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## On the small Heterocera collection from Palawan Island (Philippines), with some remarks

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**Abstract:** On the small Heterocera collection from Palawan Island (Philippines), with some remarks. *Misc. Pap.* 191: 1-26, 52 figs.

This paper deals with the Heterocera material from Olanu-an Mt. (North Palawan, Philippines). Totally 88 species of 17 families are listed and faunistically evaluated. Remarks on various subjects are added to some species. Generally, the information provided is supported by original images.

**Key words:** Heterocera, Lepidoptera, Aganaiidae, Arctiidae, Cossidae, Ctenuchidae, Ethmiidae, Geometridae, Hyblaeidae, Lasiocampidae, Lymantriidae, Limacodidae, Noctuidae, Notodontidae, Oecophoridae, Pyralidae, Sphingidae, Thyridae, Uraniidae, fauna, Palawan, Philippines.

Among the Lepidoptera of the Philippines stored in the Cesa Collection, a small number of the Heterocera from Mt. Olanu-an (North Palawan Island, Philippines) are prepared here for a faunistic paper (**Fig. 1**).

The authors have been carrying out studies on the Heterocera fauna of the Philippines from various standpoints (Koçak & Kemal, 2011; Kemal, Kızıldağ & Koçak, 2018, 2019a; Kemal & Koçak, 2019).

First comprehensive publication on the Heterocera of Palawan Island belongs to Pagenstecher (1890a). He listed 93 taxa from this island<sup>2</sup>. Semper's (1896-1902) monumental work on the Lepidoptera (Heterocera) of the Philippines cannot be ignored here.

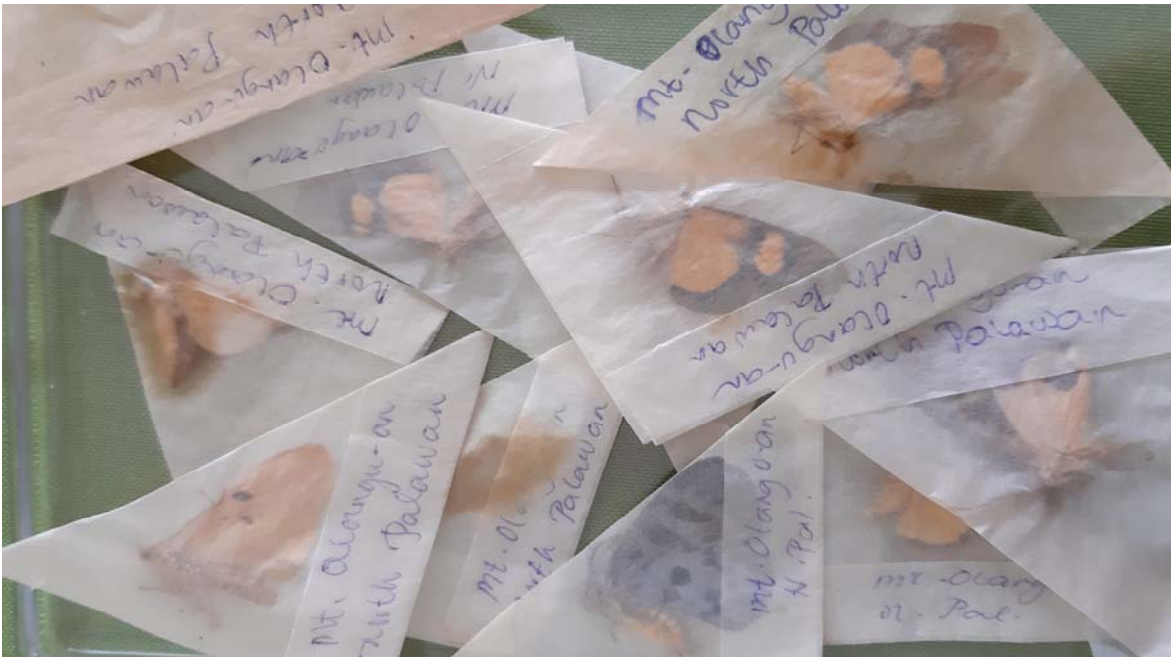
In the present paper 88 species of 17 families are listed from Olanu-an Mt. (Palawan, Philippines), together with their original references and ranges as codes (Koçak & Kemal, 2019). A few rare species from Mt. Gantung and Mt. Mantalingajan from Palawan are also evaluated here. Remarks to some species are added. At the end of the list, two comments on the latest paper of the authors on the Lepidoptera of the Caragan Mt. are given.

All the material studied are identified by the authors, by using especially the Cesa Reference Collection. For this purpose, the following publications are also worth to note: Cerny (2011), Hogenes & Treadaway (1998), Holloway (1983-2005), Kononenko & Pinratana (2005, 2013), Schintlmeister & Lourens (2010), Seitz (ed.) (1907-1934), Zolotuhin *et al.* (1998). The material and the related documents are currently preserved in the Cesa Collection and Archive<sup>3</sup>.

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<sup>2</sup> Currently 468 Heterocera species are known from Palawan Island (Cesa Info-system: <http://www.cesa-tr.org/Infos.htm> )

<sup>3</sup> <http://entcesa.tripod.com/Cesacollection.pdf>



**Fig. 1** - Overview of some Heterocera specimens in envelope from Mt. Olanguan (North Palawan, Philippines) in the Collection of the Cesa.

### List of the species

The Heterocera species from Mt. Olanguan [Olg] are listed below alphabetically. The symbol \* denotes that the mtCOI DNA of the species will be examined separately.

#### Aganaiidae

##### 1. *Agape chloropyga* (Walker, 1854)

Original reference: *Hypsa chloropyga* Walker, 1854, List Spec. lepid. Insects Colln Br. Mus. 2: 454-455. Type: Australia.

Range (in code): AU CN Yu MY MM TH CMa Int Knc VN ID Bor Snd Mlc Aru Bor Flo Ja Sum Crm Clb PG NBr PH Luz Mno Crg Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olanguan, January, 1998, F. Mamigo leg. (Cesa)

Remarks: This species is widely distributed species but the present record seems first for the fauna of Palawan Island.

##### 2. *Asota egens* (Walker, 1854) (Fig. 6)

Original reference: *Hypsa egens* Walker, 1854, List Specimens lepid. Insects Colln Br. Mus. 2: 453.

Range (in code): IN Adm NP TH Knc CMa Dst MY Bor SG TW ID Bli Ja Sum Egg Nia Clb Tim Snd Wt JP CN TW PG PH Pal Olg Mno

Material studied: 5♂ (wingspan 51-60mm). Philippines, North Palawan, Mt. Olanguan, January, 1998, F. Mamigo leg. (Cesa)

##### 3. *Asota heliconia* (Linnaeus, 1758)

Original reference: *Phalaena heliconia* Linnaeus, 1758, Syst. Nat. (Edn.10) 1: 511. "Habitat in Calidis regionibus".

Range (in code): MM Tns TH CMa Int Knc CN TW JP Ri ID Egg Tim PH Pal Olg Bal Ley Blc Mno Crg Neg Boh Luz Pq Sam Sib AU PG Bor Sbh KBa Nia Snd Bli Aru Amb Crm Adm Bsm Nk Ja Clb

Material studied: 2♂ (typical and f. *nervosa*). Philippines, North Palawan, Mt. Olanguan, January, 1998, F. Mamigo leg. (Cesa)

- 4. *Asota javana* (Cramer, [1780]) (Fig. 7)**  
Original reference: *Phalaena javana* Cramer, [1780], Uitl. Kapellen 3: 146, 175, pl. 274 fig. C. Type: Java.  
Range (in code): TH Cbi Ntt Hba MM MY Bor KBa Swk Sbh ID Ja Clb Flo Tim KH PH Ley Blc Luz Ifg Mdo Mno Apo Crg Busa Sam Pal Olg  
Material studied: 2♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)
- 5. *Asota heliconioides* (Moore, 1878) (Fig. 8)**  
Original reference: *Neochera heliconioides* Moore, 1878, Proc. zool. Soc. Lond. 1878: 6. Type ♂: Philippines, Luzon (coll. Stgr.) (BMNH).  
Range (in code): ID Ja PH Bal Luz Mno Dav Mdo Pal Olg  
Material studied: 2♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)
- 6. *Euplocia memblaria* (Cramer, [1780]) (Fig. 9)**  
Original reference: *Phalaena memblaria* Cramer, [1780], Uitl. Kapellen 3: 139, 175.  
Range (in code): IN Adm MM TH Knc ID MY Bor Sum Clb Snd Ja Flo Nat PH Pan Bly Luz Pq Pal Olg  
Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)
- Arctiidae**
- 7. *Amerila astreus* (Drury, 1773)**  
Original reference: *Sphinx astreus* Drury, 1773, Illust. Nat. Hist. Exot. Insects 2: index, 49 pl. 28 fig. 4. Type: Bengal.  
Range (in code): PK IN Ben Mh Nsk Bor MY ID Sum Ja PH Luz Pq Mar Sam Ceb Boh Cmt Mno Neg Mpl Pal Olg PG BD CN Hn SZ Yu Kwa TW MM  
Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)
- 8. *Pareuchaetes pseudoinsulata* Rego Barros, 1956**  
Original reference: *Pareuchaetes pseudoinsulata* Rego Barros, 1956, Revta Bras. Ent. 6: 79. Type: Venezuela, Caracas.  
Range (in code): VE Cre TT LK TH MY Bor GU PH Luz Mar Mdo Pan Ley Mno Pal Olg Boh  
Material studied: 4♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: This species is reported here from Bohol Island for the first time (Cerny, 2011).
- 9. *Lemyra maculifascia* (Walker, 1855)**  
Original reference: *Spilosoma maculifascia* Walker, 1855, List Specimens lepid. Insects Colln Br. Mus. 3: 676. Type: Java.  
Range (in code): ID Ja Bli TH CMa Cuo Cuo4 PG AU PH Luz Ifg Mar Pan Sam Ley Mno Pal Olg Boh  
Material studied: 5♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)
- 10. *Spilosoma strigatula* Walker, 1855**  
Original reference: *Spilosoma strigatula* Walker, 1855, List Specimens lepid. Insects Colln Br. Mus. 3: 613. Type: Burma.  
Range (in code): CN MM TH ID PH Luz Mdo Pal Olg Boh Mno Crg  
Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)

## Cossidae

### 11. \**Zeuzera coffeae* Nietner, 1861

Original reference: *Zeuzera coffeae* Nietner, 1861, Enemies of Coffee Tree: 21-22.

Range (in code): PK IN Up Kma Rnb LK TH Bnk Nan Phy MY Bor TW ID Mlc Krkt PG Ij Ja PH Ley Blc Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa).

Remarks: This species is apparently new for the fauna of Palawan. A male specimen from Leyte Island (Balacau Mt.) is also found in the Cesa Collection.

## Ctenuchidae

### 12. \*? *Amata* sp. (Fig. 10)

Material: 2♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: Identification process of this specimen is ongoing.

## Ethmiidae

### \**Ethmia palawana* Schultze, 1925 (Fig. 11)

Original reference: *Ethmia palawana* Schultze, 1925, Philippine J. Sci. 28: 574. Type ♂: Palawan (lost) (Diakonoff, [1968]).

Range (in code): TH Yal MY Bor BN Sbh PH Pal Mjn Taw

Material studied: 1♂. Philippines, Palawan, Mt. Mantalingajan 1000m [Mjn], 3-10.i.1998, F. Mamigo leg. (Cesa)

## Geometridae

### 13. \**Achrosis* sp.

Material: 9♂♀. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: Identification process of this specimen is ongoing.

### 14. \**Agathia asterias* Meyrick, 1888 (Fig. 12)

Original reference: *Agathia asterias* Meyrick, 1888, Proc. Linn. Soc. N.S.Wales 2 (2): 899. Syntypes ♂♀: Australia: Queensland, Northern Territories (BMNH).

Range (in code): AU QAu NAu PH Mdo Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: The name *asterias* Meyrick is considered by Holloway<sup>4</sup> as a distinct species, or synonym of *Agathia pisina* by various authors. The Mindoro record of this species (coll. Sommerer, ZSM)<sup>5</sup> was illustrated in the Bold Systems. The present record of this species is new for the fauna of Palawan.

### 15. \**Amblychia* sp. (Fig. 13)

Material studied: 1♂ (wingspan 60mm), 1♀ (wingspan 70mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: Identification process of the specimens is ongoing.

<sup>4</sup> Holloway, J.D., 1977. *Lepidoptera of Norfolk Island. Their Biogeography and Ecology*.

<sup>5</sup> [http://v3.boldsystems.org/index.php/Public\\_SearchTerms?query=%22Agathia%20asterias%22\[tax\]](http://v3.boldsystems.org/index.php/Public_SearchTerms?query=%22Agathia%20asterias%22[tax])

- 16. *Biston subflavus* Inoue, 1985 (Fig. 14)**  
Original reference: *Biston subflavus* Inoue, 1985, Cho Cho 8 (11): 22, 24, figs. 3, 5, 7. Holotype ♂: Philippines, Negros Is., Amlam.  
Range (in code): PH Neg Aml Knl Ley Blc Pan Bly Pal Olg  
Material studied: 6♂♀. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: This species is new to the fauna of Palawan Island.
- 17. *Bracca georgiata* (Guenée, [1858]) (Fig. 15)**  
Original reference: *Panaethia georgiata* Guenée, [1858], Hist. nat. Insectes, Spec. Gen. Lep. 10: 196. Holotype ♀: "Borneo" (coll. Gn.) [Genitalia of the Holotype was illustrated by Holloway (fig. 357)].  
Range (in code): MY Bor ID Crm Nat Ja Sgr PH Mdo Luz Pq Mno Pal Olg TH Ntt Hba  
Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: This species is reported and illustrated by the authors from Caragan Mt (Mindanao) (Kemal, *et al.*, 2019b).
- 18. \**Celerena palawanica* Pagenstecher, 1890 (Fig. 16)**  
Original reference: *Celerena palawanica* Pagenstecher, 1890, Dt. ent. Z., Iris 3: 31. Syntypes 1♂ 1♀: [Philippines]: Palawan.  
Range (in code): PH Pal Olg Bal Mdo  
Material studied: 6♂ 4♀ (wingspan 52-56mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: There is also another species, *Celerena spodoptera*, described by Inoue (1999). Our specimens belong to *palawanica* Pagenstecher externally. This species has not been examined so far from the molecular standpoint.
- \**Craspedosis stigmatias* Herbulot, 1985 (Fig. 17)**  
Original reference: *Craspedosis stigmatias* Herbulot, 1985, Nouv. Revue Ent. (N.S.) 2 (3): 258, figs. 10, 17. Holotype ♂: Palawan (coll. Herbulot).  
Material studied: 1♂ (wingspan 42mm). Philippines, South Palawan, Mt. Gantung 1000m, F. Mamigo leg. (Cesa)  
Remarks: This ennomid species was described by Herbulot from Central Palawan, Mt. Salokot and endemic for this island. It is illustrated here because of its importance.
- 19. \*?*Chrysocraspeda* sp. (Fig. 18)**  
Material: 1♂ (wingspan 21mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: The identity of the genus is temporary. The process is still ongoing.
- 20. *Dysphania malayanus* (Guérin-Méneville, 1843) (Figs 2, 19)**  
Original reference: *Hazis malayanus* Guérin-Méneville, 1843, Delessertes Souv. Vy. l'Inde 2: 89.  
Range (in code): MY IN SI Djl Bor Swk Prk PH Pal Olg ID Sum  
Material studied: 1♀ (GP3113) (wingspan 60mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: There is no significant genetic distance (0.30-0.42%) between the populations Palawan and Sumatra/Myanmar from Boldsystems (Ratnasingham & Hebert, 2007).
- 21. \**Dysphania plena* (Walker, 1856) (Fig. 20)**  
Original reference: *Euschema plena* Walker, 1856, List Specimens Lepid. Ins. Colln Br. Mus. 7: 1668. Type: Philippines.  
Range (in code): PH Luz Mnl Pal Olg  
Material studied: 6♂ (wingspan 66-78mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: Indo-Malayan *Dysphania* species are well illustrated by Yazaki (1989).



**Fig. 2** – *Dysphania malayanus* (Geometridae). Female genitalia (GP3113). Philippines, Palawan, Mt. Olangu-an.

**22. \*?Hyperythra sp.**

**(Fig. 21)**

Material: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: The identity of the genus is temporary. The process is still ongoing.

**23. Hyposidra talaca (Walker, 1860)**

Original reference: *Lagyra talaca* Walker, 1860, List Specimens Lepid. Insects Colln Br. Mus. 20: 59. Syntypes ♀♀: Celebes, Philippine Isles, Ceylon.

Range (in code): ID Crm Clb LK IN PH Pal Olg AU QAU SB TH CMa Cuo Cmz Cz10 Knc Cbi Phe Ntt Hba MY Bor

Material studied: 1♂1♀. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**24. Pareumelea hortensiata (Guenée, [1858])**

**(Fig. 22)**

Original reference: *Eumelea hortensiata* Guenée, [1858], Hist. nat. Ins., Spec. gen. Lep. 9: 394.

Range (in code): MY SG ID Sum TH Sip Clb PH Mdo Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**25. Problepsis apollinaria (Guenée, [1858])**

Original reference: *Argyris apollinaria* Guenée, [1858], Hist. nat. Insectes, Spec. Gen. Lep. 10: 13, 555 (index). Type ♂: "Borneo", "coll. Gn."

Range (in code): MY Bor Swk PG Bsm IN ID Kai PH Luz Mno Crg Neg Mpl Pal Olg TH AU

Material studied: 5♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**26. Pseudeuchromia maculifera (R. Felder & Rogenhofer, 1875)**

**(Fig. 23)**

Original reference: *Bursada maculifera* R. Felder & Rogenhofer, 1875, Reise Fregatte Novara, Bd 2 (Abth. 2) (5): pl. 130 fig. 12. Type: Moluccas.

Range (in code): ID Mlc Clb PH Neg Mpl Knl Mno Luz Pan Bly Pal Olg MY Bor Sbh KBa

Material studied: 4♂♀. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**27. Ruttellerona pallicostaria (Moore, [1868])**

Original reference: *Angerona pallicostaria* Moore, [1868], Proc. zool. Soc. Lond. 1867: 620. Type: "Bengal".

Range (in code): IN Ben BT TH Ntt Hba CMa Cuo Cuo1 Fn Nna Kao Cbi Knc Nst PH Neg Pal Olg MY Bor ID Sum

Material studied: 5♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**28. \*?Serratophyga sp.**

Material studied: 1 ex. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: The identity of the genus is temporary. The process is still ongoing.

**Hyblaeidae**

29. ***Hyblaea constellata* Guenée, 1852** (Fig. 24)  
Range (in code): IN Mh Nsk LK Dck Pdy Kndy CN JP TW MM TH AU QAU PG ID Sum ?PH ?Pal ?Olg  
Material studied: 4♂♀. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: Apparently new to the fauna of the Philippines.

**Lasiocampidae**

30. ***Lebeda intermedia* Holloway, 1987** (Fig. 25)  
Original reference: *Lebeda intermedia* Holloway, 1987, Moths of Borneo 3: 21-22, pl.9, fig.10. Holotype ♂: Borneo, Kuching (BMNH).  
Range (in code): PH Pal Olg Mno Luz ID Sum MY Bor  
Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: This species was described by Holloway from Borneo. Zolotuhin *et al.* (1998) reported this species from the Philippines (Palawan).

- \****Odonestis erectilinea* ssp. *frater* Sergeev & Zolotuhin, 2010** (Fig. 26)  
Original reference: *Odonestis erectilinea* ssp. *frater* Sergeev & Zolotuhin, 2010, Atalanta 41 (3/4): 389, figs. Holotype ♂: Philippines: Palawan N., Mt. Cleopatra needle 600-750m, 21.xi- 2.xii. 2000, leg. D. Mohagan (MWM).  
Range (in code): PH Pal Gnt  
Material studied: 1♂. Philippines, South Palawan, Mt. Gantung 1000m [Gnt], 10-28.ii.1998, F. Mamigo leg. (Cesa).  
 Our older specimen of this endemic taxon is here illustrated.

31. ***Suana concolor* (Walker, 1855)**  
Original reference: *Lebeda concolor* Walker, 1855, List Specimens lepid. Insects Colln Br. Mus. 6: 1463.  
Range (in code): IN BD Syl LK MM CN VN Ton MY PH Luz Ifg Mdo Hlc Pan Neg Knl Ley Blc Sam Boh Mno Bkd Ktd Mtu Apo Bal Pal Olg Ceb Taw ID Sum Bor Ja Bnk TH CMa Cmz Cz10 Fn Int Nan Ntt Hba Kbi  
Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: This species was reported by Hogenes & Treadaway (1998: 53) as "Palawan, Ulangan".

**Lymantriidae**

32. ***Aroa* sp.**  
Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)
33. **\**Carriola* sp.**  
Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: The members of this species are sexually dimorph. There are several similar species in the region; therefore, its identity is ongoing.
34. **\**Cozola austriaca* (Semper, 1899)** (Fig. 27)  
Original reference: *Euproctis austriaca* Semper, 1899, Reisen Archipel. Philipp. 2: 469, pl.54 fig.6. Syntypes 2♀: Philippines, Mindanao.  
Range (in code): PH Mno Pal Olg  
Material studied: 1♀. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)

**35. *Olene mendosa* Hübner, [1823]**

Original reference: *Olene mendosa* Hübner, [1823], Samml. exot. Schmett. Zutr. 2: 19, nr.147, figs. 293-294.

Range (in code): LK Kndy Dck Pdy Cob IN BD Syl ID Ja CN TW AU PG VN Ton Tda TH Bnk CMa Cuo Cuo5 CDo CD2 CRa Loe Knc Cbi MY Bor PH Mno Crg Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)

**Limacodidae****36. \**Cheromettia* sp. (Fig. 28)**

Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: Apparently, it looks like a *Cheromettia* species, but identification process is still ongoing.

**Noctuidae****37. *Anomis* sp.**

Material studied: 2 ex. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: Identity process is still ongoing.

**38. \**Bocula marginata* (Moore, 1882)**

Original reference: *Borsippa marginata* Moore, 1882, [in] Hewitson & Moore, Descr. Indian lepid. Insects Colln late Atkinson: 173. Type: "Darjiling".

Range (in code): IN SI Djl TH Knc CMa Cmz Cz11 Int LA NP CN TW PH Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: This specimen looks like very much to this species externally (Kononenko & Pinratana, 2005); however, it carries no median transversal lines on the upperside of the forewing. Apparently new for the fauna of the Philippines.

**39. *Calesia stillifera* R.Felder & Rogenhofer, 1874**

Original reference: *Calesia stillifera* R.Felder & Rogenhofer, 1874, Reise Fregatte Novara, Bd 2 (Abth.2) (5): pl. cxvii fig.18.

Range (in code): TH CMa Int Cmz Cz11 Sbu KH VN IN LK CN PH Luz Mnl Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: This species is new for the fauna of Palawan Island.

**40. *Callyna monoleuca* Walker, 1858**

Range (in code): ZA IN Up Bhi CN TW TH Knc CMa Lmp MY PH Mno Pal Olg ID Clb JP AU

Material studied: 2♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: New to the fauna of Palawan Island.

**41. *Chrysopera combinans* (Walker, 1858) (Fig. 29)**

Range (in code): LK ID Ja Clb TH CMa Int MY IN NP CN FJ SB PH Pal Olg AU

Material studied: 4♂♀. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: Pagenstecher (1890b: 109-110) described "*Achaea quadrilunata*" from East Java (Indonesia), which is currently treated as a junior synonym of *Achaea combinans* Walker, 1858 in the genus *Chrysopera* Hampson, 1894. This species has not been reported from Palawan so far (Pagenstecher, 1890a).

New record for the fauna of Palawan Island.

- 42. \**Episteme vetula* (Geyer, 1832) (Fig. 30)**  
Original reference: *Heraclia vetula* Geyer, 1832, Zutr. Samml. exot. Schmett. 4: 17-18, figs. 657-658. Type: Java.  
Range (in code): ID Nia Sum Ja Bor Swk Tim BD Syl Sbh KBa Sdk PH Pal Olg TH CRa CMa Dst MM MY Pen Bor KH VN  
Material studied: 1♂ (wingspan 52mm). Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: This record belongs to *palavanica* Jordan, 1912 ([in] Seitz, A. Gross-Schmett. Erde 11: 3), originally described at subspecific level. The genetic distance between Palawan and Malaysia populations will be prepared soon. Another species from Palawan is \**Exsula victrix* (Westwood, 1848), represented in the Cesa Collection by a single male from Mt. Gantung 1000m (Palawan) (Fig. 31) (New record for the fauna of the Philippines). This specimen shows some discrepancies when we compare it by using the descriptions given by Jordan (*op. cit.*, 9).
- 43. *Eudocima homaena* (Hübner, [1823])**  
Original reference: *Othreis homaena* Hübner, [1823], Verz. bekannt. Schmett.: 264.  
Range (in code): TH Phr Wgc CMa Int MY VN NP LK IN Mh Nsk ID Bor Tim Flo PH ?Pal ?Olg CN JP TW  
Material studied: 2 ex. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)
- 44. *Hamodes propitia* (Boisduval, 1832) (Fig. 32)**  
Original reference: *Ophiusa propitia* Boisduval, 1832, [in] d'Urville, Voy. Astrolabe 1: 244. Type: Nouvelle-Irlande.  
Range (in code): PG Nir Bsm TH CMa Int Dst MY LA MM IN Mh Nsk LK NP BD CN TW ID PH Pal Olg  
Material studied: 1♀. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: The present record seems first for the fauna of Palawan Island.
- 45. *Hypopyra ossigera* Guenée, 1852 (Fig. 33)**  
Range (in code): TH Pgg CMa Int MY VN CN Yu IN SI Ass Ben TW ID Sum Clb PH Pal Olg  
Material studied: 1♂ (wingspan 80mm). Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: This record is new for the fauna of the Philippines (Kononenko & Pinratana, 2005).
- 46. *Ischyja inferna* Swinhoe, 1902 (Fig. 34)**  
Original reference: *Ischyja inferna* Swinhoe, 1902, Ann. Mag. nat. Hist. (7) 10: 498. Type ♂: "Kina Balu, N. Borneo (Waterstradt).  
Range (in code): PH Pal Olg Bor Sbh KBa MY TH Tng CMa Int ID Sum Ja Lb Clb IN  
Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)
- 47. *Masca abactalis* Walker, [1859]**  
Original reference: *Masca abactalis* Walker, [1859], List Specimens lepid. Insects Colln Br. Mus. 16 (1858): 9.  
Range (in code): SG MY Prk Bor Sbh TH Knc CN Yu ID Sum Ja Amb Tim Flo Clb Mlc Crm Wg Ij PG PH Mno Crg Pal Olg JP MM VN  
Material studied: 6♂♀. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)
- 48. *Mecodina praecipua* (Walker, 1865) (Fig. 35)**  
Original reference: *Thermesia praecipua* Walker, 1865, List Specimens lepid. Insects Colln Br. Mus. 33: 1056. Type ♀: "Ceylon".  
Range (in code): IN NI Adm LK ID Amb Ja Tim Ij TH Cbi Nrt Kao PG PH Pal Olg AU JP  
Material studied: 1♂. Philippines, North Palawan, Mt. Olanu-an, January, 1998, F. Mamigo leg. (Cesa)  
Remarks: This record is new for the fauna Palawan.

**49. *Mocis undata* (Fabricius, 1775)**

Original reference: *Noctua undata* Fabricius, 1775, Syst. Ent.: 600. Type(s): India orientalis.

Range (in code): PK K-P SL CM ZR KE ZW Har MU RU Sb Us CN TW JP IN Mh Nsk LK MM Adm Nk ID Ja Bor Swk Sda Sum Tim Flo Sbw PG PC ZA Nta Kzu Dbn TH CMa Cuo Cuo1 Knc Rng KH VN NP PH Boh Mno Crg Pal Olg

Material studied: 2♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: The present record seems first for the fauna of Palawan Island.

**50. *Ommatophora luminosa* (Cramer, 1780) (Fig. 36)**

Original reference: *Phalaena luminosa* Cramer, 1780, Uitl. Kapellen 3: 147, pl.274 fig.D. Type: [Indonesia]: Java.

Range (in code): TH Tng CMa Int CN IN Ass MM KH VN TW LK MY Bor PH Mno Bkd Ktd Pal Olg ID Ja Sum Ja Bli Flo Clb PG

Material studied: 1 ex. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: The present record seems first for the fauna of Palawan Island.

**51. *Ophthalmis lineea* (Cramer, [1779])**

Original reference: *Phalaena lineea* Cramer, [1779], Uitl. Kapellen 3: 61, pl.228 Fig.B. Type: Amboina.

Range (in code): ID Amb Crm Bia SB PH Bal Neg Knl Pal Olg MY Bor PG Nlr

Material studied: 4♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**52. *Oxyodes scrobiculata* (Fabricius, 1775)**

Original reference: *Noctua scrobiculata* Fabricius, 1775, Syst. Ent.: 252. Type(s): "India Orientalii".

Range (in code): TH CMa Cuo Cuo1 Cuo7 Cz10 Cmz CDo Dst Dso9 Int Phr Nrt Knc Sbu Bnk Cph Cbi Pht Cbu MY Bor VN LK Dck Pdy IN NP CN TW JP KP KR ID Sum Sba Tim Flo PG WS NH NC FJ PH Mno Crg Bkd Ktd Pal Olg

Material studied: 8♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**53. *Platyja umminia* (Cramer, [1780]) (Fig. 37)**

Original reference: *Phalaena umminia* Cramer, [1780], Uitl. Kapellen 3 (22): 117, (23-24): pl.267 fig.F. Type: Java, Samarang.

Range (in code): ID Clb Ja MY CN HK TH Knc Nrt Kao VN LA MM IN BD LK Hn TW Bor Sbw Adm Mlc PG PH Pal Olg Luz Pq Pan Bly AU QAU GU

Material studied: 3♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**54. *Spirama helicina* (Hübner, 1824) (Fig. 38)**

Original reference: *Speiredonia helicina* Hübner, 1824, Zutr. Samml. exot. Schmett. 3: pl.76 fig.437.

Range (in code): JP TH Nrt Kao CMa Int Cuo Cuo7 VN IN NP ID Ja Sum PH Neg Knl Pal Olg CN TW KP KR RU Us

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**55. *Spirama retorta* (Clerk, 1759) (Fig. 39)**

Range (in code): TH CMa Cmz Cz10 Cz11 Int CDo Php MM VN KH NP IN PK BD LK Pdy ID CN TW JP KP KR PH Luz Mnl Pal Olg Ch BD Syl

Material studied: 5♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**56. *Sympis rufibasis* Guenée, 1852 (Fig. 40)**

Original reference: *Sympis rufibasis* Guenée, 1852, Hist. nat. Ins., Spec. gén. Lépid. 7 (Noct 3): 344, pl.24 fig.1. Type: "Java".

Range (in code): TH Knc Kph CMa CDo CD2 Cmz Cz10 Pap Mro Nrt Sbu Nna Chc Cbi Phc Trat Cph Tng LA KH VN MM NP IN LK CN TW PH Ley Blc Pal Olg ID Ja Bor Sum Bli Tim Flo Sbw Clb Amb Mlc Crm SB AU QAU PG

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**57. *Tirumala* sp.**

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**58. *Tiruvaca subcostalis* (Walker, 1865) (Fig. 41)**

Range (in code): PG MY IN TH Tng CMa Int MM ID Sum Ja Bor Clb SB PH Boh Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: New record for the fauna of Palawan Island.

**59. *Westermannia triangularis* Moore, 1877 (Fig. 42)**

Original reference: *Westermannia triangularis* Moore, 1877, Proc. zool. Soc. London 1877 (3): 605-606. Type: "S. Andamans" (BMNH).

Range (in code): IN Adm MY Bor Sbh ID Klt Sum Clb PH Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: This species is new for the fauna of Palawan Island.

**Notodontidae****60. *Gargetta hampsoni* Schintlmeister, 1981 (Fig. 43)**

Original reference: *Gargetta hampsoni* Schintlmeister, 1981, Atalanta 12: 286-289, figs. Holotype ♂: Indonesia, Sumatra.

Range (in code): ID Sum TH CMa CDo MY Bor PH Mno Dav Apo Busa Neg Knl Mdo Hlc Pal Olg

Material studied: 5♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**61. *Phalera sundana* Holloway, 1982 (Figs 3, 44)**

Original reference: *Phalera sundana* Holloway, 1982, Appendix, [in] Barlow, H., An introduction to the moths of South East Asia: 201, pl. 21 fig. 5. Holotype ♂: Malaysia, W. Pahang, Genting Tea Estate (BMNH).

Range (in code): ID Sum Ja Bli CN MY PH Ley Sam Ceb Neg Mar Luz Mno Pal Olg

Material studied: 2♂ (GP3114) (wingspan 79mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: This species described from Malaysia but distributed also some islands of Indonesia and the Philippines (Schintlmeister & Lourens, 2010). The male genitalia is also very variable (shapes of uncus and accessory spines on the valva) in various islands of the Philippines. Shapes of socii remarkably variable. It is interesting that the tetraxon spines in the aedeagus are numerous in some notodontids (*Semidonta*, *Mesophalera*, *Fusadonta*, etc), including *Phalera sundana*. They may be transferred to the bursa copulatrix of the female during copulation<sup>6</sup>.

**62. *Rodneya cernyi* Schintlmeister, 1993 (Fig. 45)**

Original reference: *Rodneya cernyi* Schintlmeister, 1993, Nachr. ent. Ver., Apollo, Suppl. 12: 133-134, figs. Holotype ♂: Philippines, S-Palawan, Mt. Gantung.

Range (in code): PH Luz Pal Gnt Olg Mar Mdo Neg Mno LA TH

Material studied: 6♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

<sup>6</sup> cf. Chapman, T.A., 1913. On the shedding of the cornuti in *Pyrausta aurata*, Sc. Entomologist's Rec. J. Var. 25: 106-108, 4 pls.



**Fig. 3** – *Phalera sundana* (Notodontidae). Male genitalia (GP3114) with separately enlarged spines. Philippines, Palawan, Mt. Olangu-an.

**63. *Spatalia (Celeia) sikkima* (Moore, 1879) (Figs 4, 5)**

Original reference: *Celeia sikkima* Moore, 1879, Descr. Indian lep. Atkinson (1): 63. Type ♂: "Darjiling".

Range (in code): IN SI Djl NP Adm MM ID Ja Clb Sum MY CN Hun VN Ann Ton Bao M-c PH Pal Olg Luz Mdo Pan Sam Ley Mno

Material studied: 5♂ (GP3116). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: Particularly the shape of the aedeagus, uncus and the socii of the male genitalia indicates that it belongs to *Spatalia sikkima* Moore (cf. Schintlmeister & Lourens, 2010). This species was reported from the Philippines (incl. Palawan) by Schintlmeister and Lourens (2010). Abdominal processes are illustrated here for the first time.

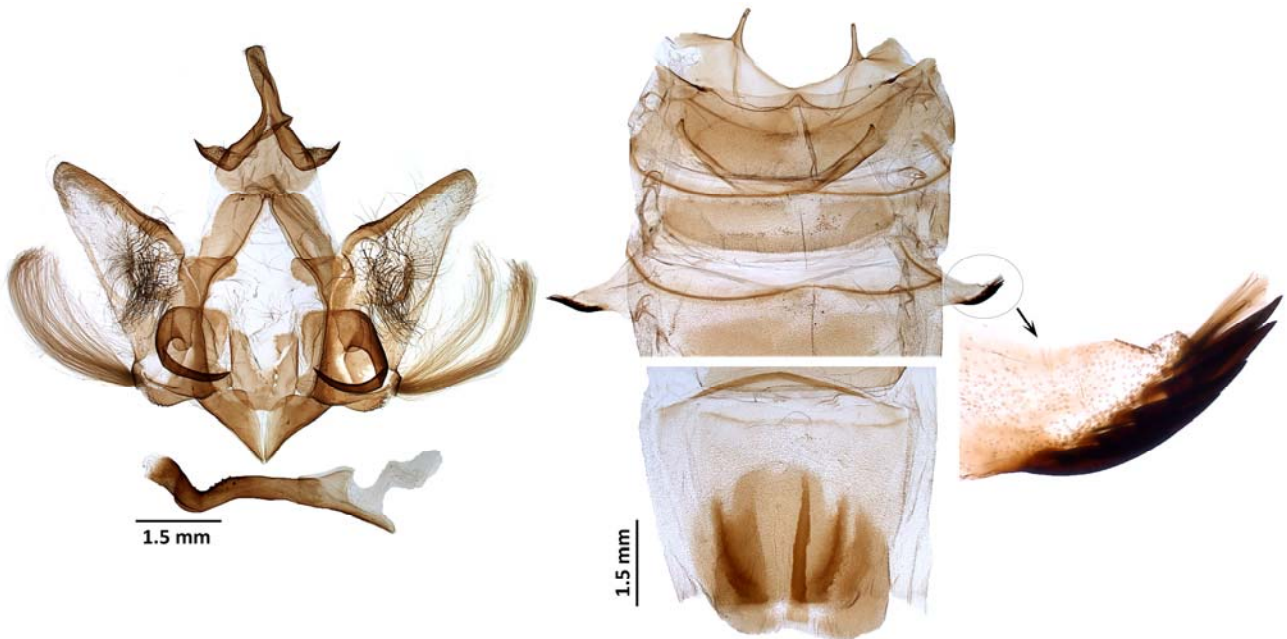
## Oecophoridae

**\**Tonica* sp.**

Range (in code): PH Pal Mjn

Material studied: 1♀. Philippines, Palawan, Mt. Mantalingajan 1000m [Mjn], 3-10.i.1998, F. Mamigo leg. (Cesa)

Remarks: This genus is new to the fauna of Palawan (Diakonoff, [1968]).



**Figs 4, 5** - *Spatalia sikkima* (Notodontidae). Male genitalia and abdominal segments with lateral processes (GP3116). Philippines, Palawan, Mt. Olangu-an.

## Pyralidae

### 64. *Endocrossis flavibasalis* (Moore, 1867)

Original reference: *Botyodes flavibasalis* Moore, 1867, Proc. zool. Soc. London 1867: 96. Syntypes ♂♀: India "Bengal".

Range (in code): PH Luz Mno Crg Pal Olg IN Ass Ben SI BT NP CN Kwa TH Tng MM Prk MY PG PMo ID Sum Nia

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

### 65. *Ethopia gigantea* Owada, 1986

(Fig. 46)

Original reference: *Ethopia gigantea* Owada, 1986, Kontyu 54 (4): 618-623, 8 figs. Holotype ♂: Philippines, Palawan, 1985, ex Y. Nishiyama (NSMT).

Range (in code): PH Pal Mjn Olg

Material studied: 1♂ (wingspan 72mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: This species was previously reported by the authors from southern Palawan Island (Mt. Mantalingajan) (Koçak & Kemal, 2011).

### 66. *Haritalodes derogata* (Fabricius, 1775)

Original reference: *Phalaena derogata* Fabricius, 1775, Syst. Ent.: 641. Type(s): India orientalis.

Range (in code): ZA AU TH Cma Cuo Cuo7 CDo CD2 Sbu Bnk Sak NP PK MM BD SG AF Srb IR Gh LK MY Bor VN ID Ja CN KP TW JP PH Pal Olg RU Sb WS FJ NC SB PG IN OW SC RE KM MG ZR GM GH MW NG SL UG TZ ZM ZW

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

### 67. *Nevrina procopia* (Stoll, [1781])

Original reference: *Phalaena procopia* Stoll, [1781], [in] Cramer, Uitl. Kapellen 4 (29-31): 152, pl. 368 fig. E.

Range (in code): AC JP TW PH Luz Pq Ley Pao CmM Mno Crg Pal Olg IN BT LK Nia Ja Sgr Amb ID PG CN MY SG

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**68. *Omphisa anastomosalis* (Guenée, 1854)**

Original reference: *Pionea ? anastomosalis* Guenée, 1854, [in] Boisduval & Guenée, Hist. nat. Ins., Spec. gén. Lépid. 8: 373-374. Type: "Java".

Range (in code): MM TH Bnk CN LK IN Adm ID Ja D-Y TW Hw VN KH LA JP PH Luz Pal Olg PG D-Y

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**69. *Pygospila tyres* (Cramer, [1780])**

Original reference: *Phalaena tyres* Cramer, [1780], Uitl. Kapellen 3: pl.263 fig.C.

Range (in code): PK Cp PH Boh Luz Pq CmM Neg Mpl Mno Pal Olg IN NP LK MM TH CMa Cuo Cu07 Cmz Cz10 Bor Ja Grm Clb Amb Aru PG AU ID ZA CM ZR CI MW NG SL ZW

Material studied: 4♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**70. *Vitessa (pyraliata-gr.) splendida* Schultze, 1908 (Fig.47)**

Original reference: *Vitessa splendida* Schultze, 1908, Philipp. J. Sci. 3(1) A: 35, pl.1 f.11. Holotype ♀ [destroyed]: Philippines: Negros occ.: Maa.

Range (in code): PH Luz Mnl Mno Neg ?Pal ?Olg

Material studied: 1 ex. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**71. *Vitessa (stettina-gr.) philippina* Munroe & Shaffer, 1980 (Fig.48)**

Original reference: *Vitessa philippina* Munroe & Shaffer, 1980, Bull. Br. Mus. nat. Hist. (Ent.) 39 (4): 286-287, figs. Holotype ♀: Philippines: Luzon: Manila (Wileman) (BMNH).

Range (in code): PH Luz Mnl Mno Dav Apo ?Pal ?Olg

Material studied: 1 ex. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: The genus *Vitessa* is represented by two specimens in our collection, belonging to two distinct species. Their temporary identities are based upon the external morphology (Munroe & Shaffer, 1980). In their revisional work, the new species, *philippina* was based upon the female only. The species *splendida* was described by Schultze in 1908, basing upon the female from Negros Island (now destroyed). It is currently known from Luzon, Negros, Mindanao, and a single female from Palawan in the Zoological Museum, Copenhagen. Male descriptions of both species have not been published so far. Therefore, it is hard to decide about their precise identities. More material or DNA studies seems to be ineffective on the solution.

**Sphingidae****72. *Acosmeryx anceus* (Stoll, [1781])**

Original reference: *Sphinx anceus* Stoll, [1781], [in] Cramer, Uitl. Kapellen 4 (29-31): 124, pl.cclcv. Type "Amboina".

Range (in code): LK Kndy IN Hp Meg Ass Khs NP MM TH CMa Cuo CDo MY PG AU VN ID Sum Ja Sba Clb Flo Amb PH Bal Boh Cal Ceb Din Jol Ley Luz Mar Mdo Mno Neg Pal Olg Pan Sam Sga Stu Taw

Material studied: 3♂ (wingspan 62-70mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**73. *Acosmeryx pseudonaga* Butler, 1881**

Original reference: *Acosmeryx pseudonaga* Butler, 1881, Ill. typical Spec. Lep. Het. Colln Br. Mus. 5: 2, pl. lxxviii fig.3. Type: "Bhotan". Range (in code): BT TH MY CN VN ID Sum Ja Bor PH Pal Olg Bal

Material studied: 2♂ (wingspan 82-84mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**74. *Ambulyx moorei* Moore, [1858]**

Original reference: *Ambulyx moorei* Moore, [1858], [in] Horsfield & Moore, Cat. lep. Ins. Mus. East India Coy 1: 266 [proposed in synonymy and without description]. Range (in code): PH Bal Pal Olg IN LK Adm MY TH CMa Cuo Bor Sum Ja VN CN Hn

- Material studied: 3♂ (wingspan 86-92mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)
- 75. *Cechenena helops* (Walker, 1856) (Fig. 49)**  
Original reference: *Philampelus helops* Walker, 1856, List Specimens Lepid. Ins. Colln Br. Mus. 8: 180. Type: Port Natal [incorrect] "Malaysia, Penang" (Pittaway & Kitching). Range (in code): NP IN TH VN MY Pen ID Sum Ja Bor Clb Mlc Crm PG AU PH Bal Din Ley Luz Mar Mdo Hlc Mno Apo Dav Neg Pal Olg Pan Sam Siq  
Material studied: 3♂ (wingspan 90-98mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)
- 76. *Eupanacra busiris* (Walker, 1856)**  
Original reference: *Panacra busiris* Walker, 1856, List Specimens Lepid. Ins. Colln Br. Mus. 8: 158-159. Type(s): "Silhet". Range (in code): IN BD Syl MM NP TH CN VN MY ID Sum Ja Bor Clb Adm PH Bal Pal Olg Ley Blc Mdo Mno  
Remarks: This species was reported by Hogenes & Treadaway (1998: 57) as "Palawan, Ulanguan".
- 77. *Hippotion celerio* (Linnaeus, 1758)**  
Original reference: *Sphinx celerio* Linnaeus, 1758, Syst. Nat. (Edn.10) 1: 491.  
Range (in code): Md Cn MA DZ TN LY PT ES FR Co Sa Si IT MT IE GB BE NL LU DE CH AT PL CZ SK HU RO YU AL BG Slv Vrn GR Rd Cr TR CY LB Bei IL Hf Pa IR Kh Th GlS Ss DK RU MD UA BY GG Smt Bjo IN Tn LK ID Sum Ja Kai AU QAU Hw PG NC NH FJ ZA Fs Cap Blo Tva Lpo Spb Mdk MZ GN SA SL PH Bal Boh Cal Ceb Dum Jol Ley Luz Pq Mar Mdo Mno Neg Pal Olg Pan Pao Sam Tic WS TO EL LO SB MY Gau Pre Mpu Brb Jh Nta Kzu Dbn SL JO AF Sfk Srb Nu Bsg PK Swa Sgl TH CMa Cuo TW Cc Cp Abe Rbt BtNa Agi Orn Blid Mzg Hrh 31 33 35 48  
Material studied: 1♂ (wingspan 64mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)
- 78. *Macroglossum fano* (Cramer, 1780)**  
Original reference: *Sphinx fano* Cramer, 1780, Utitl. Kapellen 3: 165, pl.285 fig.2.  
Range (in code): CN IN TH VN TW JP Ri MY ID Sum Ja Bor PH Ley Pal Olg  
Remarks: This species was reported by Hogenes & Treadaway (1998: 81) as "Palawan, Ulanguan".
- 79. *Macroglossum jani* Hogenes & Treadaway, 1998**  
Original reference: *Macroglossum jani* Hogenes & Treadaway, 1998, Nachr. Ent. Ver. Apollo (Suppl.) 17: 90-92. Holotype ♂: Philippines, Palawan, Languan, 25.ii.1995 (CCGT) (Paratypes from Homonhon, Ulanguan, Cebu).  
Range (in code): PH Ceb Hom Pal Olg  
Remarks: This species was reported by Hogenes & Treadaway (1998: 90) as "Palawan, Ulanguan".
- 80. *Marumba tigrinus* Gehlen, 1936 (Fig. 50)**  
Original reference: *Marumba tigrina* Gehlen, 1936, Ent. Z., Frankf. a. M. 49: 461, fig.  
Range (in code): ID Sum Ja Bor PH Pal Olg TH  
Material studied: 5♂ (wingspan 88-91mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)
- 81. *Megacorma obliqua* (Walker, 1856) (Fig. 51)**  
Original reference: *Macrosila obliqua* Walker, 1856, List Specimens Lepid. Insects Colln Br. Mus. 8: 208. Type: "Ceylon".  
Range (in code): IN LK MM TH CMa Cuo VN MY ID Sum Bor Ja PH Bal Jol Ley Luz Mno Neg Pal Olg Sam Cm PG SB  
Material studied: 3♂ (wingspan 112-118mm) 7. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)
- 82. *Meganoton rufescens* (Butler, [1876])**  
Original reference: *Diludia rufescens* Butler, [1876], Proc. zool. Soc. Lond. 1875: 260.  
Range (in code): IN TH CMa CDo CN MM MY Adm VN AU QAU PH Ley Luz Mno Pan Sam Pal Olg ID Cm Amb Hm Ja Sum Bor PG

<sup>7</sup> Perhaps the biggest sphingid species in the Philippines is *Amplypterus panopus* ssp. *mindanaoensis* Inoue, 1996. Wingspan of 3♂♀ varies from 133 to 151mm (from Negros I., Kanlaon Mt. 1500m, 12-17.xii.1997, F. Mamigo leg. (Cesa)).

Material studied: 2♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**83. *Theretra clotho* (Drury, [1773])**

Original reference: *Sphinx clotho* Drury, [1773], Illust. Nat. Hist. Exot. Insects 2: 48.

Range (in code): LK IN NP TH CMa Cuo CN KP KR JP Adm ID Sly Mlc AU PG NC Sum Ja Flo Tim TW PH Bal Boh Bon Cal Ceb Jol Ley Mdo Mno Neg Pal Olg Pan Sam Sib Siq Stu Taw

Material studied: 3♂ (wingspan 68-84mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**84. *Theretra nessus* (Drury, [1773])**

Original reference: *Sphinx nessus* Drury, [1773], Illust. exot. Ins. 2: Index [91], pl.76, fig.1.

Range (in code): LK Pdy IN NP MM TH CMa Cuo Sgk Hya PSu VN CN JP TW AU QAU NH LO NC Hw PH Bal Boh Cal Cat Ceb Din Jol Ley Luz Mar Mas Mdo Mno Neg Knl Pal Olg Pan Sam Sib Siq Stu

Material studied: 4♂ (wingspan 97-102mm). Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

**85. *Theretra suffusa* (Walker, 1856)**

Original reference: *Chaerocampa suffusa* Walker, 1856, List Specimens lepid. Insects Colln Br. Mus. 8: 146.

Range (in code): NP IN MM TH CN VN TW JP Ri MY ID Sum Ja Bor PH Pal Olg

Remarks: This species was reported by Hogenes & Treadaway (1998: 53) as "Palawan, Ulangan".

**Thyridae**

(=Thyrididae auct.)

**86. \**Canaea* sp.**

Material studied: 2♂1♀. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: The identity of the specimens is ongoing. The genus has not been reported from the Philippines so far (Whalley, 1971).

**Uraniidae**

**87. *Decetia pallidaria* Pagenstecher, 1888 (Fig. 52)**

Original reference: *Decetia* (?) *pallidaria* Pagenstecher, 1888, Jb. Nassau. Ver. Naturk. 41: 166-167. Syntypes ♂♀: Amboina.

Range (in code): ID Mlc Clb MY Bor Swk PH Pal Olg

Material studied: 2♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Remarks: This species was reported from Palawan by Pagenstecher (1890: 26).

**88. *Micronia aculeata* Guenée, [1858]**

Original reference: *Micronia aculeata* Guenée, [1858], Hist. nat. Insectes, Spec. Gen. Lep. 10: 22-24. Type-species: *Micronia aculeata* Guenée, [1858].

Range (in code): CN TW IN LK MM Adm MY Bor ID Ja Clb PH Pal Olg

Material studied: 1♂. Philippines, North Palawan, Mt. Olangu-an, January, 1998, F. Mamigo leg. (Cesa)

Additional information to the paper: Kemal, M., Kızıldağ, S. & A.Ö.Koçak, 2019. On the Heterocera of Mt. Caragan (Philippines, Mindanao), with some remarks. *Misc Pap.* 190: 1-50.

On page 5, nr.12. *Abraxas* sp.? n.: This species may be near to *Abraxas gephyra* West, 1929 (Novit. Zool. 35: 124), described from the Philippines, Luzon (Baguio) but without illustration. The identification of this species is still ongoing.

On page 26, nr. 76. *Athetis maculatra*, described by Lower from Australia (Queensland), was cited from Caragan Mt. with hesitation. After preparing the barcode (658bp) of the specimen from Caragan Mt. (barcoded by the Cesa (Lep-Noct009)) and comparing with the Australian *A. maculatra* specimen from Bold Systems, the genetic distance was calculated as 0.8 between them. It means that the specimen from Caragan Mt. is merely a different population of *Athetis maculatra* (Lower, 1902). Consequently, *Athetis maculatra* (Lower) is reported from the Philippines for the first time.

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## Figures

All the specimens illustrated below are from Mt. Olangu-an (Palawan Island)



**Figs 6, 7** – *Asota egens* (Aganaidae) (left). *Asota javana* (Aganaidae) (right).



**Figs 8, 9** – *Asota heliconioides* (Aganaidae) (left). *Euplocia memblaria* (Aganaidae) (right).



**Figs 10, 11** – ? *Amata* sp. (Ctenuchidae) (enlarged) (left). *Ethmia palawana* (Ethmiidae) (right).



**Figs 12, 13** – *Agathia asterias* (Geometridae) (left). *Amblychia* sp. ♀ (Geometridae, Ennominae) (reduced size) (right).



**Figs 14, 15** – *Biston subflavus* (Geometridae, Ennominae) (left). *Bracca georgiata* (Geometridae, Ennominae) (right).



**Figs 16, 17** – *Celerena palawanica* (Geometridae) (left). *Craspedosis stigmatias* (Geometridae) (right).



**Figs 18, 19** –? *Chrysocraspeda* sp. (Geometridae) (left). *Dysphania malayanus* (Geometridae) (right), for the female genitalia, see fig.2.



**Figs 20, 21** – *Dysphania plena* (Geometridae) (left). ?*Hyperythra* sp. (Geometridae) (right).



**Figs 22, 23** – *Pareumelea hortensiata* (Geometridae) (left). *Pseudeuchromia maculifera* (Geometridae) (right).



**Figs 24, 25** – *Hyblaea constellata* (Hyblaeidae) (left). *Lebeda intermedia* (Lasiocampidae) (right).



**Figs 26, 27** – *Odonestis erectilinea* ssp. *frater* (Lasiocampidae) (left). *Cozola austriaca* (Lymantriidae) (right).



**Figs 28, 29** – *Cheromettia* sp. (Limacodidae) (left). *Chrysopera combinans* (Noctuidae) (right).



**Figs 30, 31** – *Episteme vetula* ssp. *palavanica* (Noctuidae, Agaristinae) (left). *Exsula victrix* (Noctuidae, Agaristinae) (right).



**Figs 32, 33** – *Hamodes propitia* (Noctuidae) (left). *Hypopyra ossigera* (Noctuidae) (right).



**Figs 34, 35** – *Ischyja inferna* (Noctuidae) (left). *Mecodina praepicua* (Noctuidae) (right).



**Figs 36, 37** – *Ommatophora luminosa* (Noctuidae) (left). *Platyja umminia* (Noctuidae) (right).



**Figs 38, 39** – *Spirama helicina* (Noctuidae) (left). *Spirama retorta* (Noctuidae) (right).



**Figs 40, 41** – *Sympis rufibasis* (Noctuidae) (left). *Tiruvaca subcostalis* (Noctuidae) (right).



**Figs 42, 43** – *Westermannia triangularis* (Noctuidae) (left). *Gargetta hampsoni* (Notodontidae) (right).



**Figs 44, 45** – *Phalera sundana* (Notodontidae) (left). *Rodneya cernyi* (Notodontidae) (right).



**Fig. 46** – *Ethopia gigantea* (Pyrallidae, Galleriinae).



**Figs 47, 48** – *Vitessa splendida* (Pyrallidae) (left). *Vitessa philippina* (Pyrallidae) (right).



**Figs 49, 50** – *Cechenena helops* (Sphingidae) (left). *Marumba tigrinus* (Sphingidae) (right).



**Figs 51, 52** – *Megacorma obliqua* (Sphingidae) (left). *Decetia pallidaria* (Uraniidae, Auzeinae) (right).

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