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# Description of Adris suthepensis n. sp., a suspected fruit-piercing moth (Lepidoptera: Noctuidae) from N. Thailand and contiguous mountain regions

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*Adris suthepensis n. sp.* from N. Thailand (and N. E. India to N. W. Malaysia) is described. Externally the species is distinct from the closely related *A. sikhimensis* BUTLER, *A. tyrannus* (GUENÉE) and *Khadira aurantia* (MOORE) by the absence of a hook-like wing extension in the tornal area of the fore wing, besides other facial and genitalic characters. *A. suthepensis* is considered to be a fruit-piercing species; the mouth-parts are like those of the related, well-known fruit-piercers.

In the course of studies on fruit-piercing moths involving both light-trap collecting and field observations at night by the senior author, a species initially taken as *Adris tyrannus* (GUENÉE, 1852) was caught, a first record for Thailand (BÄNZIGER, 1982). However, as additional, related species were subsequently captured, it became obvious that the moth's identity had to be reconsidered; it did not agree to any species known to the author. Analysis by the co-author proved the moth to be an undescribed species which so far had been grouped with the real *A. tyrannus* in the British Museum (Nat. Hist.), London (BMNH). The new species is described below.

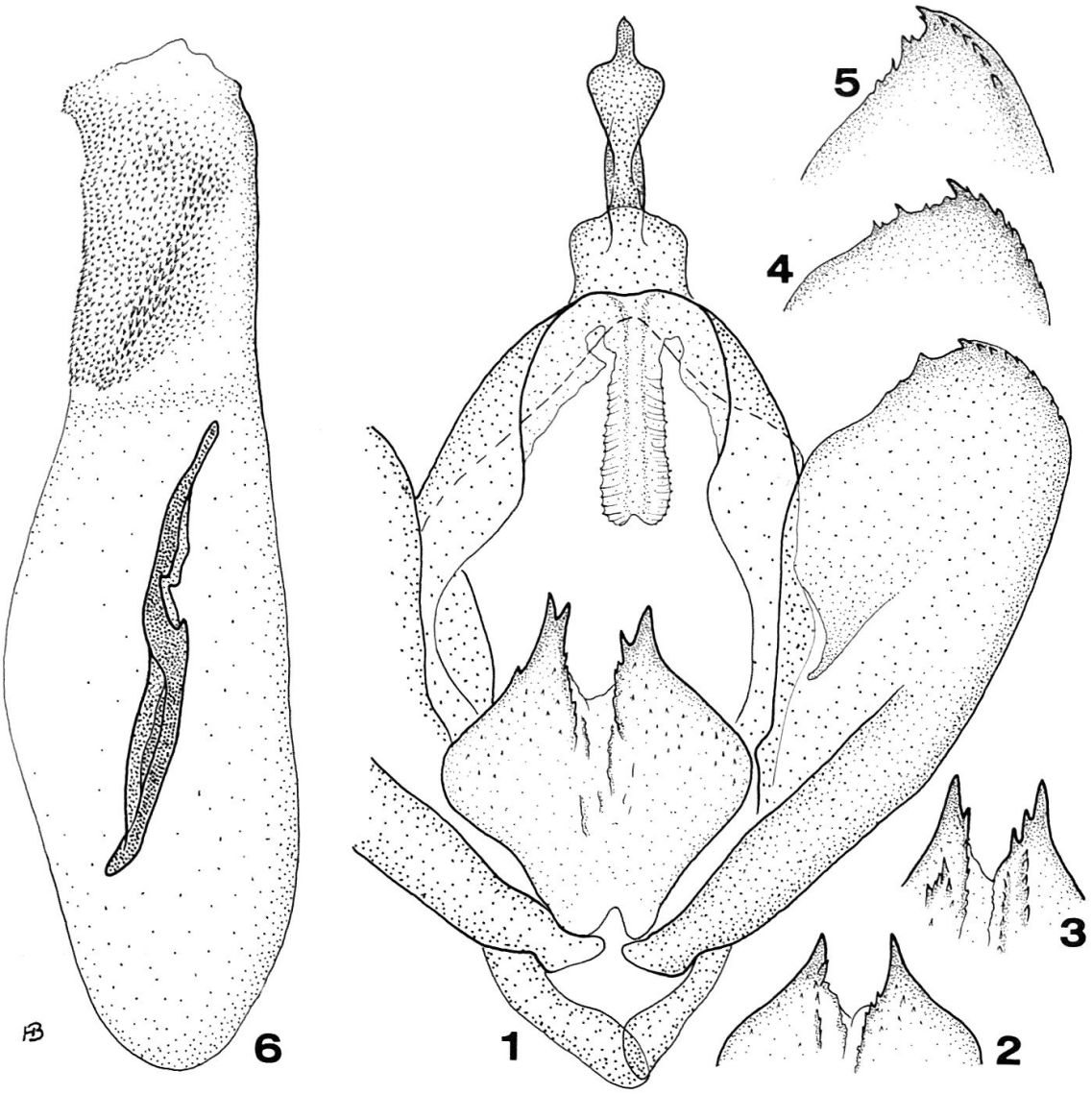
Due to the economic significance of *Adris* MOORE, 1881, and of such related genera as *Khadira* MOORE, 1881, *Othreis* HÜBNER, 1825, *Rhytia* HÜBNER, 1825, *Eudocima* BILLBERG, 1820, etc., a taxonomic revision of this complex is in preparation.

*Adris suthepensis n. sp.*
Figs. 1-7.

Type locality: Thailand: Chiengmai, Doi Suthep.

Type material: Holotype ♂, Thailand: Chiengmai, Top Doi Suthep, 1610 m, 16.VIII.80, Bänziger leg., genitalia slide 620, in collection of the Dept. Entomology, Fac. Agriculture, Chiengmai University (DEFACU). 4 paratype ♂, Thailand: Chiengmai Prov., Mae Taeng Distr., Huay Nam Dang, 1690 m, 20. and 21.VIII.82, both Bänziger leg., genitalia slide 1376 and 1377, in coll. Bänziger; ibid., 21.VIII.82, P. Sukumalanan leg., genitalia slide 1383, in coll. DEFACU. Burma: Mount Popa, 1250 m, 18-31.X.37, Heinrich leg. 1 paratype ♀, India: Khasis, native collectors, both in BMNH.

Additional material studied: 2 ♀, N. E. India: Assam, VIII-X.1906, W. F. Badgley leg. 1 ♂, 1 ♀, Bhutan; male genitalia slide 9885. 1 ♂, N. W. Malaysia: Perak, Gunong Hijau, genitalia slide 9886, all in BMNH.




Figs. 1-6: Male genitalia of *Adris suthepensis* n. sp. - 1. Juxta, uncus and valva. - 2-3. Variation of the juxta. - 4-5. Variation of the corona. - 6. Aedeagus.

Derivation of name: The species is named after the place where the moth has been «rediscovered» after nearly 50 years since the last capture, the mountain and its temple complex which both owe their name to the famous hermit Suthep.

Diagnosis: Differs from the related *A. sikhimensis* BUTLER, 1895, *A. tyrannus,* and the much broader winged *K. aurantia* (MOORE, 1877) by the absence of a hook-like fore wing extension at the tornus, from the latter two by a broader and more distally set hind wing marginal shade and from the former by a smaller hind wing renal blotch, besides further characters mentioned below.

## Description

Male (Fig. 7). Wingspan 9.1-10.1 cm, ⌀ = 9.8 cm, n = 8. Head and thorax brownish above, sometimes with a slight violet iridescence, somewhat lighter below. Fore and mid legs similar but tibiae I and II with 2 dots, a yellow one near

the joint and a silvery one more distally (as in *tyrannus,* while in *sikhimensis* the basal spot is missing or very ill-defined and in *aurantia* both are white-silvery); the hind legs are yellow like the abdomen. Palpi very prominent and tip, when seen laterally, much broader than in *aurantia* and *sikhimensis* but comparable to those of *tyrannus.* Antennae filiform, brownish. Proboscis with an armature of the typical fruit-piercing moth type. Fore wings more slender, lobe at inner margin less prominent than in the other 3 species, and hook-like extension at tornus absent. Apex drawn out, more broadly so than in the pointed one of *tyrannus* or the shorter one of *sikhimensis* but much less rounded and broad than in *aurantia.* Wing upperside brownish (more greyish in *tyrannus,* more yellowish-reddish in *aurantia,* greenish with or without brownish areas in *sikhimensis).* The diagonal line from the apex towards the inner margin has a slight bend at a point along the initial third of its length, approximately where it is lined externally by a greenish elongated blotch phasing out in smaller and less clear dots towards the apex where the line gets darker, broader but more diffuse, while it becomes less evident and then quite vanishes toward the inner margin. A more basal, more vertical oblique line is very ill-defined (much clearer in *tyrannus,* mostly very evident in *sikhimensis,* absent in *aurantia).* Reniform quite bright greenish, with two further, smaller, less bright green dots near the base. Between veins Cu2 and 2A are further ill-defined, irregular greenish dots in a line. The nervature is dotted irregularly by small black points. The wing is slightly iridescent with metallic-like bands. Hind wing dark yellow, in the mid-lower part with a large, curved, obliquely set, black reniform band, indented externally (less so than in *tyrannus* but more than in *aurantia* while in *sikhimensis* the blotch is much broader). The dark marginal shade is very broad on veins Sc + R1 til M1, then increasingly narrower to vein


Fig. 7: Male *Adris suthepensis* n. sp., paratype, Huay Nam Dang (Chiengmai Prov., N. Thailand), 20.VIII.82.

Cu2, onwards from which it disappears (shade more narrow and more basally set in *tyrannus* and even more so in *aurantia* but comparable to that of *sikhimensis).* Towards the margin the shade terminates in ill-defined dots merging with each other to variable extents, but especially on the veins while the fringes are alternatively yellow and greenish brown (in *aurantia* the fringes are plain yellow as they are often in *sikhimensis;* in some of this and *tyrannus* they are comparable to those of *suthepensis,* though in *tyrannus* they mostly have a very narrow and quite well-defined black base). Fore wing underside yellowish with two large bands transversely across the wing and a dark greyish apical area. Hind wing underside paler yellow and marginal shade more narrow.

Female. Wingspan 9.7–11.3 cm, ♀ = 10.3 cm, n = 4. As in *tyrannus,* but unlike *sikhimensis* and *aurantia,* external characters as in male.

Male genitalia (Figs. 1–6). Aedeagus with only one cornutus, this much larger than in the other 3 species mentioned. Uncus much shorter than in *aurantia,* comparable to *tyrannus,* more slender than in *sikhimensis.* Distal processi of juxta much shorter than in *tyrannus* and the processi generally with more prominent teeth than in the other 3 species mentioned but much fewer in number than in *sikhimensis.* Valva also broader than in the former two though less so, at least distally, than in *sikhimensis.*

## Biology and significance to agriculture

Although no biological data are so far available, it is obvious that the moth has to be considered as a fruit-piercer. The closely related *A. tyrannus* is a well known pest of orange (CLAUSEN, 1927), apple, citrus, fig, grape, loquat, peach, pear, persimmon, plum (NOMURA & HATTORI, 1967; HATTORI, 1969) in Japan, and of citrus in China (WOO *et al.,* 1975). *K. aurantia* has been mentioned as a rare species piercing fruit (probably citrus) in Sri Lanka (BAPTIST, 1944) and peach, mango in experiments in Thailand (BÄNZIGER, unpublished).

*A. suthepensis n. sp.* has a typical fruit-piercing proboscis with an armature as found in the closest species *(tyrannus)* and genera *(Othreis, Khadira, Rhytia, Eudocima,* all with fruit-piercing species). The tearing hooks, erectile barbs and oblique cutting ridges, though possibly somewhat shorter, are even sharper than in *O. fullonia* (CLERCK), by far the most obnoxious fruit-piercer. Hence *A. suthepensis* should be included in the list of fruit-piercing moths of table 1a, as a species capable to cause primary damage to hard skinned fruit such as longan *(Dimocarpus longan* LOUR.), thick skinned fruit such as citrus, as well as all other softer skinned fruit (BÄNZIGER, 1982).

Studies on the biology of *A. suthepensis* are being continued.

## Distribution

Southeastern mountain regions of the Himalayas, N.E. India, Bhutan, Burma, Thailand and northern part of W. Malaysia, at altitudes from 1200–1700 m.

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