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A new conopid fly from Florida and Georgia (Diptera: Conopidae)

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The Field Museum of Natural History, Chicago, IL

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A new conopid fly from Florida and Georgia
(Diptera: Conopidae).

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A new conopid fly from Florida and Georgia (Diptera: Conopidae)

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Abstract. A new species of *Physoconops* Szilady, *P. (Pachyconops) weemsi*, is described from Florida and Georgia. It is similar to two other species in the southeastern United States, *P. floridanus* Camras and *P. brachyrhynchus* Macquart, the main differential character being the shape of the female theca. The female thecae for all three are illustrated and a key to the three related *Pachyconops* species occurring in the southeastern United States is presented.

Introduction

The genus *Physoconops* Szilady 1926 (Type-species, *Conops brachyrhynchus* Macquart (orig. des.; misident.) = *obscuripennis* (Williston)) is a common widespread genus with many species in the New World and a few in the Afrotropical and Indomalaysian regions. The subgenus *Pachyconops* Camras 1955 (Type-species, *Conops bulbirostris* Loew (orig. des.)) is known only from the New World with many species (Camras 1955).

The three species in this paper form a group in *Pachyconops* characterized by the presence of a distinct black mark in the lower part of the facial grooves. A major character used to distinguish these three species from each other is the shape of the female theca, the ventral portion of the fifth abdominal segment which functions as a clasping organ during copulation. *Physoconops (Pachyconops) floridanus* Camras 1955, based on a single male, is now known from many specimens and the distinct female theca is here illustrated. In Camras (1955), two different sizes of theca were noted in *Physoconops (Pachyconops) brachyrhynchus* Macquart 1843. Now that more specimens are available, it is clear that two species are present; *P. brachyrhynchus* and *Physoconops (Pachyconops) weemsi*, sp. n., here described.

***Physoconops (Pachyconops) weemsi*, n. sp.
(Fig. 2)**

Holotype female: Florida: Alachua Co., 8-V-1955, H.V. Weems, Jr., Florida State Collection of Arthropods (FSCA).

Head. The head is mainly yellow. Frons with a wide black midline. Facial grooves and parafacials gold pollinose. A mark in the lower grooves at each side of the oral prominence black. Vertex partly rufous. Occiput black except for yellow at the lower third. Antenna yellow on scape, more rufous on pedicel and base of first flagellomere, remainder of first flagellomere and stylus black. Antennal proportions 1:2:1.5. Proboscis 1.5 times head height, mainly rufous.

Thorax. The thorax is mainly black. Yellow at post pronotum (humerus), scutellum, and upper thoracic pleuron. There is a white to yellow pollinose pleural stripe from anepisternum to katepisternum, and a pollinose mark medial to post pronotum. Legs yellow and rufous. Tarsi mainly black. Wing pattern black from first (R_1) to third vein (R_{4+5}) and spurious vein, and along fifth vein (CuA_1). Costal cells yellow. Remainder of wing slightly brownish with hyaline areas. Halter yellow, black at base, a small rufous area at the club.

Abdomen. The abdomen is mainly yellow on segments 1 to 4, then mainly black. Second segment with a bilateral brown stripe. Third segment with bilateral black marks. Gold pollinose at posterior margin of segments 3 and 4. Segments 4 and 5 with yellow posterior margins. Reddish on genital segments. Theca dark reddish, as long as average height of its segment, posterior black area about as long as wide.

Length. 12 mm.

Allotype male?: Same data as holotype but 27.iv.55. (at *Melilotus alba*) (FSCA).

Similar to the holotype but more richly colored with rufous on many areas instead of yellow. Post pronotum, scutellum, parts of thoracic pleuron, and most pale areas on abdomen rufous. Black stripe on frons narrower and not reaching the vertex.

Length. 12 mm.

Paratypes: 103 (FSCA); 23 author's collection at Field Museum (FMNH); 5 United States National Museum (USNM).

FL: Alachua Co. Gainesville, Austin Cary Forest, vic. Hatchet Creek (no date or collector) (1 male FMNH); FL: Alachua Co. Gainesville, Austin Cary Forest, vic. Hatchet Creek, 3.vi.1976, G. B. Fairchild, insect flight trap (1 male FSCA); FL: Alachua Co. Gainesville, Austin Cary Forest, 31.v-3.vi.1976, G. B. Fairchild, insect flight trap #2, CO₂ baited (1 male FSCA); FL: Alachua Co., 13.v.1955, H. V. Weems, Jr. (2 male FSCA); FL: Alachua Co., 13.v.1955, R.A. Morse (1 male FMNH); FL: Alachua Co., 14.vii.1954, H. V. Weems, Jr. (1 male FSCA); FL: Alachua Co., 24.v.1955, H. V. Weems, Jr. (on *Melilotus alba*) (1 male FSCA); FL: Alachua Co., 24.v.1955, H. V. Weems, Jr. (on *Melilotus alba*) (Fig. 2) (1 male FMNH); FL: Alachua Co., 24.vii.1976, Lynn Dubose, CO₂ baited - North - insect flight trap (2 male FSCA); FL: Alachua Co., 27.iv.1955, R. A. Morse (on *Melilotus alba*) (1 male, FSCA); FL: Alachua Co., 28.vii.1973, E. E. Grissell, sweeping *Cassia* (1 male FSCA); FL: Alachua Co., 31.vii.1976, Lynn Dubose, CO₂ baited - South - insect flight trap (1 male FSCA); FL: Alachua Co., 6.v.1955, H.V. Weems, Jr. (on *Melilotus alba*) (2 male FSCA); FL: Alachua Co., 8.v.1955, H. V. Weems, Jr. (1 female FMNH); FL: Alachua Co., Gainesville, 10.viii.1977, L. R. Davis, Jr. (1 male FSCA); FL: Alachua Co., 5 mi. S. Michanopy, 27-30.v.1978, G. B. Fairchild, insect flight trap (1 male FSCA); FL: Alachua Co., Monteocha, 3.viii.1977, Jerry F. Butler, insect flight trap (1 male FSCA); FL: Alachua Co., Monteocha, 30.viii.1976, J. Butler, malaise trap & CO₂ (2 male FSCA); FL: Alachua Co., Paynes Prairie, 2.vi.1977, H. V. Weems, Jr. (1 male FMNH); FL: Alachua Co., Paynes Prairie, 30.v.1977, G. B. Fairchild & H. V. Weems, Jr., insect flight trap (2 male FSCA); FL: Alachua Co., San Felasco Hammock, 16.v.1977, G. B. Fairchild & H. V. Weems, Jr., insect flight trap (1 male, 1 female FSCA); FL: Arcadia, 3.vii.1962, K. V. Krombein (1 female USNM); FL: Bradenton, 22.xi.1970, H. R. Dodge (on flowers of *Solidago stricta*) (1 male, 1 female FSCA); FL: Charlotte Co., 10.x.1981, G. F. & J. F. Hevel (2 female USNM); FL: Collier Co., 1.v.1973, D. Pearson (1 female FMNH); FL: Collier Co., Ochopee, 10.iv.1972, H. V. Weems, Jr. (3 male, 1 female FSCA); FL: Coral Gables, (no date or collector) (1 male FSCA); FL: Dade Co., Perrine, 27.v.1962, R.E. Woodruff (1 male, 1 female FSCA); FL: Dade Co., v.1952 (no collector) (1 male FSCA); FL: Gainesville, 10.vi.1955, R. A. Morse (on *Ptilimnium capillaceum*) (1 male FMNH); FL: Gainesville, 13.v.1919, P. W. Fattig (1 male FMNH); FL: Gainesville, 19.vi.1955, C. N. Patton (1 male FSCA); FL: Gainesville, 22.viii.1959, H. V. Weems, Jr. (on *Cassia bracheata*) (1 male FSCA); FL: Gainesville, 28.v.1928, G. B. Merrill (1 male FMNH); FL: Gainesville, 3.v.1956, H. V. Weems, Jr. (at *Rhus copallinum*) (1 male FSCA); FL: Highlands Co., Archbold Biol. Sta., 10-11.vi.1978, H.V. Weems, Jr. & Lisa K. Klein, insect flight trap (1 female FSCA); FL: Highlands Co., Archbold Biol. Sta.,

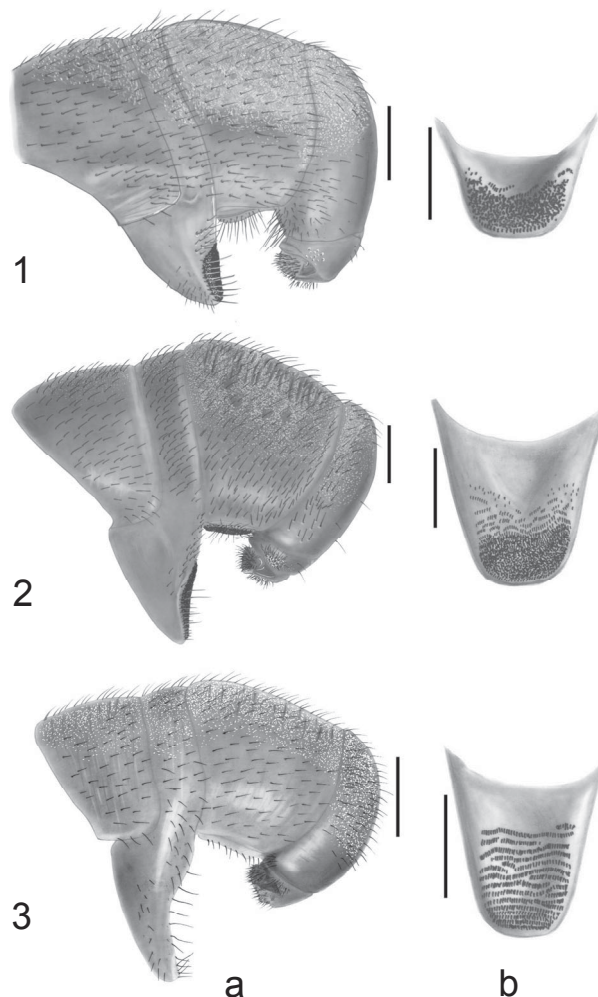


Figure 1-3. *Physoconops* spp.; a) Apical segments of abdomen, b) Posterior view of theca. **1)** *Physoconops brachyrhynchus* (Michigan: Livingston Co. FMNH). **2)** *Physoconops weemsi* (Florida: Levy Co. FMNH. Paratype). **3)** *Physoconops floridanus* (Florida: Gainesville. FMNH). Scale line = 0.5 mm.

11.v.1978, H.V. Weems, Jr. & Lisa K. Klein, insect flight trap (1 male, 1 female FSCA); FL: Highlands Co., Archbold Biol. Sta., 15.vii.1976, H.V. Weems, Jr., fossil sand dunes, on *Polygonella myriophylla* (1 male FSCA); FL: Highlands Co., Archbold Biol. Sta., 17-18.v.1980, H.V. Weems, Jr. & Fred E. Lohrer, insect flight trap (1 female FMNH); FL: Highlands Co., Archbold Biol. Sta., 19.v.1978, H.V. Weems, Jr. & Lisa K. Klein, insect flight trap (1 male FSCA); FL: Highlands Co., Archbold Biol. Sta., 23.v.1978, H.V. Weems, Jr. & Lisa K. Klein, insect flight trap (2 male FSCA); FL: Highlands Co., Archbold Biol. Sta., 26.v.1978, H.V. Weems, Jr. & Lisa K. Klein, insect flight trap (1 male FSCA); FL: Highlands Co., Archbold Biol. Sta., 27.iv.1979, H.V. Weems, Jr. & Sylvia Halkin, insect flight trap (1 female FMNH, 1 female FSCA); FL: Highlands Co., Archbold Biol. Sta., 28.v.1979, H.V. Weems, Jr. & Sylvia Halkin, insect flight trap (1 male FMNH); FL: Highlands Co., Archbold Biol. Sta., 30.v.1978, H.V. Weems, Jr. & Lisa K. Klein, insect flight trap (1 female FSCA); FL: Highlands Co., nr. Sebring Hendrichs Field, 15.vii.1976, E. E. Grissell (on *Polygonella myriophylla*) (1 male, 1 female FSCA); FL: Highlands Co., nr. Sebring Hendrichs Field, 15.vii.1976, H. V. Weems Jr. (on *Polygonella myriophylla*) (1 female FSCA, 1 male, 1 female FMNH); FL: Highlands Co., nr. Sebring Hendrichs Field, 5.vii.1976, H. V. Weems Jr., fossil sand dunes (1 female FMNH); FL: Homestead, 5.v.1951, H. V. Weems, Jr. (on *Sabal palmetto*) (1 male FSCA); FL: Jackson Co., Grand Ridge, 14.viii.1968, Gary F. Hevel (1 female USNM); FL: Lake Placid, 23.v.1962, D.G. Kissinger (1 female FSCA); FL: Lake Placid., 22.vi.1962, K. V. Krombein (1 female USNM); FL: Levy Co., 10.ix.1955, H. V. Weems, Jr. (on *Polygonum hydropiperoides*) (1 female FSCA); FL: Levy Co., 10.ix.1955, R. A. Morse (on *Polygonum hydropiperoides*) (1 female FSCA); FL: Levy Co., 13.ix.1955, H. V. Weems, Jr. (on *Polygonum hydropiperoides* and *Solidago petiolata*) (1 female FSCA); FL: Levy Co., 13.ix.1955, R. A. Morse (on *Polygonum hydropiperoides*) (1 male FSCA); FL: Levy Co., 13.vii.1954, H. V. Weems, Jr. (at *Erigonum tomentosum*) (2 female FSCA); FL: Levy Co., 13.vii.1955, H. V. Weems, Jr. (at *Erigonum tomentosum*) (1 female FSCA); FL: Levy Co., 19.vii.1958, H. V. Weems, Jr. (1 male, 1 female FSCA); FL: Levy Co., 29.ix.1955, H.V. Weems, Jr. (at *Polygonum hydropiperoides*) (1 male FMNH, 2 male FSCA); FL: Levy Co., 30.ix.1955, H. V. Weems, Jr. (Fig. 2) (at *Polygonum hydropiperoides*) (1 female FMNH); FL: Liberty Co., 17.viii.1960, H. V. Weems, Jr. (1 male FSCA); FL: Nassau Co., 28.v.1955, H. V. Weems, Jr. (at *Cyrilla racemiflora*) (1 male FMNH, 2 male, 2 female FSCA); FL: Polk Co., 8.iv.1955, H. A. Denmark (1 male FSCA); FL: Santa Rosa Co., Blackwater River Res. Sta., Carr Lake, 17.vi.1974, H. V. Weems, Jr. (on *Chrysosalanus* sp.) (1 female FSCA, 1 male FMNH); FL: W. Carls., 16.vii.1938 (no collector) (1 male FSCA); FL: Wakulla Co., 10.vii.1953, H. V. Weems, Jr. (at *Cyrilla parvifolia*) (1 female FSCA); GA: Hinesville, 16.v.1953, S. Camras (1 female FMNH); GA: Hinesville, 25.vii.1953, S. Camras (1 female FMNH); GA: St. Marys, 7.vi.1949, P. W. Fattig (1 male FMNH).

Variations. Size 9-14mm. First flagellomere slightly longer than pedicel. Many white pollinose areas are golden. Considerable variation in patterns on the abdomen. Many yellow areas may represent the fading of rufous areas.

Distribution. Florida: Santa Rosa Co. to Homestead. Georgia: St. Marys, Hinesville.

Comments. *Physoconops brachyrhynchus* and *P. floridanus* are keyed correctly in the key of Camras (1955). *Physoconops weemsi* keys to *P. brachyrhynchus* differing as in the key below. All three species have a black mark in the lower part of the facial grooves adjacent to the oral prominence. *Physoconops floridanus* is now known from New Jersey (3 specimens) and Florida: Santa Rosa Co. to Homestead (32 specimens).

Etymology. Named in honor of Howard V. Weems, Jr. in recognition of his efforts in building entomology in Florida. Many of the specimens in this study were collected by Dr. Weems.

Key to related species

1. Facial grooves dark, may be obscured by light pollen; frons mainly dark; female theca distinctly longer than height of its tergite, black posterior area distinctly longer than wide (Fig. 3) *P. floridanus* Camras
- Facial grooves distinctly yellow except for dark area adjacent to the oral prominence; frons paler, more yellow; female theca shorter, black posterior area not distinctly longer than wide 2
- 2(1). More rufous or yellowish species especially on abdomen; female theca about as long as height of its tergite, black posterior area about as long as wide (Fig. 2) *P. weemsi*, n. sp.

- Darker species; female theca shorter than height of its tergite, black posterior area shorter than wide (Fig. 1) *P. brachyrhynchus* Macquart

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Camras, S. 1955. A review of the New World flies of the genus *Conops* and allies. Proceedings of the United States National Museum 105, No.3355: 155-187.

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