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TWO NEW CHARAXINAE FROM PANAMA AND THE CANAL ZONE (NYMPHALIDAE)

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The Canal Zone and nearby parts of Panama are among the best collected areas of Central America, so it is very surprising to find new species and/or subspecies there in such well-known genera as *Agrias* and *Anaea*. Nevertheless, the recent collecting activities of Messrs. Gordon B. Small and H. L. King have uncovered a new subspecies of the former genus that has escaped detection for many years within the confines of the Canal Zone and a new species of *Anaea* from the provinces of Panama and Chiriqui (one specimen also from the Canal Zone). Both insects are striking members of their respective genera, and both are represented in sufficient series to warrant their descriptions.

Agrias zenodorus smalli, new subspecies

Plate I, top figures (♂ Holotype), bottom figures (♀ Paratype)

Figure 1 (♂ genitalia)

Male: Head blackish-brown above with white dots before and behind antennal sockets; blackish-brown below, white posteriad of eyes. Antenna and palpus both black above, white below. Thorax blackish-brown above, laterally with diagonal stripes of blackish-brown and white, cream-colored below. Legs black, striped along entire length with white. Abdomen blackish-brown above and below, intersegmental areas paler below.

Forewing above blackish-brown with a broad median yellow-orange diagonal band extending from near costa above cell toward tornus and terminating in Cu₂-2A, this band being more tapered posteriad than in other *zenodorus* subspecies and never occupying as much as half of discal cell, entering cell at origin of R₁ from anterior end and nearer origin of Cu₁ than that of Cu₂ from posterior side; apical spots diffuse and whitish, curving around apex from R₄-R₅ to M₂-M₃, these spots not so obscured as in other *zenodorus* subspecies. Hindwing above blackish-brown, white along costa, with a shining blue patch outside discal cell from just into M₁-M₂ to Cu₂-2A, this patch being restricted distally in its anterior part, resembling in this regard Peruvian and Bolivian material more than Colombian and Ecuadorian specimens; androconial hair tuft along 2A yellow in freshly caught specimens, aging to ochreous; fringes of both wings black, slightly whitened between veins, especially on hindwing.

Forewing below blackish-brown with central area of upper surface repeated, but duller and continued to base of discal cell enclosing two large black dots in mid-cell; apical cream-yellow bar better developed than in other *zenodorus* and extending from near costa to outer margin in M_3-Cu_1 , this band ending before margin in M_2-M_3 in most other populations; blackish-brown area between pale central patch and apical band with veins more extensively yellow than in other subspecies. Hindwing below, as shown on the plate, blackish with cream yellow bands and a series of blue-white centered black spots halfway between discal cell and margin from $Sc+R_1-Rs$ to a double one in Cu_2-2A , those from $Sc+R_1-Rs$ to M_1-M_2 being coalesced, those from M_2-M_3 posteriad well separated as in the aberration "amaryllis" Bang-Haas, but not in other *zenodorus*; pale band basad of ocelli broader than in most subspecies and ochreous in fresh specimens, not yellow as in other *zenodorus*; fringes of both wings black, only narrowly whitened between veins on forewing.

Length of forewing of Holotype ♂ 37.0 mm., those of the nine ♂ Paratypes ranging from 34.0 to 39.0 mm., averaging 37.2 mm.

♂ genitalia similar to those of other *zenodorus*, but the penis is straighter, suggesting specific differences, though material at hand is insufficient to make such determination with certainty.

Female: Head, thorax, abdomen and appendages as in ♂. Upper surface of wings as in ♂, but yellow-orange patch of forewing somewhat enlarged distad, forewing whitish apical spots more prominent and of course no hindwing androconial hair tuft. Under surface as in ♂, but forewing pale central patch extended distad, veinal markings between that patch and apical bar more developed, hindwing extradiscal ocelli more approximate and band proximad of these ocelli paler ochreous.

Length of forewings of the 13 ♀ Paratypes range from 40.0 to 44.5 mm., averaging 43.1 mm.

Described from 23 specimens, ten males and 13 females, from the Canal Zone and nearby areas in Panama.

Holotype ♂: CANAL ZONE: Piña (also listed as "Gatun" on some of specimens: see note below), 30.vii.1970 (H. L. King); ♂ genitalia slide M-2205 (Lee D. Miller).

Paratypes: Same locality and collector as Holotype, 1 ♀ 23.v.1970, 1 ♀ 1.vii.1971, 1 ♀ 20.vii.1970, 1 ♂ 28.vii.1970, 1 ♂ 29.vii.1970, 1 ♀ 30.vii.1970, 1 ♂ 1 ♀ 3.viii.1970, 1 ♀ 15.iv.1971, 1 ♀ 25.iv.1971, 1 ♂ 27.iv.1971, 1 ♂ 6.v.1971; Madden Forest Preserve, 1 ♀ 5.viii.1969, 1 ♂ 1 ♀ 19.viii.1969, 1 ♂ 15.vii.1970 (all G. B. Small); Gatun (see note above), 1 ♀ 13.viii.1970, 1 ♂ 22.vi.1971 (both G. B. Small); PANAMA: PANAMA: Cerro Campana, ca. 2500 ft., 1 ♀ 15.viii.1970 (H. L. King), 1 ♂ 6.ix.1970 (G. B. Small); Cerro Jefe, 2500 ft., 1 ♀ 6.iv.1971, 1 ♀ 22.v.1971 (both G. B. Small).

The type-locality appears to be somewhat confused since specimens from the same place are labelled two ways in collections. The specific locality lies very near the town of Piña, Panama, but it is in the Canal Zone: there is no such actual locality as Piña, Canal Zone. The locality is quite distant from Gatun, the nearest town in the Canal Zone, so really no present designation of this type locality is entirely satisfactory. Perhaps the best designation would be "CANAL ZONE: near town of Piña, PANAMA", but this, too, is awkward and could ultimately cause confusion.

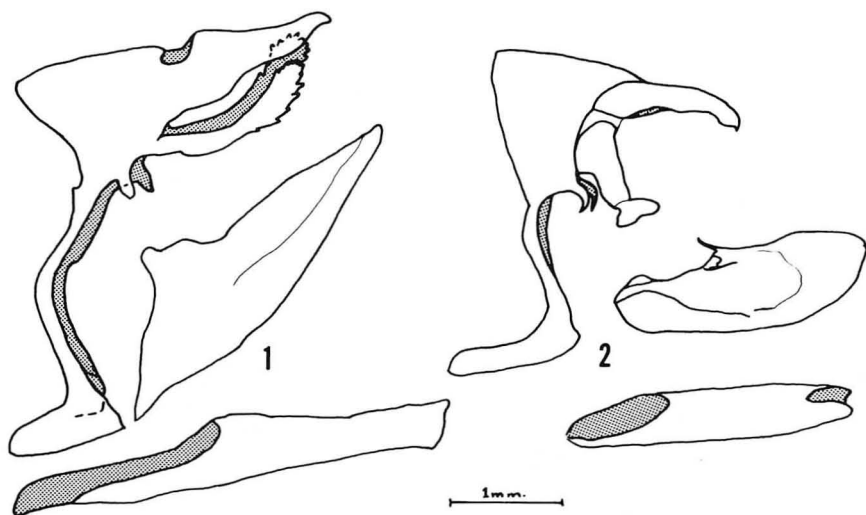
The Holotype, two male and three female Paratypes will be deposited in the Allyn Museum of Entomology; one male and one female Paratypes will be placed in the collection of S. S. Nicolay, four male and five female Paratypes will be placed in the collection of H. L. King and two male and four female Paratypes will be placed in the collection of G. B. Small.

We take great pleasure in naming this distinctive element of the Panamanian fauna for Gordon B. Small in recognition of his work on the butterflies of that area. Ironically Mr. Small took the first specimen of this species very near the spot where he earlier was bitten by a bushmaster, one of the most dreaded snakes in the world. Indeed, things and events tend to compensate themselves, though seldom with such rapidity!

This subspecies is distinguished from others within *zenodorus* by the combination of the restricted orange-yellow forewing patch, the obsolescent forewing apical spots, the restricted blue hindwing patch above (this patch where reduced in other *zenodorus* is not restricted basad, but is more uniformly reduced) and the separate hindwing ocelli bordered distad with ochreous, rather than yellow, on the under surface. In view of the rather remarkable variability of these butterflies from South American localities, it is surprising that the type-series of *smalli* should be so constant.

According to both Small and King this butterfly is fairly widespread throughout forested areas of the Canal Zone and nearby Panama province. In view of the intense collecting in at least the Canal Zone, we are unable to explain how *smalli* could have escaped detection for so long. There is no way to confuse the present *Agrias* with the only other one known from the area, *A. aedon* Hewitson, a red-banded species on the upper surface and very different on the under side. Mr. King (*in litt.*) states that *aedon* is quite a rare insect in the same area in which *smalli* flies, he having taken but two specimens in as many years, yet *aedon* was known to Godman and Salvin (1884 [1879-1901]: 328; pl. 31, figs. 5, 6) before the turn of the century. Most of the specimens taken to date have been found in bait traps, so little can be said concerning the habits of this butterfly. The dates of capture suggest two broods, one in April and May, the other from late July through mid-August, or later.

Mr. King (*in litt.*) states that while he and his wife were collecting near Turrialba, Costa Rica, both independently saw what they felt certain were specimens of *smalli*, but could not capture them. Both have had experience with this butterfly, and their observations must be considered to strongly suggest that the present insect is found in at least Costa Rica, as well as Panama.



Figures 1 and 2, ♂ genitalia of new Charaxinae. 1. *Agrias zenodorus smalli*, new subspecies, genitalia of Holotype ♂. 2. *Anaea kingi*, new species, genitalia of Holotype ♂.

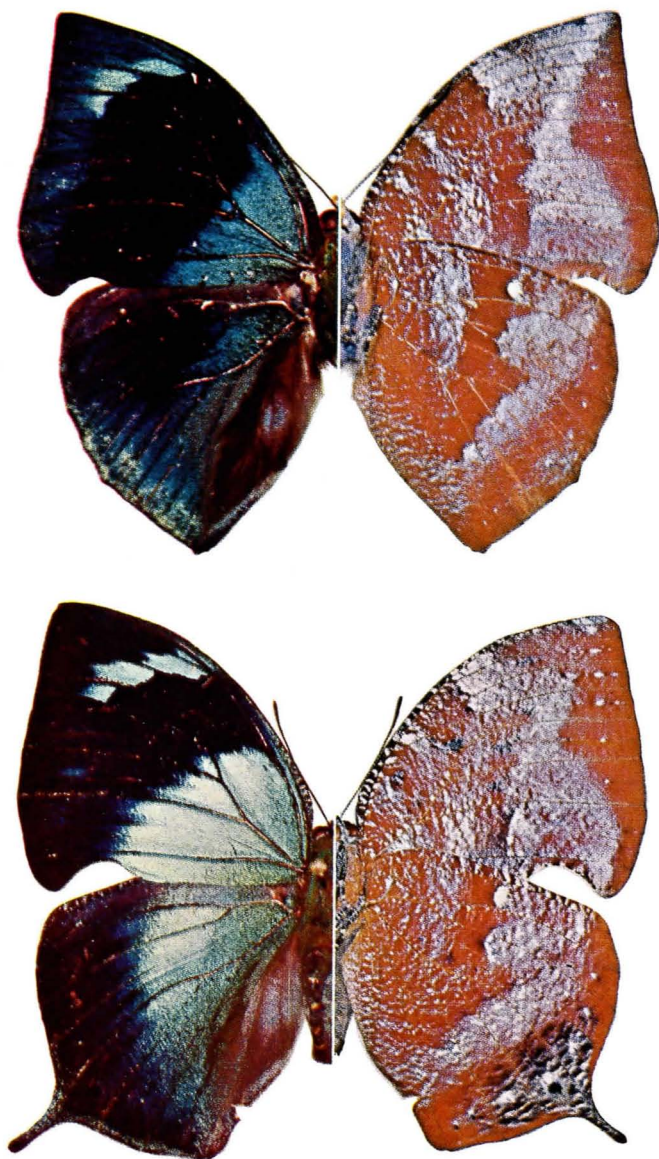


Plate II. *Anaea kingi*, new species. Top figures, Holotype ♂, upper side (left) and under side (right); PANAMA: PANAMA: Cerro Campana, 19.viii.1970 (H. L. King). Bottom figures, Paratype ♀, upper side (left) and under side (right): CANAL ZONE: Piña, 15.iii.1970 (H. L. King).



Plate I. *Agrias zenodorus smalli*, new subspecies. Top figures, Holotype ♂ upper side (left) and under side (right); CANAL ZONE: Pina, 30.vii.1970 (H. L. King). Bottom figures, Paratype ♀, upper side (left) and under side (right; CANAL ZONE: Piña, 30.vii.1970 (H. L. King).

Anaea kingi, new species

Plate II, top figures (♂ Holotype), bottom figures (♀ Paratype)

Figure 2 (♂ genitalia)

Male: Head and palpus black above, black dusted with white scales below, giving a grizzled appearance. Antenna black, eyes brown. Thorax black with blue-black hairs above and brownish-red below. Legs black powdered with white. Abdomen black clothed with blue-black scales above, dark gray ones below.

Forewing above black, basal third strongly iridescent blue, outer quarter less well pronounced iridescent blue-black, always with three large steel-blue apical spots in Rs-M₁, M₁-M₂ and M₂-M₃ (occasionally less well-defined submarginal spots in M₃-Cu₁, Cu₁-Cu₂ and Cu₂-2A). Hindwing above black with blue-black iridescence throughout, with steel-blue poorly defined marginal area and submarginal spots from M₁-M₂ to Cu₂-2A (occasionally coalesced with marginal area into a rather broad marginal patch). Fringes black. Upper surface rather closely resembles that of the Mexican *A. proserpina* (Salvin), but apical spots larger and more prominent, thereby resembling more the Costa Rican *A. elara* Godman and Salvin, from which the present insect may be distinguished by the broader hindwing marginal band. As in both of the other species, the ♂ of *kingi* is tailless.

Under surface deep rich reddish-brown with some violet shading and strongly scrawled with white as shown in figure. Fringes brown. On the under surface this species resembles *elara*, but is redder, and it is much more heavily scrawled with white than is the ♂ of *proserpina*.

Length of forewing of Holotype ♂ 34.0 mm., those of the 30 ♂ Paratypes ranging from 30.0 to 37.0 mm., averaging 34.7 mm.

♂ genitalia as figured, differing from those of *proserpina* chiefly in the longer valvae without prominent terminal projection, as well as the straighter uncus. The genitalia are also similar to those of *elara*, but differing in minor respects.

Female: Head, thorax, abdomen and appendages as in ♂, but dorsal hairs of thorax and abdomen of a paler blue.

Upper surface of forewing black, basal two-fifths with bright turquoise iridescence, with the same three apical spots as in ♂ present and turquoise, as well occasionally one to three poorly developed submarginal turquoise spots in spaces M₂-M₃ to Cu₁-Cu₂. Hindwing above black, dark grayish-brown in anal cells, basal half brightly iridescent turquoise, with marginal turquoise dusting and a series of poorly-developed marginal spots of the same color. The ♀ of the present species bears little resemblance to that of *elara* (Comstock, 1961: pl. 21, fig. 7), but is quite similar to the ♀ of *proserpina* (Comstock, 1961: pl. 21, fig. 3), differing in the blue areas being turquoise, not violaceous. As in the two species above, the ♀ of *kingi* is tailed.

Under surface rich reddish-brown, not as intense as in ♂, with violet shading and white scrawling as in ♂, but heavier at base than in ♂, and with grayish patch at base of tail extending out onto tail and enclosing large black spot at base of tail in M₃-Cu₁. The under surface bears no close resemblance to that of *proserpina*, the black markings of that species being obsolescent in the present one, but *kingi* is rather like *elara* below, though lacking the black markings in the cells of both wings which characterize the latter species.

Lengths of forewings of the 27 ♀ Paratypes range from 33.0 (only one specimen with a forewing length of less than 40.0 mm.) to 43.0 mm., averaging 41.3 mm.

Described from 58 specimens, 31 males and 26 females from Panama and Chiriqui provinces. Panama, and one female from the Canal Zone.

Holotype ♂: PANAMA: PANAMA: Cerro Campana, ca. 2500 ft., 19.viii.1970 (H. L. King); ♂ genitalia slide M-2201 (Lee D. Miller).

Paratypes: Same locality and collector as Holotypes: 1♀ 14.viii.1970; 2♂ 1♀ 15.viii.1970; 5♂ 3♀ 16.viii.1970; 2♂ 6♀ 18.viii.1970, 6♂ 2♀ 19.viii.1970, 3♀ 20.v.1971; same locality as Holotype: 1♂ 30.vii.1963, 2♀ 4.viii.1963, 1♀ 5.viii.1963, 1♂ 7.viii.1963, 1♂ 10.viii.1963, 1♂ 22.viii.1963, 1♂ 23.viii.1963, 1♂ 26.viii.1963, 1♀ 29.viii.1963, 2♂ 2♀ 30.viii.1963, 1♂ 5.ix.1966, 2♂ 11.ix.1966, 1♀ 16.ix.1966, 1♂ 1♀ 17.ix.1966, 1♂ 16.ix.1967, 1♂ 9.viii.1970, 1♂ 1♀ 5.ix.1970 (all G. B. Small); CHIRIQUI: La Mesa, El Valle, 1♀ 28.viii.1970 (H. L. King); CANAL ZONE: Piña, 1♀ 15.iii.1970 (H. L. King).

The Holotype, 12 male and 13 female Paratypes will be placed in the Allyn Museum of Entomology, four male and three female Paratypes will be placed in the collection of S. S. Nicolay, ten male and seven female Paratypes will be placed in the collection of G. B. Small and five male and four female Paratypes will be placed in the collection of H. L. King.

It is our pleasure to name this beautiful *Anaea* for our friend and colleague Mr. H. L. (Verne) King, a Research Associate of this Museum, as well as with the Division of Plant Industry, Gainesville, Florida, who collected a large part of the type-series and has generally added greatly to work on Paramanian butterflies.

Anaea kingi is a member of the *polycarmes* group of the subgenus *Memphis*, as defined by Comstock (1961), and is particularly closely related to *A. proserpina* and *elara*, but differing as stated in the description. The present species has been confused most frequently with *proserpina*, and judging by its apparent abundance, probably is masquerading in collections as that species. Comstock (1961: 119) places *A. schausiana* Godman and Salvin from Veracruz, Mexico, between *proserpina* and *elara*, but it appears that the latter two species are more closely related to one another than to *schausiana*, and *kingi* appears to fall into the intermediate position between *elara* and *proserpina*. The genitalic differences cited in the description seem to place *kingi* as a full species separate from *proserpina*, with which *kingi* would seem conspecific on superficial grounds alone.

This species is another one of the forest, and most of the specimens have been taken in bait traps. Little else can be said concerning its habitat and ecological requirements. The butterfly appears to be very common where it is found, and most of the records are from August and September, though Small (*in litt.*) tells us that they are found throughout the year.

We would like to take this opportunity to thank Messrs. King and Small for the material on which the descriptions are based and for field notes on the occurrence of these fine butterflies. We also thank A. C. Allyn for the photographs of the types.

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