

SIX NEW SPECIES IN THE "*FOLIORUM* GROUP" OF *THEOPE* (Lepidoptera: Riodinidae)

Jason P. W. HALL *

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

Abstract: Six new species in the "*foliorum* Bates, 1868, group" of *Theope* Doubleday, 1847, are described from Panamá, French Guiana, Ecuador, Peru and Brazil as a prelude to a revision of the genus.

Key-words: Nymphidiini, *Theope amicitiae* sp. nov., *Theope batesi* sp. nov., *Theope busbyi* sp. nov., *Theope pakitza* sp. nov., *Theope sticheli* sp. nov., *Theope wallacei* sp. nov.

Introduction

The genus *Theope* Doubleday, 1847, is significantly more speciose than previously thought (SEITZ, 1920; STICHEL, 1930), as evidenced by the spate of recent descriptions in the genus (GALLARD & BREVIGNON, 1989; D'ABRERA, 1994; WILLMOTT & HALL, 1994; HALL & WILLMOTT, 1996; GALLARD, 1996; DEVRIES & HALL, 1996; HALL & AUSTIN, 1997). The purpose of this paper, as a prelude to a full revision of the genus *Theope*, is to describe six species in the "*foliorum* Bates, 1868, group", whose members are typically small, with grey-brown ventral surfaces and submarginal ventral spotting, and often look very much alike, invariably being confused in museum collections. This group is defined by the following male genitalic synapomorphies: a long upper arm to the valvae and an incomplete vinculum that extends from the lower anterior edge of the tegumen to the top of the valvae.

The species described herein originate from several European and North American museums and private collections. One of these, collected during biodiversity inventories of Parque Nacional del Manu in south-east Peru (see LAMAS *et al.*, 1991; ROBBINS *et al.*, 1996), is co-authored with D. J. HARVEY; another, collected during a long term survey of the riodinids of French Guiana (see BREVIGNON & GALLARD, 1997a,b, 1998a,b), is described with J.-Y. Gallard and C. Brévignon. I largely follow HEPPNER & LAMAS (1982) in using the following museum acronyms throughout the text:

AME - Allyn Museum of Entomology, Sarasota, Florida, USA
AMNH - American Museum of Natural History, New York, USA
FSCA - Florida State Collection of Arthropods, Gainesville, Florida, USA
MNHN - Muséum National d'Histoire Naturelle, Paris, France
MNMSM - Museo Nacional Mayor de San Marcos, Lima, Peru
USNM - United States National Museum, Smithsonian, Washington, USA
ZMHU - Zoologische Museum Humboldt Universität, Berlin, Germany

Theope wallacei Hall, sp. nov. (Figs. 1a-d; 7)

Description: Male: forewing length 16mm. Wing shape elongate; forewing pointed, hindwing rounded. *Dorsal surface:* forewing ground colour black; elongate semicircle of blue in basal portion of wing occupies approximately basal four-fifths of cells above and below vein 1A+2A, basal two-thirds of cell Cu₂, basal third of cell Cu₁ and entire discal cell, with a few blue scales distal of cell end; fringe brown. Hindwing ground colour blue, paler at anal margin; broad black borders at costal and distal margins, broader at costal margin and tornus, two faint black spots in submargin of cell 1A+2A, one in submargin of cells Cu₂ to M₂; fringe brown. *Ventral surface:* ground colour of both wings pale grey, subtle yellow tinge along base of forewing costa; thin brown line extends around very outer margin of both wings; two black spots in submargin of cell 1A+2A, one in submargin of cells Cu₂ to M₁ on both wings, those on hindwing more prominent, especially in tornal region. Labial palpi yellow, second segment elongate. Eyes pale brown and bare, yellow scaling at margins. Frons orange-brown. Antennal segments brown with basal white scaling that is most prominent on ventral surface; tubular clubs brown, tips orange-brown. Dorsal surface of thorax and abdomen dark

brown, ventral surface pale grey. Forelegs yellow; femur of mid and hindlegs whitish yellow, remainder yellow. *Genitalia* (Fig. 7): lower posterior angle of uncus triangular, lower posterior angle of remainder downwardly pointed; falci small and compact; vinculum incomplete, extending from anterior edge of tegumen to top of valvae; valvae with basal lateral bulge and long, broad upper arm that is bluntly pointed, has a small basal hump, and a very slight projection at middle of distal edge; aedeagus sigmoidal in ventral view, heavily sclerotised portion ends broadly and slightly downturned at lower edge, large semi-sclerotised posterior portion has numerous lateral crease lines basally and distally, where there are more heavily sclerotised ridges, five internal cornuti; sclerotised block at base of pedicel, remainder very weakly sclerotised; vestigial "V"-shaped portion of last sternite supports base of aedeagus, attached to valvae by membranous tissue.

Female: differs from male in the following ways: forewing length 14.5mm. Forewing less pointed. *Dorsal surface*: ground colour of both wings dark brown; postdiscal blue scaling on forewing more extensive, especially in cell M_3 ; blue extends further towards distal margin on hindwing, veins towards distal margin outlined in pale brown, black submarginal spots more prominent.

Types: Holotype ♂: Panama.- Canal zone, Piña, 200m, 21 Apr 1970 (H. L. King); in the FSCA. Allotype ♀: Panama.- Canal Zone, same locality data as HT, 1 May 1970 (H. L. King); in the FSCA. Paratypes: Panama.- same locality data as HT, 1 ♂: 11 Oct 1970; 1 ♀: 1 May 1970; 2 ♀: 10 May 1970; 1 ♀: 3 Aug 1971 (all H. L. King); all in the FSCA. Same locality data as HT, 1 ♂: 9 Mar 1973; 1 ♂: Mar 1970. Gatun, 1 ♂: 27 Apr 1973; 1 ♂: 20 Apr 1970; 2 ♀: 6 Apr 1971; 1 ♀: 18 Apr 1971 (all G. B. Small); all in the USNM. Paraiso, 1 ♀: 4 Feb 1911 (A. Busck); in the USNM. Gamboa, 1 ♀: 1 Feb 1969 (H. L. King); in the FSCA.

Etymology: This species is named for Alfred Russell WALLACE, intrepid explorer and naturalist *extraordinaire*. Best known for his travels in the Oriente and publication of the *The Malay Archipelago* (1869), he also spent four years collecting butterflies, birds and fish on the Amazon, Negro and Uaupés rivers of Brazil between 1848 and 1852, and were it not for the tragic sinking of his ship the *Helen* on his return journey, he would undoubtedly have brought home a wealth of natural history treasures from the Neotropical realm.

Diagnosis: *Theope wallacei* sp. nov. superficially most closely resembles *Theope methemona* Bates, 1868, with which it shares a very similar wing shape and wing pattern. *T. wallacei* differs on the dorsal surface by never having pale brown postdiscal scaling on the forewing (this is not discernible on the type of *T. methemona*) and by having more extensive blue colouration on both wings but with none in cell R_s of the hindwing; on the ventral surface, the black submarginal spots are rounded instead of elongate, rarely have paler encircling colouration and are larger on the hindwing. Other superficially similar species include *Theope lycaenina* Bates, 1868, and *Theope sticheli* sp. nov. (described below) but the wing shape of both is more rounded and the pattern of dorsal blue is different.

In fact, the male genitalia of *T. wallacei* are so distinct from those of any of the aforementioned taxa as to place the species in a separate subgroup. Instead of having a long, evenly narrow aedeagus, *T. wallacei* has an aedeagus with a large, semi-sclerotised, sculptured "basket shaped" posterior portion and peg-like internal cornuti, and a hump at the base of the upper valve arm; *Theope foliorum* Bates, 1868, and *Theope pakitza* sp. nov. (described below) are the only other species to share both these characters. *T. wallacei* differs from *T. pakitza* by lacking white rays on the dorsal hindwing, by having a larger semicircle of blue on the dorsal forewing, black costal and distal (typically) margins and a blue instead of white anal margin on the dorsal hindwing, typically a slightly darker ventral ground color (this is much darker in sympatric Amazonian specimens), prominent black submarginal spots on both ventral wing surfaces and at least three internal aedeagal cornuti in the male genitalia instead of one. *T. foliorum* is typically a smaller species with paler dorsal blue colouration that is

much reduced on the forewing and less prominent ventral submarginal black spots that are largely restricted to the hindwing; the male genitalia of *T. foliorum* differ most noticeably by having a much longer, heavily setose upper arm to the valvae, with a very large basal hump, a dorso-ventrally elongate basal portion to the valvae, and a more internally torsional posterior portion to the aedeagus which has a narrower semi-sclerotized portion, typically with two small spines towards the tip.

Discussion: The majority of *T. wallacei* specimens originate from Panamá but there are others, listed below, from the Amazon region, that I regard as belonging to this species but do not include as paratypes because of the extent of geographic variation expressed in the wing pattern and male genitalia:

French Guiana - Cayenne; 1 ♂ in the USNM, 1 ♀ in the BMNH.

Ecuador - 1 ♀: Morona-Santiago Prov., Río Morona, San José de Morona, 300m, 29 Sept 1996 (K. R. Willmott); in the coll. of J. P. W. Hall & K. R. Willmott, Gainesville, Florida, USA.

Peru - Madre de Dios, Parque Nacional del Manu, Pakitza, 1 ♂: 11°53' S 70°58' W, 400m, 12 Oct 1990; 1 ♂: 11°55'48" S 70°15'18" W, 340m, 6 Oct 1991 (both R.K. Robbins); both in the USNM.

The specimens from French Guiana exhibit the same wing pattern as those from Panamá but the aedeagus of the male genitalia contains eight internal cornuti instead of the three to five found in two dissected Panamanian specimens. Specimens from the west Amazon have a darker grey ventral ground color and thus paler colouration is apparent encircling the submarginal black spots, which are barely discernible on the forewing. Both of the Peruvian males are also considerably smaller than average; they both have five internal aedeagal cornuti.

The Ecuadorian specimen of *T. wallacei* was found feeding at low weedy flowers at the edge of secondary forest at 15:00 hrs.

***Theope pakitza* Hall & Harvey, sp. nov. (Figs. 2a,b; 8)**

Description: Male: forewing length 15.5mm. Wing shape elongate; forewing slightly pointed at apex, hindwing slightly pointed at tornus. *Dorsal surface:* forewing ground colour black; elongate semicircle of blue in anal portion of wing occupies approximately basal four-fifths of cells above and below vein 1A+2A, basal half of cell Cu₂, basal third of cell Cu₁ and entire discal cell, with a few blue scales distal of cell end; fringe brown. Hindwing ground colour blue, white at anal margin; dark brown in distal half of cell Rs and distal third of cell M₁, very thin dark brown line around remaining distal margin, two faint black spots in submargin of cell 1A+2A, one in submargin of cells Cu₂ to M₂, long streaks of white scaling in middle of cells 1A+2A and Cu₂ and at base of cells Cu₁ to M₂; fringe brown. *Ventral surface:* ground colour of both wings dirty white, subtle yellow tinge along base of forewing costa; thin brown line extends around very outer margin of both wings; faint, tiny black speck in submargin of cells 1A+2A and Cu₂ on hindwing. Labial palpi dirty white, some yellow scaling towards tips, second segment elongate. Eyes pale brown and bare, white scaling at margins. Frons brown. Antennal segments brown with basal white scaling that is most prominent on ventral surface; tubular clubs brown, tips orange-brown. Dorsal surface of thorax and abdomen dark brown, ventral surface white. Forelegs have mixture of yellow and white setae; femur of mid and hindlegs white, remainder pale yellow. *Genitalia* (Fig. 8): lower posterior angle of uncus triangular, lower posterior angle of remainder downwardly pointed; falci small and compact; vinculum incomplete, extending from anterior edge of tegumen to top of valvae; valvae with basal lateral bulge and long, broad upper arm that is upturned towards roundly pointed tip, has a small basal hump, and a very slight projection at middle of distal edge; aedeagus sigmoidal in ventral view, heavily sclerotised portion ends broadly and slightly downturned at lower edge, large semi-sclerotised posterior portion has numerous lateral crease lines basally and distally, where there are more heavily sclerotised ridges, a single internal cornutus; sclerotised block at base of pedicel, remainder very weakly

sclerotised; vestigial "V"-shaped portion of last sternite supports base of aedeagus, attached to valvae by membranous tissue.

Female: unknown.

Types: Holotype ♂: Peru - Madre de Dios, Parque Nacional del Manu, Pakitza, 12°07' S 70°58' W, 400m, 23 Sept 1989 (R. K. Robbins); to be deposited in the MNMSM.

Etymology: This species is named after its place of origin, Pakitza, a field station in the Peruvian Parque Nacional del Manu where large numbers of man hours have been spent in elucidating the taxonomic composition of the butterfly fauna (LAMAS *et al.*, 1991; ROBBINS *et al.*, 1996).

Diagnosis: As discussed in the diagnosis for the previous species, the presence of a large, semi-sclerotised, sculptured "basket shaped" posterior portion to the aedeagus of the male genitalia places *Theope pakitza* sp. nov. in a subgroup of the "*foliorum* group" that includes *Theope wallacei* sp. nov. (described above) and *Theope foliorum*. The latter has a more compact and pointed wing shape, a darker ventral ground colour, prominent black submarginal spots on both hindwing surfaces and greyish-blue dorsal colouration that is not as extensive in the costal area of the hindwing or the discal area of the forewing. Based on male genitalia and wing pattern, *T. pakitza* appears to be most closely related to *T. wallacei* from which it is separated in the diagnosis for that species.

Discussion: *T. pakitza* is thus far represented only by the holotype from south-east Peru but it should be looked for in the entire west Amazon region. All three species in this subgroup occur sympatrically at the type locality.

Theope amicitiae Hall, Gallard & Brévignon, sp. nov. (Figs. 3a,b; 9)

Description: Male: forewing length 9mm. Forewing costal margin slightly convex, distal margin nearly straight; hindwing rounded. *Dorsal surface:* forewing entirely brown; fringe brown. Hindwing ground colour brown; pale chalk blue restricted to tornal portion of wing, at anal margin, in distal two-thirds of cell 1A+2A, in cell Cu₂ and basal half of cell Cu₁, leaving thin brown line at margin; two small, dark brown spots in submargin of cell 1A+2A, one in cells Cu₂ and Cu₁; fringe white. *Ventral surface:* forewing ground colour greyish-white; two small, black spots at submargin of cell 1A+2A, one in cells Cu₂ to M₁, all surrounded by square of paler grey. Hindwing ground colour greyish-white; two small, black spots at submargin of cell 1A+2A, one in cells Cu₂-M₁, all surrounded by square of paler grey. Labial palpi grey, second segment elongate. Eyes bare and brown, grey scaling at margins. Frons brown edged with grey. Antennal segments brown with tiny amounts of basal white scaling; clubs brown, tips orange-brown. Thorax and abdomen dorsal surface dark brown, ventral surface greyish-white. All legs grey-brown. *Genitalia* (Fig. 9): lower posterior angle of uncus pointed, remaining portion rounded; falci small and compact; vinculum incomplete, extending from anterior edge of tegumen to top of valvae; valvae with basal lateral bulge, long, bluntly pointed upper arm and small projection at middle of distal edge; aedeagus relatively long and pointed, sigmoidal in ventral view, contains numerous very small sclerotised spines that form broad strip in middle, tapering towards tip; vestigial "V"-shaped portion of last sternite supports base of aedeagus, attached to valvae by membranous tissue.

Female: unknown.

Types: Holotype ♂: French Guiana - Cayenne, Galion, Roura, 5 Aug 1989 (J.-Y. Gallard) (# 181); to be deposited in the MNHN.

Paratypes: French Guiana - 1 ♂: same locality data as HT, 2 Apr 1989 (J.-Y. Gallard); to be deposited in the FSCA.

Etymology: This species is named for the spirit of cooperation that has existed between its three authors.

Diagnosis: *Theope amicitiae* sp. nov. most closely resembles *Theope leucanthe* Bates, 1868, especially sympatric lower Amazon specimens, because both lack blue on the dorsal forewing (specimens of *T. leucanthe* from Panamá and the upper Amazon have blue at the base of the forewing). *T. amicitiae* differs from *T. leucanthe* by being slightly smaller, by having a more compact wing shape, blue restricted to the tornal region of the dorsal hindwing and slightly more contrasted pale squares around the ventral submarginal black spots. On the basis of examining the male genitalia of two specimens of *T. amicitiae* and several specimens of *T. leucanthe* (see Fig. 10), from disparate geographic localities, these are the consistent male genitalic differences between the two species: *T. amicitiae* has a more rounded upper portion to the uncus, smaller falci, a small projection from the middle of the lower edge of the upper valve arm and, most diagnostically, numerous very small spines in the aedeagus, distributed as described above; the vesica of *T. leucanthe* is studded with tiny sclerotised structures but lacks these larger, internal spines.

Discussion: *T. amicitiae* is currently only known from the two French Guianan specimens and no others have been located in major world museum collections. Both males were captured in the afternoon along the forest edge near the crest of the Montagne des Chevaux.

Theope sticheli Hall, sp. nov. (Figs. 4a,b; 11)

Description: Male: forewing length: HT 14mm; PT 12.5mm. Wing shape compact; both wings very slightly angular at tornus and pointed at apex. *Dorsal surface:* forewing ground colour dark brown; blue at base of wing occupies entire discal cell and small area distal to cell end, which is outlined with a sickle-shaped brown mark, approximately basal three-quarters of cells above and below vein 1A+2A, basal half of cell Cu₂ and basal third of cell Cu₁, forming convex distal margin to all cells; fringe pale brown. Hindwing ground colour dark brown, pale grey at anal margin; blue occupies entire wing below vein M₁ except for a triangular dark brown area in cells M₃ and M₂, a dark brown mark at upper portion of discal cell end and faint dark brown spots around distal submargin, two in cell 1A+2A, one in cells Cu₂ and Cu₁, some blue scaling at base of cell M₁; fringe pale brown. *Ventral surface:* ground colour of both wings grey, subtle yellow tinge along base of forewing costa; thin brown line extends around very outer margin of both wings; small black spot in submargin of cells 1A+2A to M₁ on both wings, two in 1A+2A, all encircled by small area of paler grey colouration that is slightly larger on hindwing. Labial palpi grey, second segment elongate. Eyes brown and bare, grey scaling at margins. Frons brown. Antennal segments brown with basal white scaling; tubular clubs brown, tips orange-brown. Dorsal surface of thorax and abdomen brown, ventral surface grey. All legs grey. *Genitalia* (Fig. 11): lower posterior angle of uncus triangular, remainder semicircular; falci small and compact; vinculum incomplete, extending from anterior edge of tegumen to top of valvae; valvae with basal lateral bulge, long and bluntly pointed upper arm and small projection at middle of distal edge; aedeagus relatively long and pointed, sigmoidal in ventral view, vesica surface contains numerous tiny sclerotised structures; vestigial "V"-shaped portion of last sternite supports base of aedeagus, attached to valvae by membranous tissue. **Female:** differs from male in the following ways: forewing length 13mm. Hindwing slightly more rounded at apex; paler dorsal ground colour, slightly less blue postdiscally on forewing.

Types: Holotype ♂: Brazil - Pará, Rio Tapajós, Itaituba (P. Hahnel - Staudinger coll.); in the ZMHU.

Allotype ♀: Brazil - Rondônia, line C-10 off B-65, 5 km S. of Caucalandia, Rio Pardo, 20 Aug 1994 (O. Gomes); to be deposited at the Universidade Federal do Paraná, Curitiba, Brazil. Paratype: Ecuador - 1 ♂: Napo Prov., Rio Napo, Garzacocha, La Selva, 200m, 15 Nov 1994 (E. Ericks); in the coll. of P. J. DeVries, Eugene, Oregon, USA.

Etymology: This species is named for the German entomologist Hans Ferdinand Emil Julius STICHEL, who produced a prodigious and still unparalleled body of work on the systematics of the Riodinidae at the beginning of the twentieth century.

Diagnosis: Although *Theope sticheli* sp. nov. superficially closely resembles *Theope wallacei* sp. nov. (described above), the male genitalia of the latter, as described in the diagnosis for that species, place it in a different subgroup. Based on wing pattern and male genitalia, *T. sticheli* can be placed closest to *Theope methemona*. It differs from that species by its smaller size, compact wing shape and less pointed forewing, on the dorsal surface by having blue colouration that always extends to the margin on the hindwing, leaving a conspicuous triangular brown area in cells M₃ and M₂, a laterally constricted semicircle of blue on the forewing, with no pale brown postdiscal scaling (this is not discernible on the type of *T. methemona*), and sickle-shaped brown markings at the discal cell ends of both wings, and on the ventral surface by having more rounded submarginal black spots. The male genitalia of the two species do not differ significantly.

Discussion: *T. sticheli* has a broad Amazonian distribution that is currently known to encompass the area from near the base of the eastern Andes in Ecuador to east and south-west Brazil, implying its certain occurrence in Peru, and probably also Colombia and Bolivia. This overlaps the distribution of its closest relative, *T. methemona*, on the lower Amazon.

The female of *T. sticheli* was recently illustrated as a putative female of another Brazilian species, *Theope turneri* Hall & Austin, 1997, but the subsequent discovery of male specimens that essentially exactly match that female show the association to be incorrect. The specimen is clearly figured in that paper (HALL & AUSTIN, 1997) and is not reproduced here.

Theope busbyi Hall, sp. nov. (Figs. 5a,b; 12)

Description: Male: forewing length 11mm. Wing shape compact; forewing markedly convex at distal margin, hindwing rounded. *Dorsal surface:* forewing ground colour black; semicircle of blue in basal half of wing occupies approximately basal three-quarters of cells above and below vein 1A+2A, and basal half of cells Cu₂ and Cu₁, forming straight, diagonal distal margin to all cells, entire discal cell and increasingly smaller areas postdically in cells M₃ to M₁ (in that order), leaving a sickle-shaped brown mark at discal cell end; fringe brown. Hindwing ground colour blue; broad, even, dark brown band at distal margin extends from tornus to apex; fringe brown. *Ventral surface:* ground colour of both wings dark brown, darker brown in semicircle around anal margin of forewing, overlaid with pale brown scales that are least numerous in medial and costal areas, except along basal two-thirds of anal margin of forewing; barely discernible line encapsulates roughly semicircular clusters of pale brown scaling at submargin of both wings. Labial palpi brown, second segment elongate. Eyes brown and bare, brown scaling at margins. Frons dark brown. Antennal segments brown with basal white scaling; tubular clubs brown, pointed tips orange-brown. Dorsal surface of thorax and abdomen dark brown, ventral surface dark brown with some pale brown scaling. All legs dark brown. *Genitalia* (Fig. 12): lower posterior angle of uncus triangular, remainder pronouncedly semicircular; falci small and compact; vinculum incomplete, extending from anterior edge of tegumen to top of valvae; valvae with basal lateral bulge, long and bluntly pointed upper arm and small projection at middle of

distal edge; aedeagus relatively long and pointed, sigmoidal in ventral view, everted vesica "S"-shaped, surface at tip has numerous spines of nearly uniform thickness, that at anterior bend has numerous smaller triangular spines; vestigial "V"-shaped portion of last sternite supports base of aedeagus, attached to valvae by membranous tissue. Female: unknown.

Types: Holotype ♂: Ecuador - Napo Prov., Río Napo, km 4 Misahualli-Puerto Napo rd., 450m, 9-11 Oct 1990 (R. C. Busby); to be deposited in the USNM.

Etymology: This unusual species is named for my friend Robert C. BUSBY who, as well as collecting the unique holotype, has amassed an important collection of lycaenids and riodinids from Ecuador over the last ten years.

Diagnosis: The male genitalia of *Theope busbyi* sp. nov. are very similar to and thus place the species closest to *Theope brevignoni* Hall & Willmott, 1996, *Theope methemona* and *Theope sticheli* sp. nov. (described above). The presence of two distinct types of sclerotised structures towards the tip of the everted aedeagal vesica is a noteworthy genitalic character but since the vesicas of the other species could not be everted, due to the sigmoidal shape of the aedeagus, comparisons are difficult to make. The wing pattern of *T. busbyi*, which has blue extending to the very costal margin of the dorsal hindwing and a broad, even brown outer margin to that wing, a sickle-shaped discal cell end marking only on the dorsal forewing, and a unique ventral surface for the genus that contains a scattering of two distinct scale colours, pale brown over predominantly dark brown, is utterly distinct.

Discussion: This species is currently only known from the holotype male that was collected on a flowering bush at the forest edge (R. C. BUSBY, pers. comm.) close to the base of the eastern Andes in Ecuador.

Theope batesi Hall, sp. nov. (Figs. 6a,b; 13a,b)

Description: Male: forewing length 10mm. Wing shape compact, forewing pointed at apex, hindwing slightly pointed at tornus. *Dorsal surface:* forewing ground colour brown; semicircle of grainy purplish-blue occupies approximately basal two-thirds of cells above and below vein 1A+2A, basal third of cell Cu₂, and basal two-thirds of discal cell; fringe brown. Hindwing ground colour brown, costal and anal margins pale grey-brown; grainy purplish-blue occupies approximately basal half of wing, extending from vein Rs to vein 1A+2A, blue slightly more extensive in anal cells, distal edge uneven; fringe brown. *Ventral surface:* ground colour of both wings grey-brown; thin brown line extends around very outer margin of both wings. Labial palpi brown, second segment elongate. Eyes pale brown and bare, brown scaling at margins. Frons dark brown. Antennal segments brown with some basal white scaling; tubular clubs brown, tips orange-brown. Dorsal surface of thorax and abdomen dark brown, ventral surface pale grey-brown. All legs brown. *Genitalia* (Fig. 13a,b): uncus markedly bifurcate, lower posterior angle triangular, remainder square and also pointed at lower posterior angle; falci small and compact; vinculum incomplete, extending from anterior edge of tegumen to top of valvae; valvae with basal lateral bulge, long and bluntly pointed upper arm and small projection at middle of distal edge; aedeagus sigmoidal in ventral view, tip blunt, rounded lateral flange on each side just before tip, left-hand one containing numerous, long androconial hairs, vesica near tip studded with tiny sclerotised structures, five internal cornuti; very wide and narrow, vestigial portion of last sternite supports base of aedeagus, attached to valvae by membranous tissue. Female: unknown.

Types: Holotype ♂: Brazil - Amazonas, Rio Madeira, Manicoré, Nov 1923 (LeMoult coll.); in the MNHN.

Etymology: This species is named for the archetypal Victorian naturalist Henry Walter BATES, who tirelessly collected butterflies along the banks of the Brazilian Amazon and its tributaries between 1848 and 1859, published the first catalogue of riodinids (1868), and described an incredible 23 valid species of *Theope*.

Diagnosis: *T. batesi* sp. nov. has a rather non-descript wing pattern and by virtue of having no ventral submarginal spotting superficially resembles species such as *Theope simplicia* Bates, 1868, *Theope hypoleuca* Bates, 1868, and *Theope azurea* Bates, 1868, however, these species all lack an elongate upper arm to the valvae of the male genitalia and thus lie outside the "*foliorum* group". *T. batesi* differs from all three in wing pattern alone by always having a prominent very thin brown line at the very distal margin of both ventral wing surfaces, which are also usually a darker colour, and reduced blue on the forewing, which is absent in *T. simplicia* and more extensive in the other two species. Within the "*foliorum* group", *T. batesi* is unique in always lacking ventral submarginal spotting (*Theope lycaenina* rarely also lacks them) and its male genitalia have a character that is unique within the genus, the tribe Nymphidiini and almost certainly the whole family Riodinidae, namely the presence of two lateral flanges either side of the tip of the aedeagus, one containing erectile androconial hairs. Other male genitalic characters that separate it from species of the main "*foliorum* group" include the presence of aedeagal cornuti, a markedly bifurcate uncus and a considerably broader vestigial last sternite segment.

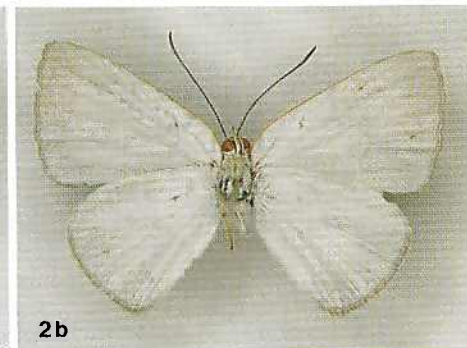
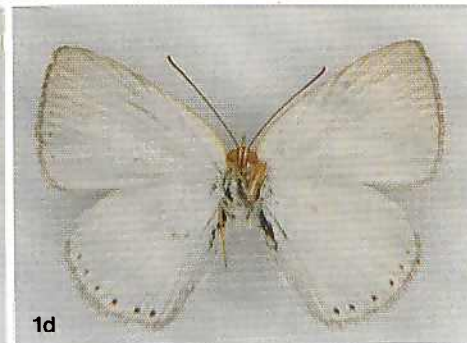
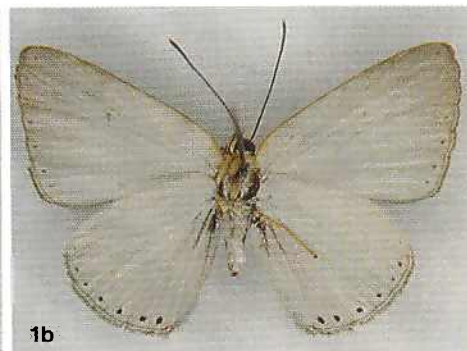
Discussion: Other than the holotype of *T. batesi*, there are two other specimens that I regard as belonging to this species but because of the unusual extent of geographic variation expressed in their wing pattern and male genitalia I do not designate them as paratypes. Their locality data is as follows:

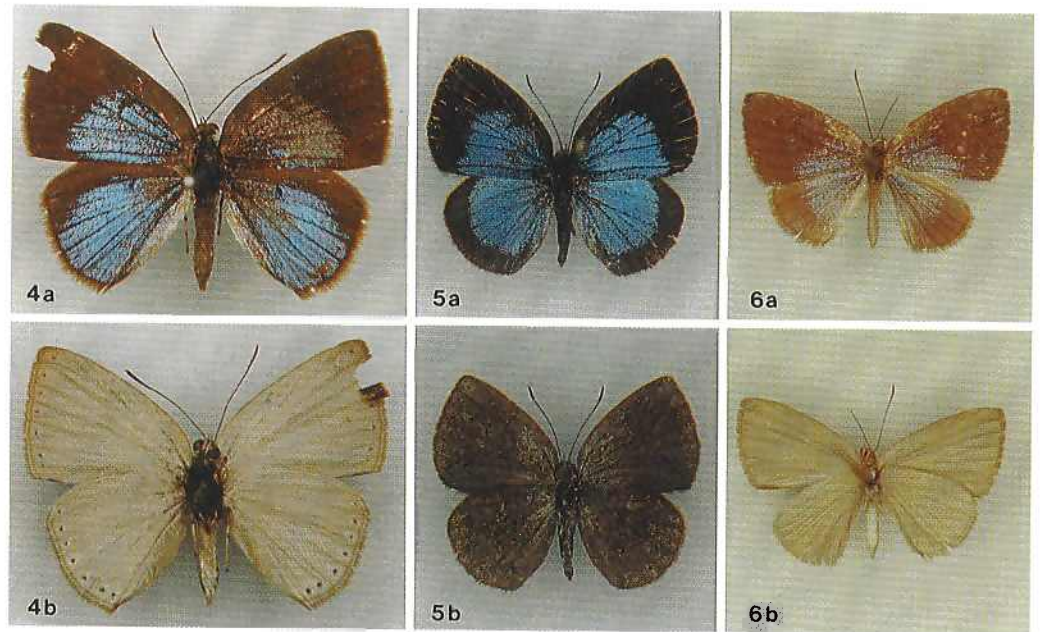
Ecuador - 1 ♂: Napo Prov., Río Napo, km 4 Misahualli-Puerto Napo rd., 450m, 21 Oct 1993 (G. W. Busby III); in the coll. of G. W. Busby III, Boston, USA.

Brazil - 1 ♂: Pará, Belém-Camiranga rd., Igarapé-Açu, Dec 1911-Feb 1912 (H. S. Parrish); in the AMNH.

The specimen from near Belém has a wing pattern exactly the same as the holotype but the Ecuadorian specimen has an entirely blue dorsal hindwing except for the apex, increased blue on the forewing that nearly reaches the tornus, and a darker ventral ground colour. A similar phenomenon of increased dorsal blue in west Amazonian specimens can be seen in *Theope leucanthe*. Conversely, in the male genitalia, the Ecuadorian specimen differs relatively little, by having three aedeagal cornuti instead of five, but the Belém specimen has eleven aedeagal cornuti, four of which form a continuous span at the mouth of the aedeagus. Such marked geographic variation in male genitalic characters is certainly highly atypical in *Theope* but the number of aedeagal cornuti does also vary geographically in *Theope wallacei* sp. nov. (described above) between three and eight. As the two aforementioned specimens do not differ in any other significant regard from the holotype and in the absence of any comparative ecological information, particularly life history information, I prefer to regard them as belonging to *T. batesi*.

The Ecuadorian specimen of *T. batesi* was captured from a flowering bush at the forest edge (G. W. BUSBY III, pers. comm.).





Figs. 1-3. Type specimens. 1. *Theope wallacei* Hall **sp. nov.**, HT ♂: a) dorsal surface; b) ventral surface. AT ♀: c) dorsal surface; d) ventral surface. 2. *Theope pakitza* Hall & Harvey **sp. nov.**, HT ♂: a) dorsal surface; b) ventral surface. 3. *Theope amicitiae* Hall, Gallard & Brévignon **sp. nov.**, HT ♂: a) dorsal surface; b) ventral surface.

Figs. 4-6. Type specimens. 4. *Theope sticheli* Hall **sp. nov.**, HT ♂: a) dorsal surface; b) ventral surface. 5. *Theope bushyi* Hall **sp. nov.**, HT ♂: a) dorsal surface; b) ventral surface. 6. *Theope batesi* Hall **sp. nov.**, HT ♂: a) dorsal surface; b) ventral surface.

Figs. 7-13. Male genitalia. 7. *Theope wallacei* **sp. nov.**. 8. *Theope pakitza* **sp. nov.**. 9. *Theope amicitiae* **sp. nov.**. 10. *Theope leucanthe* Bates, 1868. 11. *Theope sticheli* **sp. nov.**. 12. *Theope bushyi* **sp. nov.**. 13. *Theope batesi* **sp. nov.**: a) rightside view; b) leftside view.

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