



New distributional records of family Vespidae (Insecta: Hymenoptera) from Great Nicobar Biosphere Reserve, Andaman and Nicobar Islands, India

P. C. Mazumdar^{1*}, P. Girish Kumar² and S. I. Kazmi¹

¹Zoological Survey of India, M-Block, New Alipore, Kolkata, West Bengal - 700053, India;
Email: prahladzsi@rediffmail.com

²Western Ghat Regional Centre, Zoological Survey of India, Kozhikode, Kerala - 673006, India

Abstract

A collection of Vespidae (Insecta: Hymenoptera) from the Great Nicobar Biosphere Reserve, Andaman and Nicobar Islands, India, was studied. A total of 07 species under 05 genera were identified, of which 4 species are new distributional records from the Andaman and Nicobar Islands. An updated checklist of Vespidae (20 species, 15 genera and 4 subfamilies) of the Andaman and Nicobar Islands is also provided.

Keywords: Checklist, Hymenoptera, New Record, Nicobar Island, Vespidae

Introduction

The fauna of the family Vespidae (Hymenoptera: Vespoidea) of the Nicobar Islands is poorly known. Some scattered evidence from published literature was available [Das and Gupta (1989), Girish Kumar and Sharma (2013, 2014, 2015a and b), Girish Kumar and Srinivasan (2015), Girish Kumar, *et al.* (2015, 2017), and Girish Kumar and Sureshan (2018)]. In the present study, seven species of vespids under 05 genera in 03 subfamilies were studied from the Nicobar Islands, of which 04 species were reported for the first time from the Andaman and Nicobar Islands. The updated checklist of Vespidae of the Andaman and Nicobar Islands is provided based on literature records.

Material and Methods

The present study is based on the specimens collected from the Great Nicobar Biosphere Reserve from the Andaman and Nicobar Islands, India. Leica M205A stereo zoom microscope was used to study the specimens as well as for taking photographs.

The following abbreviations are used in the text for the Museums: MCZ = Museum of Comparative

Zoology, Harvard University, Cambridge, United States; MNHN = Museum National d'Histoire Naturelle, Paris, France; NHMW = Naturhistorisches Museum Wien, Vienna, Austria; NHRM = Naturhistoriska Riksmuseet, Stockholm, Sweden; NZC = National Zoological Collections of the Zoological Survey of India, Kolkata, India; UZMC = Universitetets Zoologiske Museum, Kobenhavn, Denmark; ZMB = Zoologisches Museum der Humboldt Universitat, Berlin, Germany; ZMUU = Zoological Museum of the Uppsala University, Sweden.

An asterisk (*) marked after the name of the species indicates that it is a new record from the Andaman and Nicobar Islands. The species studied are deposited in the National Zoological Collections, Zoological Survey of India, Kolkata, India.

Systematic Account

Order HYMENOPTERA
Superfamily VESPOIDEA
Family VESPIDAE
Subfamily EUMENINAE
Tribe **Eumenini**

* Author for correspondence

Genus *Phimenes* Giordani Soika, 1992

1. *Phimenes andamanicum* (Zimmermann, 1931)



Figure 1. *Phimenes andamanicum* (Zimmermann), ♀.

Eumenes arcuata andamanica Zimmermann, 1931, *Zeitschr. Morph. Oek. Tiere*, vol. 22, p. 207, ♀, fig. 26, no. 6, Andaman Islands (ZMB).
Eumenes flavopictus andamanicus: van der Vecht, 1959, *Zool. Verh. Leiden*, 41, 40, ♀, ♂, fig. 4 (21).

Phimenes andamanicum: Girish Kumar, 2013, *Rec. zool. Surv. India*, 113(3), 119, 127, 132 (key).

Material examined: India, Andaman and Nicobar Islands, Great Nicobar Biosphere Reserve, Vijay Nagar, 1♀, 29.ix.2013, Coll. Padma, NZC Regd. No. 21747/H3.

Distribution: Andaman and Nicobar Islands (Girish Kumar, 2013).

Genus *Antepipona* de Saussure, 1855

2. *Antepipona bipustulata* (de Saussure, 1855)*



Figure 2. *Antepipona bipustulata* (de Saussure), ♂.

Odynerus bipustulatus de Saussure, 1855, *Et. Fam. Vesp.*, 3:277, type locality: (MNHN).

Antepipona bipustulata; Giordani Soika, 1982, *Boll. Mus. Civ. Stor. Nat. Venezia*, 32: 205, 210 (key), 228, fig 29.

Material examined: India, Andaman and Nicobar Island, Nicobar Watch Tower, 1♂, 8.xi.2018, Coll. K.C. Gopi and Party, NZC Regd. No.25173/H3.

Distribution: India: Andaman and Nicobar Islands, Arunachal Pradesh, Chhattisgarh, Delhi, Jharkhand, Meghalaya, Nagaland, Odisha, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal. *Elsewhere:* China; Indonesia; Laos; Malaysia; Myanmar; Singapore; Sri Lanka; Thailand (Gawas, *et al.*, 2020).



Figure 3. *Antodynerus flavescens flavescens* (Fabricius), ♀.

Genus *Antodynerus* de Saussure, 1855

3. *Antodynerus flavescens flavescens* (Fabricius, 1775)*
Vespa flavescens Fabricius, 1775, *Syst. Entomol.*:370, lectotype ♂, "In India Orientali" (UZMC).

Antodynerus flavescens; van der Vecht, 1959, *Arch. Neerl. Zool* 13, *Suppl.* 1:238, fig. 2 (a, c, e, f, i-l) (redescription of type; India).

Antodynerus flavescens flavescens; Girish Kumar and Carpenter, 2013, *Zootaxa*, 3731 (2): 269, figs. 1-8 (India).

Material examined: India: Andaman and Nicobar Island, Great Nicobar, Joginder Nagar, 1♀, 11.xi.2018, Coll. K.C. Gopi and Party, NZC Regd. No.24926//H3.

Distribution: India: Andaman and Nicobar Islands, Andhra Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Odisha, Puducherry, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal. *Elsewhere:* Bangladesh; Pakistan (Gawas, *et al.*, 2020).

Subfamily POLISTINAE

Tribe **Polistini**

Genus *Polistes* Latreille, 1802

Subgenus *Polistes* (*Gyrostoma*) Kirby, 1828

4. *Polistes* (*Gyrostoma*) *olivaceus* (De Geer, 1773)*



Figure 4. *Polistes* (*G.*) *olivaceus* (De Geer), ♀.

Vespa olivacea De Geer, 1773, *Mem. Hist. Insect.*, 582, type: Sex not mentioned, America (NHRM).

Polistes (*Gyrostoma*) *olivaceus*; Carpenter, 1996, *Nat. Hist. and Evoln Paper-wasps*, 55.

Material examined: India: Andaman and Nicobar Island, Great Nicobar, Joginder Nagar, 2♀, 11.xi.2018, Coll. K.C. Gopi and Party, NZC Regd. No. (24933-24934)/H3; Nicobar Island, East West Road, 1♀, 6.xi.2018, Coll. K.C. Gopi and Party, NZC Regd. No. 24935/H3.

Distribution: India: Andaman and Nicobar Island, Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Gujarat, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Odisha, Rajasthan, Sikkim, Telangana, Tripura, Uttarakhand, Uttar Pradesh, West Bengal. *Elsewhere:* Afghanistan; Amirantes; Australia (introduced); Bangladesh; Bhutan; Cambodia; Chagos Archipelago; Chile, Easter Is. (introduced); China (including Hong Kong and Taiwan); Egypt; Fiji; French Polynesia; Hawaii; Indonesia; Iran; Japan; Laos; Madagascar; Malaysia; Marianas; Mauritius; Myanmar; Nepal; New Caledonia; New Zealand (introduced); Oman; Pakistan; Philippines; Réunion; Samoa; Seychelles; Singapore; Society Is.; Sri Lanka; Tanzania; Thailand; Tonga; U.S.A. (introduced); Vietnam (Gawas, *et al.*, 2020).

Subgenus *Polistes* (*Polistella*) Ashmead, 1904

5a. *Polistes* (*Polistella*) *stigma galathea* Peterson, 1987

Polistes stigma galathea Petersen, 1987, *Ent. Scand.*, 18: 239, type ♀, Little Nicobar, Andaman and Nicobar Islands, India (UZMC).

Material examined: India: Andaman and Nicobar

Island, Great Nicobar, Joginder Nagar, 1♀, 11.xi.2018, Coll. K.C. Gopi and Party, NZC Regd. No. 24931/H3;



Figure 5. *Polistes* (*Polistella*) *stigma galathea* Peterson, ♀.

Nicobar Island, East West Road, 1♀, 6.xi.2018, Coll. K.C. Gopi and Party, NZC Regd. No. 24932/H3.

Distribution: India: Andaman Nicobar Islands (Das and Gupta, 1989).

5b. *Polistes* (*Polistella*) *stigma sauensis* Peterson, 1987

Polistes stigma sauensis Petersen, 1987, *Ent. Scand.*, 18: 240, type ♀, Sau, Car Nicobar, Andaman and Nicobar Islands, India (NHMW).



Figure 6. *Polistes* (*Polistella*) *stigma sauensis* Peterson, ♂.

Material examined: India: Andaman and Nicobar Island, Nicobar Watch Tower, 1♂, 8.xi.2018, Coll. K.C. Gopi and Party, NZC Regd. No. 25172/H3.

Distribution: India: Andaman and Nicobar Islands (Das and Gupta, 1989).

Subfamily VESPINAE

Genus *Vespa* Linnaeus, 1758

6. *Vespa affinis affinis* (Linnaeus, 1764)*

Apis affinis Linnaeus, 1764, *Mus. Ludovicae Ulricae Reginae*, 417, ♀, des. "in *Calidis regionibus*" (ZMUU).

Vespa affinis affinis; Bequaert, 1936, *Treubia*, 15: 347.



Figure 7. *Vespa affinis affinis* (Linnaeus), ♀.

Material examined: India: Andaman and Nicobar Island, Nicobar Islands, East-West Road, 1♀, 11.xi.2018, Coll. K.C. Gopi and Party, NZC Regd. No. 24925/H3.

Distribution: India: Andaman and Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Nagaland, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal. **Elsewhere:** China; Indonesia; Japan; Laos; Malaysia; Myanmar; Papua New Guinea; Philippines; Singapore; Sri Lanka; Taiwan; Thailand; Vietnam; New Zealand (Girish Kumar and Sharma, 2014).

7. *Vespa tropica haematodes* Bequaert, 1936

Vespa tropica var. *haematodes* Bequaert, 1936, *Treubia*, 15:336, 338, holotype ♀, India: "Kooloo" (MCZ).

Material Examined: Andaman and Nicobar Island, Great Nicobar, Joginder Nagar, 2♀, 11.xi.2018, Coll. K.C. Gopi and Party, NZC Regd. No. 24923-24924/H3.

Distribution: India: Andaman and Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Goa, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Odisha, Puducherry, Sikkim, Tamil Nadu, Tripura, Uttarakhand, West Bengal. **Elsewhere:** Bhutan; Brunei; Cambodia; China; Indonesia; Laos; Malaysia; Myanmar; Nepal; Pakistan; Philippines; Singapore; Sri Lanka; Thailand; Vietnam (Gawas, *et al.*, 2020).

Discussion

In the present study, four species of the family Vespidae are newly recorded from the Andaman and Nicobar Islands



Figure 8. *Vespa tropica haematodes* Bequaert, ♀.

of India. As a result, more research on vespid fauna must be conducted in order to discover more species in the Andaman and Nicobar Islands.

List of Species of Vespidae from Andaman and Nicobar Islands

Subfamily EUMENINAE

1. *Delta pyriforme pyriforme* (Fabricius, 1775)
2. *Phimenes andamanicum* (Zimmermann, 1931)
3. *Phimenes nicobaricum* (Meade-Waldo, 1910)
4. *Allorhynchium argentatum* (Fabricius, 1804)
5. *Apodynerus troglodytes troglodytes* (de Saussure, 1856)
6. *Lissodynerus rutlandicus* (Girish Kumar, Srinivasan and Carpenter, 2015)
7. *Pareumenes (Pareumenes) quadrispinosus acutus* (Liu, 1941)
- 8a. *Rhynchium haemorrhoidale andamanicum* (Girish Kumar and Sharma, 2013)
- 8b. *Rhynchium haemorrhoidale haemorrhoidale* (Fabricius, 1775)
9. *Stenodyneriellus andamanicus* (Girish Kumar, Carpenter and Srinivasan, 2017)
10. *Subancistrocerus sichelii* (de Saussure, 1856)
11. *Antodynerus flavescens flavescens* (Fabricius, 1775)*
12. *Antepipona bipustulata* (de Saussure, 1855)*

Subfamily STENOGASTRINAE

13. *Parischnogaster mellyi* (de Saussure, 1852)

Subfamily POLISTINAE

14. *Polistes (Gyrostoma) olivaceus* (De Geer)*
15. *Polistes (Polistella) latinis* (Das and Gupta, 1989)
- 16a. *Polistes (Polistella) stigma galathea* (Peterson, 1987)
- 16b. *Polistes (Polistella) stigma novarae* (de Saussure, 1867)
- 16c. *Polistes (Polistella) stigma sauensis* (Peterson, 1987)
17. *Ropalidia andamanensis* (Das and Gupta, 1989)
18. *Ropalidia rufoplagiata* (Cameron, 1905)

Subfamily VESPINAE

19. *Vespa affinis affinis* (Linnaeus, 1764)*
- 20a. *Vespa tropica eulemoides* (du Buysson, 1905)
- 20b. *Vespa tropica haematodes* (Bequaert, 1936)

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References

- Das, B.P. and Gupta, V.K. 1989. *The social wasps of India and the adjacent countries. Oriental Insects Monograph*, 11. The Association for the Study of Oriental Insects, Florida, USA, 292 pp. <https://doi.org/10.1080/00305316.1989.11835532>
- Kumar, P.G. 2013. A Taxonomic Revision of *Phimenes* Giordani Soika (Hymenoptera: Vespidae: Eumeninae) of Indian Subcontinent. *Rec. zool. Surv. India*, **113**(Part-3):119-135.
- Kumar, P.G. and Sharma, G. 2013. A Taxonomic study on the Genus *Rhynchium* Spinola (Hymenoptera: Vespidae: Eumeninae) from the Indian Subcontinent. *Rec. zool. Surv. India*, **113**(Part-2):105-122.
- Kumar, P.G. and Sharma, G. 2014. Taxonomic studies on vespidae wasps (Hymenoptera: Vespoidea: Vespidae) of Sunderbans Biosphere Reserve, West Bengal, India Part 1. *Rec. zool. Surv. India*, **114**(4):563-580.
- Kumar, P.G. and Sharma G. 2015a. Taxonomic Studies of Vespidae Wasps (Hymenoptera: Vespidae) of Chhattisgarh, India. *Journal of Threatened Taxa*, **7**(14):8096-8127. <https://doi.org/10.11609/jott.2426.7.14.8096-8127>
- Kumar, P.G. and Sharma G. 2015b. A review of the genus *Allorhynchium* van der Vecht, 1963 (Hymenoptera: Vespidae: Eumeninae) from the Indian subcontinent. *Prommalia*, **3**:20-34.
- Kumar, P.G. and Srinivasan G. 2015. New Distributional Records of *Parischnogaster mellyi* (De Saussure, 1852) (Hymenoptera: Vespidae: Stenogastrinae) from various states of India. *Rec. zool. Surv. India*, **115**(2):203-206.
- Kumar, P.G., Srinivasan G. and Carpenter, J.M. 2015. A new species of *Lissodynerus* Giordani Soika (Hymenoptera: Vespidae: Eumeninae) from Rutland Island, southern Andaman, India. *Journal of Threatened Taxa*, **7**(10):7664-7667. <https://doi.org/10.11609/JoTT.o4022.7664-7>
- Kumar, P.G., Sureshan, P.M. and Manju P. 2017. Additions to the knowledge on the paper wasp genus *Ropalidia* Guerin-Méneville (Hymenoptera: Vespidae: Polistinae: Ropalidini) from India, pp. 6-17. In: Sinha, S.K. and Majumdar, S.(Eds.), *Spare Nature*. Damodar Group, Burdwan.
- Kumar, P.G. and Sureshan, P.M. 2018. A taxonomic review on the genus *Pareumenes* de Saussure (Hymenoptera: Vespidae: Eumeninae) from the Indian Subcontinent, pp. 233-245. In: Kaul, B.L. (Ed.), *Advances in Fish and Wildlife Ecology and Biology*. Astral International Pvt. Ltd., New Delhi.
- Gawas, S.M., Kumar, P.G., Pannure, A., Gupta, A. and Carpenter, J.M. 2020. An annotated distributional checklist of Vespidae (Hymenoptera: Vespoidea) of India. *Zootaxa*, **4784**:1-87. <https://doi.org/10.11646/zootaxa.4784.1.1>