

**SYSTEMATICS OF THE RIODINID TRIBE SYMMACHIINI,
WITH THE DESCRIPTION OF A NEW GENUS AND
FIVE NEW SPECIES FROM ECUADOR, VENEZUELA AND BRAZIL
(Lepidoptera: Riodinidae)**

Jason P. W. HALL * & Keith R. WILLMOTT *

* Department of Entomology and Nematology, University of Florida, Gainesville, Florida 32611, USA.

Abstract: We preliminarily examine the systematics of the riodinid tribe Symmachiini Bates, 1859, and isolate an apparently monophyletic assemblage of species formerly included within the genera *Stichelia* and *Phaenochitonina*, which we describe as a new genus *Pirascca* **gen. nov.**. A summary of the taxa within the genera *Pirascca*, *Phaenochitonina*, *Stichelia* and *Pterographium* and a comparative table of their morphological differences are also presented, and four new species in the genera *Symmachia*, *Pirascca* and *Phaenochitonina* are described from western Ecuador, Venezuela and Brazil. We also describe a new species from eastern Ecuador in the genus *Comphotis*, which we hypothesise to be the ancestral genus to the tribe Symmachiini. We further discuss the taxonomic importance of the concealed androconial scales found on the abdominal tergites of all species in the tribe, first noted by HARVEY (1987).

Key-words: androconial scales, Brazil, Chocó, Colombia, *Comphotis apachita* sp. nov., Ecuador, endemism, *Esthemopsis*, foodplant, hilltopping, *Lucillella*, *Menander*, *Mesene*, *Mesenopsis*, Neotropical, Nymphidiini, Panama, *Panara*, perching behaviour, *Periplacis*, *Phaenochitonina gallardi* sp. nov., *Phaenochitonina pseudodebilis* sp. nov., *Pirascca* gen. nov., *Pirascca polemistes* sp. nov., *Pterographium*, Riodinini, *Stichelia*, *Symmachia hazelana* sp. nov., Symmachiini, Venezuela, *Xenandra*.

Introduction

The discovery of two phenotypically unusual new riodinid species from western Ecuador, in the tribe Symmachiini Bates, 1859, has prompted us to examine more closely the systematics of this tribe at the generic level. HARVEY (1987) defined the tribe Symmachiini by the presence of concealed androconial scales on the anterior margins of abdominal tergites 4 to 7 in males. The resulting group of genera closely corresponds to STICHEL's (1910-11, 1930) tribe Mesenini, except for the exclusion of the genus *Argyrogrammana* Strand, 1932, and inclusion of the genus *Lucillella* Strand, 1932. It should be noted that abdominal androconial scales also occur in the nymphidiine genera *Menander* Hemming, 1939, and *Periplacis* Geyer, 1837, but the position (tergites 5 to 7) and ultrastructure of these scales (which lack longitudinal ribs and acanthae [acellular projections] between the androconial scales), suggests that they have evolved independently (HARVEY, 1987).

The genera within the Symmachiini are often poorly defined, and taxonomic research is usually hindered by the rarity of most species and their consequently sparse representation in the world's entomological collections. The problem is particularly acute in the largest genus, *Symmachia* Hübner, [1819], but a full analysis of species group relationships in this genus is beyond the scope of this paper. Instead we attempt to create a generic framework for species formerly included in the phenotypically similar and historically confused genera *Phaenochitonina* Stichel,

1910, *Pterographium* Stichel, 1910, and *Stichelia* Zikán, 1949, and in the process describe the new genus *Pirascca* gen. nov.. In addition to describing the two new symmachiine species from western Ecuador, mentioned above, in the genera *Pirascca* and *Symmachia*, we take this opportunity to describe two unnamed species of *Phaenochitonina*, located in European museums, from Venezuela and Brazil. We also more fully elucidate the characters defining the genus *Comphotis*, transferring to it several species formerly placed in *Phaenochitonina* and describing a new species from eastern Ecuador, and hypothesise that it is immediately ancestral to *Phaenochitonina* and hence to the tribe Symmachiini.

***Symmachia hazelana* Hall & Willmott, sp. nov.** (Fig. 1 a-c; 4a-c).

Description: Male: forewing length 18mm. Dorsal surface: forewing ground colour dark iridescent blue (lighter blue at an oblique angle); thin black outer margin, thicker black costal margin thinning towards apex. Hindwing ground colour a similar dark iridescent blue; thin black anal and distal margins, black at apex; yellow along central half of anal margin and in a shallow semi-circle at costal margin (slightly darker at basal edge). Ventral surface: forewing ground colour dark brown; rich, broad yellow band vertically traversing middle of wing, tapering towards costal margin, outer edges broken and uneven; faint darker brown band immediately distal to yellow, and faint, thin darker brown submarginal line; two darker brown spots at base of wing; small section of white fringe at apex. Hindwing ground colour dark brown; rich, broad yellow band of even thickness traversing middle of wing, edges uneven; faint darker brown band immediately distal to yellow. Labial palpi black. Eyes brown and bare. Frons black. Antennae black with cream scales at the base of each segment, clubs slightly flattened and yellow. Thorax black; abdomen dorsal surface black, ventral surface yellow, yellow hairs at tip; single dense medium-sized patch of androconial scales on anterior margins of tergites 4 and 5 (see Table 3). Legs black. Genitalia (Fig. 4a-c): uncus angular; vinculum with a tiny central projection; valvae bifurcate with upper projection longer than lower projection; aedeagus short, large, pointed and open on dorsal side to expose two large internal scobinate patches; saccus short.

Female: unknown.

Types: Holotype ♂: Ecuador, *Esmeraldas Province*, km. 44 rd. Lita-San Lorenzo, La Punta, nr. El Durango, 300m, 21 June 1994 (K. R. Willmott). To be deposited in the Natural History Museum, London, England (BMNH).

Etymology: This species is named for my mother, Hazel WILLMOTT, who instilled in me an appreciation for the beauty of nature (KRW).

Diagnosis: *Symmachia hazelana* sp. nov. has a very distinctive and unique wing pattern that is only comparable to *Symmachia rita* Staudinger, 1887. Both species have dark blue dorsal iridescence, but in *S. rita* the blue on the forewing is restricted to the outer margin. *S. rita* is also smaller, has a more pointed wingshape, and lacks the yellow colouration on the dorsal surface of the hindwing and on both ventral wing surfaces.

Discussion: A single individual was found resting beneath a leaf with its wings outspread, around 5 metres above the ground. It was perching in a large forested ridgetop lightgap at approximately 7.30 a.m. in overcast conditions. We have not

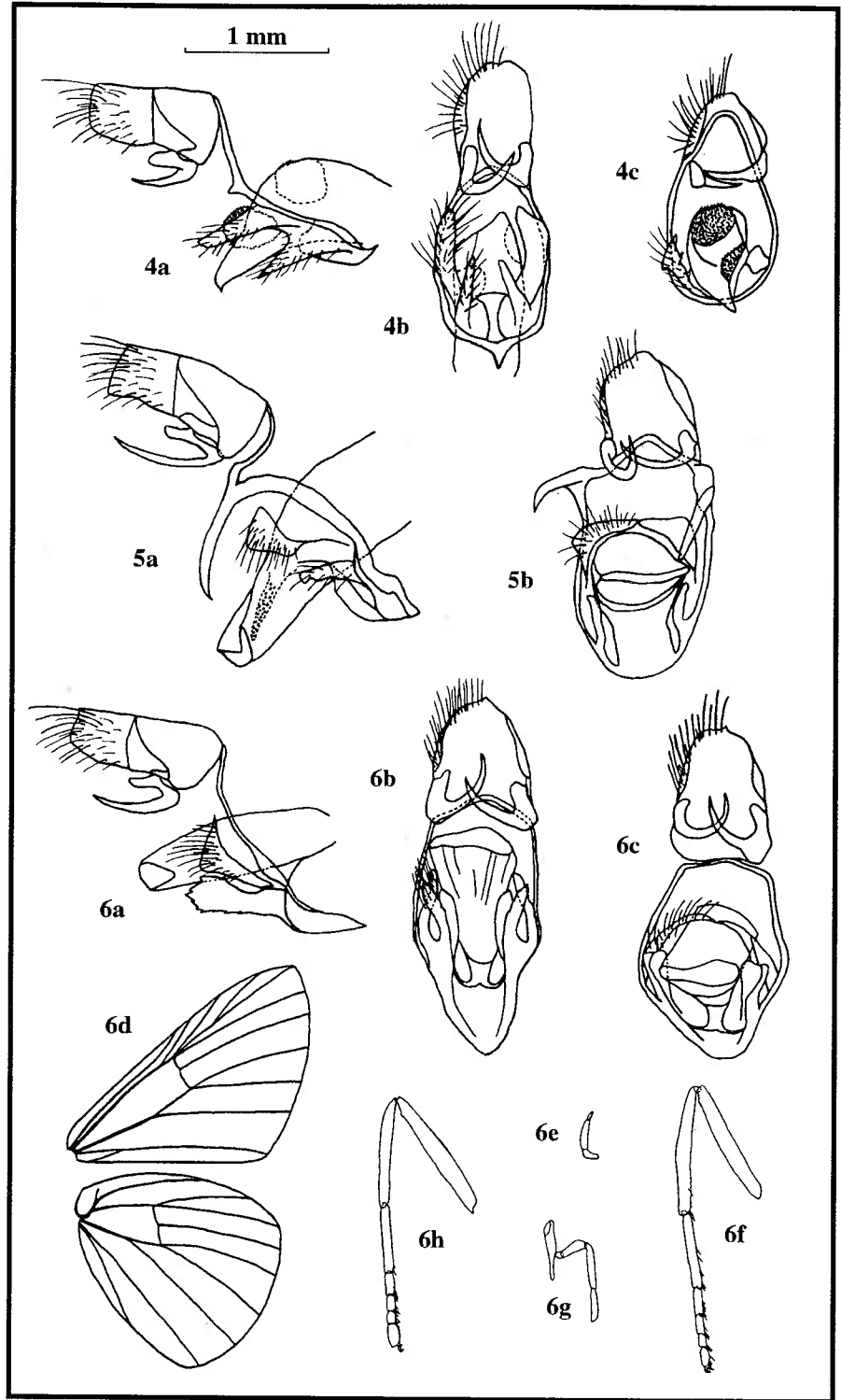
located any further specimens in major European or American museums and this extremely rare species is currently only known from the lowland pluvial forests of north-west Ecuador, although it will almost certainly be found in the Chocó region of west Colombia. Its rarity is no doubt due in part to the fact that this area has been seldom visited by lepidopterists, in addition to its behaviour of perching early in the morning.

Although the wing pattern and, to a lesser extent the wing shape, of *S. hazelana* are not wholly typical of *Symmachia*, the male genitalia and abdominal androconial patch distribution (see Table 3) suggest that this species is best placed at present within this genus. However, a detailed phylogenetic analysis of the heterogeneous group of species currently included in *Symmachia* will no doubt highlight the existence of several lineages of generic worth. Since *S. hazelana* is morphologically quite distinct from the type species of the genus, *Symmachia probetor* (Cramer, 1782) (see D'ABRERA (1994: 1044) for an illustration), it may eventually need to be placed in a separate genus.

Pirascca Hall & Willmott, gen. nov. (Fig. 2a-d; 3a,b; 5a,b; 6a-h; 7a-c).

Type species: *Papilio sagaris* Cramer, 1775

Description: Male: Dorsal surface (Fig. 2c): ground colour entirely black, or with several slightly paler basal brown bands, sometimes with a dark blue sheen when viewed obliquely. Most species characterised by either having red/orange as a band oriented in a line joining forewing apex to hindwing anal margin or as a patch in the centre of the hindwing. Ventral surface (Fig. 2d): usually entirely black, often with a dark blue sheen when viewed obliquely, rarely with a similarly coloured mirror image of the dorsal red-orange markings, forewing anal margin paler grey-yellow. Venation (Fig. 6d): four forewing radial veins, R_1 , R_2 and R_{3-4} all arising basal to cell end. Eyes: bare and brown. Palpi (Fig. 6e): black; short, not projecting, closely pressed to head, third segment one third the length of the second. Frons: black. Antennae: usually black, rarely with sparse white scales at the base of each segment, slender and slightly laterally compressed at club; 36 (*sagaris* and *tyriotes*) - 40 (*iasis*) segments in length. Thorax and abdomen: black, some species with a red/orange dorsal abdominal stripe. Legs (Fig. 6f,g): hindleg and midleg with a single posterior tibial spur, and a series of spines along each tarsal segment; foreleg without spurs or spines. Genitalia (Fig. 5a,b; 6a-c): uncus often narrow and elongate, mid-point of posterior edge projecting slightly; vinculum often with a very small upper projection but occasionally with a projection that is longer than the falci; valve split into two distinct components, usually only joined by lightly sclerotised tissue: the upper triangular in shape and fused above aedeagus, the lower more heavily sclerotised, often lacking setae and usually modified with the edges serrate or bearing numerous small thick spines; aedeagus wide, widening posteriorly, with posterior tip vertically compressed to form a long, narrow opening; usually with small, simple internal sclerotised structures but occasionally with numerous long pectinate cornuti (e.g. *tyriotes*); saccus small. Secondary sexual structures: long, erectile androconial hairs located along a fold in the wing membrane mid-way between $1A+2A$ and Cu_2 (Fig. 7a); single wide, long and dense patch of androconial scales on anterior margins of abdominal tergites 4 and 5 (Fig. 7b,c), usually greater in extent on tergite 5.



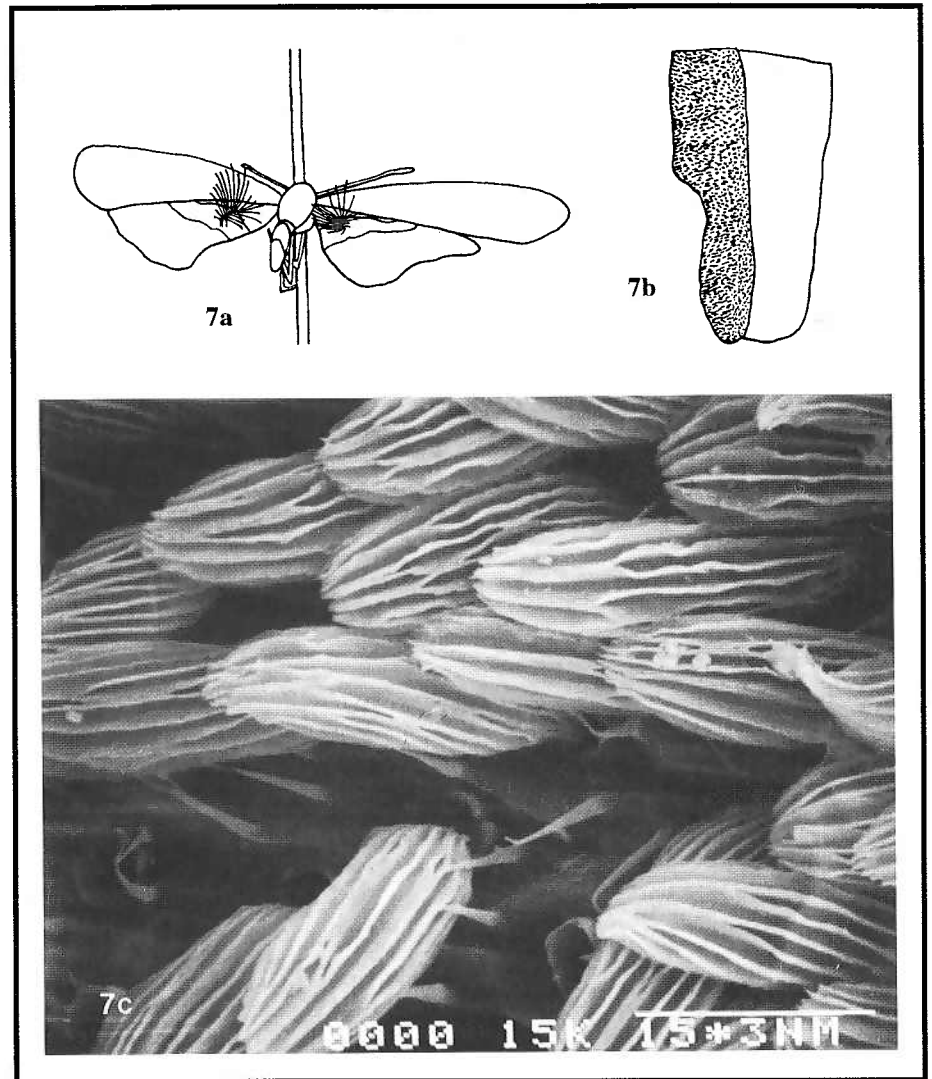


Fig. 7. (above) **Male secondary sexual characters.** a) An oblique view of *Pirascca tyriotes* (Godman & Salvin, 1878), showing the position of the erectile androconial hairs on the hindwing; b) arrangement of androconial scales on the anterior portion of the tergite of abdominal segment 5 in male *Pirascca sagaris* (Cramer, 1775); c) a scanning electron micrograph (SEM) of the androconial scales illustrated in (b) with the acanthae (acellular projections) also visible (x 2100).

Fig. 4-6 (left). Morphology. 4. *Symmachia hazelana* sp. nov., holotype ♂ genitalia: a) lateral view; b,c) ventral views. 5. *Pirascca polemistes* sp. nov., holotype ♂ genitalia: a) lateral view; b) ventral view. 6. *Pirascca sagaris* (Cramer, 1775) ♂: a) genitalia, lateral view; b,c) genitalia, ventral views; d) wing venation; e) palpus; f) hindleg; g) foreleg. ♀: h) foreleg.

