A SYNOPSIS OF NEW WORLD LOPHOPIDAE (HOMOPTERA, FULGOROIDEA)

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ABSTRACT

A new species, *Carrionia panamensis*, is described. The genus *Ucayalia* Fennah is synonymized with its senior synonym *Carrionia* Muir, and *Carrionia nigrovittata* (Fennah) becomes a new combination. Keys to the 3 genera and 7 species and illustrations of the frons, vertex, and forewing of each species are provided.

RESUMEN

Se describe una nueva especia, *Carrionia panamensis*. Se sinonimiza el género *Ucayalia* Fennah con *Carrionia* Muir, lo que produce una combinación nueva, *Carrionia nigrovittata* (Fennah). Se proveen claves para los 3 géneros y las 7 especies, y se incluyen ilustraciones de la frente, vértex, y ala anterior de cada especie.

The morphological characters of a new species of Lophopidae from Panama are intermediate between the characters used for the genera *Carrionia* Muir and *Ucayalia* Fennah, so that the latter name is synonymized. This produces a new combination, *Carrionia nigrovittata* (Fennah). The new species extends the range of the family into Panama from Brazil, Peru, Ecuador, and the Guianas.

This paper contains a checklist of the New World species, keys to the genera and species, brief generic descriptions, a description of the new species, and illustrations of the frons, vertex, and forewing shape of all of the species. A key to the families of Fulgoroidea may be found in Fennah (1950) or an illustrated key in O'Brien & Wilson (1985). Lophopidae fall into the group of Fulgoroidea with the 2nd posterior tarsomere devoid of spines. In the New World, Ricaniidae, Lophopidae, and Eurybrachidae share this character, but the one species of Eurybrachidae reported from the New World is thought to be geographically mislabelled.

It is interesting to note that *Carrionia* is the only new world genus with the female anal flap enlarged to produce and hold strands of wax, which Asche, Hoch, and I thought might be a unique synapomorphy which would define the family Lophopidae when we discovered it in 1985 (unpublished). The 10th segments of female *Hesticus* and *Silvanana* are normal fulgoroid anal segments; that is, small and entire, no larger than the 10th segment of the male of the same species. The specimens I have on hand do not have wax on this segment, nor on the 7th, 8th and 9th, the usual position for wax plates in Fulgoroidea.

Checklist of New World Lophopidae

Taxon		Distribution	Type Repository
Carrionia	flavicollis Muir	Ecuador	BMNH
	nigrovittata (Fennah)	Peru	NMNH
	panamensis n. sp.	Panama	LOB
Hesticus	pictus Walker	Brazil, Br. Guiana	BMNH
	rufimanus Walker	Brazil	BMNH
	sanguinifrons Muir	Ecuador, Peru	BPBM
Silvanana	omani Metcalf	Brazil	NCS

Key to the genera of New World Lophopidae

1. Forewings membranous and transparent ..... *Hesticus* Muir
1′. Forewings colored and opaque 2
2(1′). Pro and meso femora and tibiae foliately expanded; lateral ocelli absent; large species 12 mm long or longer; vertex narrow and concave . *Carrionia* Muir
2′. Femora and tibiae not expanded; lateral ocelli present; small species under 10 mm in length; vertex broad and flat ..... *Silvanana* Metcalf

Silvanana omani Metcalf and *Ucayalia nigrovittata* Fennah were illustrated thoroughly when they were published. Illustrations of *Hesticus* species from the Amazon are being published (O'Brien, Penny & Arias, in press) and the other two species of *Carrionia* are illustrated here.

Carrionia Muir 1931 (fig. 1-3, 6-9, 15-17)
[Type species *flavicollis*, by monotypy]

=*Ucayalia* Fennah 1944, NEW SYNONYMY. [*Carrionia nigrovittata* (Fennah), NEW COMBINATION].

Large lophopids, 12-16 mm in length, with yellow pronotum, partially dark head, and dark wings with apical light bands. Vertex longer than wide, varying from 1.25:1 to 1.9:1, concave; frons longer than broad or as long as broad, lateral angles broadly produced (fig. 6-8); genae lacking ocelli, with a transverse ridge at level of frontal angles; clypeus laterally carinate at least at base; pro and meso femora and tibiae foliately flattened and expanded.

Key to the species of *Carrionia*

1. Frons mostly black, subequal in length at midline and width at widest part ..... *flavicollis* Muir
1′. Frons yellow or green with black midline, frons at least 1.3 x longer than wide 2
2(1′). Apex of each forewing with 3 small translucent areas (fig. 16) ..... *panamensis* n. sp.
2′. Apex of each forewing with transverse translucent bands (fig. 15) ..... *nigrovittata* (Fennah)

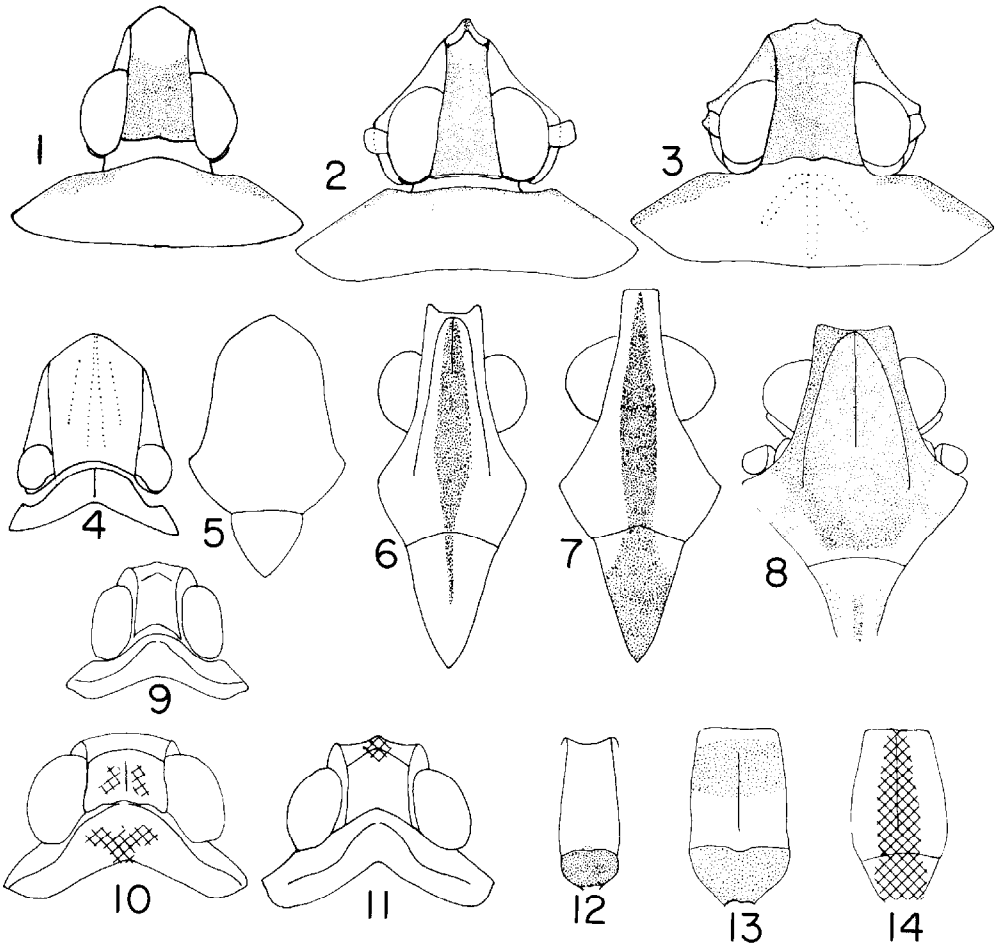

Fig. 1-4: Vertex and pronotum of 1. *Carrionia nigrovittata* Fennah, 2. *C. panamensis*, n. sp., 3. *C. flavicollis* Muir, 4. *Silvanana omani* Metcalf. Fig. 5-8: Frons andd clypeus (stippling indicates black coloration) of 5. *S. omani*, 6. *C. nigrovittata*, 7. *C. panamensis*, 8. *C. flavicollis*. Fig. 9-11: Vertex and pronotum (stippling indicates black coloration, crosshatching indicates red coloration) of 9. *Hesticus rufimanus* Walker, 10. *H. pictus* Walker, 11. *H. sanguinifrons* Muir. Fig. 12-14: Frons and clypeus of 12. *H. rufimanus* 13. *H. pictus*, 14. *H. sanguinifrons*.

Carrionia panamensis, new species (fig. 2, 7, 16)

SALIENT FEATURES: Females 14-15.5 mm in length. Dorsal surface of pronotum yellow. Head pale green with a broad band overlying median carina of frons and clypeus, posterior 3/4 of vertex, sides of head above eyes, a triangular area on gena below eyes, apex of clypeus, lateral fields of pronotum, and ventral half of tegulae piceous. Legs piceous except for diagonal pale band across middle third of fore and meso tibiae. Tegmina dull rusty brown, appearing black where adpressed to darker hind wings, with three membranous areas at apex of wing outlined by shiny darker bands. Abdomen red.

TYPES: Holotype female: PANAMA, Canal Zone, Barro Colorado Island, III-2-1967, Roger D. Akre (LOB). Paratype females, 2: Panama, Coco Solo, 6-1-[19]36 (CAS); Panama Pr., Cerro Jefe, 700 m. 9° 12′ N, 79° 21′W, 20-V-[19]72, Stockwell (HW).

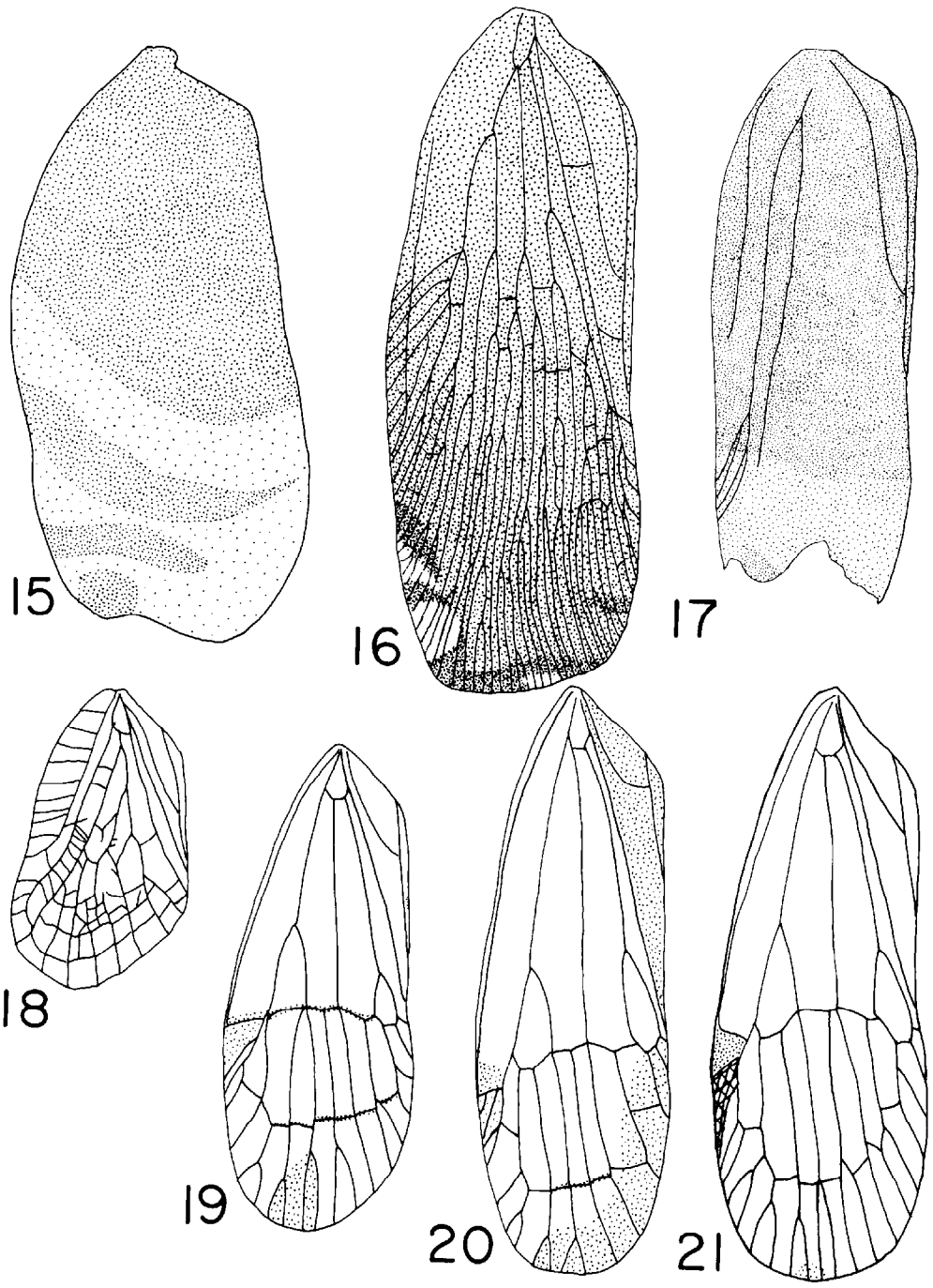

Fig. 15-21: Tegmina (stippling indicates brown or black coloration, crosshatching red coloration) of 15. *C. nigrovittata*, 16. *C. panamensis*, 17. *C. flavicollis* (tips of tegmina broken off), 18. *S. omani* (color pattern not shown), 19. *H. rufimana*, 20. *H. pictus*, 21. *H. sanguinifrons*.

NOTES: The specimen from Cerro Jefe is the largest of the three and slightly different from the other two in the shape and coloring of the fore and mid tibiae. The tibiae are less expanded than in the other two species, being approximately 3.6 x as long as

broad, compared with 3.4 for *flavicollis*, 3.2 for the other specimens of *panamensis*, and 2.3 for *nigrovittata*. The white band is reduced to a small spot, but the tibiae are also slightly indented at this point. In every other respect the specimen seems to be *panamensis*, and I am treating it as a paratype until males are collected for genitalic comparison.

This species is very similar to *nigrovittata* in color pattern except for the tegmina, the pale bands on the femora mentioned above, and the increased area of dark markings on the frons, clypeus, vertex, and gena of *panamensis*. The tegminal pattern is similar in the number of dark bands, but in *panamensis* they are compressed into one corner while in *nigrovittata* they are spread across the wing. The apices of the forewings are missing in *flavicollis*, but part of the first band is visible (fig. 17).

Hesticus Walker 1862 (fig. 9-14, 19-21)
[Type species *pictus*, by nonotypy]

Moderate sized lophopids, 9-12 mm in length, with yellowish orange bodies, sometimes marked with red, green, brown or black; wings translucent, sometimes marked with brown or red. Vertex 1.5 times as long as wide to subequal, chevron shaped, sometimes lateral carinae raised, vertex concave or flat; frons longer than broad or as long as broad, sides parallel; ocelli present on genae; frontoclypeal suture continued on genae but no transverse ridge as in *Carrionia*, clypeus laterally carinate at base; front femora and tibiae foliately flattened and expanded, mid and hind femora and tibiae normal, subequal in size.

Key to the species of *Hesticus*

1. Frons and clypeus with vertical red stripe; tegmina with veins of stigma red ..... *sanguinifrons* Muir
1′. Frons or clypeus lacking vertical red stripe, but with 1 or more horizontal black bands; tegmina without red veins 2
2(1′). Face with only the clypeus having a horizontal black band; tegmina with brown marking limited to spots at stigma and apex ..... *rufimanus* Walker
2′. Face with both frons and clypeus having horizontal black bands; tegmina with stigmal spot, clavus, and commisural margin to apex brown . *pictus* Walker

Silvanana Metcalf 1947 (fig. 4, 5, 18)
[Type species *omani* Metcalf]

Small lophopids, about 8 mm in length, with light brown body and wings marked with darker brown. Vertex longer than wide, parallel sided, flat; frons longer than broad, slightly concave, lateral angles produced; genae with ocelli on transverse ridge at level of frontal angles; clypeus with lateral carinae at base, flattened and sunken between legs; none of legs foliately expanded.

ACKNOWLEDGMENT

I am indebted to G. Allan Samuelson, who examined the type of *Hesticus sanguinifrons* at the Bernice P. Bishop Museum (BPBM), and to Carol Parron, North Carolina State University (NCS), and James P. Kramer, National Museum of Natural History (NMNH), for loan of types, and to Lawrence A. Mound, the Keeper of Entomology of the British Museum (BMNH) for permission to study specimens there. I especially

thank Henk Wolda, Smithsonian Tropical Research Institute (HW), who loaned the specimen by which generic synonymy could be established, and Norman D. Penny of California Academy of Sciences (CAS) who loaned the other specimen of the new species. I thank the Florida State Collection of Arthopods for a grant to cover publication charges.

Contribution No. 664, Bureau of Entomology, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville, FL 32602.

References Cited

FENNAH, R. H. 1944. New neotropical Fulgoroidea. American Mus. Novitates 1265: 1-9.

———. 1950. Fulgoroidea of Fiji. B. P. Bishop Museum Bull. 202: 3-122.

METCALF, Z. P. 1947. A new genus of Lophopidae from Brazil. Proc. Entomol. Soc. Washington 49: 238-240.

———. 1955. General Catalogue of the Homoptera. Fasc. IV. Fulgoroidea, Part 17, Lophopidae. N. Carolina State Univ., Raleigh. 84 pp.

MUIR, F. 1931. New and little known Fulgoroidea from South America. Proc. Hawaiian Entomol. Soc. 7: 469-480.

O'BRIEN, L. B., N. D. PENNY, AND J. R. ARIAS. In press. Lophopidae of the Amazon Basin. Acta Amazonica.

O'BRIEN, L. B. AND S. W. WILSON. 1985. Planthopper Systematics and External Morphology. pp. 61-102. *In* Nault, L. R. and J. G. Rodriguez, Eds. The Leafhoppers and Planthoppers. Wiley & Sons, New York.

WALKER, F. 1858. List of the specimens of Homopterous insects in the collection of the British Museum. Supplement. 1858: 1-307.

———. 1862. Characters of undescribed species of Homoptera in the collection of F. P. Pasco, F. L. S. J. Entomol. 1: 303-319.

THE SCOLOPENDROMORPH CENTIPEDES OF NORTH CAROLINA, WITH A TAXONOMIC ASSESSMENT OF *SCOLOPOCRYPTOPS GRACILIS PEREGRINATOR* (CRABILL) (CHILOPODA: SCOLOPENDROMORPHA)

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Abstract

The scolopendromorph centipede fauna of North Carolina consists of eight species. *Scolopocryptops sexspinosus* (Say), *S. nigridius* McNeill, *Theatops posticus* (Say), and *Cryptops hyalinus* Say occur in all three physiographic provinces. *Theatops*