

***Pherbellia anitae*, a new species of snail-killing fly (Diptera: Sciomyzidae)
from Arizona**

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Abstract.—*Pherbellia anitae* Foote, **sp. nov.**, from southeastern Arizona, is described, and the male postabdomen is illustrated.

Key Words: taxonomy, Sciomyzini, Sciomyzinae, Nearctic

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The genus *Pherbellia* Robineau-Desvoidy, with a predominantly north temperate distribution in the Holarctic, comprises 95 valid species worldwide, including 39 from America north of Mexico (of which 8 are Holarctic) and 42 that are restricted to the Palearctic Region (Vala et al. 2012). Species of *Pherbellia* have a proepisternal seta and therefore are placed in the tribe Sciomyzini, subfamily Sciomyzinae. Larvae of all *Pherbellia* species whose life histories are known are obligate parasitoids/predators/saprophages of snails and typify all Sciomyzini in their development in a terrestrial or semi-terrestrial environment; well-developed interspiracular float hairs that typify the aquatic Tetanocerini are lacking in the Sciomyzini (Orth et al. 1980). The first-instar larva often is parasitoid, its host snail dying after being fed upon for several days. The larva may then continue to feed on the decaying tissues of the host snail. Second- and third-instar larvae sometimes behave as overt predators,

quickly killing a succession of snails (Bratt et al. 1969). Adult *Pherbellia* are distinguished from those of other genera of Sciomyzidae by the combination of a strong proepisternal seta; bare prosternum; forefemur lacking a pecten (short series of closely spaced spinules anteromedially); foretibia with one dorsal preapical seta; A_1+CuA_2 reaching the wing margin; two fronto-orbital setae; frons not shiny; body not shining black. Larvae of all reared species are parasitoids of terrestrial snails or stranded freshwater pulmonate snails (Bratt et al. 1969). The taxonomy of North American species of *Pherbellia* was studied most recently by Orth et al. (1980), Orth and Steyskal (1981), and Orth (1982, 1983, 1984, 1987). The genus *Pherbellia* is large, diverse, and clearly polyphyletic. No key has been published to all of the Nearctic species.

The purpose of this paper is to describe a new species of *Pherbellia* from Arizona, U.S.A.

MATERIALS AND METHODS

The descriptive terminology for external structures and many internal structures follows that published in the Manual of Nearctic Diptera (McAlpine 1981). For structures of the male terminalia, however, the terminology suggested by Cumming et al. (1995) has been adopted.

RESULTS

Pherbellia anitae Foote, *sp. nov.*

Diagnosis (male).—Body length 3.1–4.4 mm; wing length 3.00–4.10 mm. *Head*: Yellowish, subshiny; upper occiput, ocellar triangle, and orbital stripe grayish, mid-frons yellowish orange, parafrontal stripes grayish and not reaching the anterior fronto-orbital seta; orbito-antennal spot lacking. Two fronto-orbital setae, anterior seta about 2/3 length of posterior seta. Antenna yellowish, basal flagellomere more or less oval; arista darkened, twice as long as height of first flagellomere, with uniformly short, sparse setulae to apex, setulae barely longer than arista at base. Eye without pattern in dried specimens. Face and gena silvery white, gena about 1/4 height of eye. Palpus wholly yellow. *Thorax*: Dorsum light to medium brown with light grayish pruinosity, a grayish median stripe, and a pair of broad, grayish, pruinose dorsocentral stripes. Scutellum uniformly brown pruinose; pleura slightly more yellowish; anepisternum bare except for 3–4 setulae ventral to the anterior spiracle, anepimeron with a cluster of 4–6 short to long setulae, katepisternum setulose; anepisternum pruinose on ventral 1/2, anepimeron lacking pruinosity, katepisternum and meron strongly pruinose; dorsum with 1 strong humeral, 2 notopleural, 1 presutural supra-alar, 2 postsutural supra-alars, 2 dorsocentral, 1 acrostichal, and 2 scutellar setae. *Wings*: Generally hyaline without darker markings or

infumated veins, lacking a stump vein on vein M. Halter base and stem whitish, knob darkened. *Legs*: Forecoxa shimmering silvery with 2 strong setae, mid- and hind coxae dull white; forefemur without pecten, all tarsi with basal tarsomere contrastingly white, next three tarsomeres black, apical tarsomere white. All femora and tibiae brownish, femora slightly darkened apically. *Abdomen*: Same brownish color as thorax. Male terminalia in lateral view (Fig. 1): Epandrium rounded, with short, acuminate projection posteroventrally; in lateral view anterior surstylus large, quadrate, anterior margin with a short, rectangular projection at middle, posterior margin with a small, rounded notch at about midlength; posterior surstylus right-angled posterodorsally, excavated medially on anterior margin, apex pointed.

Female unknown

Type material.—The holotype male is labeled [annotations in brackets]

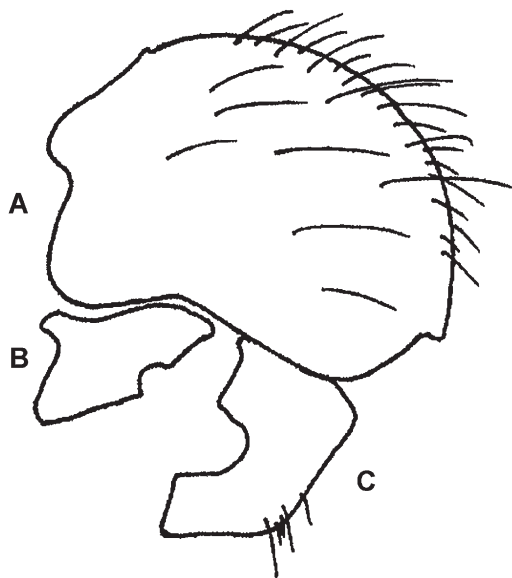


Fig. 1. *Pherbellia anitae* Foote, *sp. nov.*: sinistral profile of postabdomen of male. A, epandrium; B, anterior surstylus; C, posterior surstylus.

“RamseyCn. [Canyon] [31°27’N, 110°18.3’W] Huachuca[M]ts, Cochise Co. ARIZ July 13 1955 19 G.Werner & GDButler/**HOLOTYPE** ♂ *Pherbellia anitae* Foote USNM [red].” The holotype is double mounted (glued to a paper triangle), is in good condition (lacks right hind leg and all tarsomeres on mid- and hind legs), and is deposited in the USNM. Two male paratypes (USNM) are designated: (1) “RamseyCn. [Canyon] [31°27’N, 110°18.3’W], Huachuca Mts. ARIZ. Jul 28, 1961. U. V. It. trp. [Ultra-violet Light Trap] Werner, Nutting” is double mounted (glued to a paper triangle) and is in fair condition (left wing torn near midlength, apical half folded; left mid- and hind legs missing; apical half of abdomen removed, macerated in KOH, and stored in a microvial with glycerin on the same pin as the specimen); (2) “Rustler Park [31°53.2’N, 109°16.8’W] Ariz. 27 Aug [19]53” is double mounted (glued to a paper triangle) and is in good condition (right wing torn near apex; abdomen removed, macerated in KOH, and stored in a microvial with glycerin on the same pin as the specimen).

Etymology.—This species is named for the senior author’s beloved wife, Anita Rose Foote, who accompanied him on many collecting trips and supported his research and field work on snail-killing flies.

DISCUSSION

Although *Pherbellia* is the largest genus in the Sciomyzidae, only five species have been recorded heretofore from the arid southwestern region of the United States—*P. anitae* Foote (described here), *P. seticoxa* Steyskal, *P. subtilis* Orth and Steyskal, *P. trabeculata* (Loew), and *P. vitalis* (Cresson). *Pherbellia anitae* can be distinguished readily from the other four species by the white basal and apical foretarsomeres.

Key to species of *Pherbellia*
 Robineau-Desvoidy from the American Southwest (southeastern California, southern Nevada, southern Utah, Arizona, New Mexico, and western Texas)

1. Wing with pattern (cell r₂₊₃ with 2–5 crossbars basal to preapical band); apical portion of vein M with a stub vein posteriorly; orbito-antennal spot well developed, dark; all foretarsomeres concolorous, dark *P. trabeculata* (Loew)
- Wing without pattern; vein M lacking a stub vein posteriorly; orbito-antennal spot present or absent; foretarsomeres concolorous or contrasting 2
2. Basal (first) and apical (fifth) foretarsomeres white, contrasting strongly with blackish second, third, and fourth tarsomeres; anepisternum bare; anepimeron with 5–7 setulae, all subequal in length, but without setae; male terminalia as illustrated (Fig. 1) *P. anitae* Foote sp. nov.
- All foretarsomeres concolorous, blackish; anepisternum bare or setulose; anepimeron with setulae and with or without setae; male terminalia otherwise 3
3. Anepisternum with setulae in a narrow strip along posterior margin; anepimeron with 5–7 setulae and 2–3 longer, stouter setae; hind coxa with a few setulae on dorsal apex; arista setulae long plumose. *P. seticoxa* Steyskal
- Anepisternum lacking setulae; anepimeron setulose and with or without setae; arista setulae short, not long plumose 4
4. Anepimeron with 5–7 setulae and 2 stronger setae; vein R₁ clearly surpassing level of crossvein r-m; arista nearly bare. *P. vitalis* (Cresson)
- Anepimeron with 5–7 setulae only, lacking stronger setae; vein R₁ equal to or barely surpassing level of crossvein r-m; arista with hairs short, barely longer than width of basal segment of arista. *P. subtilis* Orth and Steyskal

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