Spilonympha, a New Subgenus of *Wyeomyia* (Diptera: Culicidae) and Description of a New Species *Wyeomyia aningae*

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Ann. Entomol. Soc. Am. 98(6): 838–852 (2005)

ABSTRACT *Spilonympha*, a new subgenus of the genus *Wyeomyia* Theobald, is described based on morphological characters of the adult, larval, and pupal stages. The taxonomic species included in the new subgenus are *Wyeomyia mystes* (Dyar), *Wy. bourrouli* (Lutz), *Wy. forcipenis* Lourenço-de-Oliveira & Silva, *Wy. finlayi* Lane & Cerqueira, *Wy. airosai* Lane & Cerqueira, *Wy. howardi* Lane & Cerqueira, and a new species designated *Wy. aningae*, which is described and illustrated. *Wy. aningae* was designated as the type species of the new subgenus. The systematic treatment of these species includes a key for the identification of the adult males, pupae, and larvae; bionomics data; and geographical distribution.

KEY WORDS systematics, Culicidae, Sabethini, *Wyeomyia*, new species

THE SYSTEMATICS OF TRIBE Sabethini has been investigated to establish a natural classification; consequently, many changes have been proposed. The general trend in recent years has been to recognize new subgenera containing a small number of taxa or to resurrect subgenera from synonymy (Zavortink 1986; Harbach and Peyton 1990, 1992; Harbach 1991; Judd 1998; Lourenço-de-Oliveira et al. 1999). Based on a morphological and allozymic study on species of the subgenus *Dendromyia*, Motta and Lourenço-de-Oliveira (2000) retained only six species in *Dendromyia*. Thus, the other nominal species previously included in *Dendromyia* were retained in *Wyeomyia* without subgeneric placement. Three species—*Wy. personata* (Lutz), *Wy. belkini* Casal & García, (junior synonym of *Wy. brucei* del Ponte & Cerqueira), and *Wy. sirivanakarni* Duret—were excluded from the genus *Wyeomyia* and included in the genus *Onirion* (Harbach and Peyton 2000). The remaining species are still without subgeneric placement. Among them, there are seven species that share several morphological characters in all life stages: *Wy. mystes* (Dyar), *Wy. bourrouli* (Lutz), *Wy. forcipenis* Lourenço-de-Oliveira & Silva, *Wy. finlayi* Lane & Cerqueira, *Wy. airosai* Lane & Cerqueira, *Wy. howardi* Lane & Cerqueira, and a new species described herein, *Wy. aningae* sp. n. Lane and Cerqueira (1942) noted that these species are very similar morphologically and the females are essentially indistinguishable. Consequently, Lane and Cerqueira (1942) suggested that they could be a natural group. Because there is no available preexisting subgeneric name for the seven species mentioned above, the name *Spilonympha* subgen. n. is proposed for the new taxon.

Materials and Methods

Morphological characters of male and female adults as well as pupal and fourth-instar larval stages were examined. The morphological terminology follows Harbach and Knight (1980, 1982) and Belkin et al. (1970). On Tables 1–5, measurements and numbers of features are stated as a range followed by the mean or mode in parentheses. Life stages are indicated by symbols G (genitalia), Pe (pupal exuvia), and Le (larval exuvia). Illustrations and identification keys for the species of the *Spilonympha* subgen. n. are provided and are based on direct observation of morphological characters of the specimens. Some morphological characters of larva, pupa, and male genitalia are compared with those of other species.

The specimens examined were deposited in the Instituto Oswaldo Cruz (IOC), Rio de Janeiro, and some additional material was deposited in Faculdade de Saúde Pública, São Paulo (FSP-USP), Brazil. The geographic distribution of each species is based on literature data provided by Knight and Stone (1977) and Knight (1978) as well as new data collected for the current study.

The three-letter abbreviation (*Spi.*) is recommended for the new subgenus *Spilonympha*. The type-species designated for the new subgenus is *Wyeomyia* (*Spilonympha*) *aningae*.

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Table 1. Range of numbers of branches for pupal setae of *Wy.* (*Spilonympha*) *aningae* (mode in parentheses)

Setae no.	Cephalothorax	Abdominal segments							
		I	II	III	IV	V	VI	VII	VIII
0			1,2 (1)	1,2 (1)	1,2 (1)	1	1,2 (1)	1,2 (1)	1
1	2	D	3–7 (4–5)	1–3 (2)	1–3 (2)	1–3 (2)	1,2 (2)	1,2 (1)	
2	1,2 (2)	1	1,2 (1)	1	1	1	1	1	
3	1–4 (2)	1,2 (1)	1	1	2–4 (3)	1–3 (2)	1–3 (2)	1,2 (1)	
4	1–3 (1,2)	3–5 (4)	2–4 (3)	1,2 (2)	1,2 (1)	2–5 (3)	2–4 (2)	1–3 (2)	1,2 (1)
5	3–5 (3)	1,2 (1)	1–3 (1)	1–3 (2)	2,3 (2)	2	1,2 (2)	1–3 (1)	
6	1,2 (1)	1–3 (3)	1,2 (2)	1–3 (1)	1–3 (2)	2–4 (2)	1–3 (2)	1,2 (1)	
7	1–3 (2)	1–4 (3)	1–3 (3)	1,2 (1)	1–3 (1)	1–3 (2)	1,2 (1)	1	
8	1–3 (2)			2–5 (4–5)	1–3 (2)	2–4 (2)	2–3 (3)	1–3 (2,3)	
9	1,2 (1)	1,2 (1)	1	1	1	1	1	10–20	13–19
10	2–4 (2)		1	1,2 (2)	1–3 (2)	2	1,2 (2)	1,2 (1)	
11	1		1–3 (2)	1–3 (1)	1,2 (1)	1,2 (1)	1,2 (2)	1,2 (1)	
12	1,2 (1)								
14									1,2 (1)

D, dendritic.

Spilonympha Motta & Lourenço-de-Oliveira subgen. n.

(Figs. 1 and 2)

Type Species. *Wyeomyia* (*Spilonympha*) *aning*ae Motta & Lourenço-de-Oliveira sp. n., Brazil.

Female. *Head:* Ocular line with white scales, two interocular dark setae. Vertex dark scaled with blue greenish iridescence. Proboscis dark scaled, thickened at apex, length 1.5–2.5 mm, ≈0.8 of forefemur length, basal labial setae long, brown. Maxillary palpus same color as proboscis, ≈0.11 of proboscis length. Clypeus ovate, brown, bare. Antenna slightly shorter than proboscis, pedicel brown, pubescent with some narrow scales and minute setae on inner surface, flagellum moderately verticillate. *Thorax:* Integument light to dark brown. Antepronotum covered with darkish scales with blue to blue greenish to violaceus iridescence, sometimes with one spot of scales with whitish

Table 2. Range of number of branches for setae of fourth instar of *Wy.* (*Spilonympha*) *aningae* (mode in parentheses)

Setae no.	Head	Thorax			Abdominal segments								
	C	P	M	T	I	II	III	IV	V	VI	VII	VIII	X
0		4–7 (6)			1	1	1	1	1	1	1		
1	1	1–3 (2)	2–4 (4)	2–5 (4)	3–5 (4)	3–5 (3)	1–3 (1)	2–5 (3)	3–5 (4)	2–5 (3)	3–5 (3)	3–5 (3)	2,3 (2)
2		1	1	1,2 (1)	1	1	1	1	1,2 (1)	1	1	1,2 (2)	1–3 (2)
3	1	1–3 (2)	1,2 (1)	3–5 (3)	2–4 (3)	2–4 (3)	2–4 (3)	2–4 (3)	1	2,3 (3)	1–3 (2)	2–4 (3)	1,2 (1)
4	1	6–8 (7)	1–3 (2)	1,2 (2)	3–6 (4)	1–3 (2)	2–4 (2,3)	1	3–5 (4)	2–4 (3)	2,3 (2)	1,2 (1)	4–8 (5)
5	1,2 (1)	1	1	1–3 (2)	1,2 (2)	2,3 (2)	1–3 (2)	2–4 (2)	2,3 (3)	2	3–5 (4)	2,3 (2)	
6	1	1,2 (2)	1,2 (1)	1,2 (1)	3,4 (3)	2,3 (3)	2,3 (2)	2–4 (3)	2–4 (3)	2,3 (2)	2–4 (4)		
7	1,2 (2)	5–8 (5,7)	1,2 (2)	6–9 (6)	5–7 (6)	3,4 (4)	4–8 (6)	4–7 (6)	5–8 (6)		1,2 (2)		
8	1–3 (2)	4–6 (6)	3–7 (4)	3–5 (4)		2,3 (2)	3–6 (4)	3–5 (4)	3,4 (4)	4–6 (5)	3–5 (4)	1-S	2–4 (3)
9	3–5 (3)	3,4 (3)	2,3 (2)	3–6 (4)	1,2 (1)	1,2 (1)	1,2 (2)	1–3 (2)	2,3 (2)	2,3 (3)	3–6 (4,5)	1a-S	1,2 (2)
10	1–3 (2)	1,2	1,2 (1)	1,2	3–5 (5)	1,2 (1)	2–4 (3)	2–4 (3)	3,4 (3)	3,4	1,2 (2)		
11	3–5 (3)	1	1	1	1–3 (2)	2–4 (2)	1,2 (1)	2–4 (3)	2–4 (3)	2,,3 (3)	3–5 (4)		
12	1–4 (2)	1,2 (1)	1,2 (1)	1		2–5 (4)	1	1	1–3 (1)	2,3 (3)	2,3		
13	1–3 (2)		4–7 (5)	10–15 (10)	3–6 (4)	1	2–4 (3)	2–4 (3)	2–4 (2)	4–6 (4)	2–4 (3)		
14	2,3 (3)	1–3 (1)	4–6 (5)										
15	1–4 (2)												

Box display number of branches of siphon setae.

Table 3. Lengths (in millimeters) and index of selected structures measured in adult female and pupa of species of subgenus *Spilonympha*

Structure	*Wy. aningae*	*Wy. mystes*	*Wy. airosai*	*Wy. bourrouli*	*Wy. forcipenis*	*Wy. finlayi*	*Wy. howardi*
Wing	3.4–3.8 (3.7)	3.6–3.9 (3.8)	3.0–3.6 (3.4)	2.7–3.2 (2.9)	2.3–2.8 (2.8)	3.2–3.6 (3.4)	2.7–3.0 (2.7)
Palpus	0.3	0.3	0.2	0.2–0.3	0.2–0.3	0.2–0.3	0.2
Proboscis	2.0–2.5 (2.25)	2.2–2.3 (2.22)	1.9–2.3 (2.12)	1.6–1.9 (1.72)	1.8–1.9 (1.86)	1.8–2.1 (1.95)	1.5–1.6 (1.58)
Forefemur	2.4–2.9 (2.66)	2.6–2.9 (2.73)	2.1–2.6 (2.36)	2.0–2.2 (2.05)	2.0–2.1 (2.05)	2.2–2.5 (2.35)	1.9–2.0 (1.92)
Forefemur/proboscis (index)	1.13–1.31 (1.20)	1.18–1.31 (1.23)	1.04–1.13 (1.09)	1.15–1.25 (1.19)	1.10–1.11 (1.11)	1.19–1.22 (1.20)	1.18–1.26 (1.21)
Trumpet (index)	3.92–6.75 (5.48)	3.16–6.12 (4.73)	3.17–4.60 (4.00)	2.27–3.00 (2.60)	2.47–3.63 (2.83)	2.03–2.42 (2.21)	5.57–7.80 (6.79)
Paddle (index)	1.38–1.68 (1.52)	1.40–1.66 (1.51)	1.72–2.31 (1.96)	1.79–2.14 (1.93)	1.65–2.08 (1.85)	1.87–2.26 (2.08)	2.10–2.45 (2.27)

Table 4. Comparison of some larval characters for seven subgenera and three additional species of genus *Wyeomyia*

Character	*Spilonympha*	*Wy. aporonoma*	*Wy. melanocephala*	*Wy. occulta*	*Cruzmyia*	*Dendromyia*	*Dodecamyia*	*Exallomyia*	*Wyeomyia*	*Prosopolepis*
Seta 14-C longer than 15-C ≈3 times or more	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Seta 15-C posterior or in line with setae 14-C	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	No
Seta 4-P fanlike	Yes	No	Yes	Yes	No	Yes	No	No	No	Yes
Seta 11-P, M, T spiniform	Yes	No	No (only T)	Yes	No	Yes	No	No	No	Yes
Seta 12-III-IV anterior to seta 13-III and IV	Yes	Yes	Yes	No	Yes	No	No	No	No	No
Comb plate present	Yes	No	No	No	Yes	No	No	No	Yes	No
Siphon with numerous accessory seta distributed aleatoric	Yes	No	No (with fringe)	No	No	No	Yes	Yes	No	No
Saddle without spicules on posterior margin	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5. Comparison of some pupal and male genitalia characters for seven subgenera and three additional species of genus *Wyeomyia*

Characters	*Spilonympha*	*Wy. aporonoma*	*Wy. melanocephala*	*Wy. occulta*	*Cruzmyia*	*Dendromyia*	*Dodecamyia*	*Exallomyia*	*Wyeomyia*	*Prosopolepis*
Cephalothorax and abdomen spotted	Yes	No	No	No	Yes	No	No	No	No	No
Setae 3-VII almost in line with setae 1	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Seta 6-II long crossing the apex of III segment	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Seta 6-VII dorsal	Yes	Yes	Yes	No	No	No	Yes	Yes	No	Yes
Paddle without developed spines at apex	Yes	Yes	Yes (with small spines)	Yes (with small spines)	Yes (with small spines)	No	Yes	No	No	No
Tergal surface of gonocoxite with two long seta	Yes	No	Yes	No	No	No	No	No	No	Yes
Gonostylus with stem	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	No

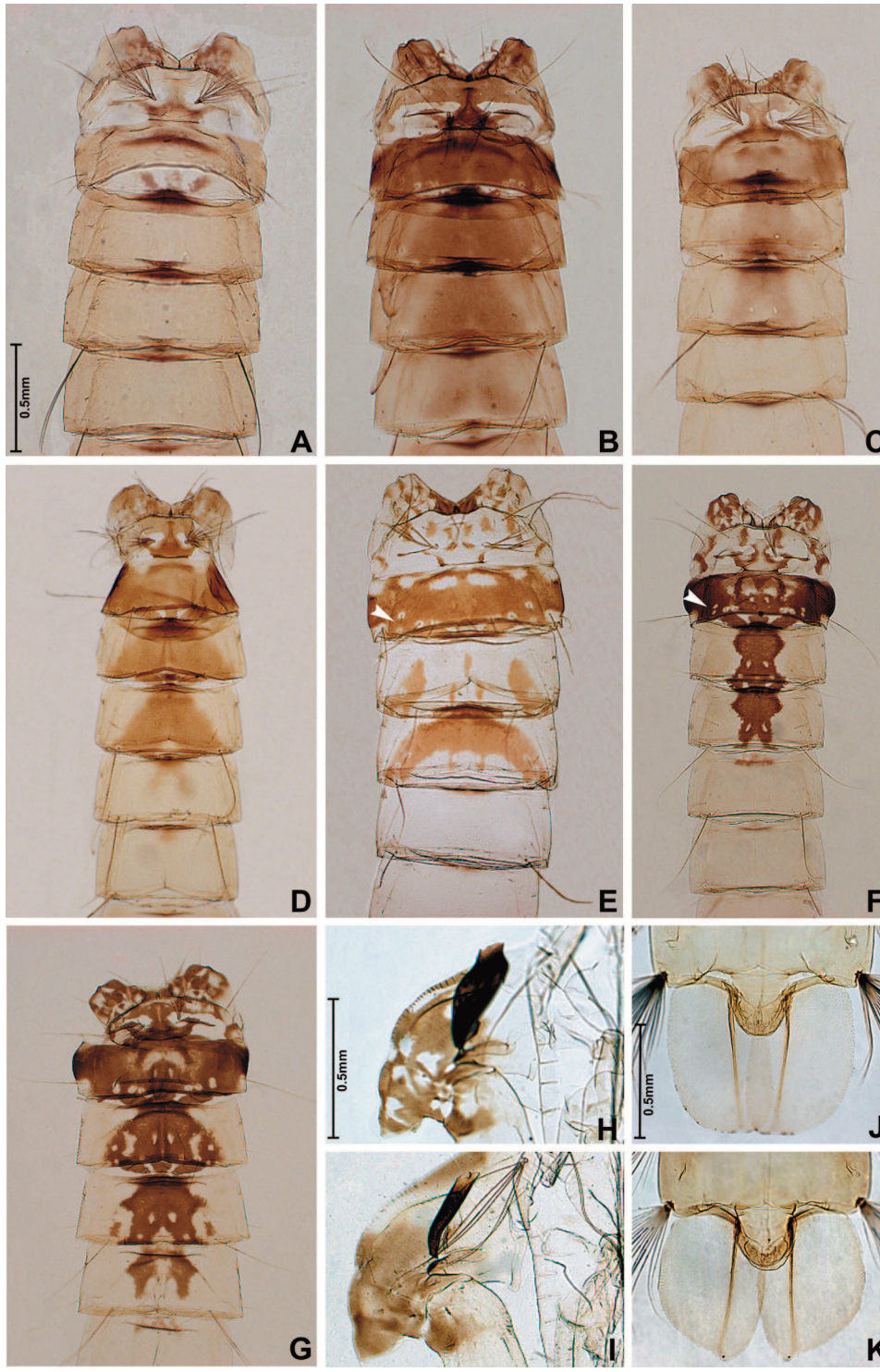

Fig. 1. Pupa of *Spilonympha*. (A–G) Pattern of pigmentation of abdomen on tergum. (A) *Wy. mystes*. (B) *Wy. aningae*. (C) *Wy. airosai*. (D) *Wy. howardi*. (E) *Wy. finlayi*. (F) *Wy. bourrouli*. (G) *Wy. forcipenis*. (H) Trumpet of *Wy. bourrouli*. (I) Trumpet of *Wy. howardi*. (J) Paddle of *Wy. mystes*. (K) Paddle of *Wy. aningae*. (E and F) Arrows point to base of setae 4 and 5 of tergum II.

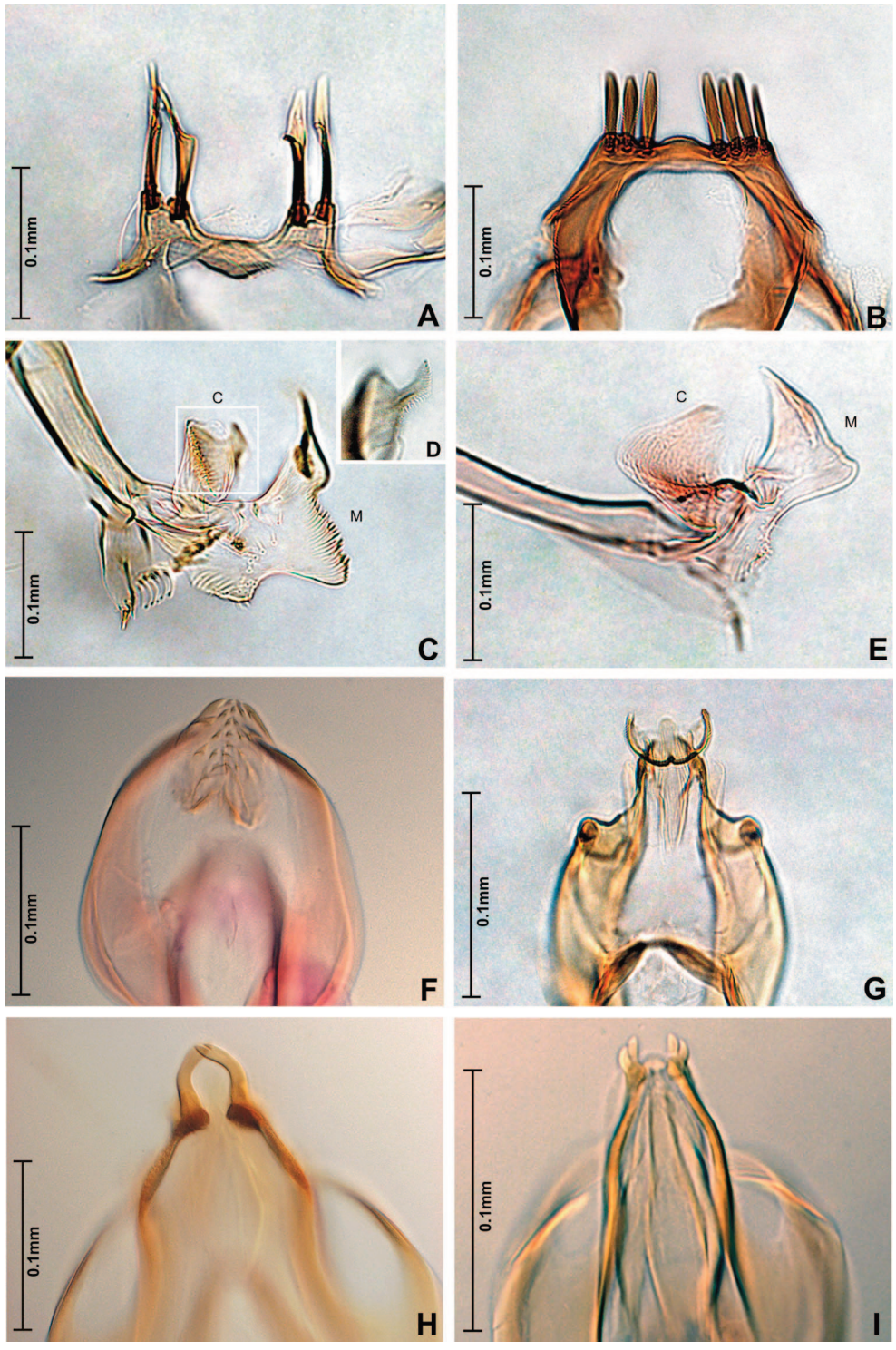

Fig. 2. Male genitalia of *Spilonympha*. (A) Tergum IX of *Wy. howardi*. (B) Tergum IX of *Wy. finlayi*. (C) Gonostylus of *Wy. mystes*, showing lobe C amplified (D). (E) Gonostylus of *Wy. aningae*. (F–I) Aedeagus: *Wy. airosai* (F), *Wy. finlayi* (G), *Wy. forcipenis* (H), and *Wy. bourrouli* (I).

reflections on dorsal top, ventral third covered with white scales, long, black setae dorsally. Postpronotum white scaled. Scutum covered with darkish scales with blue greenish iridescence; supraalar grove dark scaled, except in *Wy. airosai* in which scales are white colored; anterior promontory with few white scales. Scutellum with scales concolorous with scutum, with long brown setae posteriorly on each lobe. Mesopostnotum brown, sometimes with one or two scales intermixed with tuft of setae. Pleural sclerites pale colored, densely covered with whitish scales, lower part of proepisternum bare; pleural setae yellowish to brownish, lower mesokatepisternal setae brownish, inserted below and above upper margin of mesomeron, prealar setae strong and brownish, upper mesepimeral setae yellowish. *Wing:* Uniformly dark brown scaled; scales on dorsal surface broadly spatulate in almost all vein in *Wy. aningae* sp. n., *Wy. mystes* and *Wy. airosai*, slightly narrower in *Wy. bourrouli*, *Wy. forcipenis*, *Wy. finlayi* and *Wy. howardi.* Scales on ventral surface broadly spatulate. Vein R2 noticeably longer than R2 + 3, vein 1A extending considerably beyond junction of mcu and CuA. Alula with piliform setae on distal half. Upper calypter with setae near junction of alula; lower calypter without setae and scales. *Halter:* Scabellum without scales, integument pale; pedicel and capitellum dark scaled dorsally. *Legs:* coxae and trochanters covered with white scales dorsally. Femora and tibiae mostly dark scaled with stripe of light scales ventrally. Tarsomeres dark. Ungues small, single. *Abdomen:* line between dark and whitish scales nearly straight to weakly angular incisions. Tergum I entirely covered with scales. Laterotergite without scales. Tergum covered with dark scales with dull blue greenish iridescence, setae yellowish.

Male. Similar to female, except for the sexual differences. Antenna slightly more verticillate than female; proboscis pale ventrally.

Male genitalia are shown in Figs. 2 and 3. Tergum VIII with setae uniformly distributed, without either lateral lobe or tuft of setae. Tergum IX with lobes bearing strong setae. Gonocoxite elongate, tergal surface with two long, strong setae; gonostylus with conspicuous stem, apically divided into four lobes (Fig. 3A–D): lobe A digitiform with two teeth; lobe E nearly plain, with one row of strong setae on distal margin; lobe M truncate at base with minute setae, expanded, rugose and curved apically; lobe C pilose and recurved. Paraproct with 1,2 apical teeth; aedeagus with submedian tergal arms joined.

Pupa (Figs. 1 and 4A and B). Cephalothorax normally with pattern of light brown to darkish pigmentation, particularly on distal scutal area and metanotum. Seta 1-CT strongly developed, sigmoidally curved, with hooked apex, 5-CT developed, long. Trumpet (Fig. 1H and I) nearly cylindrical, or expanded around the middle length (e.g., *Wy. bourrouli*, *Wy. Forcipenis*, and *Wy. finlayi*). Abdomen with light brown to dark pigmentations on dorsal surface, which compose patterns according to species (Fig. 1A–G). Seta 1-I developed and dendritic, 1-II mesad to seta 2, 1-III lateral to setae 2 and 3; 2-II-VII arising near posterior margin; 3-IV noticeably anterior to seta 1, seta 3-VII almost laterally in line with seta 1; 5-IV, V well developed, long and aciculate; 6-II longer than following tergum, 6-VII arising dorsally; 9-VII, VIII strongly developed, aciculate; 1-IX absent. Paddle ovate (e.g., *Wy. bourrouli*, *Wy. forcipenis*, *Wy. finlayi*, *Wy. howardi* and *Wy. airosai*) or somewhat rounded (e.g., *Wy. aningae* and *Wy. mystes*), short to moderately long (index 1.51–2.27), outer and inner margins serrate.

Larva (Fig. 5A–C). *Head:* hypostomal suture complete; occiptal foramen with dorsolateral slit-like extensions on sides. Dorsomentum with prominent broad median tooth. Maxilla short, slightly rounded; seta 1-Mx strong and bifid, seta 6-Mx inserted on margin of maxillary body or on cardo. Mandible short, dorsal surface with numerous long setae. Seta 14-C developed. Antenna short, seta 1-A inserted apically. *Thorax:* integument smooth. Setae 4-M, 7,13-T arising from individual basal plates, setae 9–12-P,M,T inserted on common basal plates, 11-P,M,T spine-like. Seta 1-P lateral to setae 2,3-P, 4-P aciculate; 13-T strongly developed. *Abdomen:* integument smooth. Seta 1-I, II very small, 1-IV-VII developed; 2-III-VI mesad to seta 1 of same segment; 3-V moderately long; 6-I-VI strongly developed, aciculate; 7-I, II strongly developed, aciculate; 13-I displaced anteriorly. Segment VIII: seta 1-VIII dorsal to comb plate; setae 2–5-VIII posterior to comb plate. Comb plate slightly sclerotized, with spine-like scales with fringed margin. Siphon: short to long with numerous simple or multiple accessory setae, unevenly distributed; seta 1-S inserted basally. Segment X: saddle incomplete, lightly tanned, without spines.

Etymology. The subgeneric name is derived from the Greek *spilus* (spotted) and *nympha* (immature stage) in reference to the dark pigmented pattern on the integument of the pupa of the majority of species of the new subgenus (Fig. 1).

Bionomics. All species are sylvan. Adults are active during the daytime and females are attracted to humans. One of 43 females of *Wy. bourrouli* dissected was found naturally infected with larvae of the heartworm *Dirofilaria immitis* in Brazil (Labarthe et al. 1998). The immature stages of *Spilonympha* have been collected from the leaf axils of Bromeliaceae (*Wy. bourrouli*, *Wy. forcipenis*, *Wy. howardi*, *Wy. finlayi*, and *Wy. airosai*), Araceae (*Wy. mystes* and *Wy. aningae*), and Agavaceae (*Wy. bourrouli*).

Distribution. The subgenus *Spilonympha* is widespread in South America. Species of *Spilonympha* have been collected in Surinam, French Guiana, and Bolivia to southern Brazil. *Wy. aningae* is very common in the Amazon forest, whereas the other taxa of the subgenus have been collected in the Atlantic rain forest of southeastern Brazil. Members of the subgenus are known from the Brazilian states of Pará, Goiás, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, and Paraná.

Discussion. *Spilonympha* forms a group of very similar species that shares most morphological features in all life stages. Members of *Spilonympha* markedly dif-

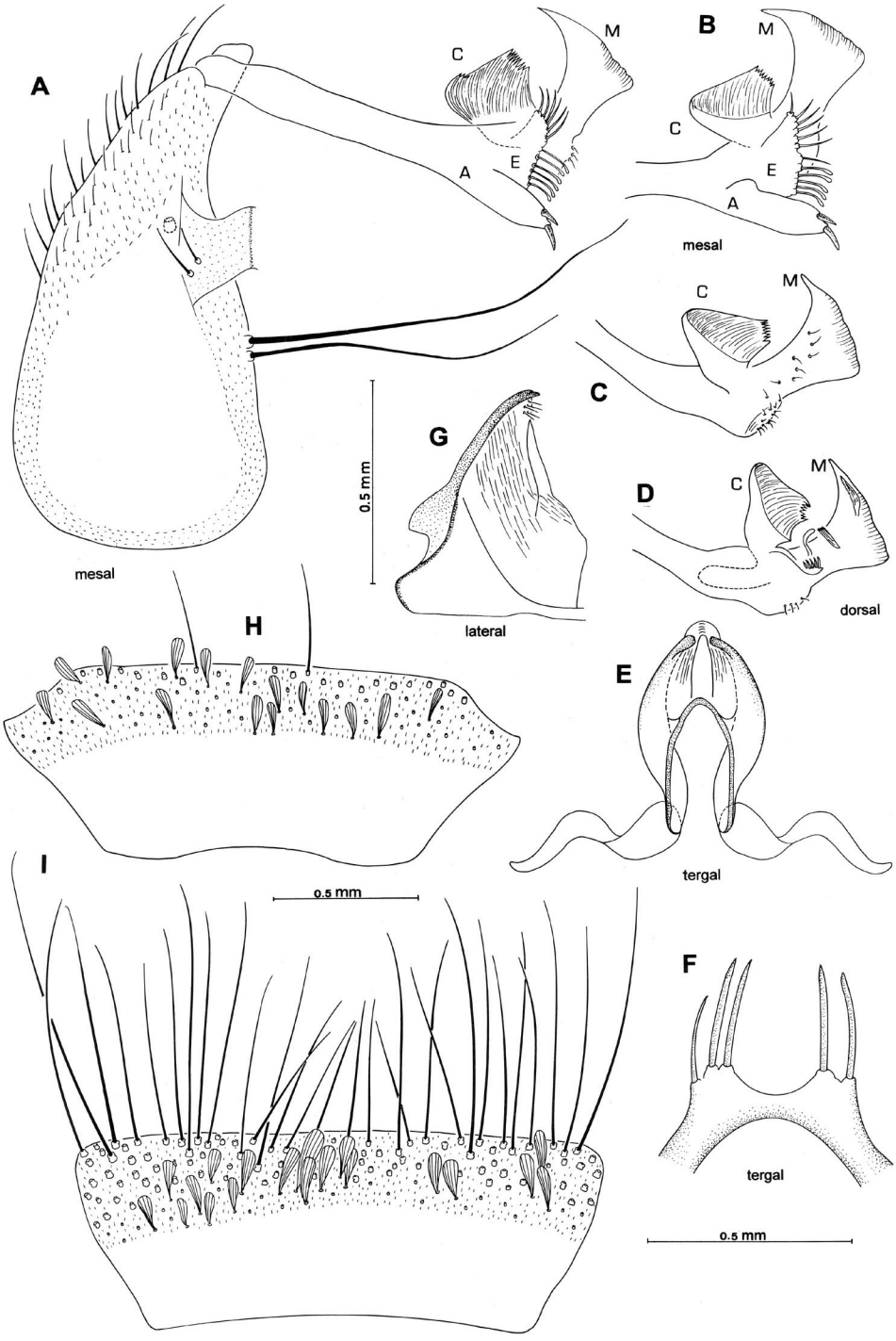

Fig. 3. Male genitalia of *Wy. aningae*. (A) Gonocoxite and gonostylus. (B–D) Gonostylus. (E) Aedeagus. (F) Tergum IX. (G) Proctiger. (H) Sternum VIII. (I) Tergum VIII.

fer from those of the other subgenera of *Wyeomyia* mainly in the characters of the male genitalia, larva, and pupa. *Spilonympha* can be recognized in having the gonocoxite (Fig. 3A) elongate, with two long setae on tergal surface and gonostylus (Fig. 3A–D) with developed stem, apically divided into four lobes: lobe A digitiform with two teeth; lobe E long, plain, with distal margin bearing one row of strong setae; lobe M

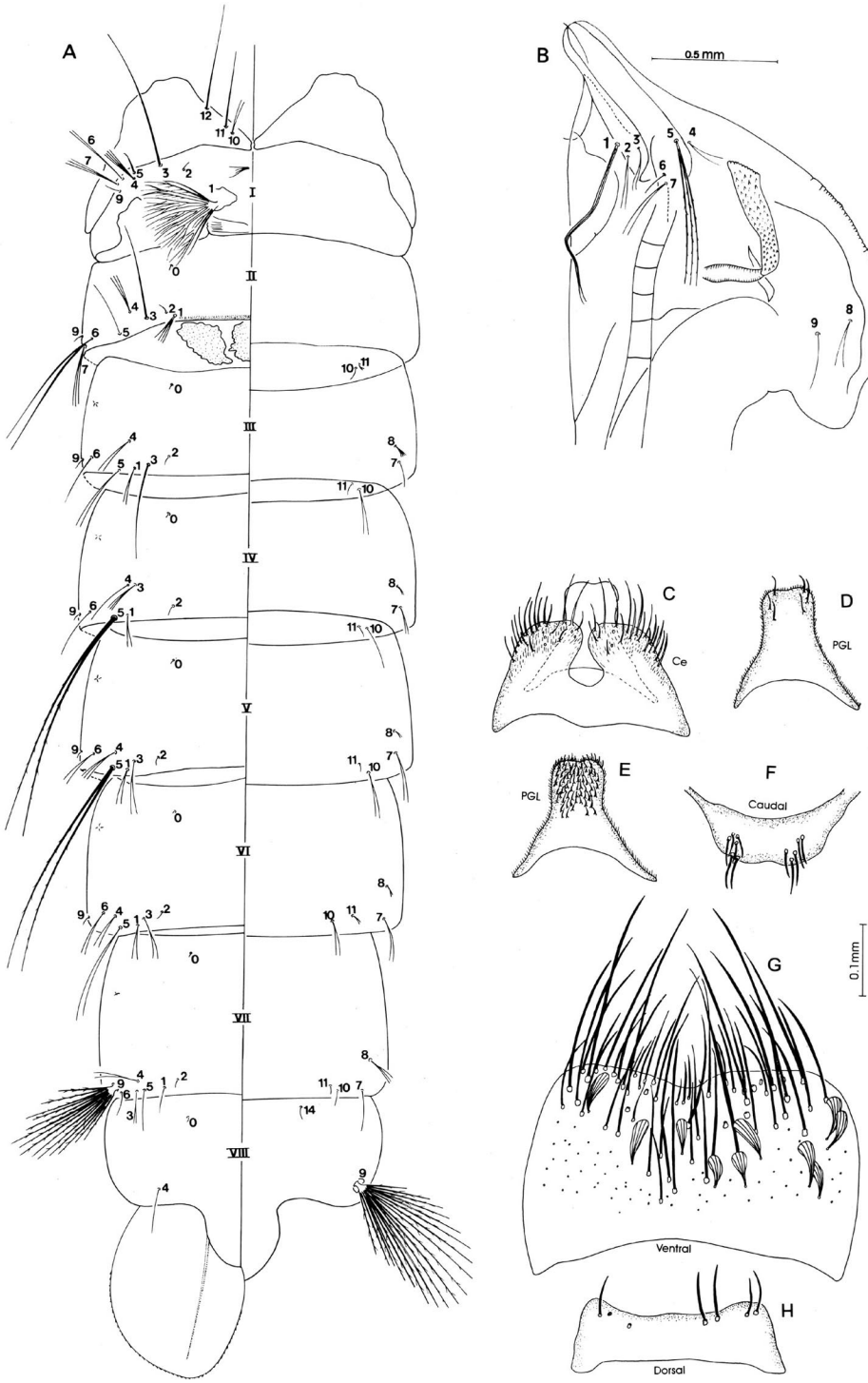

Fig. 4. Pupa and female genitalia of *Wy. aningae.* (A and B) Pupa, dorsal and ventral aspects of metathorax and abdomen (A) and cephalothorax (B). (C–H) Female genitalia, postgenital lobe and cerci (C), postgenital lobe (D and E), insula (F), sternum VIII (G), and tergum IX (H).

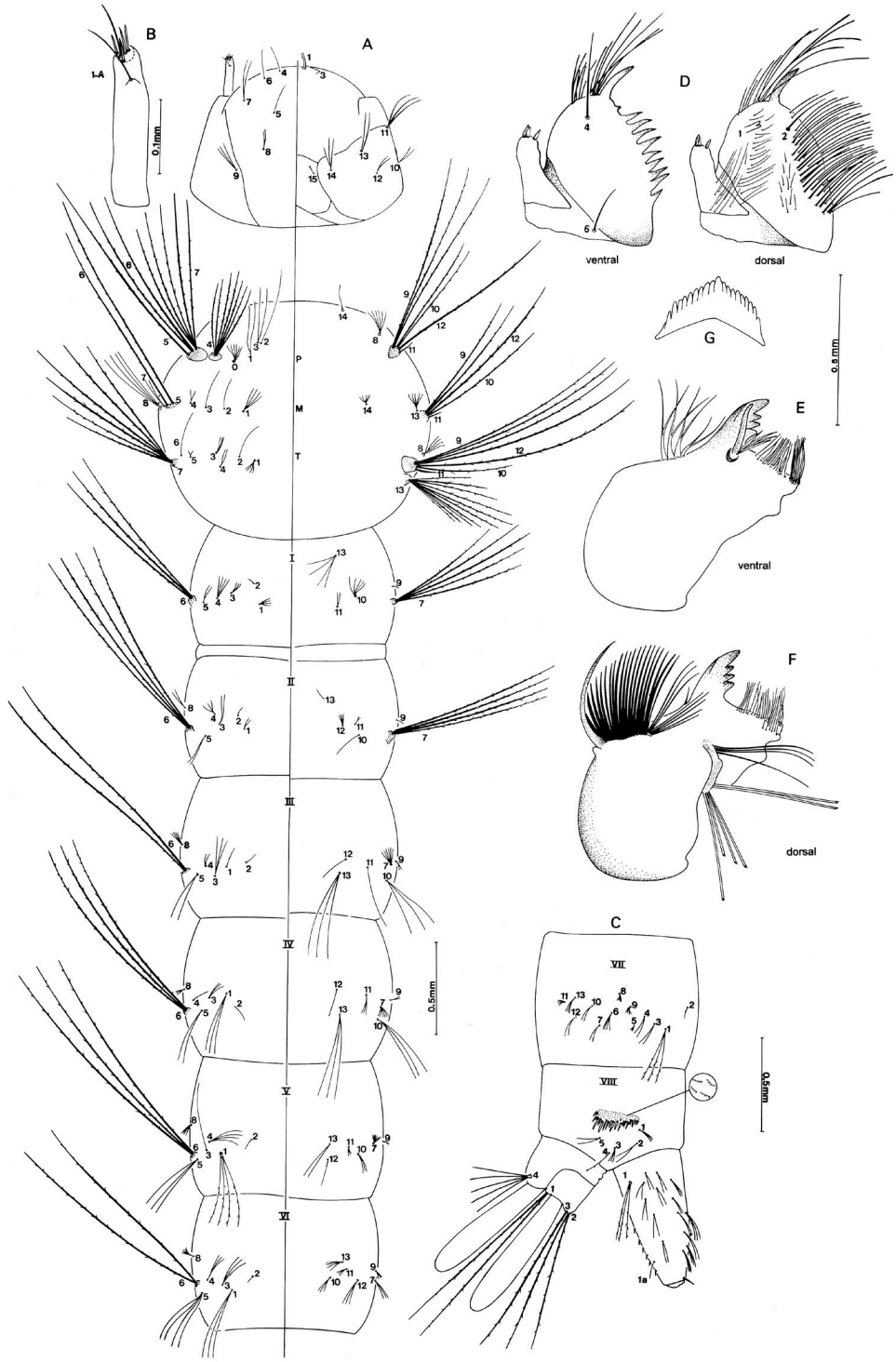

Fig. 5. Fourth instar of *Wy. aningae*. (A) Head, thorax, and abdominal segments I-VI, dorsal and ventral aspects. (B) Antenna. (C) Abdominal segments VII–X. (D) Maxilla, ventral and dorsal aspects. (E and F) Mandible, ventral aspect (E) and dorsal aspect (F). (G) Dorsomentum.

truncate at base with minute setae, expanded, rugose, and curved apically; lobe C rugose, curved to inside. Larva (Fig. 5) with integument smooth; comb plate present; siphon with numerous accessory setae; seta 1-S inserted far basal in most species. Pupa (Fig. 1) with pattern of darkish pigmentation on cephalothorax and abdomen in most species.

Most species included in the new subgenus *Spilonympha* were placed in the subgenus *Dendromyia* by Lane and Cerqueira (1942) and Lane (1953). However, these species were retained in *Wyeomyia* without subgeneric treatment in the review of subgenus *Dendromyia* (Motta and Lourenço-de-Oliveira 2000), because they differ markedly in morphological characters of all life stages from members of the subgenus *Dendromyia* as well as from the other subgenera of *Wyeomyia* (Tables 4 and 5). In an isozyme analysis, comparing taxa of different morphological groups of the genus *Wyeomyia* (Motta et al. 1998), *Wy. mystes* of subgenus *Spilonympha* was placed in an isolated branch in the displayed phenogram and showed low value of identity with species belonging to the subgenus *Prosopolepis* Lutz and *Dendromyia*, as well as with specimens of *Wy. negrensis* Gordon & Evans (probably *Wy. occulta* Bonne-Wepster & Bonne; Motta and Lourenço-de-Oliveira 2000). Based on morphological characters, *Spilonympha* is more similar to *Cruzmyia* than to any other subgenus, although taxa belonging to *Spilonympha* differ markedly from those of *Cruzmyia* in all stages. Indeed, the subgenera of genus *Wyeomyia* are a heterogeneous assemblage of species and comprehensive studies of the immature stages have been recommended for elucidating the phyletic lines (Belkin et al. 1970). Thus, the relationship suggested here is based on morphological similarity and further analysis, including species of the entire genus will be necessary to estimate phylogenetic relationships and determine monophyletic groups within the genus *Wyeomyia.*

The subgenus *Spilonympha* is a very homogeneous assemblage of seven species sharing several morphological similarities in all life stages. Nevertheless, those species of the genus *Spilonympha* can be easily distinguished from each other on the basis of characters of the immature stages and male genitalia. Characters of adult females also allow the distinction among species; however, it is more problematic because they are discrete and not easy to evaluate. Consequently, an identification key using characters of the adult female was not provided in this study.

Wy. bourrouli and *Wy. forcipenis* are very closely related species as stated by Lourenço-de-Oliveira and Silva (1985). These species differ only in the shape of the apex of mesal sternal plate of the aedeagus (Fig. 2H and I) and pattern of darkish pigmentation on the pupal abdomen (Fig. 1F and G). Larvae of both species are identical and have been collected in bromeliads, although *Wy. bourrouli* also has been found in corn *Dracaena fragrans* (L.) Ker Gawl (Agavaceae). *Wy. airosai*, *Wy. howardi*, and *Wy. finlayi* have been collected only in bromeliads. Coincidentally, the pigmentation on pupal integument is more intense in *Wy. bourrouli*, *Wy. forcipenis*, *Wy. howardi*, and *Wy. finlayi* (Fig. 1). *Wy. aningae* is very similar to *Wy. mystes*, both in biological and morphological aspects. The immature stages of both species grow in axils of Araceae, located in very humid places such as along streams or in flooded areas at the forest margins. Larvae of taxa *Wy. aningae* and *Wy. mystes* possess a short siphon and false pecten present; the integument of the pupae is less pigmented and the paddles is shorter than in other species of the *Spilonympha* (Fig. 1). Additionally, in *Wy. aningae* and *Wy. mystes* the ninth tergal lobe of the male genitalia bears elongate and pointed setae, whereas in the other species setae are blunt and stout.

Wyeomyia (*Spilonympha*) *aningae* Motta & Lourenço-de-Oliveira sp. n.

(Figs. 3–5)

Wyeomyia (*Dendromyia*) *luteoventralis* of Lane and Cerqueira 1942: 538, 541, 590, 732, 733; Lane 1953: 946, 947.

Wyeomyia sp. Motta and Lourenço-de-Oliveira 1995: 385; Motta and Lourenço-de-Oliveira 2000: 682.

Female. *Head:* Eyes joined dorsally and ventrally. Vertex and occiput covered with broad dark-colored scales with dull blue greenish iridescence postgena and side of eyes with broad white scales, setae yellowish; ocular line with conspicuous line of white scales, ocular setae dark, long, arising close to ocular line, two long, dark interocular setae. Antenna dark, pedicel surface pubescent, with some narrow and minute light-colored setae on the inner surface; flagellum weakly verticillate, slightly shorter than proboscis. Clypeus, brown, pubescent, without scales and setae. Proboscis short, length 2.0–2.5 mm (mean 2.25 mm), ≈0.84 of forefemur, slightly expanded distally, entirely dark scaled; basal labial setae yellowish. Maxillary palpus short, ≈0.3 mm, 0.1 of proboscis length, consisting of two palpomeres, proximal palpomere very small, entirely dark scaled. *Thorax:* integument light brown; scutum and scutellum covered with moderately broad dark-colored scales with blue greenish iridescence; anterior promontory with light scales and dark setae; supraalar setae long and darkish (6–9). Mesopostnotum with integument brown, darkish mesally, bearing tuft of eight (8–11) dark setae, setae sometimes intermixed with one or two whitish scales. Antepronotum mostly covered with darkish scales with blue-violaceous iridescence, basal 0.3 covered with white scales, anterior margin with numerous strong dark setae (10–13), two or three bronzy prespiracular setae, pleural sclerites with brown integument, paler than scutum, mostly covered with whitish scales, six (4–6) bronzy upper proepisternal setae, four or five pale lower mesokatepisternal setae, inserted above and below upper margin of mesomeron, eight (7–9) short, yellowish upper mesepimeral setae. Scutellum similar in color to scutum, each lobe bearing four or five long, darkish setae. *Wing:* length 3.4–3.8 mm (mean 3.7 mm). Scales of dorsal surface of wing veins brownish, spatulate in all veins, vein M2 with

elongate scales; ventral surface with scales similar to those on dorsal surface, veins M and M2 with plume scales, vein R2 longer than vein R2 + 3, cell R2 longer than cell M1, vein 1A short, extending beyond junction of veins mcu and CuA. *Halter:* scabellum yellowish with dark scales on dorsal surface, capitelum with pale scales. *Legs:* coxae and trochanters covered with whitish scales dorsally and long, yellowish setae; femora and tibiae dark scaled with stripe of whitish scales ventrally. Tarsomeres entirely dark scaled. Ungues small, simple, black. *Abdomen:* terga covered with broad darkish scales with blue-greenish iridescence; sterna white scaled; line of demarcation between dark and pale scaling nearly straight; segments I and VIII with numerous brown setae. Genitalia (Fig. 4C–H): tergum VIII (not figured) with anterior margin straight, posterolateral margin rounded, covered with spatulate scales and setae; sternum VIII with anterior and lateral margins almost straight, posterolateral margin rounded with setae distributed in V-shaped pattern from anterior border to middle of posterior margin; tergum IX narrow, posterior margin irregular, with three to six small setae on each side (one scale was found in only one specimen). Insula covered with numerous minute setae, with central protuberance, slightly divided into two lobes, bearing four to seven setae on each side; postgenital lobe extending beyond apices of cerci, covered with minute setae, longer than broad, little expanded apicolaterally, distal margin slightly invaginated in the middle, usually with three (3, 5) setae on each side of dorsal surface, ventral surface with very short setae; upper and lower vaginal lips uniform. Cercus short, digitiform, with numerous relatively long setae distally on outer surface. Three spermathecal capsules similar in size.

Male. Similar to female except for sexual characters. Head with conspicuous line of white scales along ocular line. Antenna slightly more verticillate than female. Maxillary palpus 0.12 of proboscis. Proboscis dark scaled dorsally, light scaled ventrally, length 1.8–2.0 mm (mean 1.9 mm) ≈0.8 of forefemur. Wing length 2.9–3.3 mm (mean 3.1 mm); vein 1A moderately long. Genitalia (Fig. 3): tergum VIII covered with broad scales intermixed with minute setae, long, strong setae distally; sternum VIII with broad scales, and short setae distally. Tergum IX with large interlobar space, two dorsolateral lobes, each lobe with two or three long, strong setae. Gonocoxite elongate, tergal surface with two long, strong setae. Gonostylus consisting of one basal stem, apically divided into four lobes: lobe A, digitiform with two strong teeth, lobe E, arising from lobe A, with distal margin almost straightly, bearing one row of seven (7–9) spiniform setae and one group of five (5,6) spatulate setae, lobe M elongate, basally truncate with minute setae, that spread to an expansion, rugose and curved at apex with two small appendages, one brush-like (in the middle) and one small wing-like distally, lobe C shell-like toward to inside, pilose and rugose with fringed apex. Aedeagus longer than wide; submedian tergal arms joined at midline to form a tergal bridge, apical tergal arms not fused, fringed at apex, median sternal plate rugose, rounded apically. Proctiger (in lateral view) with basal sclerotization (tergum X), five small apical cercal setae, paraproct with flattened round process on sternal margin, apex with two or three teeth.

Pupa (Figs. 1B and 4A and B). Character and positions of setae as figured, numbers of branches in Table 1). *Cephalothorax:* light brown, darker on dorsum; seta 1-CT strongly developed, long, sigmoidal curved, double, with hooked apices, seta 5-CT slightly shorter than 1-CT, usually with three developed, aciculate branches, 8-CT usually double, 9-CT usually simple. *Trumpet:* slightly more pigmented than cephalothorax, pinna short, meatus nearly cylindrical, length 0.43–0.54 mm (mean 0.47 mm), width at mid-length 0.08–0.13 mm (mean 0.08 mm), index 3.92–6.75 (5.48). *Abdomen:* integument of metanotum and abdominal terga I-IV darkly pigmented, progressively lighter toward to the posterior segments, anteromesal of sterna I-VI with darkish pigmentation. Seta 1-I developed, dendritic; 1-II mesad to seta 2-II; 1-III lateral to setae 2,3-III; 1-III-VII moderately long, normally double or single; 2-II-VII near posterior margin of tergum, 2-II between and nearly in line with seta 1-II and 3-II, 2-III mesad to seta 1-III; 3-I-III long, usually single, 3-IV noticeably anterior to seta 1-IV and laterally in line with seta 4-IV, 3-V slightly anterior to seta 1-V; 5-IV,V developed, longer than the length of following tergum, usually double, aciculate, 5-VI usually double, moderately long, nearly 0.5 length of tergum VII, 5-VII short, usually single, mesad of setae 3,4-VII; 6-II developed, slightly longer than length of following tergum, usually double, 6-III-VII not developed, with similar length, moderately long, single or double; 9-VII,VIII strongly developed, aciculate; 1-IX absent. *Genital lobe:* slightly darker than abdomen, 0.3 length of paddle. *Paddle:* short, length 0.64–0.74 mm (mean 0.68 mm), nearly twice as long as tergum VIII, width at mid-length 0.40–0.50 mm (mean 0.45 mm), paddle index 1.38–1.68 (mean 1.52), width measured at mid-length, lightly tanned, with minute spicules, developed, ovate, asymmetrical, outer part 2.0 width of inner part, outer margin, distal 0.3 of inner margin and apex with minute serrations.

Fourth Instar Larva (Fig. 5). Character and position of setae as figured, numbers of branches in Table 2. *Head:* slightly wider than long, pale. Occipital foramen with long slits extending beyond posterior tentorial pit, limited by distinctive slightly triangular dark brown spot, margins of slits not pigmented. Labiogula elongate; hypostomal suture complete; dorsomentum normally with 11 (8–11) teeth on either side of prominent broad median tooth; maxilla short, slightly rounded, apical tooth moderately developed, curved, laciniarastrum with nine (9–11) teeth of similar shape, dorsal surface with numerous long setae laterally, median area with short setae, maxillary brush with numerous long setae, setae 2,4,6-Mx single, 6-Mx inserted on cardo, seta 1-Mx strong, bifid at apex, maxillary palpus adnate to maxillary body. Mandible short, mandibular sweeper setae in two groups of four and six setae with serrate apex. Seta 1-C short, stout, 4–6-C normally single, 7,8,10,12,13-C usually double, 14-C

developed, usually triple. Antenna: short, seta 1-A single, very close to apex. Thorax: integument smooth. Setae 4-M, 7,13-T inserted on individual basal plates, 9–12-P,M,T on common basal plates, 11-P,M,T single, spine-like, 1-P usually double, close and lateral to setae 2,3-P, 4-P aciculate; 11-T moderately long, 13-T strong, short, 0.5 length of seta 12-T. *Abdomen:* integument smooth. Seta 1-I,II very small, 1-I thin, multibranched, 1-III usually single, 1-IV-VII developed, long, 1-V,VII slightly aciculate, 1-IV anterior to seta 2 and 3; 2-I-VII short, simple, 2-III-VI mesad to seta 1-III-VI; 3-I,IV short, 3-II,III,VII moderately long, 3-V long, usually single; 5-I-VII becoming longer and with more branches in the posterior segments; 6-I-VI strongly developed, long and aciculate, 6-I,IV,V usually 3-branched, 6-II usually with four branches; 7-I,II strongly developed, long, aciculate, with four or five branches, 7-III-IV short, multibranched; 12-III-V anterior to 13-III-V; 13-I arising anteriorly, close to thorax, 13-II very small and single, 13-III-V multibranched, long. *Segment VIII:* seta 1-VIII dorsal to comb plate; 2–5-VIII posterior to comb plate; setae 1,3,5-VIII similarly developed, 2,4-VIII longer than 1,3,5-VIII, 4-VIII usually single, slightly aciculate. Comb with 13–19 spinelike scales inserted in slightly sclerotized comb plate, scales with variable sizes, long to very short, fringed margins. *Siphon:* short, length 0.60–0.71 mm (mean 0.65 mm), width at base 0.24–0.31 mm (mean 0.27 mm); index 2.06–2.62 (mean 2.39); pecten with four or five short, fringed scales on distal half of siphon. Seta 1-S inserted near base with two or three branches, slightly aciculate; 1a-S inserted distally, short, single or double; numerous short, two or three branched accessory setae, aleatoric distributed. *Segment X:* saddle incomplete, lightly tanned. Setae 1–3-X long and aciculate, seta 4-X short, 0.3 length of seta 3-X.

Type Material

HOLOTYPE: Male with associated larval and pupal exuviae on microscope slide accession number 1671, from individual rearings, BRAZIL, State of Pará, Belém, Estrada do Mosqueiro (1° 15′ S 48° 13′ W), near Paricatuba river, XI-92, col. M. Motta and O. Silva, deposited at IOC, Rio de Janeiro. PARATYPES: Two females, Le Pe, number 1667, 1668, 1 male Le Pe number 1670 from individual rearings, same data as holotype, IOC, and 2 females, Le Pe, 2 males Le Pe G, from individual rearings, same data as holotype, deposited at FSP, São Paulo; 1 female, number 2539, Pará, Curralinho, det. J Lane and Cerqueira, 1940 (as *Wy. luteoventralis*); 2 females, 2 males, 2 males G, Pará, Curralinho, XI-1935, number 9800, slides number 2292 and 2294, from larvae collected in aninga plant, deposited at Centro de Pesquisas René Rachou (CPRR), Belo Horizonte, det. N. Cerqueira; col. Serviço de Febre Amarela (as *Wy. luteoventralis*); 10 males Le Pe G, 13 males Le Pe, 25 females Le Pe, 3 females Le Pe G from 13 individual rearings, Pará, Belém, Estrada do Mosqueiro, XI-92, IOC, col. M. Motta and O. Silva; 12 males Le Pe G, 12 females Le Pe, from larvae collected in aninga plant, Pará, Belém, Utinga, Catu, XI-91, IOC, col. R. Lourenço-de-Oliveira and M. Castro.

Etymology. The name "Aningae" is in allusion to the habitat of the immatures of the species, the aninga plant *Montrichardia arborescens* (L.) Schott (Araceae).

Bionomics. *Wy. aningae* have been frequently collected while feeding on humans in the forest during the daytime. The immature stages have been found in the leaf axils of *M. arborescens.*

Distribution. Known only from the state of Pará, in the Brazilian Amazon: Belém, Santa Isabel, Santarém, and Marajó Island (Curralinho and Canaticu rivers).

Discussion. Lane and Cerqueira (1942) (590, 733) aiming at fixing the concept of the subgenus *Dendromyia*, presented a redescription of what they considered to be the type species, *Dendromyia luteoventralis* Theobald. The description of adult female and male, including male genitalia, was based on reared specimens collected as larva from the leaf axils of the aninga plant in Marajó Island, State of Pará, Brazil. Comparing the lectotype of *Wy. luteoventralis* with the specimens described by Lane and Cerqueira (1942), as well as with numerous samples identical to those described by the authors, which we collected in aninga plants in the State of Pará, we concluded that they belonged to different species. Consequently, *Wy luteoventralis* was redescribed and properly defined, and the application of the subgeneric name *Dendromyia* was established (Motta and Lourenço-de-Oliveira 1995). Additionally, we also noted that the form misidentified as *Wy. luteoventralis* by Lane and Cerqueira (1942) markedly differs in several morphological characters of all life stages from *Dendromyia* (Tables 4 and 5), as well as from all other species of the genus *Wyeomyia* (Motta and Lourenço-de-Oliveira 2000). Therefore it is herein described as a new species, named *Wy. aningae.*

Wy. aningae shares several biological and morphological characters with the other nominal species included in the new subgenus *Spilonympha;* however, it is morphologically more similar to *Wy. mystes* than to any other species. *Wy. aningae* and *Wy. mystes* possess nearly identical male genitalia structures; however, they can be easily distinguished by 1) the shape of lobes C and M of gonostylus, and 2) the stem of the gonostylus is longer in *Wy. aningae* (gonocoxite 1.18–1.26 of length gonostylus) than in *Wy. mystes* (1.42–1.44). Differences also are noted in the pupal stage: 1) the apex of paddle is almost straight and 2) setae 10-CT is four or five branched. Fourth instar larva differences include 1) the comb plate has 7–10 spine-like scales of similar size in the larva of *Wy. mystes.*

Material Examined

Wy.* (*Spilonympha*) *mystes. Thirteen females, 9 males, 9 male genitalia, 22 larval and pupal exuviae (IOC). BRAZIL: 6 females Le Pe and 5 males Le Pe G, from larvae collected in Araceae, Rio de Janeiro, Itaguaí, Raiz da Serra, IX-92, det. M. Motta, col. M. Motta; 2 males Le Pe G, 2 females Le Pe, from larvae collected in Araceae, Rio de Janeiro, Ilha Grande,

Maguaraquiçaba Beach, VI-2000, det. M. Motta, 2000, col. M. Motta; 2 males Le Pe G; two females Le Pe, from larvae collected in Araceae, Rio de Janeiro, Itatiaia, Parque Nacional do Itatiaia, IX-2002, det. M. Motta, col. M. Motta; 3 females Le Pe, from 1 individual rearing, São Paulo, Itapira, X-93, det. M. Motta, col. M. Motta.

***Wy.* (*Spilonympha*) *bourrouli*.** Eleven females, 10 males, 6 male genitalia, 16 larval exuviae, and 19 pupal exuviae (IOC). BRAZIL: 2 male G, 4 males Le Pe, 3 males Le Pe G, 1 male Pe G, 2 females Pe, 2 females Le Pe, from larvae collected in *D. fragrans*, Rio de Janeiro, Xerém, IX-92; 5 females Le Pe, from larvae collected in bromeliads, Rio de Janeiro, Tinguá, Tinguá forest reservation, X-2002; 2 females Le Pe, same data except V-2003.

***Wy.* (*Spilonympha*) *forcipenis*.** Six females, 6 males, 4 male genitalia, 9 larval exuviae, and 12 pupal exuviae (IOC). BRAZIL: PARATYPES: 1 female Le Pe, number 197, 1 female Pe, number 152, from larvae collected in bromeliads, Rio de Janeiro, Jacarepaguá, I-82, det. R. Lourenço-de-Oliveira, I-85, col. R. Lourenço-de-Oliveira; 1 male Le Pe G, 1 male Le Pe, 2 females Le Pe, from one individual rearing, Rio de Janeiro, Jacarepaguá, I-82, det. R. Lourenço-de-Oliveira, I-85, col. R. Lourenço-de-Oliveira; 1 male Le Pe, from larvae collected in bromeliads, Rio de Janeiro, Jacarepaguá, I-82, det. R. Lourenço-de-Oliveira, I-85, col. R. Lourenço-de-Oliveira; 3 males Le Pe G, 2 females Pe, from larvae collected in bromeliads, Rio de Janeiro, Niterói, Itacoatiara, V-95, det. M. Motta, 1995, col. M. Motta.

***Wy.* (*Spilonympha*) *howardi*.** Four females, 4 males, 3 male genitalia, four larval exuviae, 5 pupal exuviae. BRAZIL: HOLOTYPE: male G, number 2299, Bahia, Muriqueira, VI-29, det. Lane and Cerqueira, 1941, col. R.C. Shannon (IOC); ALLOTYPE: female from bromeliad, same data, IV-29, det. Lane and Cerqueira, 1941, col. Lab. Shannon (IOC); 1 male G, Bahia, Muriqueira, number 2538, det. Lane and Cerqueira, 1940 (CPRR); 3 females Le Pe, 1 male Le Pe G, 1 male Pe, from larvae collected in bromeliads, Bahia, Goes Calmon (new name of Muriqueira), VIII-2001, det. M. Motta, col. M. Motta (IOC).

***Wy.* (*Spilonympha*) *airosai*.** Two females, 11 males, 6 male genitalia, 10 larval and pupal exuviae. BRAZIL: HOLOTYPE: male number 4283, Le Pe, slide number 2271, G, slide number 2284, Espírito Santo, Santa Tereza, V-40, det. Lane and Cerqueira, 1941, col. L. Whitman (IOC); ALLOTYPE: female, number 4301, Le Pe, slide number 2281, same data as holotype; 2 males G, 1 male Le Pe G, 1 male Le Pe, from larvae collected in bromeliads, Rio de Janeiro, Rio Bonito, III-94, det. M. Motta, col. M. Motta (IOC); 1 female Le Pe, 3 males Le Pe, 1 male G, from larvae collected in bromeliads, Rio de Janeiro, Itatiaia, Parque Nacional do Itatiaia, IV-2003, det. M. Motta, col. M. Motta (IOC); 1 male number E-8676, Le Pe, slide number 6094; 1 male number E-8677, Le Pe G, slide number 6095, collected in bromeliads, São Paulo, Tremembé, Taubaté, det. Entomol. FSP 1990, col. A. C. Gomes, VII-89 (FSP).

***Wy.* (*Spilonympha*) *finlayi*.** Four females, 4 males, 2 male G, 13 larval exuviae, and 9 pupal exuviae. BRAZIL: HOLOTYPE: male number 22393, G slide number 2259, Le Pe slide number 2260, Rio de Janeiro, Xerém, VI-40, det. Lane and Cerqueira, col. L. Whitman (IOC); ALLOTYPE: female, Pe Le slide number 2258 Rio de Janeiro, Tinguá, det. Lane and Cerqueira, col. R. C. Shannon (IOC); 3 Le, two Pe, 2 Le Pe from 1 individual rearing, Rio de Janeiro, Tinguá, Tinguá forest reservation, IX-92, det. M. Motta, col. M. Motta (IOC); 1 female Le Pe, 1 male Le Pe, 2 Pe, from 1 individual rearing, the same data as above, except, col. X-2000, det. 2000; 1 male Le Pe, 1 female Le Pe, from larvae collected in bromeliads, Rio de Janeiro, Itatiaia, Parque Nacional do Itatiaia, IV-2003, det. M. Motta, 2003, col. M. Motta; 1 female Le Pe, number E-7165, slide number 4904, 1 male Le Pe G, number E-7166, slide number 4905, São Paulo, Pedro Toledo, Sítio Caravana, XI-73, det. Sallum, 1983, col. FSP Epidemiologia, XI-73 (FSP).

***Wyeomyia aporonoma* Dyar & Knab.** BRAZIL: 2 females Le Pe, 1 male Pe G, from individual rearings, Pará, Belém, Estrada do Mosqueiro, XI-92, det. M. Motta; col. M. Motta and O. Silva.

***Wy. melanocephala* Dyar & Knab.** BRAZIL: 2 males G, from larvae collected in Aracea, Rondônia, Ariquemes, VII-1986, det. M. Castro, R. Lourenço-de-Oliveira and M. Motta, col. R. Lourenço-de-Oliveira; 1 female Le Pe, 1 female Pe same data as above except collected in VII-87.

***Wy. occulta*.** BRAZIL: 1 male Le Pe G, 2 females Le Pe, from larvae collected in Sororoca (Musaceae), Pará, Belém, XI-92, det. M. Motta, col. M. Motta and O. Silva.

***Wy.* (*Cruzmyia*) *forattinii* Clastrier.** BRAZIL: 1 male Le Pe G, 1 male Pe G, 1 female Le Pe, collected in bromeliads, Cujubim, Rondônia, VII-87, det. R. Lourenço-de-Oliveira, M. Castro and M. Motta, VII-89, col. M. Castro.

***Wy.* (*Dendromyia*) *ypsipola* Dyar.** BRAZIL: 1 female Le Pe, 2 males Le Pe G, from Heliconia, Bahia, Goes Calmon, VIII-2000, det. M. Motta, col. C. Pinto.

***Wy.* (*Dodecamyia*) *aphobema* Dyar.** BRAZIL: 1 male Pe G, 1 female Le Pe, from buriti (*Mauritia* sp.), 1 female Le Pe, from bromeliads, Rondônia, Ariquemes, VII-86, det. M. Motta, 1987, col. R. Lourenço-de-Oliveira.

***Wy.* (*Exallomyia*) tarsata Lane & Cerqueira.** BRAZIL: 1 male G, 1 male Le Pe G, 1 female Le Pe, from tree hole, Chapada dos Guimarães, Mato Grosso, II-2001, det. M. Motta, col. J. Alencar.

***Wy.* (*Wyeomyia*) *oblita* Lutz.** BRAZIL: 2 females Le Pe, 1 male Le Pe G, 1 male G, from larvae collected in bamboo, Rio de Janeiro, Tinguá III-2003, det. M. Motta, col. G. Vieira and M. Motta.

***Wy.* (*Prosopolepis*) *confusa* (Lutz).** BRAZIL: 1 male Le Pe G, 2 females Le Pe, from larvae collected in Marantacea, Teresópolis, Parque Nacional da Serra dos Órgãos, IV-1995, det. M. Motta, col. L. Barros.

Species Identification Keys

Male Genitalia

1. Setae on tergum IX foliform, expanded apically (Fig. 2A) . . . . . *howardi*
   Setae on tergum IX either slender or broad, with pointed or blunt apex, never foliform as above (Fig. 2B) 2
2. Setae of tergum IX elongate, slender, with pointed apex (Fig. 3F) 3
   Setae of tergum IX stick-like, broad, with blunt apex 4
3. Lobe C of gonostylus with a small appendix distally; lobe M expanded in the middle (Fig. 2C) . . . . . *mystes*
   Lobe C of gonostylus without appendix, lobe M narrow in the middle (Fig. 2E) . . . . . *aningae*
4. Aedeagus with median sternal plate spiculose (Fig. 2F) . . . . . *airosai*
   Aedeagus with median sternal plate without spicules 5
5. Aedeagus with apical tergal arms folded into a roughly right angle; median sternal plate apically with goblet form and joined apically (Fig. 2G) . . . . . *finlayi*
   Aedeagus with apical tergal arms straight toward the apex; median sternal plate with other form 6
6. Aedeagus with median sternal plate elongate, ending into two claw-shaped processes apically cleft, forceps-like (Fig. 2H) . . . . . *forcipenis*
   Aedeagus with median sternal plate bearing two short teeth on each side of apex. (Fig. 2I) . . . . . *bourrouli*

Pupa

1. Paddle rounded, length 1.5 the width; seta 5-VI moderately developed, less developed than 5-IV,V, noticeably shorter than tergum VII . . 2
   Paddle ovate, elongate, length 2.0 the width; seta 5-VI well developed, as developed as 5-IV,V longer than tergum VII 3
2. Apex of paddle somewhat pointed on inner side; seta 10-CT with two branches (Fig. 1K) . . . . . *aningae*
   Apex of paddle almost straight; seta 10-CT with four or five branches (Fig. 1J) . . . . . *mystes*
3. Trumpet tubular, semicylindrical (Fig. 1I) . . . 4
   Trumpet strongly expanded around middle (Fig. 1H) 5
4. Setae 5-CT with four to six branches; trumpet long, index seven (range, 5.57–7.80) . . . . . *howardi*
   Setae 5-CT with two or three branches; trumpet short, index 4.00 (range, 3.17–4.60) . . . . *airosai*
5. Seta 4-II arising well anterior to 5-II, pale area around the base of each seta noticeably isolated; pigmented area on tergum IV usually arch-shaped, very expanded laterally (Fig. 1E) . . . . . *finlayi*
   Seta 4-II close to 5-II, pale area around the base of each seta very close or coalescent; pigmented area on tergum IV not expanded laterally (Fig. 1F) 6
6. Tergum III with dark pigmented longitudinal area narrow; tergum V without a pattern of darkish pigmentation, rarely with slight brown pigmentation near the base (Fig. 1F) . . . . . *bourrouli*
   Tergum III with dark pigmented longitudinal area expanded laterally; tergum V, with a pattern of darkish pigmentation (Fig. 1G) . . . . . *forcipenis*

Larva

1. False pecten present; length of siphon <3 times the width at base 2
   False pecten absent; length of siphon >3.5 times the width at base 3
2. Comb of segment VIII with 13–19 spine-like scales of different size . . . . . *aningae*
   Comb of segment VIII with 7–10 spine-like scales of similar size . . . . . *mystes*
3. Setae 14-C very developed, almost twice (1.7) the length of antenna; seta 11-T spine-like and bifid . . . . . *airosai*
   Setae 14-C not so developed, almost the same size of antenna; seta 11-T spine-like and simple . . . 4
4. Accessory setae of siphon mostly simple, elongate, almost twice the length of comb scales . . . . . *bourrouli* and *forcipenis*
   Accessory setae of siphon branched, short, similar in size to comb scales 5
5. Setae 14-C with 7–10 branches; maxilla with a distinct, elongate, apical tooth . . . . . *howardi*
   Setae 14-C with two or three branches; maxilla without a distinct apical tooth . . . . . *finlayi*

Females Diagnosis

Characters that partially differentiate females of *Spilonympha* are recounted here. Length and index of some structures are on Table 3. Females of *Wy. airosai* are distinguished from the other species of *Spilonympha* by the presence of white scales on the supraalar grove, and proboscis slightly longer, almost the same length of the forefemur (Table 3). *Wy. howardi* differ from the other species by possessing the antepronotum with a more noticeably blue shine. *Wy. aningae* and *Wy. mystes* can be distinguished from *Wy. finlayi*, *Wy. bourrouli*, *Wy. forcipenis*, and *Wy. howardi* in having vein 1-A short, ending slightly beyond junction of vein mcu to CuA. *Wy. finlayi* and *Wy. mystes* differ from the other species by having angular incision of pale scaling on abdominal segments III to VI. Cell R2 is clearly longer than cell M1 in *Wy. aningae* and *Wy. mystes* and usually similar in size to *Wy. bourrouli*, *Wy. forcipenis*, and *Wy. howardi*.

Acknowledgments

We thank Maria Anice Mureb Sallum (FSP-USP) for reviewing the manuscript and making significant suggestions

toward its improvement; Orlando Vaz Silva (Instituto Evandro Chagas) and Pedro Martins and entomological team (Fundação Nacional da Saúde) for helping with the fieldwork in Belém and Salvador, respectively; Mara Lemos and Marcelo Rabelo (FIOCRUZ) for inking the illustrations; and Genilton Vieira and Bruno Eschenazi (IOC) for helping with the photography.

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Received 29 July 2004; accepted 19 January 2005.