

# REVISION OF *SYNECHODES*, WITH A NEW SPECIES FROM NEW GUINEA (LEPIDOPTERA: BRACHODIDAE)

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ABSTRACT.— The Australian-Papuan genus *Synechodes* is revised, including a redescription of its type-species *Synechodes coniophora* Turner from Queensland. A new species, *Synechodes papuana* Heppner, is described from New Guinea (Irian Jaya, Indonesia).

KEY WORDS: Australia, Indonesia, Irian Jaya, *Miscera*, Neotropical, New Guinea, Queensland, *Sagalassa*, Sesioidea, *Synechodes papuana* n. sp.

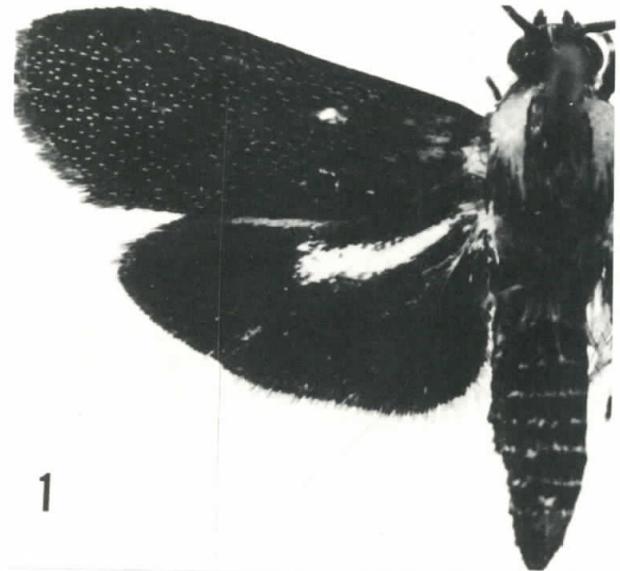
The Australian genus *Synechodes* Turner (1913) was originally described in Plutellidae, and later transferred to Brachodidae (Heppner, 1979). The genus included only a single species from Queensland, *Synechodes coniophora* Turner. Until additional specimens were located in unsorted material at the British Museum (Natural History), the species was known from only a unique male; the female remains unknown, however, since all other specimens are also males. One additional species of *Synechodes* has been located in the Issiki Collection (USNM) from western New Guinea and is described below. As in other Brachodidae, *Synechodes* undoubtedly are day-flying moths (Heppner, 1981).

## SYNECHODES Turner

*Synechodes* Turner, 1913:200. Type-species: *Synechodes coniophora* Turner, by monotypy.

**Diagnosis.**— *Size*: 18-23mm. This colorful genus (Fig. 1-2) is very similar to the Neotropical *Sagalassa*, differing principally in the genitalia, where the male has a gnathos and the female has a massive accessory bursa. The wing venation (Fig. 3) is very similar but *Synechodes* has a very arched Sc in the hindwing that also merges before the wingbase, which in *Sagalassa* is separate.

**Description.**— Forewing length: 8.2-10.5mm. *Head*: smooth-scaled, with hair tuft between antennal bases directed anteriorly; strong depression between antennal bases; compound eyes large, ovate; ocellus large and prominent; antenna filiform, short, with antennal bases relatively close together; labial palpi upcurved with segments relatively subequal; maxillary palpus prominent, 3-segmented; pilifer large; haustellum well-developed, naked. *Thorax*: papagia large, elongate; forelegs with epiphysis; midlegs with 2 tibial spurs; hindlegs with 4 tibial spurs. *Forewing*: elongate sub-triangular, with blunt rounded apex and somewhat angulate tornus; Sc to 2/3 at costal margin; radial veins to costal margin evenly spaced; R<sub>5</sub> to termen just below apex; median veins evenly spaced;



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Fig. 1-2. Fig. 1. *Synechodes coniophora* ♂; 2. *Synechodes papuana* Heppner, n. sp., ♀ holotype.

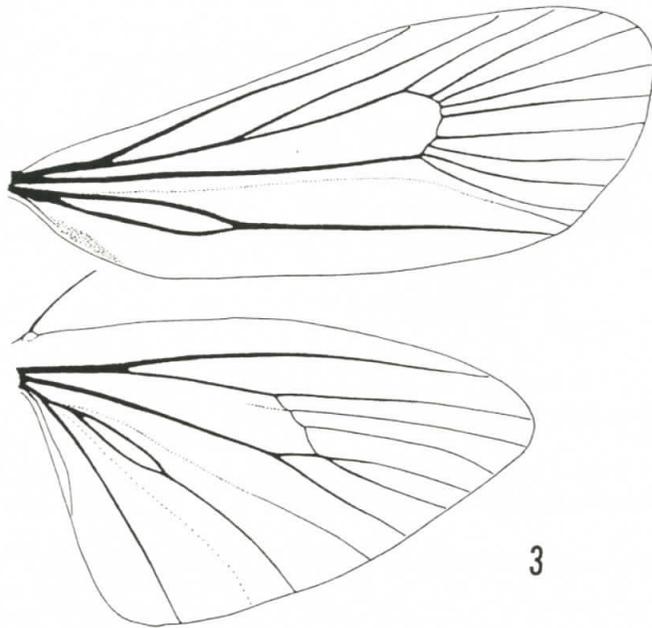


Fig. 3. Wing venation of *Synechodes coniophora* Turner, ♂.

CuA<sub>1</sub> close to M<sub>3</sub> and equidistant from CuA<sub>2</sub>; CuP prominent; A<sub>1+2</sub> straight to tornus, with long basal fork; A<sub>3</sub> at base. *Hindwing*: subtriangular, with large anal quarter; Sc to near apex and short stalked with radius; R to apex; M<sub>1</sub> and M<sub>2</sub> equidistant; M<sub>3</sub> stalked at base with CuA<sub>1</sub>; CuA<sub>2</sub> somewhat distant from CuA<sub>1</sub>; CuP prominent; A<sub>1+2</sub> with long basal fork; A<sub>3</sub> prominent and long, separated from A<sub>1+2</sub> by another fold; wingbase with small A<sub>4</sub>. *Abdomen*: relatively short, robust. *Male genitalia*: simple, with subequal tegumen and vinculum; saccus only as an extension of vinculum; uncus a broad triangle; gnathos very robust with fused lateral arms; valva simple, setose; anellus a small plate; aedeagus small, with moderate cornutus. *Female genitalia*: large, with moderate setose ovipositor; apophyses long and stout, the anterior pair with very long basal fork merging into both dorsal plates and a sternal fused plate pointed posteriorly; genital plate large; ostium bursae an abrupt opening to a widening ductus bursae; corpus bursae very small;

ductus seminalis from middle of ductus bursae and opening into very large accessory bursa.

**Distribution.**— Australia and New Guinea.

**Remarks.**— *Synechodes* is related to *Miscera* in Australia and *Sagalassa* in the Neotropical region. *Miscera* have many similarities but differ in wing venation and genital features. Likewise for *Sagalassa* as noted above. *Sagalassa*, in Central America, and *Miscera*, in Australia, have larval hosts in palm roots, so it is possible that *Synechodes* larvae have similar hosts and feeding habits.

### *Synechodes coniophora* Turner

*Synechodes coniophora* Turner, 1913:200.

**Diagnosis.**— *Size*: 18-20mm. The blackish moths with minute white spots over the forewings and the hindwing white mark, will easily distinguish this species.

**Description.**— Forewing length: 8.2-9.0mm ♂. *Male*.— *Head*: smooth dark fuscous (cream on sides of neck), metallic-like scales with 2 small tufts of scales between antennal bases; labial palpus smooth, upturned, with segments almost subequal, cream-white with apical segment dark fuscous; antenna dark fuscous, about half forewing length. *Thorax*: dark fuscous, patagia yellow-orange; venter metallic fuscous; legs dark fuscous with yellow-white on apical ends of coxae, femora, and tibiae, as well as tarsal segments. *Forewing*: uniformly dark fuscous with minute white flecks evenly spaced over entire wing, with small area of yellow-orange at wing base; fringe dark fuscous; venter dark fuscous with yellow along costal margin and yellow at basal and distal ends of cell, with a faint line along cubital vein. *Hindwing*: dark fuscous with white elongate oval spot at mid-wing in cell to just below cubital vein and stretching to near base; venter similar. *Abdomen*: black with a yellow strip on posterior of each segment; venter similar except for merging cream-yellow on entire center of abdomen. *Male genitalia* (Fig. 4-5): tegumen subequal to vinculum; uncus a sclerotized projection of two fused arms around tuba analis and coming to an isolated pointed knob; gnathos an enlarged projection coming from the two fused gnathos arms; valva simple, somewhat upcurved along dorsal margin, setose



Fig. 4-5. Male genitalia of *Synechodes coniophora* Turner.

toward termen, rounded on apex and from termen to base; small ampulla near base; large basal structure on valva; vinculum rounded; saccus undistinguished; anellus a flat plate, narrowed postero-dorsally; aedeagus short with large phallobase.

Female.— Unknown.

**Immature stages.**— Unknown.

**Hosts.**— Unknown.

**Distribution.**— Queensland, Australia, to New Guinea.

**Types.**— *Holotype* ♂: AUSTRALIA.— Queensland: Cairns Dist., F.P. Dodd (CSIRO).

**Additional specimens.**— AUSTRALIA: Queensland: Kuranda, Sep 1905 (1 ♂), 17 Sep 1906 (1 ♂), 3 Oct 1906 (1 ♂), F.P. Dodd (BMNH).

**Remarks.**— This remarkable species inhabits the rain forests of Queensland. This rare species is known from only 4 specimens.

### *Synechodes papuana* Heppner, new sp.

**Diagnosis.**— Size: 23mm ♀. The pale yellow thorax, head, and wing bases, demarcated from fuscous wing coloration, plus the yellow wing marks, will serve to distinguish this species (Fig. 2).

**Description.**— Forewing length: 10.5mm ♀.

Male.— Unknown.

Female.— *Head*: pale yellow; labial palpus with black on apical segment; antenna black and yellow alternating. *Thorax*: pale yellow; patagia pale yellow; venter same except fuscous on metathorax; legs pale yellow except fuscous hind legs. *Forewing*: fuscous, with basal spot of pale yellow and subterminal semicircular orange-yellow mark; fringe fuscous; venter fuscous, with pale yellow line angled at end of cell and pale yellow dorsal margin streak. *Hindwing*: fuscous, with pale yellow mid-cell mark and white mark at center of dorsal margin; venter same. *Abdomen*: fuscous with pale yellow at posterior of each segment; venter same. *Female genitalia* (Fig. 6): ovipositor moderate length and setose; anterior apophyses long and thin (subequal to secondary bursal length); posterior apophyses of similar length and with very long basal bifurcation with ventral arms merging into ventral pointed structure; ostium bursae oval; antrum simple cup; ductus bursae a short enlarged tube somewhat shorter than 7th sternite; ductus seminalis very large and terminating into a secondary bursa of greater size (6x) than corpus bursae; corpus bursae very small, ovate; signum absent.

**Immature stages.**— Unknown.

**Hosts.**— Unknown.

**Distribution.**— New Guinea (Irian Jaya).

**Types.**— *Holotype* ♀: [INDONESIA.— Irian Jaya]: Wassior-Miei, 25 Jul 1936, S. Issiki (USNM).

**Remarks.**— This new species is known only from a single female taken on the small northern peninsula east of what used to be called the Vogelkop and where the town of Wassior is located. Inasmuch as *Synechodes* are such rare moths, it seems appropriate to describe this species so the range extension of the genus can be demonstrated for New Guinea in addition to Queensland.

### ACKNOWLEDGMENTS

The Australian National Collection (CSIRO), Canberra, Australia, kindly sent the holotype of *Synechodes coniophora* for study. The Smithsonian Institution (USNM), Washington, DC,

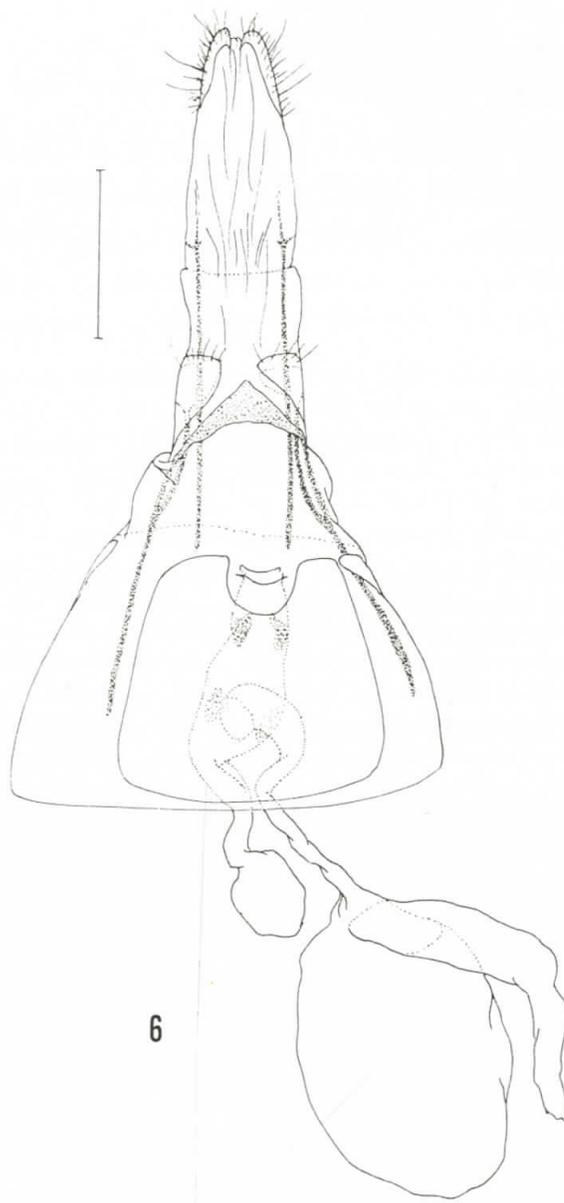


Fig. 6. Female genitalia of *Synechodes papuana* Heppner, n. sp. (line = 1mm).

allowed study of the Issiki Collection, wherein the specimen from New Guinea was found among unidentified moths. The British Museum (Natural History) (BMNH), London, UK, is also thanked for allowing study of specimens in their care. The photographs are the work of V. Krantz, Smithsonian Photographic Unit.

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