



CHECK-LIST OF ENTOMOFAUNA OF MANGROVE ECOSYSTEM IN INDIA

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ABSTRACT

Mangrove ecosystem is a distinct kind of habitat for flora as well as fauna. Insects are diverse invertebrate creatures; they dominate the terrestrial and aquatic ecosystem. Brackish water and coastal ecosystems are also dominated by insects. A checklist comprising of all groups of insects upto the year 2008 was already reported by different authors. The list of insects from mangrove ecosystem in India during the period from 2009 to 2019 (till date) is reported here. It comprises all kind of insects like pest, predators and parasitoids associated with mangroves. Some of the insects are reported for the first time from the mangroves. Six species of aquatic bugs newly described from Sundarbans. *Amerila Eugenia* (Fabricius) a lepidopteran insect was reported for the first time from mangroves of Eastern India. There are about 516 insects species belongs to 111 families are reported in this list. Present checklist comprises of 422 insect species belongs to 41 families which were not reported in the annotated checklist of mangrove ecosystem reported during the year 2008 by different authors. More than 212 numbers of insects reported are from the order Lepidoptera and followed by the order Hemiptera having 69 insect species.

KEY WORDS: Mangrove, ecosystem, fauna, invertebrate.

INTRODUCTION

Mangrove is a unique ecosystem, forming a buffer zone between terrestrial and aquatic ecosystems. They found in coastal belt especially in river estuaries of Asia, Africa, America and Australia. The presences of mangrove ecosystem on coastline save lives and property during natural hazards such as cyclones, storm surges and erosion. Mangroves are the most productive and tolerant plant species found in tropical and subtropical regions of the world. They serve as custodians of their juvenile stock and form most valuable biomass (Odum, 1971). The ecosystem has large number of natural products which are useful for different purposes like medicinal, salt production, apiculture, fuel and fodder, etc. Less than 1 % of the world's surface was occupied by mangroves and mainly found between the Tropic of Cancer and the Tropic of Capricorn on all continents covering an estimated 75% of the tropical coastline worldwide (Saenger, 2002). Around 20 minor and 34 major mangrove plant species belonging to 20 genera in morethan 11 families have been recorded globally (Tomlinson, 1986).

Indian mangroves make up 3.3% of the total global cover and distributed along all the maritime states, except the union territory of Lakshadweep, covering an area of about 4921 sq km along the 7,500 km long Indian coastline (FSI report 2017). On Indian coastlines, the distribution of mangrove ecosystem indicates that the Sunderban mangroves occupy very large area followed by Andaman-Nicobar Islands and Gulf of Kutch in Gujarat. Rest of the mangrove ecosystems is comparatively smaller. Mangrove ecosystems are rich in biodiversity and harbour a number of floral and faunal species. The Indian mangroves comprise of approximately 59 species in 41 genera and 29

families. Of these, 34 species belonging to 25 genera and 21 families are present along west coast. There are about 25 mangrove species, which have restricted distribution along the east coast and are not found on the west coast (Singh *et al.*, 2012).

There was old general belief that mangroves do not support distinct insect fauna. This belief reinforced by leathery texture of foliage, high tannin content in these species which have been interpreted as preadaptation to resist herbivore attack (Veenakumari *et al.*, 1996). Recent works on mangrove faunal studies have clarified this belief. The earlier studies on insect fauna of Indian mangroves restricted to few groups such as mosquitoes, midges and few species of ants. An annotated bibliography of the research works of 2008 contains a checklist of 752 insects belonging to 155 families, 16 orders and was reported from mangrove ecosystems in India (Remadevi *et al.*, 2008).

To update the status of entomofaunal diversity of Indian Mangroves the present review of compilation during the period from 2009 to 2019 was undertaken and reported here. Some of the insects were reported for the first time from certain regions. Many Insect species were reported from Sundarbans from east coast of India when comparing to other mangrove ecosystems in India. Six species of aquatic insects belongs to the families Belostomatidae, Nepidae and Hydrometridae in the order Hemiptera are the new report from Sunderban biosphere reserve namely, *Lethocerus indicus*, *Diplonychus annulatus*, *Diplonychus rusticus*, *Laccotrephes griseus*, *Ranatra digitata* (Mitra *et al.*, 2016). *Amerila Eugenia* (Fabricius, 1794), a lepidopteran species was reported for the first time from Sunderban Biosphere Reserve, West Bengal. Total eight

species of insects from Cerambycidae family have been reported from Sundarban Biosphere reserve. Among the reported species two species namely *Nepiodes sulcipennis* and *Chlorophorus annularis* were reported for the first time from the state of West Bengal (Mitra et al., 2015). *Mimegralla albimana* (Doleschall 1856), a dipteran species under family Micropezidae reported for the first time from Sundarban biosphere reserve (Mitra et al., 2015). An insect pest *Hypsipyla robusta* Moore was reported for the first time from Indian subcontinent on the host plant *Xylocarpus granatum* (Jugale et al., 2010). Insect problems in western and eastern coastal mangroves were comparatively less than that of Sundarbans. Many of the insects are reported from the costs of Tamil Nadu, Kerala, Karnataka, Maharashtra and Diu union territory. Totally 27 insects species belongs to 17 families were reported from Pitchavaram and Parangipettai mangroves of the Southeast costs of India (Balakrishnan et al., 2016). Arjitha et al., 2014, reported 90 species of insects, belonging to 11 families under 6 orders on Chettuvai mangroves in Kerala.

RESULTS AND DISCUSSION

The present check-list of insects of Indian Mangroves during the period 2009 to 2019 consists of a total of 516

insect species belonging to 111 families of 7 major orders (Table 1). Among them, the Lepidopterans are the major group consisting of 234 insect species followed by Hymenopteran - 89, Hemipteran - 83, Coleopteran - 78, Diptera - 23, Orthopteran - 10, and Mantodea - 8 (Table 2, Fig 1). In this checklist, 422 insect species have been recorded additionaly which were not reported in the earlier checklist reported during 2008 by Remadevi et al. Lepidopterans insects are more and are reported as 212 species. Remaining 210 insects are reported from the orders, Hemiptera - 69, Hymenoptera - 59, Coleoptera - 49, Diptera-18, Orthoptera-8 and Mantodea-7 respectively (Table 3, Fig 2). Ragupathy et al. reported five species of whiteflies belonging to family Aleuryodidae in the order Hemiptera during the year 2005 and the information was not included in the checklist reported during 2008. Hence the same is included in the present check list.

Normally the trees of mangroves are evergreen which means they never shed their leaves, but unfortunately these mangrove trees are occasionally infested by the defoliating insects and causing epidemic outbreak, feeding all the foliage and causing damage to the plants. This checklist will definitely update the information on different types of insects involved in different mangrove ecosystem of India.

TABLE 1. List of insects from Indian mangroves from 2009 to 2019

Scientific name of the insect	Place of reporting	Reference
Order : COLEOPTERA		
Family : Anthribidae		
<i>Araecerus fasciculatus</i> (DeGeer)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Basitropis hamata</i> Jordan	Andaman Islands	Veenakumari and Prashanth (2009)
<i>B. nitidicutis</i> Jeke	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Tropideres notabilis</i> Jordan	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Atticinae		
<i>Erystus andamanensis</i> Maulik	Andaman Islands	Veenakumari and Prashanth (2009)
Family: Apionidae		
<i>Nanophyes nigrifulus</i> Boheman	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Bostrichidae		
<i>Dinoderus minutus</i> (Fabricius)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Lyctoxylon japonum</i> Reitter	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Lyctus africanus</i> Lesne	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Minthea rugicollis</i> Walker	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Rhizopertha dominica</i> F.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Sinoxylon anale</i> Lesne	Andaman Islands	Veenakumari and Prashanth (2009)
<i>S. atratum atratum</i> Lesne	Andaman Islands	Veenakumari and Prashanth (2009)
<i>S. sudanicum</i> Lesne	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Xylocis tortilicornis</i> Lesne	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Bruchidae		
<i>Bruchidius</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
Family: Buprestidae		
<i>Belionota prasina</i> Thunberg	Central Kerala	Therattil (2017)
<i>Chrysobothris</i> sp.	Chettuvai Kerala	Veenakumari and Prashanth (2009)
Family : Carabidae		
<i>Calosoma scrutator</i> Fabr.	Central Kerala	Therattil (2017)
Family : Cerambycidae		
<i>Aeolesthe holosericea</i> Fab	Chettuvai Kerala	Therattil and Olakkengil (2011)
<i>Ceresium flavipes</i> (Fabr.)	Central Kerala	Therattil (2017)
<i>Ceresium zeylanicum</i> White	West Bengal	Mitra et al., (2015)
<i>Chlorophorus annularis</i> (Fabricius)	West Bengal	Mitra et al., (2015)
<i>Clytocera chionospila</i> Gahan	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Coptops aedificator</i> (Fabricius)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Demonax sonneratiae</i> Gardner	West Bengal	Mitra et al., (2015)
<i>Derolus discicollis</i> Gahan	West Bengal	Mitra et al., (2015)
<i>Exocentrus ficalcola</i> Fisher	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Gnatholea simplex</i> Gahan	Andaman Islands	Veenakumari and Prashanth (2009)

<i>Megopis sulcipennis</i> (Lameere)	Chettuvai	Kerala	Therattil and Olakkengil (2011)
<i>Megopis sulcipennis</i> (Lameere)	Chettuvai	Kerala	Arjitha <i>et al.</i> ,(2014)
<i>Nepiodes sulcipennis</i> (White)	West Bengal		Mitra <i>et al.</i> , (2015)
<i>Ploceaderus obseus</i> (Gahan)	Chettuvai	Kerala	Therattil and Olakkengil (2011)
	Chettuvai	Kerala	Arjitha <i>et al.</i> ,(2014)
	Central Kerala		Therattil (2017)
	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Rhaphuma horsfieldi</i> White	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Ropica rufescens</i> Pic	Andaman Islands		Mitra <i>et al.</i> , (2015)
<i>R. pseudosignata</i> Breuning	West Bengal		Therattil (2017)
<i>Saperdaca carata</i> Say	Central Kerala		Mitra <i>et al.</i> , (2015)
<i>Stromatium barbatum</i> (Fabricius)	West Bengal		Mitra <i>et al.</i> , (2015)
<i>Xystrocera globosa</i> (Olivier)	West Bengal		Mitra <i>et al.</i> , (2015)
Family : Chrysomelidae			
<i>Aspidomorpha miliaris</i> (Fabricius)	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Dicladispa armigera</i> (Fabr.)	Central Kerala		Therattil (2017)
Family : Cicindelidae			
<i>Philonthus politus</i> (Linnaeus, 1758)	Southeast coast of Tamil Nadu		Balakrishnan <i>et al.</i> , (2014)
Family: Coccinellidae			
<i>Coccinella septempunctata</i>	Central Kerala		Therattil (2017)
<i>Epilachna</i> sp.	Central Kerala		Therattil (2017)
<i>Veranias discolor</i> (Fabricius, 1798)	Chettuvai	Kerala	Therattil and Olakkengil (2011)
Family : Curculionidae			
<i>Aicnemis arcufera</i> Chevrolat	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Alcidodes</i> sp.	Andaman Islands		Veenakumari and Prashanth (2009)
<i>A. tutus</i> (Faust)	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Amphoidea</i> sp.	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Coccotrypes brevipilosus</i> Eggers	Andaman Islands		Veenakumari and Prashanth (2009)
<i>C. fallax</i> Wood and Bright	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Dendroctonus micanus</i> (Kugelann)	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Mechistocerus fluctiger</i> Faust	Pitchavaram and Parangipettai		Balakrishnan <i>et al.</i> , (2016)
<i>Oosphilia odinae</i> Marshall	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Protocerius grandis</i> Guerin-Meneville	Andaman Islands		Veenakumari and Prashanth (2009)
Family: Elateridae			
<i>Aeoloderma brachmana</i> (Candeze 1859)	Sundarban		Gosh <i>et al.</i> , (2017)
<i>Cardiophorus aequabilis</i> Candeze, 1860	Sundarban		Gosh <i>et al.</i> , (2017)
<i>Cardiophorus gangeticus</i> Candeze, 1991	Sundarban		Gosh <i>et al.</i> , (2017)
<i>Cardiophorus tibialis</i> Erichson, 1860	Sundarban		Gosh <i>et al.</i> , (2017)
<i>Cardiophorus</i> sp.	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Cicindela formosa</i> Say, 1817	Southeast coast of Tamil Nadu		Balakrishnan <i>et al.</i> , (2014)
<i>Dalopius marginatus</i> (Linnaeus, 1758)	Southeast coast of Tamil Nadu		Balakrishnan <i>et al.</i> , (2014)
<i>Megapenthes</i> sp.	Andaman Islands		Veenakumari and Prashanth (2009)
Family : Hydrophilidae			
<i>Hydrous piceus</i> Linnaeus	Southeast coast of Tamil Nadu		Balakrishnan <i>et al.</i> , (2014)
Family : Lampyridae			
<i>Photinus pyralis</i> L.	Central Kerala		Therattil (2017)
Family : Meloidea			
<i>Mylabris pustulata</i> Thunberg	Central Kerala		Therattil (2017)
Family: Scarabaeidae			
<i>Macroderctylus subspinosus</i>	Central Kerala		Therattil (2017)
<i>Popillia</i> sp.	Chettuvai	Kerala	Therattil and Olakkengil (2011)
<i>Oryctes rhinoceros</i> (L.)	Central Kerala		Therattil (2017)
Family : Scolytidae			
<i>Dendroctonus micanus</i> (Kugelann)	Southeast coast of Tamil Nadu		Balakrishnan <i>et al.</i> , (2014)
<i>Ericryphalus neglectus</i> Beeson	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Ernporus corpulentus</i>	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Oulema gallaeciana</i> (Heyden, 1870)	Southeast coast of Tamil Nadu		Balakrishnan <i>et al.</i> , (2014)
<i>Ptilopodius ramosus</i> Beeson	Andaman Islands		Veenakumari and Prashanth (2009)
<i>Oulema gallaeciana</i> (Heyden)	Pitchavaram and Parangipettai		Balakrishnan <i>et al.</i> , (2016)
<i>Xyleborus discolor</i> Blandford	Andaman Islands		Veenakumari and Prashanth (2009)
<i>X. incurvus</i> Eggers	Andaman Islands		Veenakumari and Prashanth (2009)
Family : Tenebrionidae			
<i>Gonocephalum</i> sp.	Central Kerala		Therattil (2017)
<i>Tribolium castaneum</i> (Herbst)	Parangipettai and Parangipettai		Balakrishnan <i>et al.</i> , (2016)
ORDER : DIPTERA			
Family : Agromyzidae			
<i>Ophiomyia</i> sp.	Andaman Islands		Veenakumari and Prashanth (2009)
Family : Anthomyidae			
<i>Fucellia</i> sp.	Southeast coast of Tamil Nadu		Balakrishnan <i>et al.</i> , (2014)
Family: Calliphoridae			

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<i>Chrysomya megacephala</i> (Fabricius)	Sunderban	Bulagnin Mitra <i>et al.</i> , (2015)
<i>Lucilia sericata</i> (Meigen)	Chettuvai Kerala	Arjitha <i>et al.</i> , (2014)
Family : Cecidomyiidae		
<i>Myricomyia pongamiae</i> Mani	Andaman Island	Veenakumari and Prashanth (2009)
Family: Culicidae		
<i>Aedes</i> sp.	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2016)
<i>Aedes albopictus</i> (Skuse)	Central Kerala	Therattil (2017)
<i>Anopheles</i> sp.	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
	Central Kerala	Therattil (2017)
<i>Culex pipiens</i> Linnaeus	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2016)
<i>Culex tarsalis</i> Coquillett	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2016)
Family : Micropezidae		
<i>Mimegralla albimana</i> Doleschall	Sunderban	Bulganin Mitra <i>et al.</i> , (2015)
Family: Nymphalidae		
<i>Melanitis ledaismene</i> (Cramer)	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
Family : Stratiomyidae		
<i>Hermetia illucens</i> (Linnaeus, 1758)	Sunderban	Roy <i>et al.</i> , (2016)
<i>Microchrysa flaviventris</i> (Wiedemann)	Sunderban	Roy <i>et al.</i> , (2016)
<i>Odontomyia kashmirensis</i> Brunetti	Sunderban	Roy <i>et al.</i> , (2016)
<i>Odontomyia ochropa</i> Thomson	Sunderban	Roy <i>et al.</i> , (2016)
<i>Oplodontha minuta</i> (Fabricius)	Sunderban	Roy <i>et al.</i> , (2016)
<i>Odontomyia viridana</i> (Wiedemann)	Sunderban	Roy <i>et al.</i> , (2016)
<i>Oplodontha rubri thorax</i> (Macquart)	Sunderban	Roy <i>et al.</i> , (2016)
<i>Prosapochrysa vitripennis</i> (Doleschall)	Sunderban	Roy <i>et al.</i> , (2016)
<i>Tinda indica</i> (Walker)	Sunderban	Roy <i>et al.</i> , (2016)
Family : Tabanidae		
<i>Tabanus striatus</i> Fabricius	Chettuvai Kerala	Arjitha <i>et al.</i> , (2014)
	Central Kerala	Therattil (2017)
ORDER : HEMIPTERA		
Family : Alydidae		
<i>Leptocorisa oratoria</i> (Fabricius)	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Aleyrodidae		
<i>Aleurocanthus matrini</i> David	Southern India	Ragupathy <i>et al.</i> , (2005)
<i>Aleurodicus dispersus</i> Russell	Central Kerala	Therattil (2107)
<i>A. rugosa</i> Singh	Southern India	Ragupathy <i>et al.</i> , (2005)
<i>Aleuroclava</i> sp.	Southern India	Ragupathy <i>et al.</i> , (2005)
<i>Aleuroplatus alcocki</i> (Ihering)	Southern India	Ragupathy <i>et al.</i> , (2005)
<i>Aleurolobus marlatti</i> (Quaintance)	Southern India	Ragupathy <i>et al.</i> , (2005)
Family : Aphrophoridae		
<i>Clovia puncta</i> (Walker)	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Belostomatidae		
<i>Diplonychus moleustum</i> (Dufour)	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>D. annulatus</i> (Fabricius)	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>D. rusticus</i> (Fabricius)	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Lethocerus indicus</i> Le peletier and Serville	Sunderbans	Mitra <i>et al.</i> , (2016)
Family : Cercopidae		
<i>Callitettix versicolor</i> (Fabricius)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
Family : Cicadidae		
<i>Platylepleura octaguttata</i> (Fabricius)	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Cicadellidae		
<i>Batracomorphus</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Ledra mutica</i> Fabricius	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Nephrotettix virescens</i> (Distant)	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Coccidae		
<i>Pulvinaria</i> sp	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Tachardina lobata</i> (Green)	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Coreidae		
<i>Cletus rubidiventris</i> (Westwood)	Diu and other Union territories	Bulagnin Mitra <i>et al.</i> , (2017)
<i>Homoeocerus</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
	Sunderbans	Mitra <i>et al.</i> , (2019)
	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Riptortus pedestris</i> (Fabricius)	Diu and other Union territories	Bulagnin Mitra <i>et al.</i> , (2017)
Family : Corixidae		
<i>Lathrobium terminatum</i> Gravenhorst	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Sigara striata</i> (Leach)	Sunderbans	Mitra <i>et al.</i> , (2019)
	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Trichocorixa verticalis</i> (Fieber)	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2016)
	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2016)

Famiy : cydnidae	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>Cydnus indicus</i> Westwood	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Diaspididae	Parangipettai and Parangipettai Central Kerala	Balakrishnan <i>et al.</i> , (2016) Therattil (2107)
<i>Aspidiotus destructor</i> (Fernald)	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Fulgoridae	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Dictyophara pallida</i> (Walker)	Sunderbans	Mitra <i>et al.</i> , (2016)
Family : Gerridae	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>Aquarius adelaidis</i> (Dohrn)	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2016)
<i>Asclepios annandalei</i> Distant	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Halobates micans</i> (Eschscholtz)	Sunderbans	Balakrishnan <i>et al.</i> , (2014)
<i>H. flavigaster</i> Eschscholtz	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>H. germanus</i> (White)	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2014)
<i>Limnometra anadyomene</i> (Kirkaldy)	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>L. fossarum</i> (Fabricius)	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>L. nitidus</i> (Mayr)	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Neogerris parvula</i> (Stål)	Sunderbans	Mitra <i>et al.</i> , (2016)
Family : Hydrometridae	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Hydrometra butleri</i> Hungerford & Evans	Sunderbans	Mitra <i>et al.</i> , (2016)
Family : Lygaeidae	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Nysius ceylanicus</i> (Motschulsky)	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Pamerana cuneata</i> Distant	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Paromius sp</i>	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Rhyparothesus bengalensis</i> (Distant)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Spilostethus pandurus militaris</i> (Fabricius)	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Machaerotidae	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Machaerota</i> sp.	Sunderbans	Mitra <i>et al.</i> , (2017)
Family : Membracidae	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Acrosternum gramineum</i> (Fabricius)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Otinotus oneratus</i> (Walker)	Sunderbans	Mitra <i>et al.</i> , (2016)
Family : Mesoveliidae	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Mesovelia vittigera</i> Horvath	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
Family : Nabidae	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>Nabis ferus</i> (Linnaeus)	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Scudderia furcata</i> (Linnaeus)	Sunderbans	Mitra <i>et al.</i> , (2016)
Family : Nepidae	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Laccotrephes griseus</i> (Guerin-Meneville)	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Ranatra digitata</i> Hafiz & Pradhan	Sunderbans	Mitra <i>et al.</i> , (2016)
<i>Ranatra varipes</i> Stål	Sunderbans	Mitra <i>et al.</i> , (2016)
Family : Pentatomidae	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Acrosternum gramineum</i> (Fabricius)	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Antestiopsis cruciata</i> (Fabricius)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Axiagastus rosmarinus</i> Dallas	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Cantao ocellatus</i> (Thunberg)	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Carbula biguttata</i> (Fabricius)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Eocanthecona furcellata</i> (Wolff)	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Eysarcoris ventralis</i> (Westwood)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Halys dentatus</i> (Fabricius)	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Halys</i> sp.	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Nezara viridula</i> (Linnaeus)	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Nezara</i> sp.	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Placosternum dama</i> (Fabricius)	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Pseudococcidae	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Planococcus lilacinus</i> (Cockerell)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Pseudococcus cryptus</i> Hemph	Andaman Islands	Veenakumari and Prashanth (2009)
Family: Pyrrhocoridae	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Antilocerus coqueberti</i> (Fabricius)	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2014)
<i>Capua endocypha</i> (Meyrick)	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2014)
<i>Dysdurus cingulus</i> (Fallen)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>D. koenigii</i> (Fabricius)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>D. cingulatus</i> (Fabricius)	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2014)
<i>Pyrhocoris apterus</i> (Fallen)	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Psyllidae	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Haplaphalara dahli</i> (Rubaamen)	Andaman Islands	Veenakumari and Prashanth (2009)

Family : Reduviidae		
<i>Acanthaspis micrographa</i> Walker	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Cleptocoris lepturoides</i> (Wolff)	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Ectrychotes dispar</i> Reuter	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Endochus inornatus</i> (Stål)	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Lisarda annulosa</i> Stål	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
Family : Rhyparochromidae		
<i>Horridipamera nietneri</i> (Dohrn)	Sunderbans	Mitra <i>et al.</i> , (2019)
<i>Pseudopachybrachius guttus</i> (Dallas)	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Ricaniidae		
<i>Ricanoides pipera</i> (Distant)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
Family : Scutelleridae		
<i>Chrysocoris purpureus</i> (Westwood)	Sunderbans	Mitra <i>et al.</i> , (2019)
Family : Tettigometridae		
<i>Egropa</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Triozidae		
<i>Leptynoptera sulfurea</i> Crawford	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Veliidae		
<i>Microvelia (Microvelia) annandalei</i> Distant	Sunderbans	Mitra <i>et al.</i> , (2016)
ORDER : HYMENOPTERA		
Family : Apidae		
<i>Amegilla</i> sp.	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>A. cingulata</i>	Central Kerala	Therattil (2017)
<i>A. mucorea</i> (Klug)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Apis cerana indica</i> Fabricius	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>A. dorsata</i> (Fabricius)	Sunderbans	Sharma <i>et al.</i> , (2016)
	Central Kerala	Therattil (2017)
<i>A. florea</i> (Fabricius)	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
	Sunderbans	Sharma <i>et al.</i> , (2016)
	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>A. mellifera</i>	Central Kerala	Therattil (2017)
<i>Braunsapis puangensis</i> (Cockerell)	Central Kerala	Therattil (2017)
<i>Ceratina binghami</i> Cockerell,	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>C. hieroglyphica</i> Smith	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Thyreus surniculus</i> Liefstink	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Trigona</i> sp.	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Xylocopa aestuans</i> (Linnaeus)	Sunderbans	Sharma <i>et al.</i> , (2016)
	Central Kerala	Therattil (2017)
<i>X. bentoni</i> Cockerell	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>X. fenestrata</i> (Fabricius)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>X. lepis</i> Drury	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>X. verticalis</i> Lepeletier	Sunderbans	Sharma <i>et al.</i> , (2016)
Family : Braconidae		
<i>Dolichogenidea stantoni</i> (Ashmead)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Orgilinaegen. etsp. indet.</i> (Braconidae)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Phanerotoma</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Chalcididae		
<i>Brachymeria</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Chalcis</i> sp.	Central Kerala	Therattil (2017)
Family : Encyrtidae		
<i>Neocladia</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Eumenidae		
<i>Eumenes petiolata</i> Fabricius	Sundarban	Mitra <i>et al.</i> , (2015)
<i>Rhynchium brunneum</i> Fabricius	Sundarban	Mitra <i>et al.</i> , (2015)
Family : Eupelmidae		
<i>Eupelmus</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Eurytomidae		
<i>Eurytoma agalica</i> Narendran	Central Kerala	Therattil (2017)
<i>Eurytoma</i> sp. 1	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Eurytoma</i> sp 2	Andaman Islands	Veenakumari and Prashanth (2009)
Family: Formicidae		
<i>Anoplolepis gracilipes</i> Smith	Udupi district Karnataka	Cunha and Nair (2013)
<i>Anochetus</i> sp.1	Udupi district Karnataka	Cunha and Nair (2013)
<i>Anochetus</i> sp.2	Udupi district Karnataka	Cunha and Nair (2013)
<i>Camponotus</i> sp.	Sundarban	Mitra <i>et al.</i> , (2015)
<i>C. compressus</i> (Fabricius)	Udupi district Karnataka	Cunha and Nair (2013)
<i>C. oblongus</i> (Smith)	Udupi district Karnataka	Cunha and Nair (2013)
<i>C. sericeus</i> (Fabricius)	Udupi district Karnataka	Cunha and Nair (2013)

<i>Cardiocondyla nuda</i> (Mayr)	Udupi district Karnataka	Cunha and Nair (2013)
<i>Crematogaster</i> sp.1	Udupi district Karnataka	Cunha and Nair (2013)
<i>Crematogaster</i> sp.2	Udupi district Karnataka	Cunha and Nair (2013)
<i>C. subnuda</i> Mayr	Udupi district Karnataka	Cunha and Nair (2013)
<i>Diacamma</i> sp.	Udupi district Karnataka	Cunha and Nair (2013)
<i>Iridomyrmex humilis</i> (Mayr)	Central Kerala	Therattil (2017)
<i>Monomorium</i> sp.1	Udupi district Karnataka	Cunha and Nair (2013)
<i>M. floricola</i> (Jerdon)	Udupi district Karnataka	Cunha and Nair (2013)
<i>M. orientale</i> Mayr	Udupi district Karnataka	Cunha and Nair (2013)
<i>M. pharaonis</i> (Linnaeus)	Udupi district Karnataka	Cunha and Nair (2013)
<i>Meranoplus bicolor</i> (Guérin-Méneville)	Udupi district Karnataka	Cunha and Nair (2013)
<i>Nylanderia</i> sp.1	Udupi district Karnataka	Cunha and Nair (2013)
<i>Nylanderia</i> sp.2	Udupi district Karnataka	Cunha and Nair (2013)
<i>Oecophyla</i> sp.	Sundarban	Mitra <i>et al.</i> , (2015)
<i>O. smaragdina</i> (Fabricius)	Central Kerala	Therattil (2017)
<i>Paratrechina longicornis</i> (Latreille)	Udupi district Karnataka	Cunha and Nair (2013)
<i>Pheidole</i> sp.	Central Kerala	Therattil (2017)
<i>Plagiolepis jerdonii</i> Forel	Udupi district Karnataka	Cunha and Nair (2013)
<i>Solenopsis</i> sp.	Udupi district Karnataka	Cunha and Nair (2013)
<i>S. geminata</i> (Fabricius)	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>S. nitens</i> Bingham	Udupi district Karnataka	Cunha and Nair (2013)
<i>Tapinoma melanocephalum</i> (Fabricius)	Udupi district Karnataka	Cunha and Nair (2013)
<i>Tetramorium</i> sp. 1	Udupi district Karnataka	Cunha and Nair (2013)
<i>Tetramorium</i> sp. 2	Udupi district Karnataka	Cunha and Nair (2013)
<i>T. nigra</i> (Jerdon)	Udupi district Karnataka	Cunha and Nair (2013)
<i>T. obesum</i> André	Udupi district Karnataka	Cunha and Nair (2013)
<i>T. smithi</i> Mayr	Udupi district Karnataka	Cunha and Nair (2013)
<i>T. walshi</i> (Forel)	Udupi district Karnataka	Cunha and Nair (2013)
Family : Halictidae		
<i>Curvinomia iridescent</i> (Smith)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Hoplonomia elliotii</i> (Smith)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>H. westwoodi</i> (Gribodo)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Lasioglossum curtis</i>	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>L. albescens</i> (Smith)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>L. cire</i> (Cameron)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>L. splendidulum</i> (Linnaeus)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Lipotriches fulvinervra</i> (Cameron)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Nomia</i> sp.	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>N. curvipes</i> (Fabricius)	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Pseudapis oxybeloides</i> (Smith)	Sunderbans	Sharma <i>et al.</i> , (2016)
Family : Ichneumonidae		
<i>Xanthopimpla</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Megachilidae		
<i>Coelioxys capitatus</i> Smith	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Heriades parvulus</i> Bingham,	Sunderbans	Sharma <i>et al.</i> , (2016)
<i>Megachila</i> sp.	Central Kerala	Therattil (2017)
<i>Megachile relata</i> Smith	Sunderbans	Sharma <i>et al.</i> , (2016)
Family : Scoliidae		
<i>Campsomeris phalerata</i> Sauss	Sunderban	Mitra <i>et al.</i> , (2015)
Family : Sphecidae		
<i>Ammophila levigata</i> (W. Kirby)	Parangipettai and Parangipettai Central Kerala	Balakrishnan <i>et al.</i> , (2014) Therattil (2017)
Family : Vespidae		
<i>lcaris</i> sp.	Sunderban	Mitra <i>et al.</i> , (2015)
<i>Monobia quadridens</i> L	Central Kerala	Therattil (2017)
<i>Odnerus</i> sp.	Sunderban	Mitra <i>et al.</i> , (2015)
<i>Polistes marginata stigma</i> Fabricius	Sunderban	Mitra <i>et al.</i> , (2015)
ORDER : LEPIDOPTERA		
Family : Arctiidae		
<i>Agylla remelana</i> Moore	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Amata passalis</i> (Fabricius)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Amsacta emittens</i> Walker	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>A. lineola</i> (Fabricius)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Argina cibraria</i> Clerck	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>A. astrea</i> (Drury)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Asura undulosa</i> (Walker)	Sunderbans	Biswas <i>et al.</i> , (2016)

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<i>Caeneressa diaphana</i> (Kollar)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Ceryx godartii</i> (Boisduval)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Creationotos gangis</i> (Linnaeus)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Eressa discinota</i> Moore	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Spilosoma obliqua</i> Walker	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Uteheisa lotrix</i> (Cramer)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>U. pulchella</i> (Linnaeus)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>U. pulchella</i> (Linnaeus)	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
Family : Cosmopterigidae		
<i>Labdia</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Pyroderces</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Crambidae		
<i>Botyodes asialis</i> Guenée	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Cryptographis indica</i> (Saunders)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Diaphania indica</i> (Saunders)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Hymenoptychis sordida</i> (Zeller)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Maruca testulalis</i> (Geyer)	Parangipettai and Parangipettai	Balakrishnan <i>et al.</i> , (2014)
<i>Maruca vitrata</i> (Fabricius)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Parapoynx diminutalis</i> (Snellen)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>P. fluctuosalis</i> (Zeller)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Parotis marginata</i> Hampson	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Sameodes cancellalis</i> (Zeller)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Scirpophaga bisignatus</i> Swinhoe	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>S. incertulas</i> (Walker)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Spoladea recurvalis</i> (Fabricius)	Diu and other Union territories	Mitra <i>et al.</i> , (2017)
<i>Syngamia abruptalis</i> (Walker)	Sunderbans	Biswas <i>et al.</i> , (2016)
Family : Erebidae		
<i>Amerila eugenia</i> (Fabricius)	Eastern India	Biswas <i>et al.</i> , (2016)
Family : Eupterotidae		
<i>Eupterote hibisci</i> (Fabricius)	Sunderbans	Biswas <i>et al.</i> , (2016)
Family: Gelechiidae		
<i>Brachyacma</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Dichomeris</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Epimimastis glaucoedes</i> Meyrick	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Helcystogramma hibisci</i> (Stainton)	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Geometridae		
<i>Agathia lycaenaria</i> (Kollar)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Comostola</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Gymnoscelis</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Perixera contrariata</i> Walker	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Ozola</i> sp. prob. <i>minor</i> Moore	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Thalassodes quadraria</i> Guenée	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Thalassodes</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Gracillariidae		
<i>Acrocercops anthracuris</i> Meyrick	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Caloptilia</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Cameraria virgulata</i> Meyrick	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Conopomorpha cramerella</i> Snellen	Andaman Islands	Veenakumari and Prashanth (2009)
Family: Hesperiidae		
<i>Badamia exclamationis</i> (Fabricius)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Baoris</i> sp.	Sunderbans	Chowdhury (2014)
<i>B. mathias mathias</i> Godfrey	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Borbo cinnara</i> (Wallace)	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Chromus</i> sp.	Sunderbans	Chowdhury (2014)
<i>Hasora alexis</i> (Fabricius)	Andaman Islands	Mitra <i>et al.</i> , (2015)
<i>Hasora badra</i> (Moore)	Coast of south Odisha	Veenakumari and Prashanth (2009)
<i>H. taminatus malayana</i> Felder	Andaman Islands	Mohanta and Behera (2018)
<i>Iambrix salsa</i> (Moore)	Sunderbans	Veenakumari and Prashanth (2009)
<i>Matapa aria</i> (Moore)	Sunderbans	Chowdhury (2014)
<i>Oriens gola</i> (Moore)	Sunderbans	Chowdhury (2014)
<i>Parnara guttata</i> (Bremer and Grey)	Sunderbans	Chowdhury (2014)
<i>Sialia galba</i> (Fabricius)	Coast of south Odisha	Chowdhury (2014)
<i>Suastus gremius</i> (Fabricius)	Sunderbans	Mohanta and Behera (2018)
<i>Tagiades japerus</i> (Stoll)	Sunderbans	Chowdhury (2014)
<i>Telicota ancilla</i> (HerrichSchäffer)	Sunderbans	Chowdhury (2014)
<i>Udaspes folus</i> (Cramer)	Coast of south Odisha	Mohanta and Behera (2018)
	Sunderbans	Chowdhury (2014)
	Coast of south Odisha	Mohanta and Behera (2018)

Family : Hyblaeidae		
<i>Hyblaea puera</i> (Cramer)	Sunderbans	Biswas <i>et al.</i> , (2016)
Family : Lecidotheridae		
<i>Odites</i> sp.	Pitchavaram and Parangipettai	Balakrishnan <i>et al.</i> , (2016)
Family : Limacodidae		
<i>Altha nivea</i> Walker	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Thosea cana</i> Walker	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>T. tripartita</i> Moore	Sunderbans	Biswas <i>et al.</i> , (2016)
Family: Lycaenidae		
<i>Anthene lycaenina lycambes</i> Hewitson	Andaman Islands	Veenakumari and Prashanth (2009)
<i>A. emolus andamanicus</i> (Fruhstorfer)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Arhopala atrax</i> (Hewitson)	Coast of south Odisha	Mohanta and Behera (2018)
<i>Arhopala pseudocentaurus</i> Doubleday	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Castalius rosimon</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Chilades laius</i> (Stoll)	Coast of south Odisha	Mohanta and Behera (2018)
<i>Catochrysops Strabo</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Catochrysops Strabo</i> (Fabricius)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Curetis thetis</i> (Drury)	Sunderbans	Chowdhury (2014)
<i>Curetis thetis</i> (Drury)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>C. saronis</i> saronis Moore	Sunderbans	Chowdhury (2014)
<i>Deudorix epijarbas amatius</i> Fruhstorfer	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Euchrysops cneus</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Jamides bochus bochus</i> Cramer	Andaman Islands	Veenakumari and Prashanth (2009)
<i>J. celeno</i> (Cramer)	Sunderbans	Chowdhury (2014)
<i>Lampides boeticus</i> (Linnaeus)	Sunderbans	Veenakumari and Prashanth (2009)
<i>Loxura atymnus</i> (Stoll)	Sunderbans	Chowdhury (2014)
<i>Mahathala ameria</i> (Hewitson)	Sunderbans	Veenakumari and Prashanth (2009)
<i>Nacaduba hermus</i> Evans	Andaman Islands	Chowdhury (2014)
<i>Neopithecops zalmora</i> (Butler)	Sunderbans	Veenakumari and Prashanth (2009)
<i>Prosotas nora</i> (C & R Felder)	Sunderbans	Chowdhury (2014)
<i>Rapala suffusa rubicund</i> Moore	Andaman Islands	Veenakumari and Prashanth (2009)
<i>R. iarbus</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>R. manea</i> (Hewitson)	Coast of south Odisha	Mohanta and Behera (2018)
<i>Rathinda amor</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Remelana jangala andamanica</i> Wood-Mason & de Nicéville	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Spindasis vulcanus</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Tarucus nara</i> (Kollar)	Coast of south Odisha	Mohanta and Behera (2018)
<i>Zizeeria</i> sp.	Sunderbans	Chowdhury (2014)
<i>Z. karsandra</i> (Moore)	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Zizena otis</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Z. hylax</i> (Fabricius)	Sunderbans	Chowdhury (2014)
Family : Lyonetidae		
<i>Decadarchis minuscule</i> (Walsingham)	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Musotiminae		
<i>Ambia poritialis</i> (Walker)	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Noctuidae		
<i>Aiteta brooksi</i> Holloway	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Alabama argillacea</i> Hub.	Central Kerala	Therattil (2017)
<i>Anomis</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Anua coronata</i> (Fabricius)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Asota producta</i> (Butler)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Artena dotata</i> Fabricius	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Aucha velans</i> (Walker)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Catada</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Chasmina candida</i> Walker	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Characoma nilotica</i> Rogenhofer	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Characoma</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Dilophothripa lobata</i> Hampson	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Ericeia inangulata</i> (Guenee)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Eublemma</i> sp. probably <i>abrupta</i> Walker	Andaman Islands	Veenakumari and Prashanth (2009)
<i>E. versicolor</i> Walker	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Grammodes geometrica</i> (Fabricius)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Heliothis armieera</i> Hubner	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Hypocala rostrata</i> Fabricius	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Lacera noctilio</i> Fabricius	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Lophothripa vitea</i> Swinhoe	Andaman Islands	Veenakumari and Prashanth (2009)

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<i>Melanephia mosara</i> Swinhoe	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Midea rectalis</i> Walker	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Nephelodes minians</i> (Guenée)	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>Othreis salaminia</i> Fabricius	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Parallelia onelia</i> Guenée	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Selepa celtis</i> Moore	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Spirama retorta</i> (Clerck)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Spodoptera litura</i> (Fabricius)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Spodoptera litura</i> (Fabricius)	Diu and other Union Territories	Mitra <i>et al.</i> , (2017)
<i>Thalatta lasciosa</i> Moore	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Tamba prunescens</i> Hampson	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Westermannia argentea</i> Hampson	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Xanthodes intersepta</i> Guenée	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Notodontidae		
<i>Chadisra</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Nymphalidae		
<i>Acraea violae</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Athyma perius</i> (Linnaeus)	Coast of south Odisha	Mohanta and Behera (2018)
<i>Ariadne ariadne</i> (Linnaeus)	Coast of south Odisha	Mohanta and Behera (2018)
<i>A. merione</i> (Cramer)	Sunderbans	Chowdhury (2014)
<i>Charaxes polyxena</i> (Cramer)	Sunderbans	Chowdhury (2014)
<i>Danaus chrysippus</i> (Linnaeus)	Coast of south Odisha	Mohanta and Behera (2018)
<i>D. limniace</i> Cramer	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>D. plexippus</i> Linnaeus	Pitchavaram and Parangipettai	Balakrishnan <i>et al.</i> , (2016)
<i>D. (Salatura) melanippus</i> Cramer	Cettuvai Kerala	Arjitha <i>et al.</i> , (2014)
<i>D. genutia</i> (Cramer)	Sunderbans	Chowdhury (2014)
<i>D. melanippus</i> (Cramer)	Central Kerala	Therattil (2017)
<i>Elymnias hypermenstra</i> (Linnaeus)	Coast of south Odisha	Mohanta and Behera (2018)
<i>Euploea core</i> (Cramer)	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>E. (Core) andamanensis</i> Atkinson	Cettuvai Kerala	Arjitha <i>et al.</i> , (2014)
<i>E. crameri</i> (Lucas)	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>E. midamus</i> (Linnaeus)	Coast of south Odisha	Balakrishnan <i>et al.</i> , (2016)
<i>Euthalea aconthea</i> (Cramer)	Sunderbans	Veenakumari and Prashanth (2009)
<i>Hypolimnas bolina</i> (Linnaeus)	Coast of south Odisha	Chowdhury (2014)
<i>Idea agamarshchana</i> (C and R Felder)	Sunderbans	Mohanta and Behera (2018)
<i>Junonia atlites</i> (Linnaeus)	Sunderbans	Chowdhury (2014)
<i>J. lemonias</i> (Linnaeus)	Coast of south Odisha	Mohanta and Behera (2018)
<i>J. almana</i> (Linnaeus)	Sunderbans	Chowdhury (2014)
<i>Labdia</i> sp.	Andaman Islands	Chowdhury (2014)
<i>Melanitis leda</i> (Linnaeus)	Sunderbans	Veenakumari and Prashanth (2009)
<i>Moduza procris</i> (Cramer)	Coast of south Odisha	Chowdhury (2014)
<i>Mycalesis perseus</i> (Fabricius)	Sunderbans	Mohanta and Behera (2018)
<i>M. mineus</i> (Linnaeus)	Coast of south Odisha	Chowdhury (2014)
<i>Neptis hylas</i> (Moore)	Sunderbans	Mohanta and Behera (2018)
<i>Parantica aglea</i> (Stoll)	Coast of south Odisha	Chowdhury (2014)
<i>Phalanta phalantha</i> (Drury)	Coast of south Odisha	Mohanta and Behera (2018)
<i>Polyura athamas</i> (Drury)	Sunderbans	Chowdhury (2014)
<i>Tirumala limniace</i> Cramer	Coast of south Odisha	Mohanta and Behera (2018)
<i>T. septentrionis</i> (Butter)	Pitchavaram and Parangipettai	Balakrishnan <i>et al.</i> , (2016)

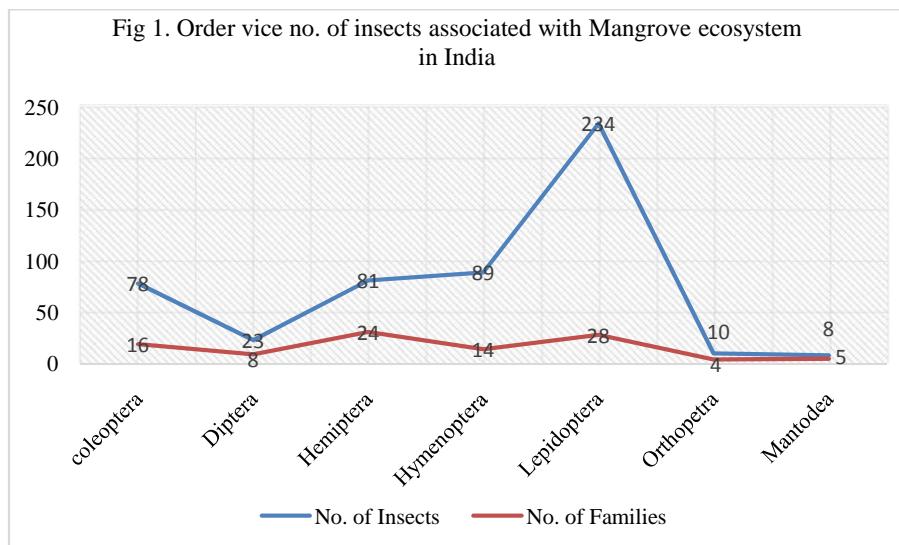
<i>T. limniace</i> (Cramer)	Sunderbans	Chowdhury (2014)
<i>Vindula erota erota</i> (Fabricius)	Cettuvai Kerala	Arjitha <i>et al.</i> , (2014)
<i>Ypthima baldus</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Y. huebneri</i> (Kirby)	Sunderbans	Chowdhury (2014)
Family : Olethreutinae		
<i>Acroclita physalodes</i> Meyrick	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Cryptophlebia ombrodelta</i> Lower	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Papilionidae		
<i>Graphium agamemnon</i> (Linnaeus)	Sunderbans	Chowdhury (2014)
<i>G. doson</i> (C & R Felder, 1864)	Coast of south Odisha	Mohanta and Behera (2018)
<i>G. nomius</i> (Esper)	Sunderbans	Chowdhury (2014)
<i>Papilio demoleus</i> (Linnaeus)	Coast of south Odisha	Mohanta and Behera (2018)
<i>P. clytia</i> (Linnaeus)	Sunderbans	Chowdhury (2014)
<i>P. polymnestor</i> (Cramer)	Sunderbans	Chowdhury (2014)
<i>P. polytes</i> (Linnaeus)	Sunderbans	Chowdhury (2014)
<i>P. polyxene</i>	Coast of south Odisha	Mohanta and Behera (2018)
<i>Pachliopta aristolochiae</i> (Fabricius)	Central Kerala	Therattil (2017)
<i>P. hector</i> (Linnaeus)	Sunderbans	Chowdhury (2014)
<i>Tros hector</i> Linnaeus	Central Kerala	Therattil (2017)
Family : Pieridae	Sunderbans	Chowdhury (2014)
<i>Appias albino</i> (C & R Felder)	Sunderbans	Mitra <i>et al.</i> ,(2015)
<i>A. albina</i> (Boisduval)	Sunderbans	Balakrishnan <i>et al.</i> , (2016)
<i>A. libythea</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Catopsilia pomona</i> Fabricius	Sunderbans	Chowdhury (2014)
<i>Catopsilia pomona</i> Fabricius	Sunderbans	Mohanta and Behera (2018)
<i>C. pyranthe</i> (Linnaeus)	Coast of south Odisha	Chowdhury (2014)
<i>Cepora nerissa</i> (Fabricius)	Sunderbans	Mohanta and Behera (2018)
<i>Colotis amata</i> (Fabricius)	Coast of south Odisha	Chowdhury (2014)
<i>Delias eucharis</i> (Drury)	Sunderbans	Chowdhury (2014)
<i>Eurema hecabe</i> (Linnaeus)	Andaman Islands	Chowdhury (2014)
<i>E. brigitta</i> (Cramer)	Coast of south Odisha	Veenakumari and Prashanth (2009)
<i>E. blanda</i> (Boisduval)	Sunderbans	Mohanta and Behera (2018)
<i>Leptosia nina</i> (Fabricius)	Sunderbans	Chowdhury (2014)
<i>Pareronia valeria</i> (Cramer)	Sunderbans	Chowdhury (2014)
<i>Pieris canidia</i> (Evans)	Sunderbans	Chowdhury (2014)
<i>Terias</i> sp.	Coast of south Odisha	Mohanta and Behera (2018)
<i>Tip Ixias pyrene</i> (Linnaeus)	Sunderbans	Mitra <i>et al.</i> , (2015)
Family: Psychidae	Sunderbans	Chowdhury (2014)
<i>Brachycyrtarus subteralbata</i> Hampson	Cettuvai Kerala	Arjitha <i>et al.</i> ,(2014)
<i>Pteroma plagiophleps</i> Hampson	Central Kerala	Therattil (2017)
Family : Pyralidae		
<i>Acentria ephemerella</i> (Denis and Schiffermuler)	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>Canthelea oegnusalis</i> (Walker)	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Deanolis albizonalis</i> (Hampson)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Hypsipyla robusta</i> (Moore)	Chettuvai Kerala	Therattil and Olakkengil (2011)
<i>Hypsipyla robusta</i> (Moore)	Maharashtra	Jugale <i>et al.</i> , (2010)
<i>Hypsipyla robusta</i> (Moore)	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Hypsopygia olinalis</i> (Guenee)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
<i>Maruca ambinalis</i> Felder	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>M. testulalis</i> (Fabricius)	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>Nephopterix syntaractis</i> Turner	Pitchavaram and Parangipettai	Balakrishnan <i>et al.</i> , (2016)
<i>Othreis fullorica</i> (Linnaeus)	Southeast coast of Tamil Nadu	Balakrishnan <i>et al.</i> , (2014)
<i>Syngamia</i> sp.	Sunderbans	Mitra <i>et al.</i> , (2015)
<i>Syllepte derogata</i> Fabricius	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Pyraustinae		
<i>Euclasta</i> sp.	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Glyphodes ernalis</i> (Swinhoe)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Lepidoneura longipalpis</i> (Swinhoe)	Andaman Islands	Veenakumari and Prashanth (2009)

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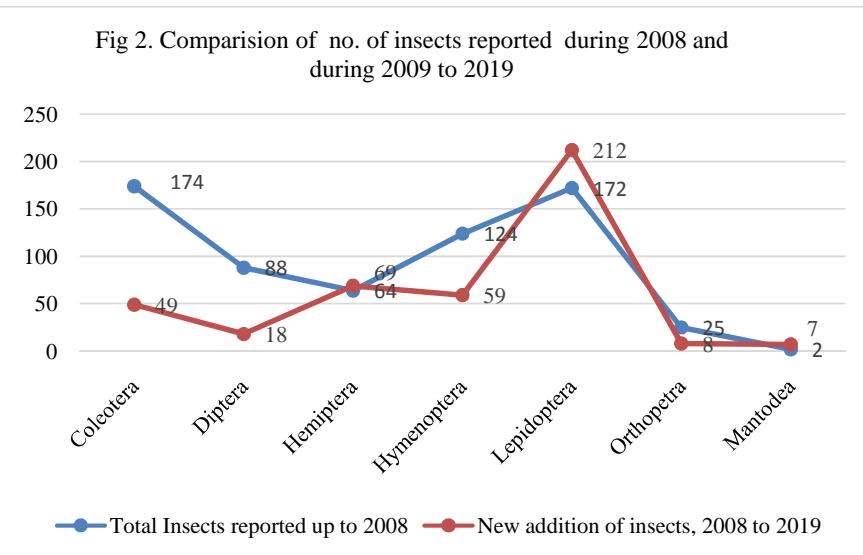
<i>Loxostege perbonalis</i> (Swinhoe)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Maruca amboinalis</i> Felder	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Omiodes surrectalis</i> (Walker)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Phostria analis</i> (Snellen)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Rehimena surusalis</i> (Walker)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Syllepte derogata</i> (Fabricius)	Andaman Islands	Veenakumari and Prashanth (2009)
Family : Saturniidae		
<i>Actias selene</i> (Hubner)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Antheraea paphia</i> Linnaeus	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Attacus atlas</i> Linnaeus	Maharashtra	Jugale <i>et al.</i> , (2010)
Family : Sphingidae		
<i>Acherontia lachesis</i> (Fabricius)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Acherontia styx</i> (Westwood)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Clanis bilineata</i> Walker	Andaman Islands	Veenakumari and Prashanth (2009)
<i>C. phalaris</i> (Cramer)	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Hippotion celirio</i> (Linnaeus)	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Theretra silhetensis</i> (Walker)	Sunderbans	Biswas <i>et al.</i> , (2016)
Family : Tortricidae		
<i>Adoxophyes moderatana</i> Walker	Andaman Islands	Veenakumari and Prashanth (2009)
<i>Capua endocypha</i> Meyrick	Pitchavaram and	Balakrishnan <i>et al.</i> , (2016)
Family : Zygaenidae		
<i>Thyrsia subcordata</i> Walker	Sunderbans	Biswas <i>et al.</i> , (2016)
<i>Thyrsia subcordata</i> Walker	Andaman Islands	Veenakumari and Prashanth (2009)
ORDER: MATODEA		
Family : Hymenopodidae		
<i>Ambivia undata</i> (Fabricius)	Sundarban	Mukerjee <i>et al.</i> , (2017)
<i>Creobroter sp</i>	Sundarban	Mukerjee <i>et al.</i> , (2017)
Family : Iridopterygidae		
<i>Leptomantella montana</i> (Beier)	Sundarban	Mukerjee <i>et al.</i> , (2017)
Family: Liturgusidae		
<i>Humbertiella</i> sp	Sundarban	Mukerjee <i>et al.</i> , (2017)
Family : Mantidae		
<i>Hierodula patellifera</i> (Audinet-Serville)	Sundarban	Mukerjee <i>et al.</i> , (2017)
<i>Hierodula tenuidentata</i> Saussure	Sundarban	Mukerjee <i>et al.</i> , (2017)
<i>Statilia apicalis</i> (Saussure)	Sundarban	Mukerjee <i>et al.</i> , (2017)
Family : Toxoderidae		
<i>Heterochaetula tricolor</i> (Wood-Mason)	Sundarban	Mukerjee <i>et al.</i> , (2017)
ORDER : ORTHOPTERA		
Family : Acridida		
<i>Choroedocus illustris</i> (Walker)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
<i>Eyprepocnemis alacris alacris</i> (Serville)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
<i>Spathosternum prasiniferum Prasiniferum</i> (Walker)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
<i>Xenocatantops humilis humilis</i> (Serville)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
Family : Pyrgomorphida		
<i>Actatomorpha crenulata</i> (Fabricius)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
<i>Chrotogonus trachypterus trachypterus</i> (Blanchard)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
Family : Tetrigidae		
<i>Ergatettix dorsifera</i> (Walker)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
<i>Paratettix histricus</i> (Stål)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
Family : Tettigoniidae		
<i>Conocephalus (Anisoptera) maculates</i> (Le Guillou)	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)
<i>Letana pyrifera</i> Bey-Bienko	Diu and other union Territories	Mitra <i>et al.</i> ,(2017)

TABLE 2. Distribution of families and insect species in different orders

Name of Order	No. of insects	No. of families
Coleoptera	78	16
Diptera	23	8
Hemiptera	81	24
Hymenoptera	89	14
Lepidoptera	234	28
Orthoptera	10	4
Mantodea	8	5

**TABLE 3:** Insect Species Reported Upto 2008 and New Addition from 2009 To 2018

Name of Order	Total Insects reported up to 2008	New addition of insects, after 2008
Coleoptera	174	49
Diptera	88	18
Hemiptera	64	69
Hymenoptera	124	59
Lepidoptera	172	212
Orthoptera	25	8
Mantodea	2	7



CONCLUSION

The check-list of entamofauna provides the information on different types of insects found in differnet mangrove ecosystems in India. This is the update of the check-list of entamofuana reported by Remadevi *et al.*, during 2008. It reports different types of insects in mangroves during the period from 2009 to 2019. Further research is required in this line of activity and identification of different emerging insect pests in mangrove ecosysteym and to workout

ecofriendly management strategies to control the major pest.

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