WYEOMYIA (PROSOPOLEPIS) CONFUSA (LUTZ): SUBGENERIC VALIDATION, SPECIES DESCRIPTION, AND RECOGNITION OF WYEOMYIA FLUI (BONNE-WEPSTER AND BONNE) AS THE SENIOR SYNONYM OF WYEOMYIA KERRI DEL PONTE AND CERQUEIRA

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ABSTRACT. Prosopolepis Lutz is validated as a monotypic subgenus of Wyeomyia Theobald and the type species, Wyeomyia confusa (Lutz), is redescribed. The description includes illustrations of the male and female genitalia, the 4th-stage larva, and the pupa. Prosopolepis flui Bonne-Webster and Bonne is resurrected from synonymy with Wy. confusa and recognized as the senior synonym of Wyeomyia kerrii del Ponte and Cerqueira. Wyeomyia flui does not belong in the subgenus Prosopolepis and remains in the genus Wyeomyia without subgeneric placement. Trichoprosopon pusillum Lutz and Nuñez-Tovar is not synonymous with Wy. confusa and is provisionally regarded as a nomen dubium within Wyeomyia. The identity of Wy. confusa is fixed by neotype selection.

KEY WORDS Culicidae, Wyeomyia, Prosopolepis, Wyeomyia confusa, Wyeomyia flui, Wyeomyia kerrii

INTRODUCTION

Prosopolepis was first established as a genus by Lutz (1905) for a single species named Prosopolepis confusus. Dyar and Knab added Prosopolepis jocosa to the genus in 1908, they included Wyeomyia prolepidis Dyar and Knab in the genus in 1919, and Bonne-Weister and Bonne (1920) added a 4th species, which they described as Prosopolepis flui. Eight years later, Dyar (1928) included all 4 nominal species in the genus Dendromyia Theobald. He placed jocosa and prolepidis in a new subgenus, Melanolepis Dyar, and recognized confusus and flui as related forms of uncertain subgeneric placement, stating that Prosopolepis was “probably entitled to subgeneric rank; but without a male I am unable to place [confusa].” As a consequence the specific name of confusus was emended to confusa to agree in gender with the generic name. In his world catalog of mosquitoes, Edwards (1932) recognized Dendromyia as one of 4 subgenera of the genus Wyeomyia Theobald and placed Prosopolepis in synonymy with Dendromyia. He also listed Prosopolepis flui as a questionable synonym of Wyeomyia (Dendromyia) confusa, probably because Dyar (1928) stated that “There is no perceptible difference between this species and confusa. . . . They are probably the same; but I hold them apart on the locality solely . . .” In 1942 Lane and Cerqueira synonymized Trichoprosopon pusillum Lutz and Nuñez-Tovar with Wy. confusa, and correctly recognized flui as a separate species. Although these authors noted that Wy. flui was morphologically similar to Wyeomyia kerrii (del Ponte and Cerqueira): “W. kerrii muito próxima desta espécie,” the name Prosopolepis flui was formally established as a synonym of Wy. confusa by Lane (1951). Lane (1953) retained this synonymy in his Neotropical Culicidae, and Wy. confusa, with its 2 junior synonyms, remained in Dendromyia until Motta and Lourenço-de-Oliveira (1995) excluded confusa (along with all but 6 species) from the subgenus. Consequently, Wy. confusa was left without subgeneric placement and Prosopolepis became a synonym of the generic name of Wyeomyia.

Wyeomyia confusa was described from an unknown number of syntype females collected in forest near the city of São Paulo, Brazil (Lutz 1905). The depository of the syntypes was not mentioned by the author and their location is unknown (Belkin et al. 1971, Knight and Stone 1977). Lane and Cerqueira (1942) stated that they designated a neotype for Wy. confusa, but the location of this specimen, as well as other specimens that they used to describe and illustrate the larva, pupa, and male genitalia of this species, is unknown. The strange head and remarkable maxilla of the larva illustrated by Lane and Cerqueira are unusual among the Sabethini, and this prompted R.E.H. and E.L.P. to try to obtain specimens for taxonomic study nearly a decade ago. Unexpectedly, all reputed larvae of Wy. confusa obtained from various institutions turned out to be misidentified specimens of Sabethes (Davisomyia) petrochiae (Shannon and del Ponte) (Harbach and Peyton 1991), and this provided additional evidence that the specimens of Wy. confusa studied by Lane and Cerqueira (1942) were indeed lost. Recent collections and rearings of Wy. confusa in southeastern Brazil eventually provided the material on which the present study is based.

The problems dealt with in this paper are purely taxonomic in nature. As a result of anatomical
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study, and the parallel study that excluded Wy. confusa from the subgenus Dendromyia (Motta and Lourenço-de-Oliveira 1995). Prospopolepis is raised here to subgeneric rank and a neotype is designated to fix the identity of the nominate species. Furthermore, we have found, in agreement with Lane and Lourenço-de-Oliveira 1995), Cerqueira (1942), that the lectotype of Pr. Pflui does not conspecific with Wy. confusa, but represents the species that has been known by the name of Wyeomyia kerri since 1938. Wyeomyia flui does not belong in the subgenus Prospopolepis and must remain in Wyeomyia without subgeneric placement.

Except for letter designations applied to the lobes of the male gonostylus (Belkin et al. 1970), the parallel study that excluded type species from Wyeomyia. The illustrations are based on specimens deposited in the Instituto Oswaldo Cruz, Rio de Janeiro, Brazil. The 3-letter abbreviation Prl. is recommended for the subgenus Prospopolepis.

**TAXONOMIC TREATMENT**

**Wyeomyia Theobald**

**Subgenus Prospopolepis Lutz, New status**


1910. Prospopolepis Theobald, 1910:594 (lapsus calami?).

**Wyeomyia (Prosopolepis) confusa (Lutz)**


Wyeomyia (Dendromyia) pusillum of Belkin et al. 1965:73 (type info.).

Dendromyia (Prosopolepis?) confusa of Dyar 1928:89, 90 (lit. sum., f); Lane 1936:181 (coll. rec.)

Dendromyia confusa of del Ponte 1939:541. Prospopolepis (Prosopolepis) confusus of Dyar and Shannon 1924:482 (tax.).


Prospopolepis confusus of Theobald 1910:594 (f).

**Adult.** Sexes essentially identical in body size and general appearance, exhibiting slight secondary sexual differences in antennal structure; mediumsized mosquito with dark scaling bearing the usual dull bluish reflections typical of Wyeomyia.

**FEMALE.** **Head:** Eyes joined dorsally and ventrally. Vertex, occiput, and postgena covered with broad flat scales, vertex predominantly dark-scaled with white scales along margin of eye and small median posterior patch of white scales that grade into surrounding dark scales, with blue iridescence particularly noticeable from dorsoanterior angle; occiput with transverse row of short dark erect scales posteriorly; postgena white-scaled. Ocular setae rather long, dark; 2 long, dark, approximated interocular setae; postgenal setae short, pale. Clypeus dark, most of dorsal surface covered with anteriorly directed, narrow grayish white to silvery spatulate scales. Antenna dark; length 2.1–2.3 mm, slightly shorter than proboscis; pedicel brown, grading to yellow distally and ventrolaterally, with minute pale setae and small inconspicuous dark scales on mesal surface; flagellum rather weakly verticillate, flagellomeres similar in length, flagellomere 1 with small cluster of dark scales on mesal side. Proboscis short, straight, slightly expanded distally; length 2.3–2.6 mm (X = 2.4 mm), about 0.8 length of forefemur; entirely dark-scaled with faint bluish reflections, faintly
lighter ventrally; with brown basal labial setae. Maxillary palpus short, about 0.1 length of proboscis; dark-scaled, ventral surface without scales. **Thorax:** Scutum and scutellum covered with moderately broad dark scales with dull bluish and hint of green reflections, anterior promontry with few white scales in middle; dark to golden brown setae on anterior promontry (15–23, mode 18), supraalar area (21–17), and each lobe of scutellum (4 long, 5 short). Mesopostnotum with 4–9 (mode 7) dark setae of different lengths, without scales; integument dark brown in middle and grading to yellowish brown at sides. Antepronotum with dark scales similar to scutal scales; anterior margin with about 10 dark setae. Narrow dorsal area of postpronotum dark-scaled, remainder of postpronotum and pleura with small silvery white spatulate scales on pale yellowish brown integument, scales absent from lower anterior area of mesokatepisternum, meso- and metamer, and metapleuron; upper proepisternal scales continuous with translucent scales covering most of lower proepisternal area; pre- and postprocoxal membranes without scales. Pleural setae golden yellow: 6–8 upper proepisternal, 2, 3 (mode 3) prespiracular, 4–7 (mode 6) lower mesokatepisternal inserted above and below upper margin of mesomeran, and 8–14 (mode 10) upper mesepimeral. **Wing:** Length 3.7–4.7 mm (\( \bar{x} = 4.3 \) mm), vein R2–3, 0.3–0.4 mm, cell R1.4–1.7 mm (\( \bar{x} = 1.5 \) mm), vein R4–5 1.4–2.0 mm (\( \bar{x} = 1.9 \) mm), vein M_{1} 0.9–1.1 mm, cell M_{1} 1.3–1.4 mm; scales brown with weak bluish reflection at certain angles, dorsal surface with plume scales obviously ligulate on R, R_{1}, and R_{2–3}, ventral surface with plume scales ligulate on branches of radius and medius and distally on CuA and 1A; alula with fine dark setae on margin distally; upper and lower calypters without setae. **Halter:** Schabellum without scales, integument yellow; pedicel and most of capitellum dark-scaled, mesal surface of capitellum with patch of pale scales. **Legs:** Coxae with pale integument, bearing silvery white spatulate scales and pale setae like those of pleura; trochanter mainly with silvery white scales, with dark scales distally; femora, tibiae, and tarsi mainly dark-scaled with faint bluish reflections; ventroposterior margins of femora and tibiae white scaled; foretarsomeres dark-scaled; midtarsomere 2 white-scaled ventrally (from distal 0.3 to a few scales close to the joint with midtarsomere 3); midtarsomeres 3–5 completely white on one side; hindtarsomere 1 with few light scales ventrally, hindtarsomeres 4 and 5 white scaled on one side. **Abdomen:** Terga mainly dark-scaled with blue and hint of green reflections, white-scaled laterally, line of demarcation between dark and pale scales essentially straight; tergum I with numerous long pale setae, laterotergite covered with silvery white scales that are more or less contiguous with a patch of similar scales extending downward along posterior margin of metapostnotum; posterior and lateral edges of terga II–VII lined with short pale setae; sterna white-scaled. **Genitalia** (Fig. 1): Tergum VIII (not figured) with straight anterior margin and evenly rounded lateral and posterior margins, covered with scales, posterior 0.2–0.3 with long brown setae, most setae 0.3–0.5 length of tergum. Sternum VIII with anterior and lateral margins more or less straight, antero- and posterolateral corners rounded, posterior margin strongly concave with a rather deep notch at middle, with more or less V-shaped patch of long setae originating before notch and extending caudolaterally along posterior margin, all but narrow anterior area covered with scales. Tergum IX narrow, length about 0.3 width, posterior margin slightly emarginate with 0–3 submarginal setae on either side of midline. Cerci short, flattened, borne obliquely to sagittal plane of body, distinctly 2-segmented in dorsal view, segments more or less equal in size; proximal segment with sclerotized dorsal surface only, without setae; distal segment largely scleritized except for median proximal area adjacent to postgenital lobe, with relatively long setae distally on approximately 0.7 of outer (dorsolateral) surface and 0.3 of inner (ventromesal) surface, usually with 1 or 2 large scale-like setae proximal to other setae on outer surface. Postgenital lobe extends beyond apices of cerci, about as long as broad in dorsal view; lateral margins more or less straight and parallel but sometimes weakly concave or convex; distal margin emarginate in middle; dorsal surface with irregular line of 2–4 (mode 3) longer setae extending from near midlength to apex on either side of emargination; ventral surface with a prominent median proximal extension reaching upper vaginal lip, with rather dense covering of small setae spreading caudolaterally from point on midline near base of proximal extension. Upper and lower vaginal lips broader than usual, lower vaginal lip produced distinctly 2-segmented in dorsal view, segments more or less equal in size; proximal segment with sclerotized dorsal surface only, without setae; distal segment largely scleritized except for median proximal area adjacent to postgenital lobe, with relatively long setae distally on approximately 0.7 of outer (dorsolateral) surface and 0.3 of inner (ventromesal) surface, usually with 1 or 2 large scale-like setae proximal to other setae on outer surface. Postgenital lobe extends beyond apices of cerci, about as long as broad in dorsal view; lateral margins more or less straight and parallel but sometimes weakly concave or convex; distal margin emarginate in middle; dorsal surface with irregular line of 2–4 (mode 3) longer setae extending from near midlength to apex on either side of emargination; ventral surface with a prominent median proximal extension reaching upper vaginal lip, with rather dense covering of small setae spreading caudolaterally from point on midline near base of proximal extension. Upper and lower vaginal lips broader than usual, lower vaginal lip produced ventromedially into a broad tongue-like insula bearing a shallow central depression and a row of 8–15 short stout setae on lateral margins. Three spermathecal capsules, one smaller than the others. **MALE.** Similar to female except for sexual characters. **Head:** Antenna slightly more verticillate. Maxillary palpus about 0.8 length of proboscis. Proboscis length 1.9–2.0 mm (\( \bar{x} = 1.9 \) mm). **Wing:** Length 3.4–3.6 mm (\( \bar{x} = 3.5 \) mm). **Genitalia** (Fig. 2): Tergum VIII (ventral in position) with posterior margin more or less straight, posterolateral corners evenly rounded, posterior border lined with 4, 5 rows of long setae. Tergum and sternum IX joined laterally; tergum IX lobes distinctly separated, small, each with 3–5 short flattened setae that become progressively more expanded with an obtuse angle on mesal side toward midline of tergum. Gonocoxite elongate, sternal side swollen at basal 0.3, tapered in distal 0.5, tergomesal surface entirely membranous, approximately distal 0.7 of sternal and lateral surfaces covered with short setae and scales, tergal surface with 2 long tergomesal setae (homologous in part with “tergal triad” of Belkin
et al. [1970]) inserted at level of proximal edge of basal mesal lobe; basal mesal lobe roughly triangular in outline, proximal margin particularly irregular, surface covered with small slender setae and bearing one large seta at distolateral angle. Gonostylus large, broad (in side view) and long, about 0.8 length of gonocoxite, proximal 0.5 with dense covering of minute spicules on sternomesal surface, distal portion with 5 lobes and a large membranous tergal process ("longitudinal membranous flap" of Belkin et al. [1970]) associated with lobes A and E; lobe A, a rather indistinct membranous tergal lobe bearing a variable number of very small conical spicules along its tergolateral margin; lobe E, a small sclerotized roughly digitiform process between lobes A and M', with small setae at apex and associated with a narrow longitudinal sclerite borne midlaterally between lobes A and M, tergal process arises on mesal side of gonostylus between lobes E and A; lobe M', the principal distal extension of stem of gonostylus, bearing a dense covering of short laterally bent setae distally on tergolateral sur-
Fig. 2. *Wyeomyia confusa*, male genitalia. A, C, E, M, and M', lobes of gonostylus; Ae, aedeagus; atb, apical tergal bridge; BML, basal mesal lobe; BP, basal piece; Gc, gonocoxite; Gs, gonostylus; Par, paramere; Pr, proctiger; sta, submedian tergal arms; tp, tergal process; VIII-Te, tergum VIII; IX-Te, tergum IX.
face, which become progressively longer and stout-
toward tergomesal margin, also bearing a dense 
cluster of flattened and apically bent setae near 
middle of sternolateral surface (this area and setae 
may represent lobe B in other Wyeomyia); lobe M, 
a prominent sternolateral lobe of gonocoxite roughly 
equal in size to lobe M', a rather fleshy lobe with 
small slender setae scattered over lateral surface to 
 apex, bearing lobe C on sternal margin near base; 
lobe C, a long slender proximally directed process 
 arising basally from sternolateral edge of lobe M, 
characteristically bent at base (obvious only in ter-
gal view) and twisted distally (obvious in side view). 
Aedeagus slightly longer than broad, broad-
est in basal 0.5; submedian tergal arms fused to 
form a narrow median tergal bridge; apical tergal 
arms fused to form a slightly produced apical tergal 
bridge; median sternal plate seemingly comprised 
of 4 narrow longitudinal sclerites, rounded apically, 
flared and hoodlike. Proctiger (in lateral view) with 
flattened finlike process on sternal margin at 
basis, apex slightly enlarged, bent tergad, bearing 
few poorly defined teeth and 2–5 small subapical 
cereal setae on lateral side.

**Larva, 4th instar** (Fig. 3). Character and positions 
of setae as figured; numbers of branches in Table 1. **Head:** Wider than long, distinctly widest in posterior 0.5; lightly tanned. Occipital foramen with long narrow slits extending to a distinctive triangular black spot with several small denticles near middle of lateralia; margins of slits not pigmented, ventrocaudal margin of foramen with moderately 
tanned collarlike edge. Labiogula elongate; hypo-
stomal sutures complete, straight, continued caudal 
of posterior tentorial pit. Dorsoventrally with 7, 8 
(mode 7) teeth on either side of a broad median 
tooth. Mandible (Fig. 4) as figured. Maxilla (Fig. 
4) highly modified for grasping, very long, slender, 
and curved mesally, projecting far beyond anterior 
margins of head capsule; seta 4-Mx stout, spinelike, 
inserted near base on ventromesal margin; other setae, maxillary brush, and laciniarastra 
absent; maxillary palpus highly reduced, borne 
(fused) dorsally at base of maxillary body. Seta 1-
C close together (this character only shared with 
larvae of subgenus *Dendromyia*, except *Wyeomyia 
complosa* Dyar, and genus *Limatus* Theobald); 5-C 
inserted slightly anterior to 7-C very near 6-C; 9-
C inserted slightly anterior to 10-C; 14-C long, in-
serted near anterior margin of head capsule well 
before both setae 12, 15-C. **Thorax:** Integument hy-
lone, smooth. Setae 4-P, 5, 6-M and 7, 13-T on 
individual basal plates; 5–7-P and 9–12-P, M, T on 
common basal plates. Seta 1-P single, inserted cau-
dal and slightly lateral of 2, 3-P; 4-P short, about 
0.5 length of 7-P; strongly aciculate; 11-P, M, T 
single, spinelike. Seta 8-M small, similar to 7-M. 
Seta 5-T single, simple; 13-T strongly developed, 
about as long as thorax. **Abdomen:** Integument hy-
lone, smooth. Seta 1-I, II short and multibranched, 
1–III, IV short and single, 1-V, VI much longer and 
usually triple (2, 3), 1-VII similar to 1-V, VI but 
usually with 4 branches (3–5); 2-I–VII short, single, 
2-I–III farther anterior than mesad of seta 1, 2–IV– 
VII far mesad and only slightly anterior to seta 1; 
3-I short and multibranched, 3-II, IV with 3, 4 
branches and longer than 3-I, 3-III, V usually single 
(1, 2) with 3-V much longer than segment, 3-VII 
single, aciculate, and about length of 2 segments; 
seta 5 similarly developed on segments 1–VII but 
only distinctly smaller on I and VII; 6-I–VI and 7-I, II 
on basal plates, aciculate; 6–I, II, IV–VI similarly 
developed but 6-I, II slightly longer and generally 
more branched, 6-III usually double (2, 3) with 
branches stronger and slightly longer than seta 6 on 
other segments; 7-I, II similarly developed with 7-
II as long or longer than 7-I; 9–I–VI short, single; 
13-I–IV single, 13-V usually double (1–3), 13-I, II 
far cephalad of seta 9, 13-II very small, similar to 
seta 9, 13-I–IV, V much longer than the others, 13-VI 
small with 7–12 branches, 13-VII similar to 13-V 
but shorter and more branched (3–5). **Segment VIII:** Comb with 12–27 (x = 20) spinelike scales (no comb plate) in uneven single or partially double row, scales minutely spiculate in proximal portion, some pairs of scales (and occasionally 3 or 4 adjacent scales) fused basally to form a forked com-
posite. **Siphon:** Short, length about 0.5 mm; widest 
at base, tapering distally; index 2.5–3.3 (width mea-
sured at base); lightly and evenly tanned. Pecten 
with 3–9 (mode 5) spines on either side of seta 1a-
S in distal 0.5 of siphon; spines short, slender, equal 
in size, with ventral edge minutely spiculate. Seta 1-
S inserted near base some distance from midven-
tral margin; 2 seta 1a-S inserted distally on mid-
ventral line between the 2 pecten, 2a-S comprises 
1, 2 proximal simple or frayed setae and 3, 4 more 
distal and highly branched setae in a more or less 
straight subdorsal row; 2-S laterally compressed 
and expanded distally, with hooked tip. **Segment X:** Saddle incomplete; lightly tanned; length about 
0.25 mm, siphon/saddle index about 2.0. Setae 1–3-
X very long, 1, 2-X about same length, 3-X long-
er, 1-X usually triple (2, 3), 2-X often with 5 
branches (4–6), 3-X often with 4 branches (3–5); 
4-X shorter, about 0.6 length of 1, 2-X but gener-
ally with more branches (5–7, often 7).

**Pupa** (Fig. 4). Character and positions of setae as figured; numbers of branches in Table 2. **Ceph-
alothorax:** Lightly tanned. Seta 1-CT long, sigmoid, 
usually double (2, 3), with hooked tip; 5-CT nearly 
as long as 1-CT, with 4–8 (5) aciculate branches. **Trumpet:** Moderately and evenly tanned; brownish 
yellow; short, more or less cylindrical; index about 
3.6 (2.5–4.1) (width measured at midlength). **Ab-
domen:** Lightly tanned, anterior margins of sterna 
II–VI noticeably darker; length about 3.9 mm. Seta 
1-I well developed, with 4–10 primary branches 
and numerous distal branches; 2-II lateral to seta 1, 
2-III–VII near posterior margin of tergum and me-
sad of seta 1; 3-I, II long, aciculate, 3-IV well for-
Fig. 3. *Wyeomyia confusa*, larva. A, antenna; C, cranium; Cs, comb scale; Dm, dorsomentum; M, mesothorax; P, prothorax; S, siphon; T, metathorax; I–X, abdominal segments; 0–14, setal numbers for specified areas, e.g. seta 10-C (4-Mx = seta 4 of maxilla).
ward of seta 1; 3-V, VI anterior to seta 1; 5-IV–VI long, usually single, about 1.5 length of following tergum, aciculate; 6-II usually single, aciculate, longer than following tergum, inserted on level mesad of seta 9, 6-III–VI inserted anterior to seta 9; 7-II ventral; 9-VII, VIII strongly developed, 9-VII with 17–39 (21) branches, longer than tergum VIII, 9-VIII with 17–32 (25) branches, considerably longer than paddle. Genital lobe: Moderately tanned; length about 0.25 mm in female, about 0.4 mm in male. Paddle: Lightly tanned; short, only slightly longer than segment VIII, evenly tapered from base, tip more or less pointed, inner and outer margins lined with small spicules that become longer and denser at tip, dorsal and ventral surfaces largely covered with minute spicules; index about 2.3 (2.0–2.4).

**Bionomics.** *Wyeomyia confusa* have been collected on human bait in forest, much more frequently on the ground than in the canopy of trees. Females may also bite humans and animals in cleared areas close to forest, but they rarely invade peri-domestic environments (Forattini et al. 1968, 1993a, 1993b; Guimarães et al. 1987, 1989). The immature stages have been found only in the leaf axils of *Heliconia* sp. and plants of the family Marantaceae, such as *Calathea* sp. The single larva collected from a rain pool by Davis (1944b) was undoubtedly misidentified, and his report of finding larvae of this species (apparently identified by N. L. Cerqueira) in bamboo internodes and the leaf axils of a cultivated aroid (*Arum esculentum*, family *Araceae*) requires confirmation. The larvae exhibit aggressive and predacious behavior.

**Distribution.** Known only from Brazil. The species seems to be restricted to the Atlantic Rain Forest system, mainly in the coastal forests between latitudes of 8 and 30°S.

**Systematics.** *Prosopolepis* was considered a synonym of *Dendromyia* until Motta and Lourenço-de-Oliveira (1995) redefined the latter to include only 6 species. As a result, *W. confusa*, along with other species previously included in *Dendromyia*, were left without subgeneric placement. Motta and Lourenço-de-Oliveira (1995) also noted that species of *Dendromyia* seemed to share affinities with species of the Series *Prosopolepis* of Lane and Cerqueira (1942) and Lane (1953), in which *W. confusa* had been placed for decades (Heinemann and Belkin 1977, Harbach and Peyton 1993). This was based principally on similarities between *W. confusa* and some species of *Dendromyia*: the adults have scales on the clypeus, the immature stages are found in the leaf axils of *Calathea* and *Heliconia* plants, and the larvae exhibit predatory behavior. Additionally, *W. confusa* and *Dendromyia* are the only species of *Wyeomyia* that have larval maxillae with a long apical tooth, presumably an adaptation for grasping prey. However, the maxilla of *W. confusa* differs in having an exceptionally long apical tooth, the maxillary brush and laciniastra are ab-
Fig. 4. Wyeomyia confusa, pupa and larval maxilla and mandible. CT, cephalothorax; Mn, mandible; MPlp, maxillary palpus; Mx, maxilla; P, paddle; I–VIII, abdominal segments; 0–14, setal numbers for specified areas, e.g., seta 2-IV.
sent, and the maxillary palpus is highly reduced and fused with the maxillary body. In addition to morphologic evidence, the results of a recent electrophoretic study of gene-enzyme loci (Motta et al. 1998) give further support to the recognition of *Prosopolepis* and *Dendromyia* as distinct phyletic lines worthy of recognition as separate subgenera.

The most significant morphologic characters of *Prosopolepis* that contribute to its recognition as a separate subgenus are found in the immature stages, particularly the larva. In addition to the uniquely developed maxillae, the larva of *Wy. confusa* bears the following salient characters: denticles on lateralia near dorsolateral slit of occipital foramen; seta 1-C close together; seta 14-C developed and well forward of 15-C; seta 13-I single, inserted anteriorly at level of seta 2-I; comb of segment VIII with 12–27 free scales, with some fused basally in pairs to form a forked composite; 2a-S comprised of frayed and branched setae; seta 2-II-VII mesad of seta 1; pecten with about 5 spines on distal 0.5 of siphon. No characters exist that distinguish the pupa of *Prosopolepis* from those of other subgenera of *Wyeomyia*, but it is characterized by the following combination of features: abdomen unspotted; seta 1-CT sigmoid with hooked tip; seta 2-II–VII near posterior margin of tergum and mesad of seta 1; seta 6-VII dorsal; seta 9-VIII strongly developed and considerably longer than paddle; paddle short, only slightly longer than segment VIII, evenly tapered from base, tip more or less pointed, surface spiculose and margin lined with spicules. Apart from the distinctive features mentioned below, the adults of *Wy. confusa* are very similar to those of other species of *Wyeomyia* in overall ornamentation and structural detail, which is consistent with the relative homogeneity of this genus of mosquitoes. Distinctive features include clypeus largely covered with scales; translucent scales covering most of the proepisternum between forecoxae; an elongate patch of scales extending from laterotergite along posterior edge of metapostnotum; and presence of a few large, scalelike setae on cerci of females.

For all intents and purposes, *Prosopolepis flui* Bonne-Wepster and Bonne, which undoubtedly represents a species of *Wyeomyia* as currently defined, has been considered to be conspecific with *Wy. confusa* since Edwards (1932) listed it as a questionable synonym of this species. This synonymy was firmly established by Lane (1951), apparently on the basis of historical precedence only. As pointed out by Bonne-Wepster and Bonne (1920), *Wy. flui* differs conspicuously from *Wy. confusa* in having a patch of appressed white scales on the mesosternum, a unique distinguishing feature that was obviously overlooked by later workers. On the basis of this character alone, *Wy. flui* should never have been considered a synonym with *Wy. confusa*. Despite this, we decided to examine the type series of *Wy. flui* (all females) in order to confirm the validity of this nominal species. As a result, we discovered the following features that distinguish *Wy. flui* from *Wy. confusa*: clypeus with laterally directed scales on outer margins only; proboscis pale beneath; lower proepisternal scales absent; mesosternum with a patch of decumbent pale scales below scutellum; 1–3 setae present on upper calyp- ter of wing; ventral surfaces of midtarsomere 2 and hindtarsomere 3 pale-scaled; laterotergite and membrane behind metapostnotum without scales; females with a single spermathecal capsule, cerci without scales and postgenital lobe elongate and rounded apically. Based on these observations, *flui* is hereby restored to full species status.

During the course of these studies, it became apparent that the type specimens of *Wy. flui* were very similar to *Wy. kerri* del Ponte and Cerqueira. Further investigation revealed that the females of these nominal species are identical in all external anatomical features, including the genitalia. Conse-

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Table 2. Range of numbers of branches for pupal setae of *Wyeomyia (Prosopolepis) confusa* (mode in parentheses).

<table>
<thead>
<tr>
<th>Setae no.</th>
<th>Cephalothorax</th>
<th>Abdominal segments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CT</td>
<td>I</td>
</tr>
<tr>
<td>0</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1</td>
<td>2, 3 (2)</td>
<td>4–10 (5)</td>
</tr>
<tr>
<td>2</td>
<td>2, 3 (3)</td>
<td>1, 2 (1)</td>
</tr>
<tr>
<td>3</td>
<td>2–4 (3)</td>
<td>1, 2 (1)</td>
</tr>
<tr>
<td>4</td>
<td>2–4 (3)</td>
<td>2–5 (3)</td>
</tr>
<tr>
<td>5</td>
<td>4–8 (5)</td>
<td>1, 2 (1)</td>
</tr>
<tr>
<td>6</td>
<td>2–5 (3)</td>
<td>1, 2 (1)</td>
</tr>
<tr>
<td>7</td>
<td>2–4 (2)</td>
<td>2–4 (3)</td>
</tr>
<tr>
<td>8</td>
<td>2–4 (2)</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>2–4 (2)</td>
<td>1</td>
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<tr>
<td>10</td>
<td>1, 2 (1)</td>
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<tr>
<td>2511</td>
<td>1, 2 (1)</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>1–3 (2)</td>
<td>—</td>
</tr>
<tr>
<td>14</td>
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</tr>
</tbody>
</table>

1 Primary branches.
quently, Wy. kerri del Ponte and Cerqueira is here-
by formally recognized as a junior synonym of Wy.
flu (Bonne-Wepster and Bonne). Until the affinities
of this species are known, it cannot be placed in
any currently recognized subgenus of Wyeomyia.

As a result of this synonymy, information about
the adult male, larva, pupa, and bionomics formerly
attributed to Wy. kerri now apply to Wy. flu. Al-
though the taxonomy and biology of Wy. flu will
be the subject of another paper, it is appropriate
here to point out that Wy. flu and Wy. confusa also
exhibit differences in larval habitats and distribu-
tion. As noted above, Wy. confusa appears to be
confined to the Atlantic Rain Forest system where
plants of the families Heliconiaceae and Maranta-
ceae serve as habitats for the immature stages.

Wyeomyia flu has never been found in the Atlantic
Rain Forest and its immature stages have not been
collected from plants of these families. It is inter-
esting to note that the maxillae of Wy. flu larvae
are not developed for predation, suggesting that an
association may exist between the types of plants
inhabited by Wy. confusa and the predatory nature
of the larvae.

Lane and Cerqueira (1942) synonymized Tricho-
prosopon pusillum Lutz and Nuñez-Tovar with Wy.
confusa without explanation. The original descrip-
tion of this nominal species (Lutz and Nuñez-Tovar
1928) is problematic because some descriptive el-
ements were interchanged with those of another
species, Dendromyia bicornpressa Lutz and Nuñez-
Tovar, described in the same paper. This is further
complicated by the fact that the description of the
pupal stage is clearly not that of a sabethine mos-
quito: “Tiene dos chapas anales, con una nervura
mediana gruesa que termina un poco antes del bor-
de posterior, en donde se observa una cerda muy
fina.” The presence of a paddle seta suggests that
Lutz and Nuñez-Tovar had described a species of
Aedes, Culex, or Haemagogus rather than a species of
Sabethini. Because no type specimens of Tricho-
prosopon pusillum exist (Belkin et al. 1965, Knight
and Stone 1977), it is not possible to determine the
identity of this nominal species. Despite this, it is
obviously not conspecific with Wy. confusa, and
must be rejected as a synonym of this species. Be-
cause of the partially confused concepts of the 2
nominal species described by Lutz and Nuñez-To-
var (1928), Trichoprosopon pusillum is retained in
Wyeomyia but its taxonomic status is hereby
changed to nomen dubium.

Material examined. Wyeomyia confusa: Two
hundred fifteen specimens (26♂, 12♀ G, 75♀, 13♀ G, 8♀ L, 39♂ E, 42♂ Pe), including 42 individual
rearings. BRAZIL, Bahia, Uruçuca, 9 Jul. 1953, 5♀
(USNM); Espírito Santo, Nov. 1937, Serviço Furb
Amarela, M. E. S. Bras. (R. C. Shannon collection),
1♂ (USNM); Rio de Janeiro, Guapimirim County,
Parque Nacional da Serra dos Órgãos, Sep. 1992,
R. Lourenço-de-Oliveira and M. A. Motta coll., lar-
vae from Heliconia sp., 10♂ Pe♂, 4♀ G (IOC); same
data except 23 Sep. 1992 and R. Lourenço-de-Oliveira coll., 2♀ Pe♂, 1♂ G, 1Pe♂, 1LePe♀, 1♀ G, 5♀ (USNM); same
data except Oct. 1994, M. A. Motta coll., 1LePe♀,
2♂ (IOC); same data except Mar. 1995, 1♂ Pe♂,
1♀ G, 1♂ (IOC), same data except L. Barros coll.
and larvae from Marantacea sp., 1♀ Pe, 1♂ (BM);
Jacarepaguá, Dec. 1937, Serviço Furb Amarela,
M. E. S. Bras. (R. C. Shannon collection), 1♂, 1♀
(USNM); Trapicheiro, 12 Apr. 1946, 3♀ (USNM);
Parque Gávea, 21 Jul. 1946, 3♀ (USNM); unknown
localities, Dec. 1938, Serviço Furb Amarela, M.
E. S. Bras. (R. C. Shannon collection), 3♀, 5♀,
Nov. 1937, 1♂ (USNM); Mangaratiba, May 1938,
Serviço Furb Amarela, M. E. S. Bras. (R. C. Shannon collection), 1♂, 1♀ (USNM); Pe-
trópolis, May 1938, Serviço Furb Amarela, M. E.
S. Bras. (R. C. Shannon collection), 1♂, 1♀ G
(USNM); same data except Apr. 1938, 5♀
(USNM); Lumiar County, Rio Bonito, Nova Fri-
burgo, Feb. 1994, R. Lourenço-De-Oliveira and M.
A. Motta coll., larvae from Heliconia sp, 2LePe♀,
2♀ Pe♂, 1♂ G, 3♀ G, (IOC); Xerém, May 1997,
M. A. Motta and L. Barros coll., larva from Mar-
antacea sp., 1♂ Pe♀ (IOC); Santa Catarina, Qui-
rini, Joinville, Mar. 1996, Louzada coll., larvae
from Heliconia sp. and Marantacea, 3♀ Pe♂, 1♂ G,
3♀ Pe♂, 2♀ G (IOC); Minas Gerais, Juiz de Fora,
25 Jul. 1953, 7♀ (USNM); unknown locality,
Jan. 1938, Serviço Furb Amarela, M. E. S. Bras.
(R. C. Shannon collection), 1♀ (USNM); São Paulo,
Cantreira, 1♀ (USNM); Juquiá, 2♀, 1♀ G (BM),
1♀ (USNM); Parque Estadual da Serra do Mar,
near Picinguaba, Jan. 1991, Marinelli coll., from
human bait, 2♀ (IOC); Sta. Catarina, 26 Jun. 1953,
1♂, 1♀ (USNM); Reserva Florestal da Cantareira,
6 Oct 1993, M. A. Motta coll., neotype ♀ LePe
(IOC); state unknown, Blumenau, 23.iii.1932, F.
Webber coll., 5♀, 3♀ G (BM); no data, 5♀ (USNM).

Wyeomyia flu. Forty-two specimens (35♀, 7♂ G). SURINAM, Albina (Marowijne) and Dam, Apr.
1917 and Jan. 1919, J. Bonne-Wepster and C.
Bonne coll., lectotype ♀ with dissected genitalia
on slide), 6 paralecotype ♀ (one dissected genitalia
on slide) (RMNH); Paramaribo, 1 paralecotype ♀
(with dissected genitalia on slide) (USNM). Spec-
imens originally identified as Wy. confusa: BRA-
ZIL, Pará, Curralinho, H. W. Kumm coll., 3♂,
2♀ G (BM); Rio Itaucu, 1935, H. W. Kumm coll.,
1♂, 1♀ G (BM). GUYANA (as British Guiana), Dr.
Low, 1♀, 1♀ G (BM). Specimens originally iden-
tified as Wy. kerri: BRAZIL, Mato Grosso, Cuiabá,
15 May 1935, G. Cesar coll., holotype ♀ (IOC,
Costa Lima Collection), 5 paratype ♀ (2 coll.
(coll. Jun. 1935, locality as “Cuyaba”) and 1♀ (col-
1935) (USNM); Acre, Jurará, 1937, 1♀ (USNM);
Pará, Curralinho, 1930, 2♀ (USNM); Belém, Nov.
1992, Motta coll. and det., from human bait, 7♀,
6♂ LePe♀, 1♂ LePe♀ (IOC); Rondonia. Zoological
Garden, Ariquemes, Jul 1987, Lourenço-de-Oliv-
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Lane, J. 1953. Neotropical Culicidae, Volume II. University of São Paulo, São Paulo, Brazil.
Peryassú, A. G. 1908. Os culicídeos do Brasil. Instituto de Manguinhos, Rio de Janeiro, Brazil.