

## STUDIES IN NEW WORLD BOMBYLIIDAE (DIPTERA)

### II. Notes on the genus *Apolysis* with descriptions of two new species<sup>1</sup>

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*Abstract.* Two new species of Nearctic *Apolysis*, *A. leberi* and *A. cinereus*, are described and illustrated and the male of *A. timberlakei* is described for the first time. Specimens in this study extend the known distribution of this genus into Oregon and New Mexico.

Melander (1946b) last reviewed the bombyliid genus *Apolysis* in the Nearctic Region, providing a key to species and describing 8 new species, all from California. Until recently, Nearctic *Apolysis* have been known only from Arizona, California, and Baja California. Tabet (1980) records *A. mohavea* Melander and 1 new species from eastern Idaho. In this paper, I describe 2 new species from Arizona and New Mexico and record *A. timberlakei* Melander from Oregon. Most of the material examined in this study is from collections made by me in the Organ Mts of southern New Mexico in May 1982; all specimens were collected on flowers of *Erigeron* spp. in association with other bombyliid genera including *Oligodranes*, *Mythicomyia*, and *Geminaria*. Types of new species are deposited in the Bishop Museum, Honolulu.

#### ***Apolysis timberlakei* Melander**

*Apolysis timberlakei* Melander 1946b: 463.

The original description of *tiberlakei* was based on a single female holotype from Twentynine Palms, California. A second female from Palm Springs was allocated by Melander to this species, but not designated as part of the type series (see last paragraph of original description).

A male and a female of *Apolysis* collected together from Oregon by Mr Norman E. Woodley of the Museum of Comparative Zoology, Cambridge, Massachusetts, were kindly passed on to me for examination. Using Melander's (1946b) key, they run to *tiberlakei* and fit the description well. This marks the 1st record of the male of this species and its description is given below.

♂. Length (excluding proboscis): 1.72 mm. *Head*: eyes holoptic; face, front, and oral margin silvery gray pollinose, oral margin with short white hairs laterally on gena; occiput dark brown, bullae inconspicuous; antennae dark brown, segment III length ca. 2.5× width; antennal ratio:

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1:1:4; proboscis brown, length  $2\times$  head length. *Thorax*: brown, dense silvery gray pollinose on dorsum, less so on pleura, sparse short white pubescent; halter white. *Legs*: coxae and femora grayish pollinose, concolorous with that of pleura; tibiae and tarsi dark brown, with minute setulae laterally; claws black; pulvilli slightly longer than claws. *Wing* (1.60 mm): hyaline; veins yellowish; subcostal cell pale yellowish; alula well developed; 1st basal cell slightly longer than 2nd basal cell; ambient vein stopping at  $M_2$ ; vein  $Cu_2+A_1$  not quite reaching wing margin; fringe of posterior margin of wing beyond vein  $M_2$  with minute hairs of alternating lengths. *Abdomen*: subshining dark brown, band of yellow on posterior margin of each segment, sparse long white hairs, denser laterally. *Genitalia*: not dissected.

The female specimen fits the original description though its size (1.75 mm) is closer in length to the Palm Springs female mentioned by Melander.

*Material examined.* USA: OREGON: Morrow Co: 1♂, 1♀, 10 mi [16.1 km] SE [of] Boardman, 23.VI.1980, swept from *Psoralea lanceolata* (N.E. Woodley).

The description of *Apolysis magister* Melander (1946a) from Florissant shale indicates that *Apolysis* occurred at one time in the Colorado area in the Oligocene [not Miocene as indicated by Cockerell (1914) (F. Martin Brown, pers. commun.)]. It is possible that *Apolysis* actually has a more extensive distribution on the North American continent, but the minute size of the species and the necessity for special collecting techniques not normally implemented in general collecting has probably resulted in their paucity in collections today.

#### ***Apolysis leberi* Evenhuis, new species**

Fig. 1, 4, 7

♀. Length: 1.60 mm. *Head*: black, bare; eyes separated at vertex by  $2\times$  width of ocellar tubercle; antennal ratio: 1:1:3.5 (Fig. 1); proboscis black, extending approximately  $2\times$  length of head. *Thorax*: dark brown, bare; halter stem pale yellow, knob creamy white. *Legs*: brown. *Abdomen*: shining black with sparse short white pubescence. *Wing* (Fig. 4): hyaline; veins and subcostal cell yellowish brown; anal cell closed before wing margin by a length  $2\times$  that of r-m crossvein; basal cells subequal in length; junction of vein  $R_4$   $\frac{3}{4}$  distance from base of  $R_{4+5}$ ; alula reduced. *Genitalia*: not dissected.

♂. Similar to ♀ except: eyes holoptic; genitalia (Fig. 7) in lateral view small with basistylus irregularly subquadrate with undulate dorsal margin; dististylus short, ovate, tapering from apical  $\frac{2}{3}$  to hooked apex; epiphallus simple, tapering gradually to pointed aedeagal tip; basal apodeme long, thin; epandrium large, subtriangular; cerci large, exerted to approximately same size as epandrium.

Holotype ♀ (BPBM 13,029) and allotype ♂, USA: NEW MEXICO: Doña Ana Co: Organ Mts: Finley Cyn, 5000 ft [464.5 m], 2.V.1982 (N.L. Evenhuis).

This species keys nearest to *A. disjuncta* Melander, using Melander's (1946b) key, but is differentiated from it by the bare head in both the male and female and the lack of white incisures in the female abdomen.

#### ***Apolysis cinereus* Evenhuis, new species**

Fig. 3, 5–6, 8

♂. Length: 1.3–1.8 mm. *Head*: grayish silvery pollinose; oral margin with sparse short white hairs on gena; occiput sparse white pubescent, pair of slightly prominent bullae, 1 on each

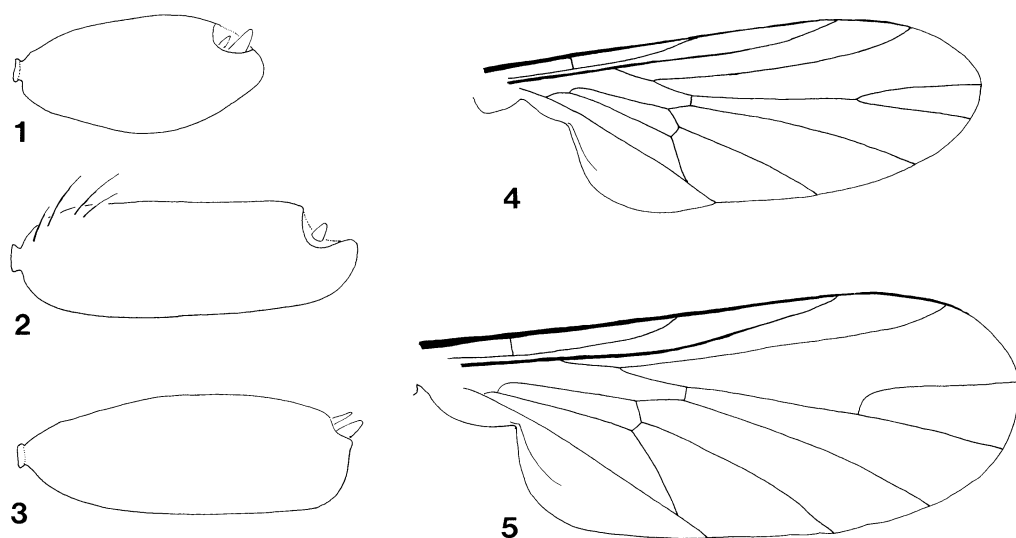


FIG. 1-5. 1-3, Bombyliidae antennae, segment III: 1, *Apolysis leberi*; 2, *Oligodranes mitis*; 3, *Apolysis cinereus*. 4-5, *Apolysis* wings: 4, *A. leberi*; 5, *A. cinereus*.

side of occipital foramen; vertex gray, bare; antennae (Fig. 3) dark brown, bare; antennal ratio: 1.3:1:5; proboscis dark brown with some grayish pollinosity in some specimens including the type, length approximately 2× length of head. *Thorax*: brownish pollinose, some golden reflections, with gray pollinose pattern including a pair of admedian longitudinal stripes from anterior mesonotum to base of scutellum; scutellum grayish pollinose; sparse white hairs on disc of mesonotum, humeral and postalar calli and scutellum; pleura gray pollinose with sparse white pubescence; halter white. *Legs*: coxae gray pollinose, concolorous with pleura; femora dark brown with spot of gray pollen laterally; tibiae and tarsi dark brown; claws black; pulvilli slightly longer than claws. *Wing* (Fig. 5): hyaline; veins yellowish brown; subcostal cell clouded pale yellow; alula slightly reduced; 1st basal cell slightly longer than 2nd basal cell; base of vein  $R_4$  opposite end of  $R_1$ ; anal cell closed before wing margin by a stalk 2× length of r-m crossvein; hairs of fringe on posterior margin of wing beyond vein  $M_2$  subequal in length; squama whitish with sparse white hairs. *Abdomen*: Dense silvery gray pollinose, posterior margins of segments yellow, sparse white pilose, hairs longer and more dense laterally. *Genitalia* (Fig. 8): large, approximately  $\frac{1}{2}$  length of abdomen; in lateral view with basistylus subovate, length ca. 3× greatest width; dististylus short, L-shaped, spatulate at ventral end, hooked at dorsal end; epiphallus long, gradually tapering to trifid aedeagal tip; trifid apex narrow at base, widest at tip; lateral rami with pair of long thin spatulate processes directed caudally; basal apodeme small, rounded, attached to aedeagal complex by way of long thin stalklike process; epandrium subquadrate with complex sclerotized process posterodorsally; cerci not evident.

♀. Length: 1.5–1.7 mm. Eyes separated at vertex by 2× width of ocellar tubercle; abdomen brownish with yellow incisures; genitalia recessed, not dissected; otherwise as described for ♂.

Holotype ♂ (BPBM 13,030), allotype ♀, 3♀ paratypes, USA: NEW MEXICO: Doña Ana Co: Organ Mts: 5 mi [8.0 km] N [of] Aguirre Springs, 5200 ft [483 m], 6.V.1982 (N.L. Evenhuis). 2 paratypes, USA: ARIZONA: Cochise Co: 1♂, Miller Cyn, 1.5 mi [2.4 km] W [of] Hwy 92, 10.V.1982 (Evenhuis). NEW MEXICO: Doña Ana Co: Organ Mts: 1♂, Finley Cyn, 5000 ft [464.5 km], 2.V.1982 (Evenhuis).

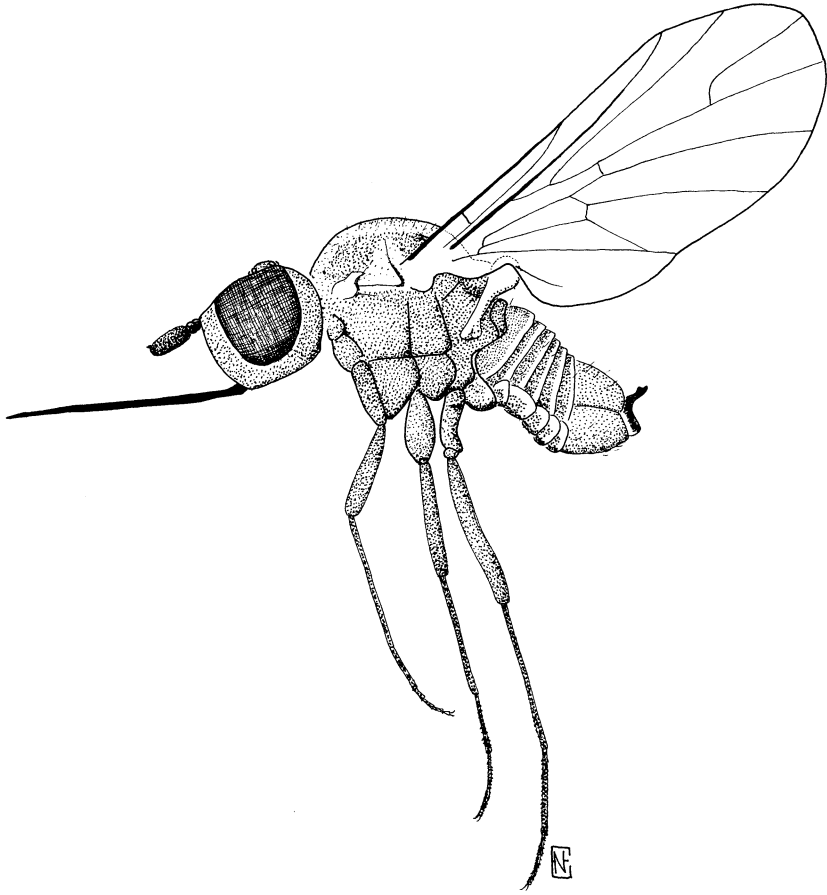


FIG. 6. *Apolysis cinereus*, ♂ lateral habitus.

This species is easily separated from its congeners in the Nearctic Region by the large male genitalia (approx.  $\frac{1}{2}$  length of the abdomen). The unusual shape of the male genitalia exhibited in *A. cinereus* has not been found in any other species of *Apolysis* worldwide. François (1969), Greathead (1966), Hesse (1938), Hull (1973), and Zaitsev (1972, 1975) are among the only authors to illustrate the male genitalia of this genus and all illustrations show a general consistency in genitalic shape (especially in the shape of the dististylus, epiphallus, and epandrium). The exaggerated condition and complex shapes of these structures in *cinereus* may represent characters indicative of a recent offshoot of *Apolysis sensu stricto*. However, until more detailed intergeneric analyses can be done on this interesting group of flies, *cinereus* is provisionally placed in *Apolysis*. The brown abdomen in the female should separate it from other Nearctic *Apolysis*.

The New Mexico specimens of this species were all collected by aspirating from flower heads of *Erigeron neomexicanus* Gray.

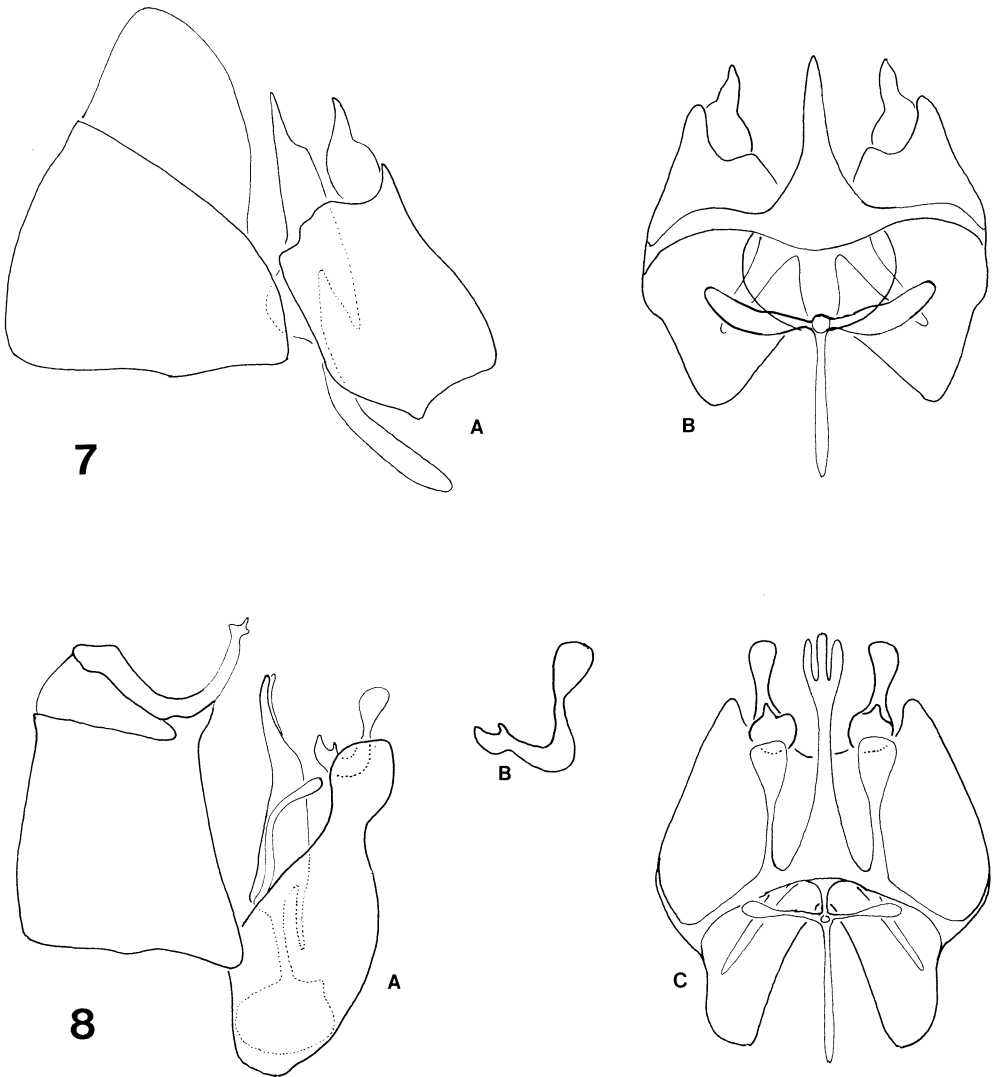


FIG. 7-8. *Apolysis* ♂ genitalia. 7, *A. leberi*: A, lateral view; B, dorsal view. 8, *A. cinereus*: A, lateral view; B, dististylus, lateral view; C, dorsal view.

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