



A distributional study of Blattodea (Cockroach) fauna of Daman, Diu and Dadra and Nagar Haveli, India

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Abstract

Blattodea (Cockroaches) are one of the most primitive groups of insects with a worldwide distribution. Although from India 180 species of Blattodea have been reported so far, the Union territories of Daman, Diu and Dadra and Nagar Haveli represent only four species. Previous literature provides minimum distributional information of Blattodea from this region. The present work is to explain the distribution of 08 species of Blattodea (Cockroach) under 07 genera, 05 sub-families and 03 families (Blaberidae, Blattellidae and Blattidae) from Daman, Diu and Dadra and Nagar Haveli.

Keywords: Blattodea, Daman, Diu and Dadra and Nagar Haveli, New Record

Introduction

The Union Territories of Daman, Diu and Dadra and Nagar Haveli existed as two separate Union Territories. On 9 December 2019, the territories were merged under the Merger of Union Territories Act, 2019 and formed a single Union Territory with three separate districts that are Daman, Diu and Dadra and Nagar Haveli with an approximate geographical area over 603 km²(26.01.2020). Among the three districts Dadra and Nagar Haveli has the maximum area 491 km², followed by Daman (72 km²) and Diu (40 km²). The order Blattodea consists of both termites and cockroaches. Several notable taxonomic studies have been done on Indian Blattodea fauna, including the works of Kirby (1904) ^[5] and Princis (1966, 1971) ^[15, 16]. Subsequent works by Indian workers include Mukherjee (1993), ^[10] reported 23 species from West Bengal; Mandal (1995) ^[6] reported 26 species from Meghalaya; Mandal *et al.*, (2000) ^[9] with 10 species from Tripura; Mandal (2003) ^[7] with 17 species from Sikkim; Mandal (2007) ^[8] with 14 species from Andhra Pradesh, Apart from Mandal, Prabakaran *et al.*, (2009) ^[11] reported 47 species from Tamilnadu; Prabakaran (2010) ^[12] reported 12 species from Karnataka, Jadhav and Sharma (2012) ^[4] reported 12 species from Maharashtra. Despite these comprehensive studies across many Indian states, no specific research on the Blattodea (Cockroach) fauna of Daman, Diu and Dadra and Nagar Haveli was done and compiled by any researcher. Although, Prabakaran and Senraj (2025) reported 180 species of Blattodea representing 63 genera under 07 families from India, with 04 species from Daman, Diu and Dadra and Nagar Haveli in Checklist of Fauna of India: Arthropoda: Insecta: Blattodea. Version 2.0 Zoological Survey India, but species list is not mentioned. Therefore, the present study aims to provide a comprehensive and evidence-based database of 08 species of Blattodea (Cockroach) under 07 genera and 03 families from Daman, Diu and Dadra and Nagar Haveli for the first time.

Material and Methods

Surveys were conducted in among five localities of Daman, Diu and Dadra and Nagar Haveli from 2016 to 2018 by researchers of Zoological Survey of India (ZSI) (Table-1 & Fig-1). Collected specimens were identified by using Stereo

Zoom Binocular Microscopes (model Leica EZ4 HD) with the help of published literature and the nomenclature followed is after Beccaloni *et al.*, (*Cockroach. speciesfile.org.*, 2025). All the identified specimens were registered in the National Zoological Collections of Zoological Survey of India, Kolkata.

Identification key to the families and Systematic accounts of collected Blattodea Specimens from Daman, Diu and Dadra and Nagar Haveli

1. Styles are two in numbers; simple, symmetrical, cylindrical and separated widely, present each in the postero lateral corner subgenital plate (Male), Subgenital plate is bivalvular (Female).... Blattidae.

Styles are either asymmetrical or symmetrical (Male), Subgenital plate not valvular (Female)2

2. Cerci relatively long, segmented, extending well beyond the supra-anal plate. In male two styles are similar or different in shape. Genital hook on the left side..... Blattellidae.

Cerci usually short, either segmented or nonsegmented, not reaching the hind margin of the supra-anal plate. In male two styles similar in shaper. Genital hook on the right side..... Blaberidae.

Order Blattodea

Family Blaberidae

Subfamily Perisphaerinae

1. *Pseudoglomeris* (*Pseudoglomeris*) *glomeris* (Saussure, 1863)

Perisphaeria glomeris Saussure, 1863: 135.

References: Gupta & Chandra, 2019:473.

Material examined: 1 ♂, Daman: Jampore Beach; 22.xi.2017., 1♂, Dadra and Nagar Haveli: Khanvel; 23.xi.2017., Coll. D.Mondal.

Distribution: India: Andhra Pradesh, Arunachal Pradesh, Chhattisgarh, Daman, Diu and Dadra and Nagar Haveli,

Karnataka, Manipur, Meghalaya, Odisha, Tamil Nadu and West Bengal.

Elsewhere: Java; Myanmar; Malayasia; Sri Lanka.

Subfamily *Panesthiinae*

2. *Panesthia angustipennis* (Illiger, 1801)

Blatta angustipennis Illiger, 1801:185.

References: Gupta & Chandra, 2019:477.

Material examined: 1 Nymph, Daman: Devka Beach; 21.i.2018., Coll. K.Rajmohona.

Distribution: India: Andaman & Nicobar Islands Arunachal Pradesh, Assam, Sikkim, Tripura and West Bengal

Elsewhere: Africa; Australia; Burma; Cambodia; China; Indonesia; Malakka; Philippines; Singapore; Thailand; Vietnam and Zanzibar.

Subfamily *Paranauphoetinae*

3. *Paranauphoeta circumdata* (Haan, 1842)

Blatta (Nauphoeta) circumdata Haan, 1842:52.

References: Gupta & Chandra, 2019:474.

Material examined: 2♂, Dadra and Nagar Haveli: Khanvel; 23.xi.2017., Coll. D.Mondal.

Distribution: India: Assam; Meghalaya; Sikkim and West Bengal

Elsewhere: Borneo; Cambodia; Java; Malayasia; Sumatra.

Family *Blattellidae*

Subfamily *Blattellinae*

4. *Blattella biligata* (Walker, 1868)

Ischnoptera biligata Walker, 1868: 123.

References: Gupta & Chandra, 2019:483.

Material examined: 1♂, Diu: Dagachi Forest; 12.ix.2016., 1♂, Daman: Patlara; 19.ix.2016., Coll. S.K.Das; 2♀, Daman: Devka Beach; 21.i.2018., Coll. K.Rajmohona.

Distribution: India: Andhra Pradesh, Arunachal Pradesh, Chhattisgarh, Delhi, Karnataka, Maharashtra, Manipur, Meghalaya, Odisha, Rajasthan, Sikkim, Tamil Nadu and West Bengal.

Elsewhere: China; Congo; Israel; Iraq; Iran; Kenya; Myanmar; Pakistan; Saudi Arabia; Sri Lanka; Sumatra; Taiwan; Yemen and United Arab Emirates.

5. *Blattella germanica* (Linnaeus, 1767)

Blatta germanica Linnaeus, 1767: 688.

References: Prabakaran et. al., 2019:41^[13].

Material examined: 1♂, Diu: Dagachi Forest; 12.ix.2016., Coll. S.K.Das; 1♀, 1♂, Dadra and Nagar Haveli: Khanvel; 01.x.2018., Coll. R.S.Mridha.

Distribution: India: Andhra Pradesh; Arunachal Pradesh; Delhi; Karnataka; Lakshadweep Island; Maharashtra; Manipur; Meghalaya; Odisha; Rajasthan; Sikkim; Tripura; Tamil Nadu and West Bengal.

Elsewhere: Cosmopolitan.

6. *Hemithyrsochera vittata* (Brunner von Wattenwyl, 1865)

Thyrsochera vittata Brunner von Wattenwyl, 1865: 119.

References: Gupta & Chandra, 2019:481.

Material examined: 2♀, Dadra and Nagar Haveli: Butterfly Garden; 20.xi.2017., Coll. D.Mondal; 1♂, Diu: Dagachi Forest; 06.x.2018., Coll. R.S.Mridha.

Distribution: India

Elsewhere: Cambodia; China; Myanmar; Thailand.

Family *Blattidae*

Subfamily *Blattinae*

7. *Neostylopyga rhombifolia* (Stoll, 1813)

Blatta rhombifolia Stoll, 1813: 4–5.

References: Gupta & Chandra, 2019:465.

Material examined: 1♂, Dadra and Nagar Haveli: Butterfly Garden; 23.i.2018., Coll. K.Rajmohona ; 1♂, 1♀, Daman: Jampore Beach area; 06.x.2018., Coll. R.S.Mridha.

Distribution: India: Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Meghalaya, Maharashtra, Odisha, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal

Elsewhere: Australia; Borneo; Celebes; Honkong; Japan; Java (Indonesia); Malakka; Myanmar; Philippines; Sumatra; Thailand and Vietnam.

8. *Periplaneta americana* (Linnaeus, 1758)

Blatta americana Linnaeus, 1758: 424.

Periplaneta stolidia Walker, 1868: 128.

Periplaneta americana colorata Rehn, 1901: 220.

Periplaneta americana, Chopard, 1924:173.









References: Gupta & Chandra, 2019:463.

Material examined: 1♂, Daman: Devka; 21.i.2018., Coll. K.Rajmohona ; 1♂, Dadra and Nagar Haveli: Khanvel; 01.x.2018., Coll. R.S.Mridha.

Distribution: India: Arunachal Pradesh, Andhra Pradesh, Chhattisgarh, Delhi, Manipur, Karnataka, Maharashtra, Odisha, Sikkim, Tripura, Meghalaya, Tamil Nadu and West Bengal

Elsewhere: Cosmopolitan.

Identified Blattodea species from Daman, Diu and Dadra and Nagar Haveli

 <p>(A) <i>Pseudoglomeris (Pseudoglomeris) glomeris</i> (Saussure, 1863)</p>	 <p>(B) <i>Panesthia angustipennis</i> (Illiger, 1801)</p>
 <p>(C) <i>Paranauphoeta circumdata</i> (Haan, 1842)</p>	 <p>(D) <i>Blattella biligata</i> (Walker, 1868)</p>
 <p>(E) <i>Blattella germanica</i> (Linnaeus, 1767)</p>	 <p>(F) <i>Hemithysocera vittata</i> (Brunner von Wattenwyl, 1865)</p>
 <p>(G) <i>Neostylopyga rhombifolia</i> (Stoll, 1813)</p>	 <p>(H) <i>Periplaneta americana</i> (Linnaeus, 1758).</p>

Discussion

The present study provides a baseline database of the Blattodea fauna of Daman, Diu, and Dadra and Nagar Haveli, with properly supported by documented specimens. A total of eight species belonging to seven genera and three families were recorded from the three districts, contributing valuable information to the limited knowledge of cockroach diversity in this region. Notably, none of the recorded species were common to all three districts which indicate considerable spatial variation in species distribution on that region.

The results also highlight significant gaps in the current understanding of Blattodea diversity within the study area, showing the limited taxonomic and faunistic surveys conducted so far. Therefore, more comprehensive and systematic surveys across different habitats and seasons are

required to achieve a more complete understanding of the Blattodea fauna of that region.

Conclusion

The present study documented eight species of Blattodea belonging to seven genera, five subfamilies and three families based on 20 examined specimens collected from five localities of Daman, Diu and Dadra and Nagar Haveli (Tabl-1 & Fig-1). Among the documented families, Blaberidae was most represented comprising three species under three genera followed by family Blattellidae, represented three species under two genera. Family Blattidae least represented with two species under two genera (Table-2& Fig-2). It also shows that among the eight species district Dadra and Nagar Haveli recorded the most number of species i.e. 06, followed by Daman 05 species and Diu with 03 species (Table-2).

Table 1: Collection localities of the specimens during Surveyed

District	Locality	Latitude	Longitude
Dadra and Nagar Haveli	Butter fly Garden	20°17'937" N	73°03'723" E
	Khanvel	20°22.496'.N	72°49.632'.E
Daman	Jampore Beach	20°38.N	72°82.E
	Devka Beach	20.25'59.90" N	72.49'48.54" E
Diu	Dagachi Forest	20°43'210" N	70°54'312" E

Table 2: Identified and Registered specimens of Blattodea Collected from Daman, Diu and Dadra and Nagar Haveli

Family	Genera	Species	Reg. No.
Blaberidae	<i>Pseudoglomeris</i>	<i>Pseudoglomeris (Pseudoglomeris) glomeris</i> (Saussure,1863)	48786/H5,48787/H5
	<i>Panesthia</i>	<i>Panesthia angustipennis</i> (Illiger,1801)	48706/H5
	<i>Paranauphoeta</i>	<i>Paranauphoeta circumdata</i> (Haan, 1842)	48788/H5,48789/H5
Blattellidae	<i>Blattella</i>	<i>Blattella biligata</i> (Walker,1868)	48714/H5,48715/H5, 48792/H5,48793/H5
		<i>Blattella germanica</i> (Linnaeus,1767)	48713/H5, 48794/H5,48795/H5
	<i>Hemithyrsocera</i>	<i>Hemithyrsocera vittata</i> (Brunner von Wattenwyl,1865)	48707/H5,48708/H5,48709/H5
Blattidae	<i>Neostylopyga</i>	<i>Neostylopyga rhombifolia</i> (Stoll,1813)	48710/H5,48711/H5,48712/H5
	<i>Periplaneta</i>	<i>Periplaneta americana</i> (Linnaeus, 1758)	48790/H5,48791/H5

Table 2: Distribution of the Blattodea species district wise

Species	Dadra and Nagar Haveli	Daman	Diu
<i>P.(Pseudoglomeris) glomeris</i> (Saussure,1863)	+	+	
<i>P. angustipennis</i> (Illiger,1801)		+	
<i>P. circumdata</i> (Haan, 1842)	+		
<i>B. biligata</i> (Walker,1868)		+	+
<i>B. germanica</i> (Linnaeus,1767)	+		+
<i>H. vittata</i> (Brunner von Wattenwyl,1865)	+		+
<i>N. rhombifolia</i> (Stoll,1813)	+	+	
<i>P. americana</i> (Linnaeus, 1758)	+	+	

+ indicates presence of the species

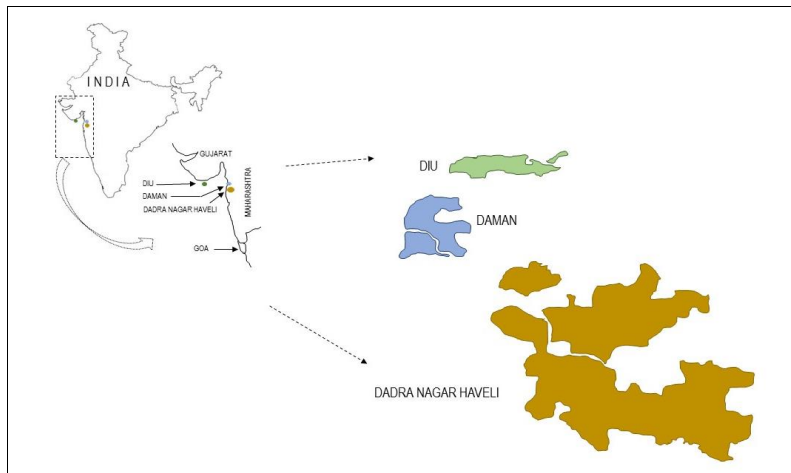


Fig 1: Depicted the Survey areas

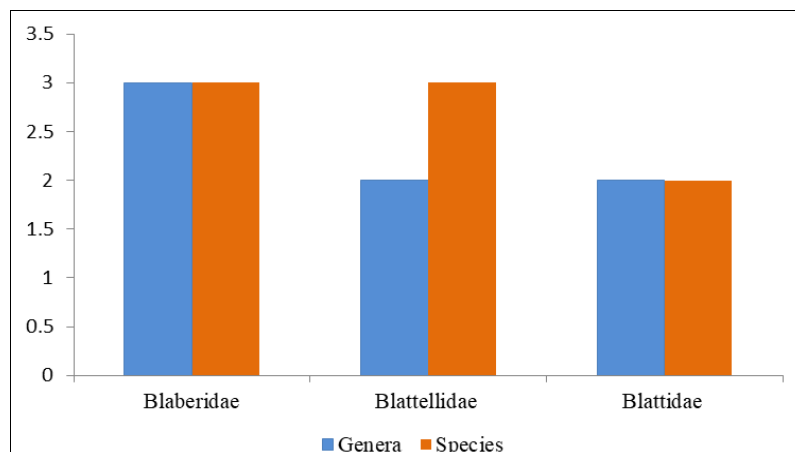


Fig 2: Family wise genera and species number

Acknowledgement

Authors are expressing their sincere gratitude to, Director, Zoological Survey of India, Kolkata for providing necessary facilities to carry out the work and constant support. Authors are also thankful to Mr. S.K. Das collector of the specimens.

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