

Diversity of hawkmoths (Lepidoptera: Sphingidae) of Nandurbar, Maharashtra, India**Shital Narsing Pawara, S.S. Patole and Aparna Suresh Chandra Kalawate***V.V.M'S S.G. Patil ASC College, Sakri, Dhule 424304, Maharashtra, India***Zoological Survey of India, Western Regional Centre, Vidhya Nagar, Sector- 29, P.C.N.T. (PO), Rawet Road, Akurdi, Pune 411044, M. S.***Corresponding author:***aparna_ent@yahoo.co.in*; <https://orcid.org/0000-0001-6595-6749>**Abstract**

The hawkmoth fauna of Nandurbar district is not accounted so far, therefore, the present study was planned to assess and document the hawkmoth fauna of this district. Thus, the study resulted in preliminary account of 20 species of hawkmoths belonging to 13 genera and 03 subfamilies from Nandurbar, Maharashtra, India. Out of the studied species, 10 species namely, *Agrius convolvuli* (Linnaeus, 1758); *Psilogamma increta* (Walker, [1865]); *Agnosia microta* (Hampson, 1907); *Marumba indicus* (Walker, 1856); *Marumba spectabilis* (Butler, 1875); *Clanis phalaris* (Cramer, 1777); *Daphnis nerii* (Linnaeus, 1758); *Hyles livornica* (Esper, 1780); *Hippotion rosetta* (Swinhoe, 1892) and *Hippotion rafflesii* (Moore, 1858) are reported for the first time from this district. The common name for the species *Agnosia microta* (Hampson, 1907) has been coined in this study as “Spotted *Agnosia* hawkmoth”. This is the preliminary study covering the distribution of the reported species along with their larval host plant and common name. More extensive surveys and studies are required to properly document the diversity of Nandurbar.

Key words: moths, sphinx moth, heterocera, species, diversity profile, north Maharashtra, Nandurbar.

Introduction

Linnaeus first classified the hawkmoth in 1758 under the name ‘Sphinx’. Samouelle in 1819 adopted the name Sphingidae for the family. Sphingid moths are an important component of the ecosystem due to their role in pollination of the night blooming plants. The adults are commonly known as sphinx or hawkmoths. Moths of this family are easily recognizable due to the long, narrow, pointed fore wing, short, triangular hind wing, the large eye, powerful thorax, sharply-pointed abdomen and antenna filiform or setiform. These are the characters present in

majority of the hawkmoths with some exceptions. The larvae generally bear a horn on the twelfth segment and hence commonly called as hornworms. The head of the larvae strikingly resembles snake morphologically and also their behavior resembles like snake when disturbed. The pupae are usually short, cigar-shaped, rounded in front and pointed behind. The adults are moderate to large in size and are known among other moths by their rapid and sustained flying ability (Scoble, 1995; Sambath, 2011). These insects are of economic importance as their larvae feeds on various important crops.

The first comprehensive work from India on this family was done by Hampson (1892). This family is most diverse in the tropics. It is represented by 1,700 species reported worldwide (Kitching *et al.*, 2021), out of which, about 204 species are distributed in India (Bell & Scott, 1937; D' Abrera, 1986; Sambath, 2011). Looking at some historical resume from Maharashtra on this family, Gurule and Nikam (2013) reported 23 species of hawkmoths from 67 nights' sampling covering north Maharashtra (Nashik, Dhule, Jalgaon and Nandurbar) out of which 10 species are reported from Nandurbar district; 45 species from northern Western Ghats, Maharashtra by Shubhalaxmi *et al.*, (2011) from surveys during the years 2004–2008; 07 species from the surveys during 2014–2017 from northern Western Ghats, Maharashtra (Kalawate, 2018).

Nandurbar is an administrative district in the northwest corner (Khandesh Region) of Maharashtra. Generally, the climate of this district is hot and dry. Toranmal is a famous Hills station in the district located in the Satpura hill ranges in Akrani Taluka. It is a small plateau with soccer like shape from which a stream flows across the plateau from south to north. From the literature survey, it was noted that just one paper accounting 10 species of hawkmoths from Nandurbar has been documented. Hence, in the present study, an attempt has been made to document the preliminary collected data, their distribution and larval host plant. The species reported here are collected from Nandurbar district and also from the literature (Gurule and Nikam, 2013).

Material and Methods

A preliminary study was undertaken with an objective to study the diversity of hawkmoth fauna from Nandurbar. The survey was undertaken from June 2019 to November 2019 from two

regions of the Nandurbar district i.e. Dudhale shivar and Toranmal for 20 nights. The moths were collected by installing light traps consisting of a 160W mercury vapour bulb hung in front of white cotton sheet stretched between two trees in the said locations. The collected specimens were euthanized with ethyl acetate vapours and brought to the laboratory for further studies. Then, it was relaxed, pinned, and dry preserved in the laboratory. Leica EZ4E stereozoom microscope with photographic facility was used to identify the specimen. The identification, classification and distribution followed as per available literature (Bell and Scott, 1937; Sambath, 2011; Shubhalaxmi *et al.*, 2011; Gurule and Nikam, 2013; Mitra *et al.*, 2019). After identification, the specimens were duly registered and deposited in the National Zoological Collection, Zoological Survey of India, Western Regional Centre, Pune, Maharashtra, India (ZSI–WRC). The common name along with the larval host plant has also been provided in this study. The common name “Spotted Agnosia hawkmoth” for the species *Agnosia microta* (Hampson, 1907) has been coined in this study, as the common name was not found.

The details of collection locality are provided in material examined section and also shown in Figure 1. The map of the collection locality was prepared using the open, free access QGIS software. The images of the moths are provided in Figure 2.

Results and Discussion

The present work is based on the current field studies carried out from this district and review of literature. The study resulted in the record of 20 species in 13 genera and 03 subfamilies of hawkmoths from Nandurbar. The dominant subfamily reported is Macroglossinae (10 species) followed by Smerinthinae (06 species) and Sphinginae (04 species) from this region. This is a preliminary report and extensive survey is required to properly document the diversity of hawkmoths from Nandurbar. In all total 10 species of moths namely, *Agrius convolvuli* (Linnaeus, 1758); *Psilogramma increta* (Walker, [1865]); *Agnosia microta* (Hampson, 1907); *Marumba indicus* (Walker, 1856); *Marumba spectabilis* (Butler, 1875); *Clanis phalaris* (Cramer, 1777); *Daphnis nerii* (Linnaeus, 1758); *Hyles livornica* (Esper, 1780); *Hippotion rosetta* (Swinhoe, 1892) and *Hippotion rafflesii* (Moore, 1858) are recorded new for this region.

Subfamily SPHINGINAE Latreille, [1802]

Tribe SPHINGINI Latreille, [1802]

Subtribe ACHERONTIINA Boisduval, [1875]

1. *Agrius convolvuli* (Linnaeus, 1758) (Fig. 2a)

1758. *Sphinx convolvuli* Linnaeus, *Syst. Nat.* edn. **10**: 490.

Material examined/source: 02 ex., Dudhale shivar (21.3477 N, 74.2414 E), 25.xi.2019, Shital N. Pawara (ZSI-WRC, L-2273).

Distribution: India: Andaman and Nicobar Islands, Arunachal Pradesh, Assam, Gujarat, Himachal Pradesh, Jammu & Kashmir, Maharashtra (Mumbai, Pune, Satara, Raigarh, Nagpur, Nashik, Dhule, Jalgaon, Nandurbar (present study)), Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, South India, Uttarakhand, Western and Eastern Himalayas. Other countries: Africa, Australia, China, Europe, Indonesia, Japan, Malaysia, Myanmar, Nepal, Pakistan, Siberia, Sri Lanka, Thailand.

Common name: Convolvulus hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Phaseolus* sp. (Fabaceae) (Pittaway and Kitching, 2021); *Alocasia*, *Colocasia* (Araceae); *Helianthus* (Compositae); *Calytegia*, *Ipomoea*, *Merremia* (Convolvulaceae); *Arachis*, *Dolichos*, *Vigna* (Leguminosae); *Abutilon*, *Hibiscus* (Malvaceae); *Nicotiana* (Solanaceae); *Tetragonia* (Tetragoniaceae) (Bell and Scott, 1937; Sambath, 2011; Holloway, 1987).

2. *Acherontia lachesis* (Fabricius, 1798)

1798. *Sphinx lachesis* Fabricius, *Syst. Ent. Suppl.*:434.

Material examined/source: Recorded from literature (Gurule and Nikam, 2013).

Distribution: India: Andaman and Nicobar Islands, Maharashtra (Mumbai, Pune, Satara, Raigarh, Nashik, Dhule, Jalgaon, Nandurbar), Odisha.

Other countries: Bangladesh, China, Indonesia, Iraq, Iran, Myanmar, Nepal, Pakistan, Saudi Arabia, Sri Lanka.

Common name: Greater death's head hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: Solanaceae, Verbenaceae, Leguminosae, Oleaceae, Bignoniaceae, Labiatae (Bell and Scott, 1937).

3. *Acherontia styx styx* (Westwood, 1848) (Fig. 2b)

1848. *Sphinx (Acherontia) styx* Westwood, *Cab. Orient. Ent.* : **88**, t. 42. f. 3.

Material examined/source: 01 ex., Dudhale shivar (21.3477 N, 74.2414 E), 30.vi.2019, Shital N. Pawara (ZSI-WRC, L-1997).

Distribution: India: Throughout India including Maharashtra (Mumbai, Pune, Satara, Nashik, Dhule, Jalgaon and Nandurbar).

Other countries: Arabia, Bangladesh, Bhutan, China, Iraq, Iran, Japan, Malaysia, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam.

Common name: Eastern Death's Head hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Sesamum indicum* (Pedaliaceae) (Bell and Scott, 1937).

Subtribe "PSILOGRAMMA genus-group"

4. *Psilogramma increta* (Walker, [1865]) (Fig. 2c)

[1865]. *Anceryx increta* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* **31**: 36.

Material examined/source: 08 ex., Dudhale shivar (21.3477 N, 74.2414 E), 07.ix.2019, Shital N. Pawara (ZSI-WRC, L-2232).

Distribution: India: Jammu & Kashmir, Maharashtra (Mumbai, Pune, Nashik, Dhule, Nandurbar (present study)), Uttarakhand.

Other countries: China, Japan, Korea, Malaysia, Myanmar, Nepal, Sri Lanka, Taiwan, Thailand, Vietnam.

Common name: Plain grey hawkmoth (Kitching *et al.*, 2021).

Larval Host Plant: *Millingtonia hortensis* (Bignoniaceae); *Tectona grandis* (Lamiaceae) (Namee, 2017).

Subfamily SMERINTHINAE Grote & Robinson, 1865

Tribe SMERINTHINI Grote & Robinson, 1865

5. *Agnosia microta* (Hampson, 1907) (Fig. 2d)

1907. *Marumba microta* Hampson, *Nov. Zool.*, **14**: 327.

Material examined/source: 12 ex., Dudhale shivar (21.3477 N, 74.2414 E), 30.vi.2019, Shital N. Pawara (ZSI-WRC, L-2491).

Distribution: India: Andhra Pradesh, Maharashtra (Mumbai, Satara, Nashik, Nandurbar (present study)).

Other countries: Sri Lanka.

Common name: Spotted Agnosia hawkmoth (name given in the present study).

Larval Host Plant: Not known.

Tribe SICHINI Tutt, 1902

6. *Marumba indicus* (Walker, 1856) (Fig. 2e)

1856. *Smerinthus indicus* Walker, *List. Lep. Ins. Brit. Mus.*, **8**: 254.

Material examined/source: 04 ex., Toranmal (21.8685 N, 74.4819 E), 01.vii.2019, Shital N. Pawara (ZSI-WRC, L-2255). 01 ex., Toranmal (21.8685 N, 74.4819 E), 03.vii. 2019, Shital N. Pawara (ZSI-WRC L-2487).

Distribution: India: Maharashtra (Mumbai, Pune, Satara, Nashik, Dhule, Nandurbar (present study)).

Other countries: Sri Lanka.

Common name: Lesser Swirled Hawkmoth (Kitching *et al.*, 2021).

Larval Host Plant: *Sterculia villosa*. *Bombax malabaricum* (Malvaceae); *Helicteres isora* (Sterculiaceae); *Grewia tiliaefolia* (Tiliaceae) (Bell and Scott, 1937).

7. *Marumba dyras* (Walker, 1856) (Fig. 2f)

1856. *Smerinthus dyras* Walker, *List Spec. Lep. Ins. Coll. Brit. Mus.*, **8**: 25.

Material examined/source: 01 ex. Toranmal (21.8685 N, 74.4819 E), 02.vii.2019, Shital N. Pawara (ZSI-WRC, L-2256).

Distribution: India: Andaman and Nicobar Islands, Eastern Himalayas, Maharashtra (Mumbai, Pune, Satara, Nashik, Nandurbar), Southern India, Uttarakhand, Western Himalayas.

Other countries: Bangladesh, Bhutan, China, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Taiwan, Thailand.

Common name: Dull Swirled hawkmoth (Kitching *et al.*, 2021).

Larval Host Plant: *Bombax* sp. (Malvaceae); *Sterculia* sp. (Sterculiaceae), *Grewia* sp. (Tiliaceae), *Bridelia* sp. (Euphorbiaceae) and *Schleichera trijuga* (Sapindaceae) (Bell and Scott, 1937).

8. *Marumba spectabilis* (Butler, 1875) (Fig. 2g)

1875. *Triptogon spectabilis* Butler, *Proc. Zool. Soc. London*, **1875**: 256.

Material examined/source: 01 ex. Toranmal (21.8685 N, 74.4819 E), 02.vii.2019, Shital N. Pawara (ZSI-WRC, L-2489).

Distribution: India: Maharashtra (Mumbai, Pune, Dhule, Nandurbar (present study)).

Other countries: China, Indonesia, Laos, Malaysia, Nepal, Thailand, Vietnam.

Common name: Rosey swirled hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Meliosma* sp. (Meliosmaceae) (Bell and Scott, 1937).

Tribe "POLYPTYCHUS genus-group"

9. *Polyptychus dentatus* (Cramer, 1777) (Fig. 2h)

1777. *Sphinx dentatus* Cramer, *Uitl. Kap.*, **2**(9-16): 42.

Material examined/source: 01 ex., Dudhale shivar (21.3477 N, 74.2414 E), 20.vi.2019, Shital. N. Pawara (ZSI-WRC, L-2428).

Distribution: India: Maharashtra (Mumbai, Nashik, Nandurbar), Uttarakhand, Uttar Pradesh, Southern India.

Other countries: Bhutan, Pakistan, Sri Lanka.

Common name: Straight-lined crenulate hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Cordia dichotoma*; *C. sebestena*; *Ehretia laevis* (Boraginaceae) (Bell and Scott, 1937).

Tribe LEUCOPHLEBIINI Boisduval, [1875]

10. *Clanis phalaris* (Cramer, 1777) (Fig. 2i)

1777. *Sphinx phalaris* Cramer, *Uitl. Kap.*, **2**(9-16): 83.

Material examined/source: 01 ex., Dudhale shivar (21.3477 N, 74.2414 E), 20.vi.2019, Shital N. Pawara (ZSI-WRC, L-2497). 01 ex. Dudhale shivar (21.3477 N, 74.2414 E), 23.vi.2019, Shital N. Pawara (ZSI-WRC, L-2498).

Distribution: India: Andaman and Nicobar Islands, Maharashtra (Mumbai, Pune, Nandurbar (present study)).

Other countries: Myanmar, Sri Lanka.

Common name: Common Velvet hawkmoth (Kitching *et al.*, 2021).

Larval Host Plant: *Xylia xylocarpa* (Mimosaceae); *Pongamia glabra* (Leguminosae); *Pterocarpus marsupium* (Fabaceae) (Bell and Scott, 1937).

Subfamily MACROGLOSSINAE Harris, 1839

Tribe MACROGLOSSINI Harris, 1839

Subtribe MACROGLOSSINA Harris, 1839

11. *Daphnis nerii* (Linnaeus, 1758) (Fig. 2j)

1758. *Sphinx nerii* Linnaeus, *Syst. Nat. ed.* **10**: 490.

Material examined/source: 05 ex., Dudhale shivar (21.3477 N, 74.2414 E), 07.vii.2019, Shital N. Pawara (ZSI-WRC, L-2307).

Distribution: India: Throughout India including Maharashtra (Mumbai, Nashik, Dhule, Jalgaon, Nandurbar (present study)).

Other countries: Afghanistan, Africa, Bhutan, China, Europe, Japan, Malaysia, Mauritius, Myanmar, Pakistan, Saudi Arabia, Sri Lanka, Taiwan, Thailand, Yemen.

Common name: Oleander hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Nerium odorum*; *Holarrhena antidysenterica*; *Ervatamia heyneana*; *Vinca rosea*; *Tabernaemontana coronaria* (Apocynaceae) (Bell and Scott, 1937).

12. *Nephele hespera* (Fabricius, 1775) (Fig. 2k)

1775. *Sphinx hespera* Fabricius, *Syst. Ent.*: 546.

Material examined/source: 01 ex., Toranmal (21.8685 N, 74.4819 E), 25.viii.2019, Shital. N. Pawara (ZSI-WRC, L-2427).

Distribution: India: Maharashtra (Mumbai, Pune, Satara, Raigarh, Nashik, Jalgaon, Nandurbar).

Other countries: Bhutan, China, Indonesia, Malaysia, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam.

Common name: Crepuscular hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Carissa carandas* (Apocynaceae) (Bell and Scott, 1937).

Subtribe CHOEROCAMPINA Grote & Robinson, 1865

13. *Hyles livornica* (Esper, 1780) (Fig. 2l)

1780. *Sphinx livornica* Esper, *Die. Schmett. Th.*, **II** (13): 88.

Material examined/source: 01 ex., Dudhale shivar (21.3477 N, 74.2414 E), 25.viii.2019, Shital. N. Pawara (ZSI WRC, L-2018).

Distribution: India: Maharashtra (Mumbai, Pune, Nashik, Dhule, Nandurbar (present study)), Southern and Western Himalayas.

Other countries: Africa, China, Europe, Pakistan.

Common name: Striped hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Vitis* sp. (Ampelideae); *Galium* sp. (Rubiaceae); *Rumex* sp. (*Polygonaceae*) (Bell and Scott, 1937).

14. *Hippotion rosetta* (Swinhoe, 1892) (Fig. 2m)

1892. *Choerocampa rosetta* Swinhoe, *Cat. Lep. Het. Mus. Oxon.*, p. 16.

Material examined/source: 01 ex., Dudhale shivar (21.3477 N, 74.2414 E), 25.viii.2019, Shital. N. Pawara (ZSI-WRC, L-2240).

Distribution: India: Andhra Pradesh, Andaman and Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Lakshadweep Island, Maharashtra (Mumbai, Pune, Nagpur, Nashik, Nandurbar (present study)), Odisha, Sikkim, Tamil Nadu, Uttar Pradesh, Uttarakhand.

Other countries: Bhutan, China, Hawaii, Indonesia, Japan, Malaysia, Maldives, Nepal, New Guinea, Pakistan, Philippines, Solomon Islands, Sri Lanka, Taiwan, Thailand.

Common name: Swinhoe's striated hawkmoth (Kitching *et al.*, 2021).

Larval Host Plant: *Borreria*, *Morinda citrifolia* and *Morinda umbellata* (Rubiaceae) (Pittaway and Kitching, 2021).

15. *Hippotion celerio* (Linnaeus, 1758) (Fig. 2n)

1758. *Sphinx celerio* Linnaeus, *Syst. Nat. Ed. X.*: 491.

Material examined/source: 02 ex., Dudhale shivar (21.3477 N, 74.2414 E), 11.x.2019, Shital. N. Pawara (ZSI- WRC, L-2364).

Distribution: India: Madhya Pradesh, Maharashtra (Mumbai, Pune, Nagpur, Nashik, Jalgaon, Nandurbar), Western and Eastern Himalayas, South India, Rajasthan, Sikkim, Uttarakhand, West Bengal.

Other countries: Africa, Arabia, Australia, Bhutan, Borneo, Europe, Fiji, Indonesia, Nepal, Pakistan, Sri Lanka, Timor.

Common name: Common striated hawkmoth (Kitching *et al.*, 2021).

Larval Host Plant: *Vitis* sp. (Ampelideae); *Spermacoce hispida* (Rubiaceae); *Boerhavia* sp. (Nyctaginaceae); *Rumex* sp. (Polygonaceae); *Caladium* sp. (Aroideae) (Bell and Scott, 1937).

16. *Hippotion rafflesii* (Moore, 1858) (Fig. 2o)

1877. *Choerocampa rafflesii* Butler, *Trans. Zool. Soc. London*, **9**(19): 556.

Material examined/source: 01 ex., Toranmal (21.8685 N, 74.4819 E), 08.x.2019, Shital. N. Pawara (ZSI-WRC, L-2430).

Distribution: India: Eastern Himalayas, Maharashtra (Mumbai, Nandurbar (present study)), Southern India.

Other countries: China, Indonesia, Malaysia, Myanmar, Sri Lanka, Taiwan.

Common name: Raffles' striated hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Impatiens* sp. (Balsaminaceae) (Pittaway and Kitching, 2021).

17. *Theretra alecto* (Linnaeus, 1758)

1758. *Sphinx alecto* Linnaeus, *Syst. Nat.* (Ed. X), **1**: 492.

Material examined/source: Recorded from literature (Gurule and Nikam, 2013).

Distribution: India: Maharashtra (Mumbai, Pune, Nashik, Dhule, Jalgaon, Nandurbar).

Other countries: Afghanistan, Bulgaria, Egypt, Greece, Iran, Iraq, Israel, Kyrgyzstan, Lebanon, Pakistan, Turkey, Turkmenistan, Uzbekistan.

Common name: Levant Hunter hawkmoth (Kitching *et al.*, 2021).

Larval Host Plant: *Dillenia indica* (Dilleniaceae); *Saurauja nepalensis* (Ternstroemiaceae); *Vitis* sp. *Leea* sp. (Ampelideae); *Psychotria* sp., *Rubia cordifolia* (Rubiaceae) (Bell and Scott, 1937).

18. *Theretra clotho* (Drury, 1773)

1773. *Sphinx clotho* Drury, *Ill. Nat. Hist. Exot. Ins.*, **2**: 48.

Material examined/source: Recorded from literature (Gurule and Nikam, 2013).

Distribution: India: Andaman and Nicobar Islands, Maharashtra (Mumbai, Pune, Satara, Raigarh, Sindhudurg, Nashik, Jalgaon, Nandurbar), Odisha.

Other countries: China, Indonesia, Myanmar, Nepal, Sri Lanka.

Common name: Common hunter hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Dillenia pentagyna*, *D. indica* (Dilleniaceae); *Hibiscus mutabilis* (Malvaceae); *Vitis* sp., (Ampelideae); *Fuchsia* sp., (Onagraceae); *Amorphophallus* sp., (Aroideae) (Bell and Scott, 1937).

19. *Theretra nesus* (Drury, 1773)

1773. *Sphinx nesus* Drury, Ill. Nat. Hist. Exot. Ins., 2: 46.

Material examined/source: Recorded from literature (Gurule and Nikam, 2013).

Distribution: India: Andaman and Nicobar Islands, Eastern and Western Himalayas, Southern India, Maharashtra (Mumbai, Pune, Satara, Nashik, Dhule, Jalgaon, Nandurbar), Meghalaya.

Other countries: Bhutan, China, Myanmar, Nepal, Sri Lanka, Thailand.

Common name: Yam hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Pongamia glabra* (Leguminosae); *Barringtonia* sp. (Myrtaceae); *Convolvulus* sp. (Convolvulaceae); *Dioscorea* sp. (Dioscoreaceae); *Amorphophallus* sp. (Aroideae) (Bell and Scott, 1937).

Tribe HEMARINI Tutt, 1902

20. *Cephonodes hylas* (Linnaeus, 1771)

1771. *Sphinx hylas* Linnaeus, *Mantissa Plant.*, 2: 539.

Material examined/source: Recorded from literature (Gurule and Nikam, 2013).

Distribution: India: Maharashtra (Nashik, Jalgaon, Nandurbar).

Other countries: China.

Common name: Coffee bee hawkmoth (Pittaway and Kitching, 2021).

Larval Host Plant: *Wendlandia* sp., *Randia dumetorum*, *Gardenia* sp.; *Ixora brachiata*, *Pavetta indica*, *Coffea bengalensis*, *Adina cordifolia*, *Hymenodictyon excelsum* (Rubiaceae) (Bell and Scott, 1937).

Conclusion

Studying hawkmoths are important as they perform pollination in some night blooming plants and their larvae are pest on many economic important crops. In this study, a total of 20 species of hawkmoths are reported from Nandurbar, a dry and hot place of which 10 species namely, *Agrius convolvuli* (Linnaeus, 1758); *Psilogramma increta* (Walker, [1865]); *Agnosia*

microta (Hampson, 1907); *Marumba indicus* (Walker, 1856); *Marumba spectabilis* (Butler, 1875); *Clanis phalaris* (Cramer, 1777); *Daphnis nerii* (Linnaeus, 1758); *Hyles livornica* (Esper, 1780); *Hippotion rosetta* (Swinhoe, 1892) and *Hippotion rafflesii* (Moore, 1858) are reported for the first time from Nandurbar. In future, detailed survey covering the entire district would be taken up to properly document the hawkmoth diversity of the studied region.

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Conflict of Interest: The authors declare that they have no conflict of interest.

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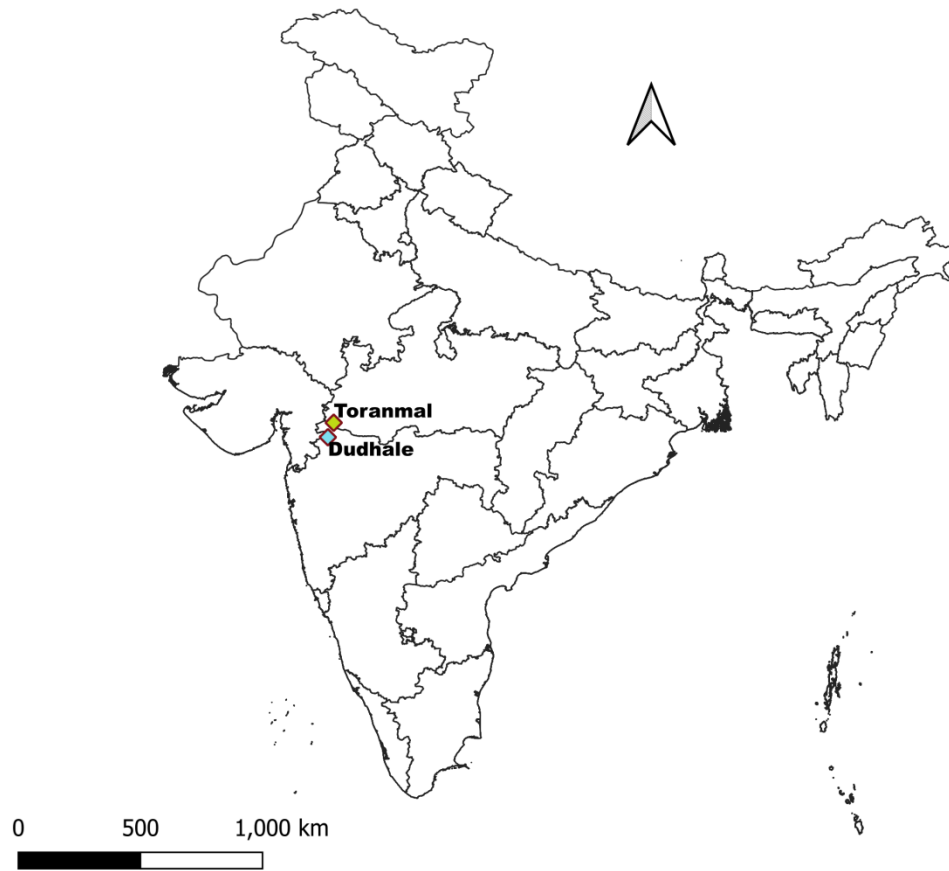


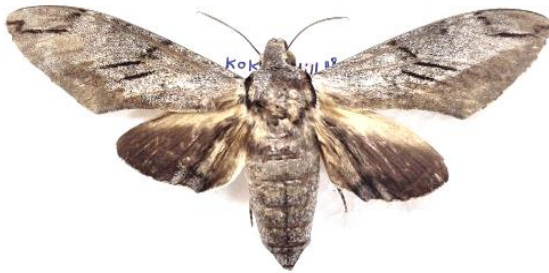
Figure 1. Collection localities of the hawkmoths studied in the present study.



a. *Agrius convolvuli*



b. *Acherontia styx styx*



c. *Psilogramma increta*



d. *Agnosia microta*



e. *Marumba indicus*



f. *Marumba dyras*



g. *Marumba spectabilis*



h. *Polyptychus dentatus*

Figure 2: Hawkmoths of Nandurbar, Maharashtra, India.



i. *Clanis phalaris*



j. *Daphnis nerii*



k. *Nephela hespera*



l. *Hyles livornica*



m. *Hippotion rosetta*



n. *Hippotion celerio*



o. *Hippotion rafflesii* (museum specimen damaged)

Figure 2. Hawkmoths of Nandurbar, Maharashtra, India.