scope of that particular research effort.

Lotfalizadeh et al. (2007) included the dentata species group in the Phylloxeroxenus clade, which is species-rich and highly diverse in tropical regions. Unfortunately, their data do not support a robust generic classification due to instability in the trees based upon their morphological phylogenetic analysis. Further studies are needed, especially using molecular data, for a more robust phylogeny and to provide support for a new generic classification. Pending such a study, no alternate genera are available to receive E. erythrinae; thus,
our placement in *Eurytoma*, even though it does not fit the narrower concept of the *dentata* species group as proposed by Lotfalizadeh et al. (2007).

**FIGURES 1–8.** *Eurytoma erythrinae*, female: 1, lateral habitus; 2, anterior head; 3, dorsal mesosoma; 4, lateral mesosoma; 5, propodeum; 6, anterior prothoracic leg; 7, lateroventral mesosoma; 8, lateral gaster.
FIGURES 9–16. Eurytoma erythrinae, female: 9, lateral petiole; 10, clypeus; 11, antenna; 12, fore wing; male: 13, lateral habitus; 14, antenna; 15, scape; 16, lateral gaster.
Checklist of Afrotropical species of *Eurytoma* and species previously classified in *Eurytoma*

**Aximopsis Ashmead, 1904**

*Aximopsis acaciacola* (Hedqvist), **comb. n.**


**Material examined.** One ♀ (CIRAD), identified from the original description and figures.

**Classification.** Belongs to *Aximopsis* as redefined by Lotfalizadeh *et al.* (2007).

*Aximopsis caryedocida* (Rasplus), **comb. n.**


**Material examined.** Paratypes ♀ ♂ (INRA).

**Classification.** Belongs to *Aximopsis* as redefined by Lotfalizadeh *et al.* (2007).

*Aximopsis lamtoensis* (Rasplus), **comb. n.**


**Material examined.** Paratypes ♀ ♂ (INRA).

**Classification.** Belongs to *Aximopsis* as redefined by Lotfalizadeh *et al.* (2007).

*Aximopsis mateui* (Hedqvist), **comb. n.**


**Material examined.** None.

**Classification.** According to the original description, figures and biology, the species belongs to *Aximopsis* as redefined by Lotfalizadeh *et al.* (2007).

*Aximopsis mimosarum* (Rasplus), **comb. n.**


**Material examined.** Paratypes ♀ ♂ (INRA).

**Classification.** Belongs to *Aximopsis* as redefined by Lotfalizadeh *et al.* (2007).

*Aximopsis obocki* (Risbec), **comb. n.**


**Material examined.** Holotype ♀ (MNHN), by monotypy. Djibouti, Obock, 1893 (M. Mandiron).

**Classification.** Belongs to *Aximopsis* as redefined by Lotfalizadeh *et al.* (2007).

*Aximopsis oryzivora* (Delvare), **comb. n.**

*Eurytoma orizyvora* Delvare, 1988: 130.

**Material examined.** Holotype ♀ (MNHN), designated by Delvare (1988) and validated here. CAMEROON: Yagoua, ex borer du riz, I.1955 (Descamps). Paratypes 22 ♀♂ 1 ♂, same data.

**Classification.** Belongs to *Aximopsis* as redefined by Lotfalizadeh *et al.* (2007).
Aximopsis saharensis (Hedqvist), comb. n.


Material examined. None.

Classification. According to the original description, figures and hosts, the species belongs to Aximopsis as redefined by Lotfalizadeh et al. (2007).

Aximopsis senegalensis (Risbec), comb. n.

Eurytoma senegalensis Risbec, 1951: 356.

Material examined. Holotype ♀ (MNHN), by monotypy.

Classification. Belongs to Aximopsis as redefined by Lotfalizadeh et al. (2007).

Aximopsis tropicana (Risbec), comb. n.

Eurytoma tropicana Risbec, 1953: 593–595.

Material examined. Holotype ♂ (MNHN), by monotypy. The type is in very poor condition, which makes the species hardly recognizable.

Classification. Belongs to Aximopsis as redefined by Lotfalizadeh et al. (2007).

Bruchophagus Ashmead, 1888

Bruchophagus conapionis (Rasplus), comb. n.


Material examined. Holotype ♀ and paratypes ♀ ♂ (INRA).

Classification. Belongs to the gibbus-group of Bruchophagus.

Bruchophagus houardi (Risbec)

Eurytoma houardi Risbec, 1957a: 253–256.

Material examined. Lectotype ♀ (MNHN), designated by Delvare (1988).

Classification. Generic placement not definitively established. The species evidently belongs to the Phylloxeroxenus clade and is possibly related to the salicis species-group as defined by Lotfalizadeh et al. (2007). It belongs neither to Bruchophagus nor Eurytoma s. s. as redefined in the same paper.

Eurytoma Illiger, 1807

Eurytoma acaciae Risbec

Eurytoma acaciae Risbec, 1951: 353.

Material examined. Holotype ♀ (MNHN), by monotypy.

Classification. Belongs to the verticillata species-group of Eurytoma s. s. as defined by Lotfalizadeh et al. (2007).
Eurytoma acuminata Masi


**Material examined.** None.

**Classification.** Generic placement not definitively established but based on the original description the species belongs to the *robusta* species-group of *Eurytoma* *s. s.* as defined by Lotfalizadeh *et al.* (2007).

Eurytoma aloinae* (Burks)


**Material examined.** None.

**Classification.** According to Bouček (1983) the species belongs to the *robusta* species-group of *Eurytoma* *s. s.*

Eurytoma altiventris Masi


**Material examined.** None.

**Classification.** According to the original description and figures the species evidently belongs to the *robusta* species-group of *Eurytoma* *s. s.* as defined by Lotfalizadeh *et al.* (2007).

Eurytoma attiva* Burks


**Material examined.** Paratype ♀ and specimens reared in Guadeloupe from seeds of *Cordia* *sp.* (BMNH and CIRAD).

**Classification.** Belongs to the *rosae* species-group of *Eurytoma* *s. s.* The species has a Neotropical origin and was introduced in Mauritius from Trinidad together with its host plant *Cordia macroystchia*.

Eurytoma apantelesi* Risbec


**Material examined.** Lectotype ♀ (MNHN), designated by Delvare (1988) and validated here, extracted and remounted from a slide labelled 'Eurytoma apantelesi Risbec sp. n./ex cocons Apanteles sur mil 17.12.1946 Bambey'. Paralectotypes, 2 ♀♀, same references; 2 ♀♀, from a slide labelled "Eurytoma apantelesi Risbec sp. n./ex cocons Apanteles sur aubergine 17.12.46 Bambey A.Wane; 2 ♀♀, from a slide labelled "Eurytoma apantelesi Risbec sp. n./de Pyrale du Mil Bambey'.

**Classification.** Belongs to the *verticillata* species-group of *Eurytoma* *s. s.* as defined by Lotfalizadeh *et al.* (2007).

Eurytoma apionidis* Risbec


**Material examined.** Lectotype ♀ (MNHN), designated by Delvare (1988) and validated here, extracted and remounted from a slide labelled in Risbec's handwriting 'Eurytoma apionidis Risbec/ex Apion sp. sur gousse de niébé Bambey 12.12.46 A. Wane'. Paralectotypes. 1 ♀, from a slide labelled 'Eurytoma apionidis Risbec/
Bambey sur secco d'arachide A. Wane'; 3 ♀♀, from a slide labelled 'Eurytoma cylacaesida Risbec/ex Piezotra-chelus varium N° 367'.

Classification. Belongs to the robusta species-group of Eurytoma s. s. as defined by Lotfalizadeh et al. (2007).

**Eurytoma basilewskyi** Risbec


Material examined. None.

Classification. Generic placement not definitively established. According to the original description and figures the species belongs to dentata species-group within the Phylloxeroxenus clade and not *Eurytoma s. s.* as redefined by Lotfalizadeh et al. (2007).

**Eurytoma biumbaeh** Risbec


Material examined. None.

Classification. Generic placement not definitively established. According to the original description and figures the species belongs to the robusta species-group of Eurytoma s. s.

**Eurytoma crotalariae** Risbec


Material examined. Lectotype ♀ (MNHN), designated by Delvare (1988) and validated here, extracted and remounted from a slide labelled in Risbec's handwriting 'Eurytoma crotalariae Risbec sp. n./ex gousses de Crotalaria'.

Classification. Belongs to the crotalariae species-group of Eurytoma s. s. as defined by Lotfalizadeh et al. (2007).

**Eurytoma diopisii** Risbec


*Eurytoma diopisii* Risbec, 1956: 244.


Material examined. Lectotype ♀ (ORSTOM collection in MNHN), designated by Delvare (1988).

Classification. Generic placement not definitively established. The species seems to belong to a special species group that was not included in the phylogenetic study of Lotfalizadeh et al. (2007). It is close to the robusta-group of Eurytoma with which it shares a similar lower face, intertoral space, prepectus, mesopleuron and procoxa, but the postgenal groove and postgenal lamina of *E. diopisii* are similar to those of Philolema.

**Eurytoma dubia** (Masi)


Material examined. Holotype ♂(BMNH).
Classification. Belongs to the *robusta* species-group of *Eurytoma s. s.* as defined by Lotfalizadeh et al. (2007).

**Eurytoma elongata** Silvestri


**Material examined.** Conspecific syntypes (4♀) mounted on cards and labelled 'Nefasit/semi oct. 1914' (Portici).

**Classification.** Generic placement not definitively established, but in all probability the species belongs to the *dentata* species-group of *Eurytoma* within the *Phylloxeroxenus* clade and not to *Eurytoma s. s.* as defined by Lotfalizadeh et al. (2007).

**Eurytoma enicospilusi** Risbec


**Material examined.** Syntypes from Madagascar, Békily (MNHN).

**Classification.** Belongs to the *verticillata* species-group of *Eurytoma s. s.* as defined by Lotfalizadeh et al. (2007).

**Eurytoma ficusgallae** Bouček


**Material examined.** Paratypes ♀ ♂ (BMNH).

**Classification.** Generic placement not definitively established. The species possibly belongs to the *obtusiventeris* species-group within *Eurytoma* but evidently not to *Eurytoma s. s.* as redefined by Lotfalizadeh et al. (2007).

**Eurytoma lepidopterae** Risbec


**Material examined.** Lectotype ♀ (ORSTOM collection in MNHN), designated by Delvare (1988) and validated here, extracted and remounted from a slide labelled in Risbec's handwriting 'Bambey ex Acanthopsyche sur Ricin 21.11.1942, J. Risbec'. This series is quoted by Risbec (1951: 352) in his original description as 'a) Types ex Acanthopsyche sp. 21-11-42 (J. Risbec) sur ricin'; it was apparently further erroneously labelled as 'Eurytoma apionidis Risbec'. Paralectotypes, all the following are conspecific with the lectotype, 3 ♀♂, same references (ORSTOM collection in MNHN); 5 ♀♂, from a slide labelled in Risbec's handwriting 'Eurytoma lepidopterae Risbec sp. n./ex nids Eumenes caffer 26.12.45 Bambey' (MNHN); 11 ♀♀ 1 ♂, from a slide labelled in Risbec's handwriting 'Eurytoma lepidopterae Risbec sp. n./ex nid de guêpe Bambey 26.2.46' (MNHN); 4 ♀♀, from a slide labelled in Risbec's handwriting 'Eurytoma lepidopterae Risbec sp. n./ex chryslide sp. sur Ficus Bambey 11.6.46' (MNHN); 1 ♀, from a slide labelled in Risbec's handwriting 'Eurytoma lepidopterae Risbec sp. n./s/ Diospiros mespiliformis 26.2.46 Bambey' (MNHN).

**Classification.** Belongs to the *verticillata* species-group of *Eurytoma s. s.*

**Eurytoma natalensis** Cameron

*Eurytoma natalensis* Cameron, 1907: 222.

**Material examined.** Type ♀ (BMNH).
Classification. Generic placement not definitively established, but in all probability the species belongs to the *dentata* species-group of *Eurytoma* within the *Phylloxeroxenus* clade and not to *Eurytoma* s.s. as defined by Lotfalizadeh et al. (2007).

**Eurytoma obesa** Risbec


**Material examined.** None.

**Classification.** Generic placement not definitively established. According to the original description and figures the species belongs to the *robusta* species-group of *Eurytoma* s.s.

**Eurytoma oleae** Silvestri


**Material examined.** Conspecific syntypes (3♀ 3♂) mounted on cards and labelled 'Nefasit/olivo/Aprile 1914' (Portici).

**Classification.** Generic placement not definitively established, but in all probability the species belongs to the *dentata* species-group of *Eurytoma* within the *Phylloxeroxenus* clade and not to *Eurytoma* s.s. as defined by Lotfalizadeh et al. (2007).

**Eurytoma oliphantis** Hedqvist


**Material examined.** None.

**Classification.** Generic placement not definitively established but, according to the original description, figures and biology, the species most probably belongs to the *appendigaster* species-group within *Eurytoma* s.s.

**Eurytoma orseolipaga** Delvare


**Material examined.** Holotype ♀ (MNHN).

**Classification.** Generic placement not definitively established. The species belongs to the *dentata*-group within the *Phylloxeroxenus* clade and not to *Eurytoma* s.s. as defined by Lotfalizadeh et al. (2007).

**Eurytoma perineti** Risbec


**Material examined.** Lectotype ♀ (MNHN), here designated, remounted from slide labelled ‘Elev. du 09.09.50 Eclos le 18.09.50 (A. R.) p. galle de Dingadinganalaly de Périnet (Composées) Elev. N° G. 144’ in Paulian’s handwriting and ‘Eurytoma tavoela Risbec sp. n.’ in Risbec’s handwriting. Paralectotypes 2♂, from the same slide, conspecific with the Lectotype.

**Classification.** Generic placement not definitively established. The species belongs to the *dentata* species-group within the *Phylloxeroxenus* clade and not to *Eurytoma* s.s. as defined by Lotfalizadeh et al. (2007).

**Eurytoma piezotricheli** Rasplus

Material examined. Paratypes ♀ ♂ (MNHN).

Classification. Belongs to the dentata species-group within the Phylloxeroxenus clade and not to Eurytoma s. s. as defined by Lotfalizadeh et al. (2007).

**Eurytoma pletiodropa** Delvare


Material examined. Holotype ♀ (MNHN), designated by Delvare (1988) and validated here, extracted and remounted from a slide labelled in Risbec's handwriting 'Eurytoma lepidopterae Risbec/ex nid Eumenes caffer, 26.11.45 Bambe A. Wane'. Paratypes. 2 ♀♀ same references; 2 ♀♂ 1 ♂, from a slide labelled in Risbec's handwriting 'Eurytoma lepidopterae Risbec/ex nid Eumenes 26.2.46 Bambe A. Wane'.

These specimens, as being labelled by Risbec as 'Eurytoma lepidopterae Risbec sp. n.', are therefore also paralectotypes of this species.

Classification. Belongs to the verticillata species-group of *Eurytoma s. s.*

**Eurytoma poredipleta** Delvare

*Eurytoma poredipleta* Delvare, 1988: 140.

Material examined. Holotype ♀ (MNHN), designated by Delvare (1988) and validated here, extracted and remounted from a slide labelled in Risbec's handwriting 'Eurytoma lepidopterae Risbec/ ex chrysalides Chrysopsycye ladburyi Bambe. Paratypes, 52 ♀♀ 2 ♂♂, same data.

These specimens, as being labelled by Risbec as 'Eurytoma lepidopterae Risbec sp. n.', are therefore also paralectotypes of this species.

Classification. Belongs to the verticillata species-group of *Eurytoma s. s.*

**Eurytoma radicicola** Risbec


Material examined. Lectotype ♀ (MNHN), here designated, remounted from slide labelled 'Elevage du 20.09.50 Eclos le 03.10.50 N° G 124 p. galle de racine d’orchidées du km 26, route de Tamatave’ in Paulian’s handwriting and ‘Eurytoma radicicola Risbec sp. n.’ in Risbec’s handwriting.

Classification. Generic placement not definitively established. The species belongs to the dentata species-group within the Phylloxeroxenus clade and not to *Eurytoma s. s.* as defined by Lotfalizadeh et al. (2007).

**Eurytoma risbecomaphaga** Rasplus


Material examined. Paratypes ♀ ♂ (INRA).

Classification. Belongs to the dentata species-group within the Phylloxeroxenus clade and not to *Eurytoma s. s.* as defined by Lotfalizadeh et al. (2007).

**Eurytoma spermophaga** Silvestri


Material examined. Conspecific syntypes (7♀♂ 2♂♂) mounted on cards and labelled 'Nefasit/semi oct. 1914' (Portici).
**Classification.** Generic placement not definitively established, but the species evidently belongs to the *dentata* species-group of *Eurytoma* within the *Phylloxeroides* clade and not to *Eurytoma* s. s. as defined by Lotfalizadeh *et al.* (2007).

**Eurytoma toddaliae** Risbec


**Material examined.** Lectotype ♀ (MNHN), here designated, remounted from slide labelled ‘Elev. du 01.04.50 Eclos le 11.04.50 N° 721 p. galle tige de Toldalia aculeata. Mandraka (A. R.)’ in Paulian’s handwriting and ‘Eurytoma toddaliae Risbec sp. n.’ in Risbec’s handwriting. Paralectotypes 4♀ 6♂, from the same slide, conspecific with the Lectotype.

**Classification.** Generic placement not definitively established. The species belongs to the *pistacaeae* species-group within the *Phylloxeroides* clade and not to *Eurytoma* s. s. as defined by Lotfalizadeh *et al.* (2007).

**Eurytoma tolidepepra** Delvare


**Material examined.** Holotype ♀ (MNHN), designated by Delvare (1988) and validated here, extracted and remounted from a slide labelled in Risbec’s handwriting ‘Eurytoma lepidopterae Risbec sp. n./ex chrysalide chenille sur Ficus 11.6.46 Bambey’. Paratypes. 24 ♀♀ 10 ♂♂, same references; 1 ♀, from a slide labelled in Risbec's handwriting 'Eurytoma verbenae Fer./ex gousse d'Acacia'; 3 ♂♂, from a slide labelled in Risbec's handwriting 'Eurytoma verbenae Fer./sur gousses d'archide 18.4.47 Bambey'; 1 ♀, from a slide labelled in Risbec's handwriting 'Eurytoma verbenae Fer./ex Coenobasis postflavida Bambey'; 10 ♀♀, from a slide labelled in Risbec's handwriting 'Eurytoma lepidopterae Risbec sp. n./ex Psalysodes atrifasciata J. Risbec' (ORSTOM collection in MNHN).

The specimens being labelled by Risbec as 'Eurytoma lepidopterae Risbec sp. n.' are therefore also paralectotypes of this latter species.

**Classification.** Belongs to the *verticillata* species-group of *Eurytoma* s. s.

**Eurytoma transvaalensis** Cameron

*Eurytoma transvaalensis* Cameron, 1911: 215–217.

**Material examined.** Type ♀ (BMNH).

**Classification.** Belongs to the *rosae* species-group of *Eurytoma* s. s. as defined by Lotfalizadeh *et al.* (2007).

**Eurytoma varicolor** Silvestri


**Material examined.** Conspecific syntypes (5 ♀♀ 1♂) mounted on cards and respectively labelled ‘Nefasit/olivo/ Aprile 1914, Sept. 1914 and Oct. 1914’ (Portici).

**Classification.** Generic placement not definitively established, but in all probability the species belongs to the *dentata* species-group of *Eurytoma* within the *Phylloxeroides* clade and not to *Eurytoma* s. s. as defined by Lotfalizadeh *et al.* (2007).

**Eurytoma verbena** Ferrière

Eurytoma cyclasaeidea var. sphenarchi Risbec, 1951: 350.

Material examined. Syntype ♀ (BMNH).

Classification. Belongs to the robusta species-group of Eurytoma s. s. as defined by Lotfalizadeh et al. (2007).

Fronsoma Narendran, 1994

Fronsoma ellenbergeri (Risbec), comb. n.

Material examined. Holotype ♀ (MNHN), by monotypy.

Classification. Belongs to Fronsoma as defined by Lotfalizadeh et al. (2007).

Gibsonoma Narendran, 1994

Gibsonoma amborasahae (Risbec), comb. n.
Eurytoma amborasahae Risbec, 1952: 300–301.

Material examined. Lectotype ♀ (MNHN), here designated, remounted from slide labelled ‘Elev. du 01.04.50 Eclos le 24.04.50 N° 700 p. galle de la tige d’Amborasa de la Mandraka (A. R.)’ in Paulian’s handwriting and ‘Eurytoma amborasahae Risbec sp. n.’ in Risbec’s handwriting. Paralectotypes 1♀ 2♂, from the same slide, conspecific with the Lectotype.

Classification. Belongs to Gibsonoma as defined by Lotfalizadeh et al. (2007).

Gibsonoma aphloiae (Risbec), comb. n.
Eurytoma aphloiae Risbec, 1952: 300.

Material examined. Lectotype ♀ (MNHN), here designated, remounted from slide labelled ‘Elev. du 01.04.50 Eclos le 03.05.50 N° 729 p. des galles de tige de Aphloia theaeformis de la Mandraka (A. R.)’ in Paulian’s handwriting and ‘Eurytoma aphloiae Risbec sp. n.’ in Risbec’s handwriting. Paralectotype ♀, from the same slide, conspecific with the Lectotype.

Classification. Belongs to Gibsonoma as defined by Lotfalizadeh et al. (2007).

Gibsonoma bararakae (Risbec), comb. n.

Material examined. Holotype ♀ (MNHN), by monotypy, remounted from slide labelled ‘Elev. du 09.09.50 Eclos le 14.10.50 N° G. 127 p. galle de feuille de Baraka (Rubiaceées) de Périten (A. R.)’ in Paulian’s handwriting and ‘Eurytoma bararakae Risbec sp. n.’ in Risbec’s handwriting.

Classification. Belongs to Gibsonoma as defined by Lotfalizadeh et al. (2007).

Gibsonoma eugeniae (Risbec), comb. n.

Material examined. Lectotype ♀ (MNHN), here designated, remounted from slide labelled ‘Elev. du 09.09.50
Eclos le 18.09.50 N° G. 120 (A. R.) p. galle de feuille d'Eugenia sp. de Périnet’ in Paulian’s handwriting and ‘Eurytoma eugeniae Risbec sp. n.’ in Risbec’s handwriting. Paralectotype ♀, from the same slide, conspecific with the lectotype.

**Classification.** Belongs to *Gibsonoma* as defined by Lotfalizadeh et al. (2007).

*Gibsonoma mandrakae* (Risbec), **comb. n.**


**Material examined.** Lectotype ♀ (MNHN), here designated, remounted from slide labelled ‘Elev. du 01.04.50 Eclos le 22.04.50 N° 727 p. des galles de la feuille de Dipatylona de Mandraka’ in Paulian’s handwriting and ‘Eurytoma mandrakae Risbec sp. n.’ in Risbec’s handwriting. Paralectotype ♀, from the same slide. Other paralectotypes remounted from slides labelled: 1) 1♂ ‘Elev. du 01.04.50 Eclos 05.04.50 N° 705 p. galles feuilles Pavinanto de la Mandraka (A. R.)’ in Paulian’s handwriting and ‘Eurytoma mandrakae Risbec sp. n.’ in Risbec’s handwriting; 2) 1♂ 1♀ ‘Elev. du 01.04.50 Eclos le 22.04.50 N° 710 p. des galles de la feuille de Dipatylona de Mandraka’ in Paulian’s handwriting and ‘Eurytoma mandrakae Risbec sp. n.’ in Risbec’s handwriting; 3) 2♀ Ormyrus [!] ‘Elev. du 01.04.50 Eclos 07.04.50 N° 710 p. des galles de la feuille de Dipaty ou de Mahasavélona de Mandraka (A. R.) in Paulian’s handwriting and ‘Eurytoma mandrakae Risbec sp. n.’ in Risbec’s handwriting.

**Classification.** Belongs to *Gibsonoma* as defined by Lotfalizadeh et al. (2007).

*Gibsonoma pauliani* (Risbec), **comb. n.**


**Material examined.** Lectotype ♀ (MNHN), here designated, remounted from slide labelled ‘Elev. du 01.04.50 Eclos 06.04.50 N°706 p. de la galle de tigue de vahybomotono de la Mandraka (A. R.)’ in Paulian’s handwriting and ‘Eurytoma Pauliani Risbec sp. n.’ in Risbec’s handwriting. Paralectotype ♀, from the same slide, conspecific with the lectotype.

**Classification.** Belongs to *Gibsonoma* as defined by Lotfalizadeh et al. (2007).

*Gibsonoma plactroniae* (Risbec), **comb. n.**


**Material examined.** Holotype ♀ (MNHN), by monotypy, remounted from slide labelled ‘Elev. du 26.05.50 Eclos le 24.07.50 N° G. 693 p. galle de feuille de Plectronia sp. (Rubiacées) de Tsinjoarivo (R. P.)’ in Paulian’s handwriting and ‘Eurytoma plactroniae Risbec sp. n.’ in Risbec’s handwriting.

**Classification.** Belongs to *Gibsonoma* as defined by Lotfalizadeh et al. (2007).

*Gibsonoma tavolae* (Risbec), **comb. n.**


**Material examined.** Lectotype ♀ (MNHN), here designated, remounted from slide labelled ‘Elevage du 29.05.50 Eclos le 02.06.50 (A. R.) P. galle en boule sur la feuille de Tarolo de Périnet élev. N° G. 81’ in Paulian’s handwriting and ‘Eurytoma tavolae Risbec sp. n.’ in Risbec’s handwriting. Paralectotypes 2♀ 2♂, from the same slide, conspecific with the lectotype.

**Classification.** Belongs to *Gibsonoma* as defined by Lotfalizadeh et al. (2007).
**Philolema Cameron, 1908**

**Philolema arachnovora** (Hesse), **comb. n.**


**Material examined.** Paratype ♀ (BMNH).

**Classification.** Belongs to _Philolema_ as redefined by Lotfalizadeh _et al._ (2007), as do species previously classified in the _lactrodicti_ species-group of _Eurytoma._

**Philolema arnoldi** (Waterston), **comb. n.**


**Material examined.** Paratype ♀ (BMNH).

**Classification.** Belongs to _Philolema_ as redefined by Lotfalizadeh _et al._ (2007).

**Philolema bambeyi** (Risbec), **comb. n.**


**Material examined.** Lectotype ♀ (MNHN), designated by Delvare (1988) from a series of four syntypes, three of these males representing another unidentified species.

**Classification.** Belongs to _Philolema_ as redefined by Lotfalizadeh _et al._ (2007).

**Philolema braconidis** (Ferrière), **comb. n.**

_Eurytoma braconidis_ Ferrière, 1929: 256–258.

**Material examined.** Lectotype ♀ (BMNH), designated by Polaszek & LaSalle (1995).

**Classification.** Belongs to _Philolema_ as redefined by Lotfalizadeh _et al._ (2007).

**Philolema syleptae** (Ferrère), **comb. n.**

_Eurytoma syleptae_ Ferrère, 1931: 128.

**Material examined.** Holotype ♀ (BMNH).

**Classification.** Belongs to _Philolema_ as recently redefined by Lotfalizadeh _et al._ (2007).

**Phylloxeroxenus Ashmead, 1888**

**Phylloxeroxenus cressoni** (Howard), **comb. n.**

_Eurytoma cressoni_ Howard, 1897: 138

**Material examined.** Holotype ♀ and several specimens reared in Guadeloupe from seeds of _Cordia_ sp. (USNM).

**Classification.** Belongs to the genus _Phylloxeroxenus_ (Lotfalizadeh _et al._ 2007). The species has a Neotropical origin but was introduced in Mauritius from Trinidad together with its host plant, _Cordia macrostychya_ (see Burks, 1958b).
**Sycophila Walker, 1871**

**Sycophila plectroniae** (Risbec), *comb. n.*


**Material examined.** None.

**Classification.** According to the original description, it is evident that this species is a *Sycophila* and was erroneously reported as a junior homonym (Noyes 2003) of *Eurytoma plectroniae* described later in the same work (Risbec 1952).

**Acknowledgments**

We thank Russell Messing (Kauai Agricultural Research Center, Kapa' a, Hawaii), who provided specimens for this research. We also thank John Brown (Systematic Entomology Laboratory (SEL), U. S. D. A., Washington, D.C.), Thomas Henry (SEL), John LaSalle (CSIRO Entomology, Canberra, Australia), Gary Gibson (Agriculture Canada, Ottawa, Ontario), and Robert Zuparko (University of California, Berkeley, CA) who reviewed the manuscript and suggested improvements.

**Literature Cited**


TABLE 1. Host records and sources for African species of *Eurytoma* and species previously classified in *Eurytoma*.

<table>
<thead>
<tr>
<th>Species of <em>Aximopsis</em></th>
<th>Host/Association</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>caryedocida</em> Rasplus, 1988</td>
<td><em>Caryedon serratus</em> (Chrysomalidae: Bruchinae)</td>
<td>X; Gagnepain &amp; Rasplus, 1989</td>
</tr>
<tr>
<td><em>lamtoensis</em> Rasplus, 1988</td>
<td><em>Bruchidius albizziarum</em> (Chrysomelidae: Bruchinae)</td>
<td>X</td>
</tr>
<tr>
<td><em>mateui</em> Hedqvist, 1967</td>
<td>Emerged from dead wood of <em>Acacia raddiana</em></td>
<td>X</td>
</tr>
<tr>
<td><em>minosarum</em> Rasplus, 1988</td>
<td><em>Eucokes quadrituberculatus</em> (Coleoptera: Anthribidae), <em>Bruchidius</em> sp. (Coleoptera: Chrysomelidae)</td>
<td>X</td>
</tr>
<tr>
<td><em>obocki</em> Risbec, 1957a</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td><em>oryzivora</em> Delvare, 1988</td>
<td><em>Sesamia calamistis</em> (Noctuidae); <em>Chilo</em> spp., <em>Maliarpha separatella</em> (Pyralidae)</td>
<td>X; Delvare, 1988; Polaszek et al., 1998; several, see Noyes 2003</td>
</tr>
<tr>
<td><em>saharensis</em> Hedqvist, 1967</td>
<td>Emerged from dead wood of <em>Acacia raddiana</em></td>
<td>X</td>
</tr>
<tr>
<td><em>senegalensis</em> Risbec, 1951</td>
<td>Reared from galls on <em>Acacia seyal</em>; ex pods of <em>Acacia albida</em></td>
<td>X; Delvare, 1988</td>
</tr>
<tr>
<td><em>tropicana</em> Risbec, 1953</td>
<td>Unknown</td>
<td></td>
</tr>
</tbody>
</table>

**Species of *Bruchophagus***

| *conapionis* Rasplus, 1988 | *Pseudoconapion* sp. (Coleoptera: Apionidae) | X |

**Species of *Eurytoma***

| *acciaciola* Hedqvist, 1967 | *Anthaxia pumila* Hg., *A. angustipennis* Klug. on *Acacia raddiana* Savj | X |
| *acciae* Risbec, 1951 | On *Acacia seyal* Delile | X |
| *acuminata* Masi, 1940 | Unknown | |
| *aloinae* (Burks), 1958a | *Aloe ferox* Mill. (Aloeaceae) | X; Prinsloo, 1980 |
| *aliventricis* Masi, 1940 | Unknown | |
| *apionidis* Risbec 1951 | *Piezotrichelus varium* | X |
| *arabica* Risbec, 1951 | Reared from pods of *Indigofera* sp. (Fabaceae) | X |
| *attiva* Burks, 1958b | *Cordia* spp. (Solanales: Boraginaceae) | X; De Santis, 1979 |
| *basilewskyi* Risbec, 1957a | Unknown | |
| *biambae* Risbec, 1957a | Unknown | |
| *congolese* Delucchi, 1956 | Unknown | |
| *crotalariae* Risbec, 1951 | Reared from seeds of *Crotalaria* sp. | X |
| *diopsis* Risbec, 1956 | *Diopsis* spp. (Diptera: Diopsidae) | X; Herting, 1978 |
| *electa* Crosby, 1909 | Unknown | |
| *elongatula* Silvestri, 1915b | Unknown | |
| *enicosipilus* Risbec, 1952 | Reared from Lepidoptera cocoons, *Enicosipilus* sp. (Ichneumonidae) | X |
| *ficusgallae* Bouček, 1981 | Ex stem galls on *Ficus burkei* (Miq.) Miq. (Moraceae) | X; Watsham, 1984 |
| *gabeati* Girault, 1916 | *Ceroplastes gabeati* Newstead (Hemiptera: Coccidae) | Thompson, 1955 |
| *ivohibe* Risbec, 1957b | Unknown | |
| *lepidopterae* Risbec, 1951 | *Lasiocampidae, Notodontidae, Psychidae, Pyralidae* (Lepidoptera) | X; Herting, 1975, 1976 |

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TABLE 1 (continued)

<table>
<thead>
<tr>
<th>Species</th>
<th>Host/Association</th>
<th>Reference</th>
</tr>
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<tbody>
<tr>
<td>natalensis</td>
<td>Cameron, 1907 Unknown</td>
<td></td>
</tr>
<tr>
<td>obesa</td>
<td>Risbec, 1957a Unknown</td>
<td></td>
</tr>
<tr>
<td>oleae Silvestri</td>
<td>1915a ex seeds of <em>Olea chrysophylla</em></td>
<td>X</td>
</tr>
<tr>
<td>oliphantis</td>
<td>Hedqvist, 1976 Assoc. with <em>Eragrostis tremula</em> (Cyperales: Poaceae)</td>
<td>X</td>
</tr>
<tr>
<td>orseoliphaga</td>
<td>Delvare, 1988 <em>Orseolia oryzivora</em> (Diptera: Cecidomyiidae)</td>
<td>X</td>
</tr>
<tr>
<td>palliditarsis</td>
<td>Cameron, 1911 Unknown</td>
<td></td>
</tr>
<tr>
<td>perineti</td>
<td>Risbec, 1952 Reared from bud galls on <em>Psidia altissima</em> (Asteraceae)</td>
<td>X</td>
</tr>
<tr>
<td>piezotricheli</td>
<td>Rasplus, 1988 <em>Piezotrachelus</em> sp. (Coleoptera: Apionidae)</td>
<td>X</td>
</tr>
<tr>
<td>pletiodropa</td>
<td>Delvare, 1988 Ex nests of <em>Eumenes caffer</em> (Hymenoptera: Vespidae)</td>
<td>X</td>
</tr>
<tr>
<td>poredipecta</td>
<td>Delvare, 1988 <em>Chrysopsyche ladburyi</em> (Lepidoptera: Lasiocampidae)</td>
<td>X</td>
</tr>
<tr>
<td>radicicola</td>
<td>Risbec, 1952 Reared from root galls on Orchidaceae</td>
<td>X</td>
</tr>
<tr>
<td>reunionsis</td>
<td>Risbec, 1957b Unknown</td>
<td></td>
</tr>
<tr>
<td>risbeconophaga</td>
<td>Rasplus, 1988 <em>Risbecona</em> spp. (Hymenoptera: Eurytomidae)</td>
<td>X</td>
</tr>
<tr>
<td>spermophaga</td>
<td>Silvestri, 1915b Diptera: Tephritidae (4 genera)</td>
<td>X</td>
</tr>
<tr>
<td>striatula</td>
<td>Cameron, 1905 Unknown</td>
<td></td>
</tr>
<tr>
<td>tenebrica</td>
<td>Crosby, 1909 Unknown</td>
<td></td>
</tr>
<tr>
<td>testaceatarsis</td>
<td>(Cameron, 1905) Unknown</td>
<td></td>
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<tr>
<td>toddalia</td>
<td>Risbec, 1952 Reared from stem galls on <em>Todalia aculeata</em> (Rutaceae)</td>
<td>X</td>
</tr>
<tr>
<td>tolidepeppra</td>
<td>Delvare, 1988 <em>Coenobasis postflavia</em> (Limacodidae)</td>
<td>X</td>
</tr>
<tr>
<td>transvaalensis</td>
<td>Cameron, 1911 Unknown</td>
<td></td>
</tr>
<tr>
<td>varicolor</td>
<td>Silvestri, 1915a Assoc. with <em>Olea chrysophylla</em> (Lamiales: Oleaceae)</td>
<td>X</td>
</tr>
<tr>
<td>verbena</td>
<td>Ferrière, 1931 Assoc. with <em>Pectinophora gossypiella</em> (Gelechiidae); <em>Cylas formicarius</em> &amp; <em>C. puncticollis</em> (Apionidae), <em>Conicobruchus strangelateus</em> (Chrysomelidae Bruchinae), Chloropidae, <em>Eublemma gayneri</em> (Noctuidae), <em>Sphenarches plataekephala</em> (Pterophoridae), <em>Rhaconotus sudanensis</em> (Braconidae)</td>
<td>X; Risbec, 1951; Delvare, 1988</td>
</tr>
</tbody>
</table>

Species of Fronsoma

ellenbergeri (Risbec, 1955) Unknown

Species of Gibsonoma

amborasaiae Risbec, 1952 Reared from stem galls on “Amborasaaha”* (Burasia madagascariensis; Menispermaceae) | X |
aphloia Risbec, 1952 Reared from stem galls on *Aphloia theaeformis* | X |
bararaka Risbec, 1952 Reared from galls on “Bararaka” (*Gaertnera* sp.; Rubiaceae) | X |
eugeniae Risbec, 1952 Reared from galls on *Eugenia* (Myrtaceae) | X |
mandrae Risbec, 1952 Reared from leaf galls on “Pavinanto” & “Dipaty” or “Menasavelona” | X |
pauliana Risbec, 1952 Reared from stem galls on “Vahybornofono” | X |
plectroniae Risbec, 1952 Reared from leaf galls on *Plectronia* sp. (Rubiaceae) | X |
tavolae Risbec, 1952 Unknown. Reared from leaf galls on “Tavolo” (*Ravensara acuminata*; Lauraceae) | X |

......continued
<table>
<thead>
<tr>
<th>Species of Philolema</th>
<th>Host/Association</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>arachnovora Hesse, 1942</td>
<td>Latriodectus spp. (Araneae: Theridiidae)</td>
<td>X; De Santis, 1979; Prinsloo, 1980</td>
</tr>
<tr>
<td>arnoldi Waterston, 1926</td>
<td>From web of spider</td>
<td>X</td>
</tr>
<tr>
<td>bambeyi Risbec, 1951</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>bracconidis Ferrière, 1929</td>
<td>Bracon hancocki ex Gelechiidae; hyperparasite ex Diparosis castanea (Noctuidae); Apanteles taragamae and Bracon brevicornis ex Opisina arenosella (Oecophoridae); A. sagax and A. syleptae ex Haritalodes derogata (Crambidae); Bracon sesamiae, Bracon sp. and Stenobracon unifasciatus (Braconidae) ex Chilo partellus and Coniesta igneusalis (Crambidae), Busseola fusca, Sesamia cretica and S. calamistis (Noctuidae)</td>
<td>X; Ghosh &amp; Abdurahman, 1985; Abdurahman &amp; Chandrasekharan, 1993; Silvie et al., 1994; Kfir, 1995; Polaszek &amp; LaSalle, 1995; Polaszek et al., 1998</td>
</tr>
<tr>
<td>syleptae Ferrière, 1931</td>
<td>Assoc. with Pectinophora gossypiella (Gelechiidae); Apanteles transvaalensis ex Spodoptera exempta (Noctuidae); Apanteles congoensis ex Dichocrocis crocodea (Crambidae); Apanteles sagax and A. syleptae ex Haritalodes derogata (Crambidae)</td>
<td>X; Smee, 1946; Schmitz, 1949; Benoit, 1949; Silvie et al., 1994</td>
</tr>
</tbody>
</table>

| Species of Phylloxeroxenus | | |
| cressoni Howard, 1897 | Eurytoma attiva Burks (Hymenoptera: Eurytomidae) | Burks 1958b; De Santis, 1979 |

| Species of Sycophila | | |
| plectroniae Risbec, 1952 | Reared from galls on Plectronia thouarsi | X |

1 Plant names in quotations are common, local names used in Madagascar. These were cross-checked online and/or in Holloway (2004).
2 An “X” in this column indicates that the original reference was the information source.