

A NEW GENUS OF RIODINID, WITH A NEW SPECIES FROM PANAMA (LEPIDOPTERA: RIODINIDAE: NYMPHIDIINI)

JASON P. W. HALL¹ AND DONALD J. HARVEY²

¹Dept. of Entomology and Nematology, University of Florida, Gainesville, Florida 32611 and

²Dept. of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560-0127, USA

ABSTRACT.— The new genus *Archaeonympha* n. gen., in the tribe Nymphidiini Bates, 1859, is described for the "*drepana* Bates, 1868, group" of species formerly included in the genus *Theope* Doubleday, 1847. A new species in this genus, *Archaeonympha smalli* n. sp., is also described from Panama.

KEY WORDS: *Adelotypa*, *Archaeonympha* n. gen., *Archaeonympha smalli* n. sp., Brazil, Central America, Chocó, cladistics, Colombia, *Comphotis*, Costa Rica, Ecuador, morphology, Neotropical, Peru, South America, taxonomy, *Theope*, Trinidad.

This paper is one in a series by the first author (Willmott and Hall, 1994; Hall and Willmott, 1996a; DeVries and Hall, 1996; Hall and Austin, 1997; Hall, *in press*) to more fully elucidate the species diversity of the genus *Theope* Doubleday, 1847, and relatives.

The sister taxa *drepana* Bates, 1868, and *urichi* Vane-Wright, 1994, are currently placed in *Theope* (Bridges, 1994), but a morphological cladistic analysis of the tribe Nymphidiini (*sensu* Harvey, 1987) indicates that they do not belong in that genus or any other (Hall, *in prep*). In order to maintain the monophyly of *Theope*, a new genus is described to include these two species and a third undescribed species from Panama. To evaluate the geographic distribution and abundance of these species, the private collections of G. W. Busby and R. C. Busby (Boston, MA), and P. J. DeVries (Eugene, OR) as well as the following museums, whose acronyms are used in the text, were examined:

AME	Allyn Museum of Entomology, Florida Museum of Natural History, Sarasota, FL, USA
AMNH	American Museum of Natural History, New York, NY, USA
BMNH	Natural History Museum, London, England
FSCA	Florida State Collection of Arthropods, Division of Plant Industry, Gainesville, FL, USA
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA
USNM	National Museum of Natural History, Smithsonian Institution, Washington, DC, USA
ZMHU	Zoologische Museum für Naturkunde, Humboldt Universität, Berlin, Germany

ARCHAEONYMPHA Hall, new genus

Fig. 1-9.

Type species: *Archaeonympha smalli* Hall & Harvey, n. sp.

Description.— MALE: forewing length 10-11mm. *Wing shape*: distal margin of both wings variably angular, forewing apex variably falcate, distal hindwing margin variably serrate. *Venation* (Fig. 4a): four forewing radial veins, veins Sc and R₁ joined for a short distance but not fused. *Dorsal surface*: ground color dark brown; both wings predominantly blue and variably traversed by jagged dark brown discal and postdiscal lines, submarginal dark brown spots on hindwing variably present; fringes brown. *Ventral surface*: ground color a grainy mixture of pale and darker brown scaling; both wings with orange-brown markings forming broken and dis-

jointed basal, mid-discal and postdiscal lines, orange-brown line marks discal cell end of both wings, white distal to apical portion of postdiscal forewing line variably present; submarginal line of small black spots on both wings lined with white proximally consists of two spots in cell 1A+2A and one in cells Cu₂ to M₁, slightly darker brown scaling forms indistinct line proximally; thin orange-brown line at distal margin; fringes brown. *Head*: ventral surface of labial palpi gray, dorsal surface brown, second and third segments elongate (Fig. 4b). Eyes bare and brown, margins brown. Frons brown, paler brown at margins. Antennae brown or orange-brown with pale brown at base of each segment; tubular clubs brown or orange-brown, tips pale orange-brown. *Body*: dorsal surface of thorax and abdomen dark brown, ventral surface gray-brown. All legs gray-brown. Tarsus of foreleg unimerous, coxa elongate (Fig. 4c); midleg and hindleg with a tibial spur and a group of spines at inner distal tip of tarsal segments one to four, three further spines along inner distal margin of first tarsal segment (Fig. 4d). *Genitalia* (Fig. 5-6): distal margin of uncus concave; falci small and compact; valvae form an approximate rectangle, with a basal, lateral bulge, a variably sized, rounded lower projection and an upwardly pointed tip with a small bulge below; aedeagus tapers sharply towards tip (*A. smalli*) or is of even width (*A. drepana*), tip of vesica contains a double row of small spines (*A. smalli*) or a jagged sclerotized line (*A. drepana*); pedicel broad. Eighth tergite has a small triangular point at lower posterior corner. Eighth sternite is a simple rectangle that is weakly indented at posterior margin.

FEMALE: differs externally from male in following ways: forewing length 10-15mm. *Wing shape*: distal margins of both wings less angular, forewing apex never falcate. *Dorsal surface*: ground color of both wings paler brown; blue coloration on both wings a paler lilac, submarginal dark brown spots on hindwing always present. *Ventral surface*: ground color slightly paler. *Head*: second palpal segment slightly more elongate (Fig. 4e). Inside edge of antennae bare brown. *Body*: foreleg with a group of spines at inner distal tip of tibia and tarsal segments two to four (Fig. 4f). *Genitalia* (Fig. 7-9): corpus bursae variably constricted at or below signae, signae form pointed invaginations that are inwardly curved (*A. smalli*) or sinuate (*A. drepana* and *A. urichi*), triangular (*A. smalli*) or more ovate (*A. drepana* and *A. urichi*) at base; ductus bursae hardened or sclerotized and bulbous at posterior end with small areas of heavy sclerotization at margin, a variably elongate, hollow, sclerotized structure that is medially divided in posterior half positioned opposite opening of ductus seminalis; ostium bursae forms a roundly triangular sclerotized ring; region between ostium bursae and eighth tergite partially sclerotized with a pair of small indentations. Eighth tergite has a heavily sclerotized disc at dorsal posterior corner.

Etymology.— The name is derived from the Greek words for "ancient" and "nymph" and refers to the basal position of the genus in the tribe Nymphidiini.

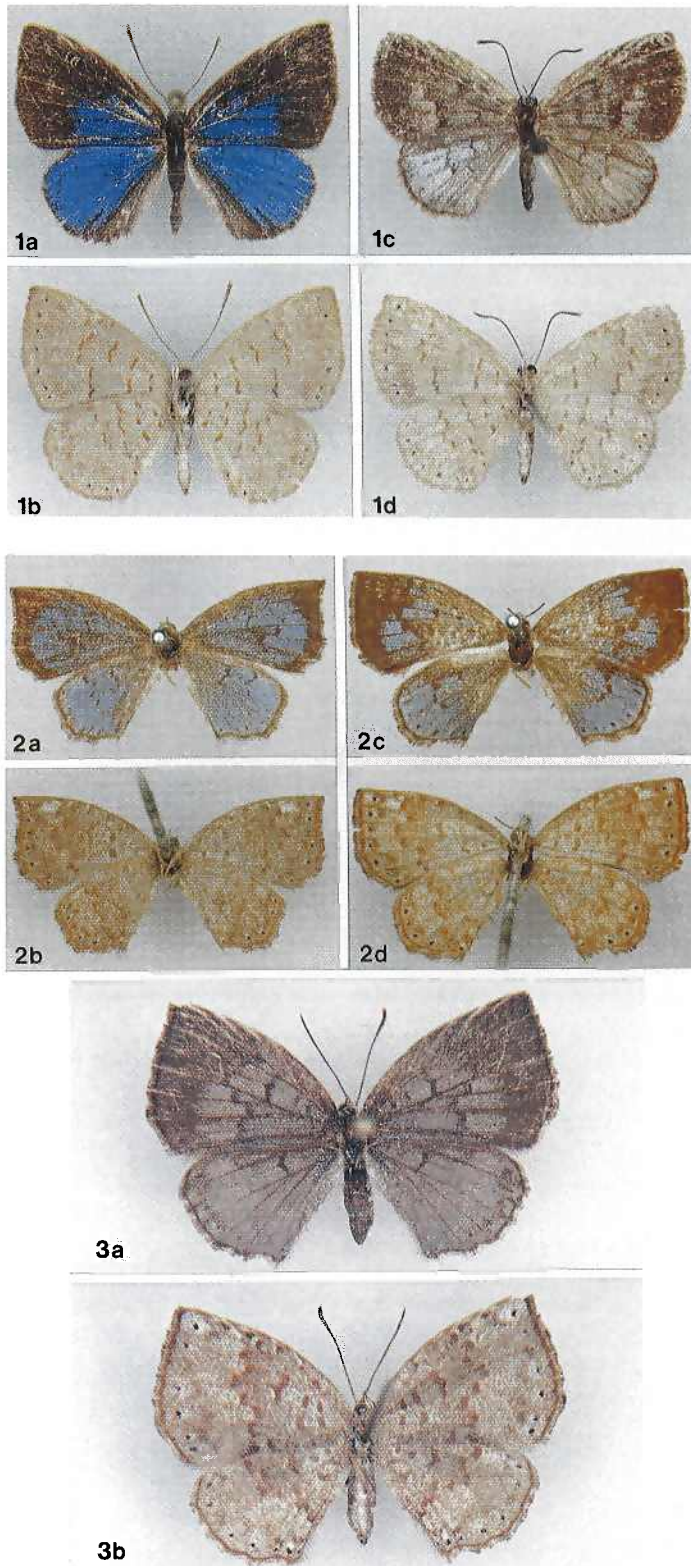


Fig. 1-3. 1. *Archaeonympha smalli* Hall & Harvey n. sp., holotype male: a) dorsal surface; b) ventral surface. Allotype female c) dorsal surface; d) ventral surface. 2. *Archaeonympha drepana* (Bates, 1868). Holotype male, Ega, Brazil: a) dorsal surface; b) ventral surface. Allotype female, Ega, Brazil: c) dorsal surface; d) ventral surface. 3. *Archaeonympha urichi* (Vane-Wright, 1994). Female, El Llano, Panama: a) dorsal surface; b) ventral surface.

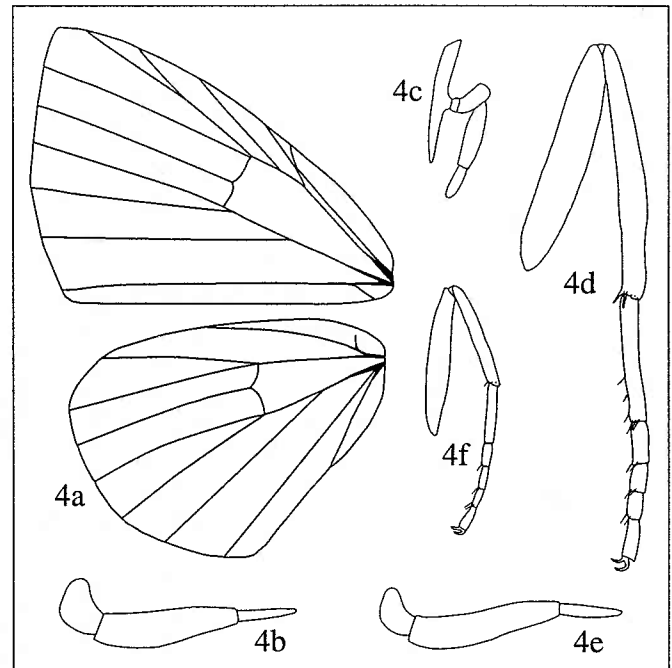


Fig. 4a-f. Morphology. 4. *Archaeonympha smalli* n. sp., male: a) venation; b) palpus; c) foreleg; d) hindleg. Female: e) palpus; f) foreleg.

Systematic position.— *Archaeonympha* species have been treated in both *Comphotis* Stichel, 1910, because of their small size and similarly patterned ventral surface, and *Theope*, because of their blue dorsal surface, but their true systematic position has been uncertain (Hall and Willmott, 1996b). The ventral position of the spiracle on male abdominal segment three of *Archaeonympha* species places them in the tribe Nymphidiini (*sensu* Harvey, 1987) and they are thus not closely related to *Comphotis* species, which lack the synapomorphic characters of any existing tribe and can only be placed in the *incertae sedis* section (four forewing radial veins) of Harvey (1987); *Comphotis* species also have brown, orange or red dorsal coloration with a slightly different and diagnostic ventral pattern (Hall and Willmott, 1996b).

A comprehensive morphological cladistic analysis of the Nymphidiini, based on over 85% of species from all described genera, indicates that while *Archaeonympha* species are closely related to those of *Theope* they do not together form a monophyletic clade (Hall, in prep). *Archaeonympha* species appear to be most closely related to the taxon *senta* Hewitson, [1853], which is currently misplaced in the polyphyletic genus *Adelotypa* Warren, 1895, and all four species occupy a basal position in the tribe (Hall, in prep). Although the ventral patterning of *Archaeonympha* species and *senta* is very similar and unique to these species, the differences in the remaining pattern elements, and male and female genitalic morphology are so gross as to indicate that at least one of these groups has undergone substantial anagenesis. For this reason, and uncertainty concerning the monophyly of *Archaeonympha* + *senta*, *senta* is not included in *Archaeonympha* and indeed it requires its own monotypic genus (Hall, in prep.).

Diagnosis.— *Archaeonympha* species are superficially readily recognisable by their small size, angular wing shape, blue dorsal coloration that is typically divided by brown transverse lines, and orange-brown ventral patterning with tiny, black, white-encircled submarginal spots around both wings. The lack of a sclerotized

