

A hitherto overlooked species of *Speiredonia* HÜBNER, 1823 from Australia (Lepidoptera: Noctuidae) (Plate 65)

by

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Abstract

Speiredonia darwiniana **spec. nov.** is described from Northwestern Australia. The new species is similar in facies to several members of the genus, from which it differs by the configuration of both the male and female genitalia and characteristics of the pattern.

Introduction

The genus *Speiredonia* HÜBNER, 1823 (Lepidoptera: Noctuidae, Catocalinae) was recently reviewed by ZILLI et al. (2005), who recognised a total of eighteen species in the genus but put forward that further undescribed species were likely to occur in the Indo-Australian area. This is actually the case, as a new species from Northern Australia was recently located in the holdings of Museum für Naturkunde, Berlin and the Australian National Insect Collection, Canberra. The species had probably remained overlooked due to its superficial resemblance with the only other Australian species in which the superior, dislocated part of the postmedial line of forewing forms a mark in shape of "3" which encloses in its lower portion an eyespot, namely *S. obscura* (CRAMER, 1780) (= *zamis* STOLL, 1790). The species is also similar in facies to *S. simplex* BUTLER, 1877 (= *obaluae* BETHUNE-BAKER, 1917), from the Loyalty Is., Vanuatu, Fiji and Tonga, a specimen of which labelled as from Cape York (Queensland) has however been located in the Museum für Naturkunde. A beautiful illustration in the wild of the new species, which is being described here, is given by ZABROWSKI & EDWARDS (2007, as *S. spectans* GUENÉE, 1852).

Materials and methods

Drawings of the genitalia were taken with the aid of a camera lucida either from the pieces permanently mounted onto slides in Euparal or immersed in ethanol after staining with mercurochrome in order to better represent the three-dimensional configuration of soft parts (e.g. vesicae, bursae copulatrices). The material studied is deposited in the Australian National Insect Collection, Canberra (ANIC) and Museum für Naturkunde, Berlin (MNKB). Other Museum acronyms used in the text are BMNH (British Museum Natural History, London) and MCZR (Museo Civico di Zoologia, Rome).

Taxonomic part

Speiredonia darwiniana **spec. nov.**

Plate 65 figs 1-2

Material

Holotypus: ♂, Australia: Wyndham, West Australia, 3rd Febr. 1930, T.G. CAMPBELL, in ANIC.

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Paratypes: 3 ♂♂, [Northern Territory], Pt Darwin, [18]92 [Nov.], [no collector given], in MNKB; 1 ♀, Daly River Mission, [Northern Territory], 8 June 1974, J. F. HUTCHINSON, in ANIC; 1 ♀, Wyndham W. A. [= West Australia], 14 January 1930, T.G. CAMPBELL, in ANIC; 1 ♀, 16.35S 125.29E, Beverley Springs, Homestead W. A. [= West Australia], 1 June 1993, E.D. EDWARDS, in ANIC. Slide nos: AZ1331M, AZ1371M, AZ1510F.

Derivatio nominis: The opportunities given by the origin of part of the type series from Port Darwin, the bicentenary of the birth of Charles R. DARWIN and the 150th anniversary of the issue of *On the origin of Species by means of Natural Selection* were taken in order to name the new species after the great British naturalist who laid down the fundamentals of the theory of the origin of species.

Description

Male (plate 65 fig. 1)

Wingspan 68-73 mm (n = 4). Large-sized species of *Speiredonia* with somewhat compact habitus, broad forewing with comparatively well convex and little oblique termen, and compact hindwing. Eye, globular, frons feebly bulged, almost flat, naked inferiorly, vertex smoothly scaled, antenna filiform, labial palpus upturned, with long and thin third joint. Patagium, tegula and mesonotum smoothly scaled with alternated dark and pale brown transverse bands; pectus and legs conspicuously hairy, dark brown, mesotibia with long groove (*androtheca* sensu Berio) hiding beige hair pencil. Ground colour of wings chocolate brown, variously mottled with paler and darker areas, and with bluish reflections chiefly developing in antemarginal field and towards anal margin of both wings; basal and medial fields of forewing variegated and tabby; orbicular stigma small but well distinct, not touching antemedial line, postmedial line dark brown, well produced externally on dorsum (= anal field), postdiscal stigma originated by superior, dislocated part of postmedial line in shape of "figure-of-3", the line not crenulated here but thickened in inferior lobe of "3" by deep black and enclosing rounded, dark greyish-brown eyespot bearing externally small white mark; wedge between superior and inferior lobes of "3" sharply acute internally, well-open externally; distal field of forewing with smoothly albeit irregularly crenulated pale brown subterminal line adjoined on both sides by continuous dark shades; antemarginal field with veins thickly lined with brown and bluish shine, ending with simple, almost straight and continuous dark brown adterminal and terminal lines, the latter thinner and followed by thin pale termen which contrasts with darker brown base of fringes which thus somewhat constitutes a third, continuous line. Hindwing irregularly fuscous at base, showing wide diffuse median line, thin and sharply toothed postmedial, this with middle part flanked by comparatively deep indentations, very wide dark brown postdiscal band with crenulated margins and some intervenular clearings and, adjacent to this, pale submarginal line more sharply toothed than in forewing; antemarginal area almost entirely filled with bluish reflection, adterminal and terminal lines, and fringe, as in forewing. Underside of wings almost uniformly dark chocolate brown with faint darker postmedial lines standing against a clearer area, the line of hindwing stronger than that of forewing, and traces of discal and tornal spot on hindwing. Abdomen chocolate brown, both on dorsum and ventral side.

Male genitalia (Fig. 1)

Apparatus feebly asymmetrical between left and right sides. Tegumen longer than vinculum, valva roughly subrectangular, widened towards apex, this with margin slightly concave at middle, sacculus long and narrow, straight, ending distally with robust sclerotised process, this slightly bent or curved inwards and nearly reaching apex of valva. Juxta in shape of reversed "v" with short superior irregular plate. Uncus long, comparatively narrow and of approximately uniform width, curved at base and ending with thick claw overlaying small acute process. Scaphium long and narrow, well sclerotised. Aedeagus long and narrow, with small toothed dorsal crest beyond middle; vesica small, unarmed, except for sparse tiny spiculae, consisting of foot-like transverse corpus with some small basal and subbasal diverticula as in fig. 1.

Female (plate 65 fig. 2)

Wingspan 69-73 mm (n = 3). As for male, no secondary sexual dimorphism being apparent, except for mid-tibia, obviously devoid of male scent organ (*androtheca*).

Female genitalia (Fig. 2)

Sternum A7 modified into lodix very wide at base, neatly narrowing beyond middle and ending distally into paired conspicuous elongated, apically rounded lobes separated by long cleft. Antrum wide and long, well sclerotised, widened posteriorly into cup-like shape, separated by very short unsclerotised tract from ductus bursae, this evenly sclerotised, as long as antrum and as wide as anterior part of this, bursa copulatrix sacculiform, minutely spiculate posteriorly, slightly constricted at middle, with shallow cervix slightly protruding to the left, appendix bursae arising from midventral posterior part of corpus bursae, conical, oriented posteriorly, with curved apex, fundus with feeble

very narrow transverse elongated signum-stripe.

Diagnostic remarks

Speiredonia darwiniana is one of the species of *Speiredonia* showing a non-crenulated figure-of-3 postdiscal spot of forewing which encloses an eyespot in the inferior lobe of the "3". These features allow to exclude at a first glance any confusion with congeners showing a fully round postdiscal spot (e.g. *spectans* GUENÉE, 1852; plate 65 fig. 3), a elongated one lacking the eyespot, either toothed (e.g. *mutabilis* FABRICIUS, 1794; plate 65 fig. 7) or crenulated (e.g. *substruens* WALKER, 1858), or those with a distinctly crenulated "3", at least superiorly (e.g. *alix* GUENÉE, 1852). The only species showing a postdiscal spot similar to that of *S. darwiniana* thus remain *S. obscura* (CRAMER, 1780) (plate 65 figs 4-5), *S. hogenesi* ZILLI, 2002, *S. cthulhui* ZILLI & HOLLOWAY, 2005, *S. simplex* BUTLER, 1877 (= *obalauae* BETHUNE-BAKER, 1915) (plate 65 fig. 6), *S. strigiformis* (ROBINSON, 1975) and to a certain extent the much smaller-sized *S. itynx* (FABRICIUS, 1787) (= *feducia* auct. nec STOLL, 1790) and *S. levis* HOLLOWAY & ZILLI, 2005. Among these, *S. cthulhui* does not show any thickening with black by the line enclosing the eyespot, *S. levis* and *S. simplex* have much plainer distal fields of both wings with almost straight submarginal lines, *S. strigiformis* has all crosslines straighter and its postdiscal spot is wider, *S. itynx* has long wedge of uniform width between lobes of the "3", *S. obscura* has more sharply zigzagging subterminal, adterminal and terminal lines, and more elongated forewing, and *S. hogenesi* shows a distinct subternal black square mark with conspicuous white dot on hindwing.

Despite the close similarity in habitus between several species of *Speiredonia*, these are often sharply differentiated in the male genitalia, and to a more limited extent in the female ones. The configuration of the male apparatus of *darwiniana* further confirms this circumstance, as by its narrow and elongated saccular process nearly as long as whole valva, absence of clasper and undilated uncus it sharply differs from those of all other known species of the genus. The male genital apparatus of a number of species occurring in the Australian region which were not illustrated by ZILLI et al. (2005) are given here for comparison (figs 3-5). Only *S. strigiformis*, illustrated by ROBINSON (1975), has a somewhat similar valva, but the saccular process is markedly shorter and distal part of valva narrower and elliptoid in outline, tapered at apex. The configurations of the vesica, with a somewhat foot-like corpus and a series of basal-subbasal diverticula, and the female genitalia, with elongated antrum-ductus system and cup-like antrum, suggest a somewhat closer relationship of *S. darwiniana* with *S. itynx*.

Distribution

Northwestern Australia (Western Australia, Northern Territory).

Acknowledgements

This work would not have been possible without the collaboration of Ted EDWARDS (ANIC), Marianne HORAK (ANIC) and Wolfram MEY (MNKB), who kindly traced and supplied material in study from the institutional collections under their care, Jeremy D. HOLLOWAY (BMNH, London), for fruitful discussion on the topic, Alessandra CECCA (Rome), for realising the artwork and Francesca PAVESI (Rome), for kind lab assistance.

References

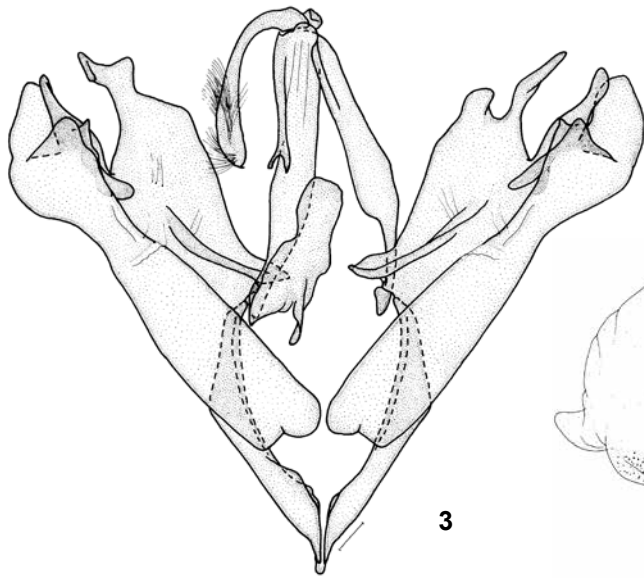
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Genitalia figs

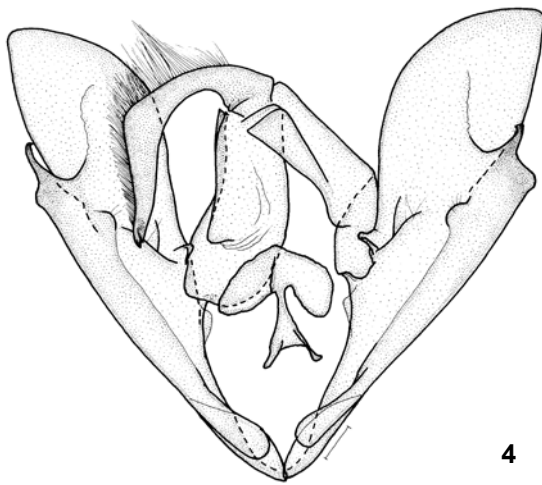
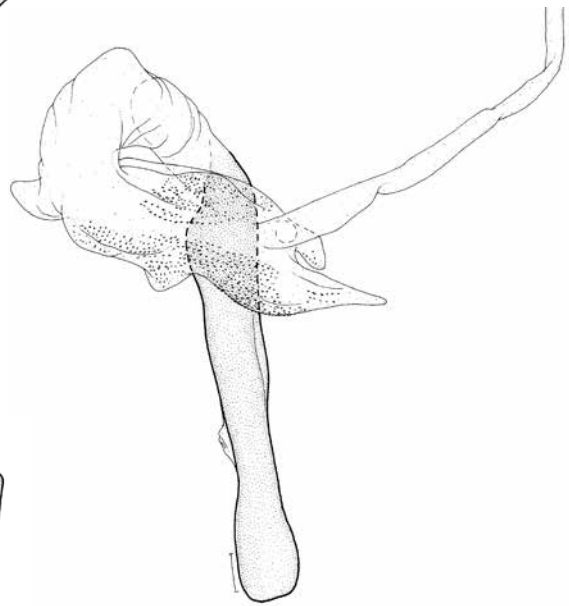


Fig. 1. *Speiredonia darwiniana* spec. nov., ♂, paratypus, Australia, Northern Territory, Port Darwin (gen. praep. AZ1331M) (scale bar = 0.5 mm).

Fig. 2. *Speiredonia darwiniana* spec. nov., ♀, paratypus, Australia, Northern Territory, Daly River (gen. praep. AZ1510F) (scale bar = 0.5 mm).



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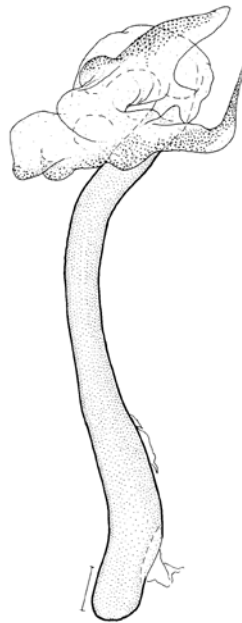


Fig. 3. *Speiredonia spectans* (GUENÉE, 1852), ♂, Australia, Queensland, Cooktown (gen. praep. AZ1551M) (scale bar = 0.5 mm).

Fig. 4. *Speiredonia obscura* (CRAMER, 1780), ♂, Malaysia, Perak, Bangunan (gen. praep. AZ1550M) (scale bar = 0.5 mm).