

The genus *Eoophyla* SWINHOE, 1900 from the Philippine Islands (Lepidoptera: Crambidae, Acentropinae)

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Abstract: Two *Eoophyla* species are described from the Philippines belonging to the group of *Eoophyla crassicornalis* (GUENÉE, 1854): *Eoophyla mindanensis* n. sp. from Mindanao and *E. philippinenensis* n. sp. from Luzon, Mindanao and Palawan. The *crassicornalis*-group of species is defined, and the following species are newly combined with *Eoophyla*: *Eoophyla hirsuta* (SEMPER, 1902) comb. n. (*Theila*), *Eoophyla crassicornalis* (GUENÉE, 1854) comb. n. (*Oligostigma*), *Eoophyla bipunctalis* (WALKER, [1866]) comb. n. (*Oligostigma*), *Eoophyla adjunctalis* (SNELLEN, 1895) comb. n. (*Oligostigma*), *Eoophyla colonialis* (GUENÉE, 1854) comb. n. (*Oligostigma*), *Eoophyla aureolalis* (SNELLEN, 1876) comb. n. (*Oligostigma*), and *Eoophyla polydora* (MEYRICK, 1897) comb. n. (*Oligostigma*). The lectotype of *Eoophyla snelleni* SEMPER, 1902 is designated. *Eoophyla snelleni* is a senior synonym of *Aulacodes splendens* WEST, 1931 syn. n. *Eoophyla mormodes* (MEYRICK, 1897) comb. n. (*Oligostigma*) is a closely related species described from Sangihe. *Eoophyla simplex* WEST, 1931 comb. n. (*Aulacodes*) from the Philippines is newly combined.

Die Gattung *Eoophyla* SWINHOE, 1900 auf den Philippinen (Lepidoptera: Crambidae, Acentropinae)

Zusammenfassung: Zwei *Eoophyla*-Arten, die zur Gruppe von *Eoophyla crassicornalis* (GUENÉE, 1854) gehören, werden von den Philippinen beschrieben: *Eoophyla mindanensis* n. sp. von Mindanao und *E. philippinenensis* n. sp. von Luzon, Mindanao and Palawan. Die *crassicornalis*-Artengruppe wird abgegrenzt und die folgenden Arten werden neu mit *Eoophyla* kombiniert: *Eoophyla hirsuta* (SEMPER, 1902) comb. n. (*Theila*), *Eoophyla crassicornalis* (GUENÉE, 1854) comb. n. (*Oligostigma*), *Eoophyla bipunctalis* (WALKER, [1866]) comb. n. (*Oligostigma*), *Eoophyla adjunctalis* (SNELLEN, 1895) comb. n. (*Oligostigma*), *Eoophyla colonialis* (GUENÉE, 1854) comb. n. (*Oligostigma*), *Eoophyla aureolalis* (SNELLEN, 1876) comb. n. (*Oligostigma*) und *Eoophyla polydora* (MEYRICK, 1897) comb. n. (*Oligostigma*). Der Lectotypus von *Eoophyla snelleni* SEMPER, 1902 wird festgelegt. *Eoophyla snelleni* ist ein älteres Synonym von *Aulacodes splendens* WEST, 1931 syn. n. *Eoophyla mormodes* (MEYRICK, 1897) comb. n. ist eine eng verwandte Art, die von Sangihe beschrieben wurde. *Eoophyla simplex* WEST, 1931 comb. n. (*Aulacodes*) von den Philippinen wird zu *Eoophyla* gestellt.

Introduction

Eoophyla SWINHOE, 1900 is a widespread genus in the tropics of the Old World. Most species occur in South-East Asia, and only very few species are found in the Palearctic Region. *Eristena* WARREN, 1896, *Hemiloba* SWINHOE, 1901, and *Strepsinoma* MEYRICK, 1897 are currently treated as separate genera (YOSHIYASU 1987), but their differences are minor. The species treated here belong to *Eoophyla* s. str.

The semicircular excision of the hindwing margin and the midtibial hairbrush were considered to be autapomorphies of the genus (SPEIDEL 1984). However, there are a few Oriental species without a brush of the midtibia (e.g., *Eoophyla mindanensis* n. sp.). The first instars provide more reliable characters, however they are only known in a very few species. The larvae are flat with a prognathous head and unbranched tracheal gills situated on lateral cupolae. Only one pair of cupolae are present on each segment except prothorax and 9th abdominal segment (A9). They feed on algae and are found in running water under webs.

The genus is very rich in species. Therefore, a subdivision in groups of similar species is proposed using the number of marginal dots in the hindwing. These informal groups are not confirmed as monophyla and introduced in order to facilitate the identification.

The species known from the Philippines

The following four species of the genus are presently known from the Philippines:

- *Eoophyla snelleni* SEMPER, 1902 (= *splendens* WEST, 1931, syn. n.),
- *Eoophyla gibbosalis* (GUENÉE, 1854) (SEMPER 1896–1902: 657),
- *Eoophyla hirsuta* (SEMPER, 1902) comb. n. (*Theila*), and
- *Eoophyla simplex* WEST, 1931.

Fig. 1: *Eoophyla mindanensis* n. sp., ♂, Mindanao, Mt. Agtuuganon, holotype, exp. 18 mm. Fig. 2: *Eoophyla mindanensis* n. sp., ♀, Mindanao, Mt. Agtuuganon, paratype, exp. 25 mm. Fig. 3: *Eoophyla philippinensis* n. sp., ♂, Mindanao, Davao or., holotype, exp. 18 mm. Fig. 4: *Eoophyla philippinensis* n. sp., ♀, Nord-Palawan, S. Vicente, paratype, exp. 20 mm. Fig. 5: *Eoophyla gibbosalis* (GUENÉE, 1854), ♂, [Indonesia], "Malang, Java, Hz", ex coll. STAUDINGER in ZMB, exp. 23 mm. Fig. 6: *Eoophyla gibbosalis*, ♀, [Indonesia], Sumatera Utara, Huta Padang, 310 m, 99°11'E, 24°48' N, 15.–24. x. 1989, leg. Diehl, coll. SPEIDEL, exp. 26 mm. Fig. 7: *Eoophyla snelleni* SEMPER, 1902, ♂, Negros, Patag NR, ZMB, exp. 35 mm. Fig. 8: *Eoophyla snelleni*, ♀, Negros, Mt. Canlaon, IX.–X. 1990, leg. C. GARZON, coll. ZMB, exp. 49 mm.



Eophyla hirsuta may be a junior synonym of the very variable *E. gibbosalis*, but this has not yet been studied. It is possible that *Oligostigma angusalis* SAUBER, 1902 and *Aulacodes hemimelaena* HAMPSON, 1917 will have to be transferred to *Eophyla*, but neither of them belongs in the species groups studied here. In this paper, only one of these known species (*Eophyla snelleni*) is treated, and two species of the group of *Eophyla crassicornalis* are described as new from the Philippines.

The *Eophyla crassicornalis* species group

The *crassicornalis*-group contains the species with 2 black marginal dots encircled with white between the hindwing veins m2 and m3 and between m3 and cu1. It consists of *Eophyla crassicornalis* (GUENÉE, 1854) **comb. n. (*Oligostigma*)**, *Eophyla bipunctalis* (WALKER, [1866]) **comb. n. (*Oligostigma*)**, *Eophyla adjunctalis* (SNELLEN, 1895) **comb. n. (*Oligostigma*)**, *Eophyla colonialis* (GUENÉE, 1854) **comb. n. (*Oligostigma*)**, and *Eophyla aureolalis* (SNELLEN, 1876) **comb. n. (*Oligostigma*)**. All these species are known only from Sundaland. *Eophyla polydora* (MEYRICK, 1897) **comb. n. (*Oligostigma*)** from Sangir [Sangihe; Indonesia, between Sulawesi and Mindanao] (and possibly also from Sulawesi) is as well a member of this species-group.

The *gibbosalis* species group is very similar to the *crassicornalis*-group, but the hindwing has 3 black marginal dots encircled with white between the veins m2 and m3, m3 and cu1, cu1 and cu2. In this context, it is important to note that a few species of the *gibbosalis*-group show the tendency to reduce the lowest dot (e. g. *Eophyla ochripicta* (MOORE, 1888) and *E. hamalis* (SNELLEN, 1876)) and thus have an intermediate position between the two groups. All species of the *gibbosalis*-group are found in continental Asia, only *gibbosalis* is known to be widespread in Indonesia and the Philippines.

Material and methods

The main part of the material studied was collected during three expeditions to the Philippines by Dr W. MEY. It is deposited in the Museum für Naturkunde der Humboldt-Universität, Berlin, Germany (ZMB). Type specimens were examined in the collections of The Natural History Museum, London, U.K. (BMNH) and in the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt/Main, Germany (SMF). The acronyms for the museums have been selected according to HEPPNER & LAMAS (1982).

The methods used were those described by SPEIDEL (1984).

Abbreviations: Exp. = wing expanse; fwl = forewing length.

Results and discussion

Eoophyla SWINHOE, 1900

Eoophyla SWINHOE, in SWINHOE, WALSINGHAM & DURRANT (1900: 442)

Type species: *Cataclysta peribocalis* WALKER, 1859 by designation by SHIBUYA (1928: 152)

Eoophyla was originally published as *Eoöphyla*, an incorrect spelling under the Code, Article 32 (c) (i). The name was spelled *Eooephyla* by SPEIDEL (1984) and *Eoophyla* by FLETCHER & NYE (1984). The latter spelling is adopted here.

= *Theila* SWINHOE, in SWINHOE, WALSINGHAM & DURRANT (1900: 443) (synonym)

Type species: *Oligostigma plicatalis* WALKER, [1866] by original designation.

Oligostigma plicatalis WALKER, [1866] is currently regarded as a junior synonym of *Eoophyla gibbosalis* (GUENÉE, 1854).

Eoophyla mindanensis n. sp. (Figs. 1, 2)

Holotype ♂: "Philippinen, Mindanao, 1050 m, Mt. Agtuuganon, 28. v.-7. vi. [19]96, leg. MEY", coll. ZMB.

Paratypes: 24 ♂♂, 17 ♀♀ "Philippinen, Mindanao, 1050 m, Mt. Agtuuganon, 28. v.-7. vi. [19]96, leg. MEY"; 6 ♂♂, 7 ♀♀ "Philippinen, Mindanao, Davao oriental, NO Boston, Caatijaan, 29. v. [19]96, leg. W. MEY"; 1 ♀ "Philippinen, Mindanao, Surigao del Sur, SW Lingig, 28. v. 1996, LF, leg. W. MEY"; coll. ZMB. 2 ♂♂ "Phil./Mindanao, Bukidnon, Dalongdong, 40 km NW Maramag, Talakag, Urwaldrand, 800 m, 7°53' N Br/124°40' E Länge, leg. CERNY & SCHINTLMEISTER"; coll. SPEIDEL (Bonn). 4 ♂♂, 4 ♀♀, "Philippinen, Mindanao, Bukidnon, Dalongdong, 40 km NW Maramag, Urwaldrand, 200 m, 7°53' N. Br., 124°40' E. L., 1.-3. x. 1988, leg. CERNY & SCHINTLMEISTER"; 5 further ♀♀, same data, no paratypes; in coll. Museum für Naturkunde und Vorgeschichte, Dessau.

Diagnosis: Exp. 18-20 mm (♂), 18-25 mm (♀), fwl. 9-10 mm (♂), 9-12 mm (♀).

♂: Forewing with large costal fold, brown, except the marginal area which is yellow. Marginal area preceded by a narrow white line. Hindwing with the postmedial band shifted basally, brown. The white basal region very narrow, suffused with brown. Yellow marginal region preceded by a rather broad white triangle. Midtibial corema absent.

♀: Very similar to the females of the other species of the *crassicornalis*-group, but the white region preceding the postmedial band basally is more or less triangular, whereas in *E. philippinensis* this white area is

narrower and lunular. There are some white scales in the cell which are absent in *E. philippinensis*.

♂ genitalia (Fig. 10): The genitalia are smaller than in *E. philippinensis*. The uncus tip is rounded, the gnathos is slightly swollen before its end. Valva with only one rather weak apical seta.

♀ genitalia (Fig. 12): Collar of ductus bursae small, close to corpus bursae. Signum comparatively small, consisting of two parallel scobinate bands. The corpus bursae is considerably smaller in *E. philippinensis*. In *E. mindanensis*, the signum is smaller in relation to the size of the corpus bursae.

Distribution: Presently only known from Mindanao.

Relationship: The species belongs to the *crassicornalis*-group, the females are most similar to the females of *E. adjunctalis* and less similar to *E. crassicornalis*. The males, however, are clearly distinct by their brown colour and the presence of a large costal fold which is not found in any of the Sundaland species.

Eoophyla philippinensis n. sp. (Figs. 3, 4)

Holotype ♂: "Philippinen, Mindanao, Davao oriental, NO Boston, Caatijaan, 29. v. [19]96, leg. W. MEY", coll. ZMB.

Paratypes: 3 ♂♂, 4 ♀♀ "Philippinen, Mindanao, Davao oriental, NO Boston, Caatijaan, 29. v. [19]96, leg. W. MEY"; 1 ♂ "Philippinen, Mindanao, 1050 m, Mt. Agtuuganon, 28. v.-7. vi. [19]96, leg. MEY"; all in coll. ZMB;

3 ♂♂, 2 ♀♀ "Philippinen, Palawan, Mt. St. Paul, 5.-6. iv. 1995, Babuyan-Fluß, Cayasan, leg. W. MEY"; 2 ♂♂ "Philippinen, Palawan, Luczviminda, SW of Puerto Princesa, 3. iv. 1995, leg. W. MEY"; 1 ♀ "Philippinen, Palawan, Sabang, St. Paul NP, 4. iv. 1995, leg. W. MEY"; all in coll. ZMB; 2 ♂♂, 2 ♀♀ "Philippinen/Süd-Palawan, Mt. Gantung, Fuß, 200 m, 9°01' N.L./117°57' E. Br., Zypressenwald/Sekundärveg., 19. i.-21. i. 1988, leg. CERNY & SCHINTLMEISTER", "7"; 3 ♀♀ "Philippinen, Nord-Palawan, S. Vicente, 20 km NEE Roxas, 10°21' N.L./119°10' E. Br., Mittelgebirgsurwald, 400 m, 12. i.-17. i. 1988, leg. CERNY & SCHINTLMEISTER", all in coll. SPEIDEL (Bonn);

2 ♀♀ "Philippinen, N-Luzon, Ifugao, Banaue vic., 20 km N Lagawe, Sekundärwald/Reisfelder, 16°54' N Breite/121°06' E Länge, 25. ix.-15. x. 1988, leg. VERMOLEN"; all in coll. SPEIDEL (Bonn). 1 ♀, "Philipp., N. Luzon, Ifugao, Banaue vic. 20 km N. Lagawe, 1200 m, 16°54' N, 121°06' E, 19 [sic, no date], leg. T. & F. VERMOLEN", coll. GUIDETTI, Phyllodrom, Leipzig.

Diagnosis: Exp. 19–20 mm (♂), 21–24 mm (♀), fwl. 10 mm (♂), 10–12 mm (♀).

♂: Forewing with specialised androconial scales at the basal part of the costa, the anal margin lobed. The forewings are brown basally of the distal band. The brown postmedial band is bordered by a white lunate

patch proximally and by a narrow white line distally. Marginal region yellow. Hindwing with a black line-shaped androconial patch in the costal region. White, with postmedial band yellowish brown and a yellow marginal region, with two black dots encircled with white and a very weakly marked elongate black spot under them. Mid tibia heavily haired, hair-brush covering the whole length of the tibia.

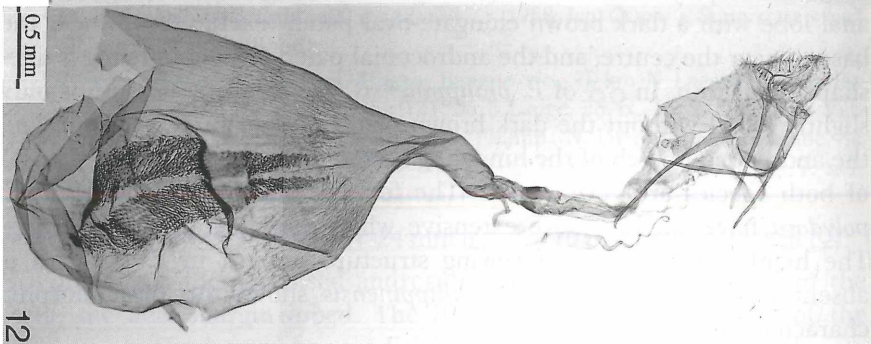
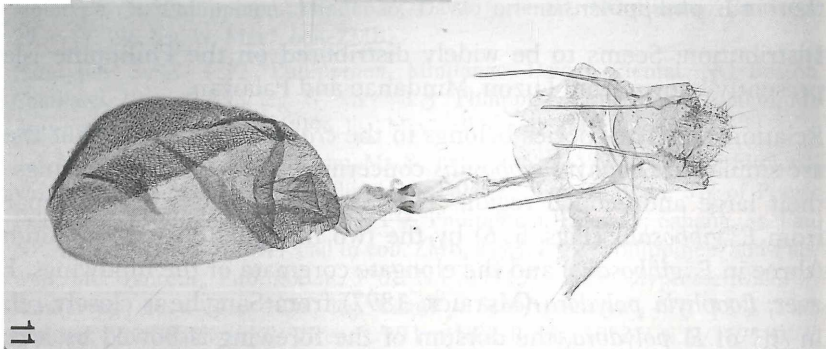
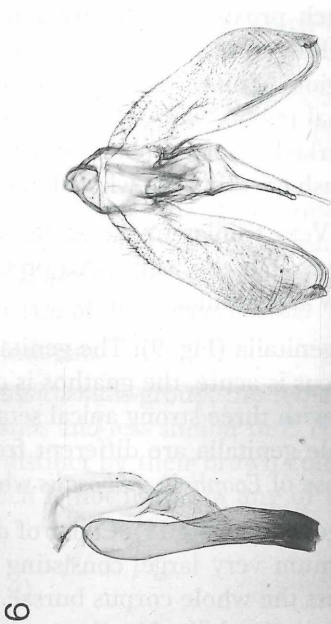
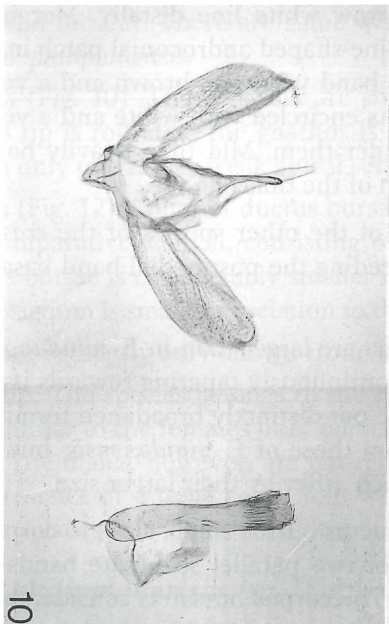
♀: Very similar to the females of the other species of the *crassicornalis*-group, but the white area preceding the postmedial band basally is narrow and lunular.

♂ genitalia (Fig. 9): The genitalia are larger than in *E. mindanaensis*. The uncus is acute, the gnathos is continuously tapering towards its end. Valva with three strong apical setae not distinctly broadened terminally. The male genitalia are different from those of *E. mindanensis*, but similar to those of *Eoophyla gibbosalis* which differ by their larger size.

♀ genitalia (Fig. 11): Collar of ductus bursae small, close to corpus bursae. Signum very large, consisting of two parallel scobinate bands filling almost the whole corpus bursae. The corpus bursae is considerably smaller than in *E. philippinensis*.

Distribution: Seems to be widely distributed on the Philippine islands, presently known from Luzon, Mindanao and Palawan.

Relationship: The species belongs to the *crassicornalis*-group, but the ♂♂ are similar to *Eoophyla gibbosalis* concerning the rounded forewings with their large androconial region. They can, however, easily be separated from *E. gibbosalis* (Figs. 5, 6) by the two marginal dots in the hindwing (three in *E. gibbosalis*) and the elongate coremata of the hindwings. However, *Eoophyla polydora* (MEYRICK, 1897) from Sangihe is closely related. In ♂♂ of *E. polydora*, the dorsum of the forewing is bowed by a strong anal lobe with a dark brown elongate-oval patch reaching from near the base to near the centre, and the androconial patch of the hindwing is line-shaped and thin. In ♂♂ of *E. philippinensis*, the forewing dorsum is only slightly lobed without the dark brown patch present in *E. polydora*, and the androconial patch of the hindwing is elongate-oval and larger. The ♀♀ of both species are very similar. The few examined ♀ specimens of *E. polydora* have slightly more extensive white markings of the forewing. The highly specialized ♂ forewing structure present in *E. polydora* is absent in *E. philippinensis*. *E. philippinensis* shows the plesiomorphic character state in this respect.



Eoophyla snelleni SEMPER, 1902 (Figs. 7, 8)

Eoophyla snelleni SEMPER, 1902: 656, pl. 66, fig. 4, 5.

Lectotype ♂: "*Eoophyla snelleni* typ SEMPER", "764", "Coll. C. SEMPER", "Senckenberg-Museum Frankfurt a. Main", "Typus", "Lectotypus ♂, *Eoophyla snelleni* SEMPER, 1902: desgn. W. SPEIDEL, 1997 (NEVA)", "SMFL-Nr. 4148, Senckenberg-Museum Frankfurt am Main, Lepidoptera-Sammlung" SMF.

1 ♂ paralectotype, no data, with SMFL-Nr. 4149 and 2 ♀ paralectotypes, no data, with SMFL-Nr. 4150 and 4151. SMF.

The species was described from 22 specimens, but no holotype was published, though the selected lectotype was labeled as "type" There is no locality label, but probably the specimen was from Mindanao or Camiguin, as SEMPER recorded only a single small male from Luzon.

= *Eoophyla splendens* (WEST, 1931), syn. n.

Aulacodes splendens WEST, 1931: 214.

Holotype ♂: "Type", "Klondyke. subprov. Benguet, Luzon. 800 ft. 18. v. 1912 A. E. WILEMAN. Camp 1", "*Aulacodes splendens* WEST Holotype ♂", "WILEMAN Coll. B. M. 1929-261." BMNH.

Diagnosis: Exp. 28–35 mm (♂), 41–50 mm (♀), fwl. 14–16 mm (♂), 19–23 mm (♀).

This is the largest *Eoophyla* species of the Philippines. It is easily recognizable and has no sister species in the Philippines. However, there is a very similar species described from Sangihe: *Eoophyla mormodes* (MEYRICK, 1897) comb. n. (*Oligostigma*) (MEYRICK 1897: 83).

Distribution: The species was found on Palawan, Mindanao, Luzon, Mindoro and Negros. It was also mentioned to occur on Camiguin de Mindanao (SEMPER 1896–1902: 656).

Remark: The species will be treated in more detail later. In the present paper, only the new synonymy is established and the species is figured in colour.

Fig. 9: *Eoophyla philippinensis* n. sp., ♂, GU 363-SPEIDEL, Mindanao, Davao oriental, NO Boston, Caatijaan, 29. v. 1996, leg. W. MEY, ZMB, paratype. Fig. 10: *Eoophyla mindanensis* n. sp., ♂, GU 362-SPEIDEL, Mindanao, 1050 m, Mt. Agtuuganon, 28. v.–7. vi. 1996, leg. MEY, ZMB, paratype. Fig. 11: *Eoophyla philippinensis* n. sp., ♀, GU 368-SPEIDEL, Mindanao, Davao oriental, NO Boston, Caatijaan, 29. v. 96, leg. W. MEY, ZMB, paratype. Fig. 12: *Eoophyla mindanensis* n. sp., ♀, GU 367-SPEIDEL, Mindanao, 1050 m, Mt. Agtuuganon, 28. v.–7. vi. 1996, leg. MEY, ZMB, paratype.

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