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Diversity of cockroaches in Velliangiri hills of Coimbatore district in southern Western Ghats of Tamil Nadu, India

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Abstract

Rich faunal diversity, diverse climatic zones, landscapes and forms a contiguous territory of evergreen and semi-evergreen woodland, high altitude sholas, grassland, replete with exceptional biological diversity and endemism in the Western Ghats of Tamil Nadu. In the present study is confined to a major range in the Velliangiri hills of the Western Ghats that is rich in the Cockroach diversity and indigenous population. There are about 5000 known species worldwide belonging to 445 genera under 6 families. The present work is based on series of collections made from Velliangiri hills by the authors. In this study we have recorded, 714 examples of cockroaches were collected and belonging to 21 species accommodated under 17 genera in 4 families. This is a first time consolidated report of the cockroach fauna from the Velliangiri Hills.

Keywords: Cockroach diversity, Velliangiri hills, Coimbatore district, Tamil Nadu

Introduction

The Blattaria includes terrestrial cockroaches which are a predominantly tropical group but several species are found in temperate zones. They are small to large insects with dorsoventrally flattened oval bodies, generally dark coloured but some tropical species are brightly coloured. Cockroaches are playing an important role in the forest eco system. (Bhoopathy, 1997 & Jayakumar *et al.*, 1994) [4, 10]. The systematic and geographical distributions of the living species of the cockroaches were studied by Rehn and Hebard (1927) and Roth and Willis (1960 and 1962-71). They are typically omnivores, mostly feeding on decaying animal and plant matter. Some species feed on dead wood and are able to digest cellulose by intestinal symbiotic protozoans or bacteria. The cockroaches are generally found in litter among low vegetation or in the ground. Some species inhabit caves and few are associated with ant colonies. They are agile runners and they prefer to run than fly from potential predators. They tend to be nocturnally active.

Materials and Methods

Study area: Velliangiri hills is also a major hill range in Western Ghats and part of Nilgiri Biosphere Reserve of Southern Western Ghats, are situated to the West of Coimbatore district of Tamil Nadu at a distance around 40 km. The geographical position lying between the Latitude is 11.1271N and Longitude is 78.6569E and the range between 520 and 1840 MSL. The study area consists of seven hills with different altitudes and topography. The Velliangiri peak is the highest point in the mountain range having the altitude 1840 MSL, and about 1200 mm average annual rainfall and the temperature varies between 10 °C to 21 °C. The boundaries of Velliangiri hills are plains of Coimbatore district east, Palghat district of Kerala west, Nilgiri at north and Siruvani hills at south. Seasonal rivulets and streams over Neelivaikal, Mayar and Andisunai; travels all along the mountain and support the vegetation and fauna.

Sample collection: The cockroach samples were collected from January 2013 to December 2014. There are five areas were chosen for our studies and cockroaches were collected from the selected places of forest areas of hills regions. All samples were captured using simple gloved hands and sweeping methods and kept in a hole-punched plastic container. The collected samples were transported to the laboratory and preserved into 80% of Alcohol. Identification of specimens was analyzed based on the morphological and taxonomical characteristics with the help of standard literature, books and keys.

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Data Collection and Analysis: Average monthly sample collected data were obtained from study area and tabulated; data were statistically analyzed using Microsoft-excel. Relative Abundance, species richness and evenness of each species of cockroaches was calculated. Diversity of different cockroach species on the Simpson and Shannon indices was worked out according to Simpson and Shannon index were calculated.

Result

In the present study we have recorded 21 species of cockroaches belonging to 17 genera and 4 families from Velliangiri hills as follows,

I. Family Blaberidae

Subfamily: Epilamprinae Brunner von Wattenwyl, 1865

Genus *Calolamprodes* Bei-Bienko, 1969

Subgenus *Calolamprodes* Bei-Bienko, 1969

1. *Calolamprodes (calolamprodes) characterosa* (Walker, 1868)

Genus *Opisthoptlatia* Brunner von Wattenwyl, 1865

2. *Opisthoptlatia orientalis* (Burmeister, 1838)

Genus *Princisola* Gurney & Roth, 1976

3. *Princisola pulchra* (Shelford, 1910)

Tribe Morphnini

Genus *Rhabdoblatta* Kirby, 1903

4. *Rhabdoblatta lineaticollis* (Bolívar, 1897)

Genus *Stictolampra* Hanitsch, 1930

5. *Stictolampra plicata* (Navás, 1904)

Tribe Thoracini

Genus *Phlebonotus* Saussure, 1862

6. *Phlebonotus pallens* (Serville, 1831)

Genus *Thorax* Saussure, 1862

7. *Thorax porcellana* Saussure, 1862

Subfamily Panesthiinae Serville, 1831

Genus *Panesthia* Serville, 1831

8. *Panesthia birmanica* Brunner von Wattenwyl, 1893

9. *Panesthia monstrosa* Wood-Mason, 1876

Subfamily Perisphaerinae Brunner von Wattenwyl, 1865

Genus *Corydidarum* Brunner von Wattenwyl, 1865

10. *Corydidarum sericea* (Saussure, 1863)

Subfamily Pycnoscelinae Princis, 1960

Genus *Pycnoscelus* Scudder, 1862

11. *Pycnoscelus surinamensis* (Linnaeus, 1758)

II. Family Ectobiidae

Subfamily Blattellinae Karny, 1908

Genus *Blattella* Caudell, 1903

12. *Blattella germanica* (Linnaeus, 1767)

13. *Blattella humbertiana* (Saussure, 1863)

Genus *Malaccina* Hebard, 1929

14. *Malaccina pallidula* (Bolívar, 1897)

Subfamily Pseudophyllodromiinae

Genus *Supella* Shelford, 1911

15. *Supella longipalpa* (Fabricius, 1798)

III. Family Blattidae

Subfamily Blattinae Latreille, 1810

Genus *Blatta* Linnaeus, 1758

16. *Blatta orientalis* Linnaeus, 1758

Genus *Neostylopyga* Shelford, 1911

17. *Neostylopyga rhombifolia* (Stoll, 1813)

18. *Neostylopyga sexpustulata* (Walker, 1871)

Genus *Periplaneta* Burmeister, 1838

19. *Periplaneta americana* (Linnaeus, 1758)

20. *Periplaneta australasiae* (Fabricius, 1775)

IV. Family Corydiidae

Subfamily Corydiinae Saussure, 1864

Genus *Therea* Billberg, 1820

21. *Therea petiveriana* (Linnaeus, 1758)

Cockroach population means record during 2013 and 2014 from Taxa_S is showing a similar trend, ranging 20 respectively, and Individual record shows 359 in 2013 and lower in 355 in year 2014 (Table 1) and Dominance_D shows 0.1073 in year 2013 and 0.1059 in the year 2014 is higher in the year 2013. Diversity index is estimated through Shannon, Simpson and Evenness yearly Shannon index ranged from 2.478 to 2.485, Simpson index ranged from 0.8927 and 0.8941 and evenness ranged from 0.5956 to 0.6002 all the indices were higher in 2014 (Table 2).

A Classified List of Cockroaches

A classified list of cockroaches collected from Velliangiri hills during 2013 to 2014 is provided and is arranged systematically.

Order: Blattodea

Super family: Blaberoidea Saussure, 1864

I. Family: Blaberidae Saussure, 1864

Subfamily: Epilamprinae Brunner von Wattenwyl, 1865

Genus *Calolamprodes* Bei-Bienko, 1969

Subgenus *Calolamprodes* Bei-Bienko, 1969

1. *Calolamprodes calolamprodes characterosa* (Walker, 1868)

1868. *Epilampra characterosa* Walker, *Catalogue of the Specimens of Blattariae in the Collection of the British Museum*:209.

1904. *Calolamprodes characterosa* Kirby, *Syn. Cat. Orthop.*: 117.

1910. *Calolamprodes characterosa* Shelford, *Gen. Ins.*101.: 10.

1963. *Epilampra tranquebarica* Princis, *Orthopterorum Catalogus* (4): 148.

1963. *Calolamprodes characterosa* Princis. *Orthopterorum Catalogus* (4): 148.

2014. *Calolamprodes calolamprodes characterosa* Anisytukin. *Zootaxa* 3847(3): 319.

Distribution in India

Tamil Nadu, Karnataka: and West Bengal.

Elsewhere: Sri Lanka.

Remarks

This species is widely distributed in Asian regions.

Genus *Opisthoptlatia* Brunner von Wattenwyl, 1865

2. *Opisthoptlatia orientalis* (Burmeister, 1838)

1838. *Polyzosteria orientalis* Burmeister. *Handb.Ent.* 2(2):482.

1863. *Polyzosteria pictetiana* Saussure. *Mém. Soc. Phys. hist. Nat. Gèneve* 17:131.

1906. *Opisthoptlatia maculate* Shiraki. *Annot. zool. Japon* 6 (1):17.

1967. *Opisthoptlatia orientalis* Princis. *Orthopterorum*

Catalogus (11): 650.

Common name

Litter Cockroach/Amphibious Litter Cockroach.

Distribution in India

Tamil Nadu

Elsewhere

China, Japan, Taiwan and Indonesia (Java Island)

Genus *Princisola* Gurney & Roth, 1976

3. *Princisola pulchra* (Shelford, 1910)

1910. *Audreia pulchra* Shelford. *Genera Insectorum* 101: 11.

1963. *Calolampra pulchra* Princis. *Orthopterorum Catalogus* (4): 152.

1976. *Princisola pulchra* Gurney & Roth. *Proc. of the Ento. Soc. of Washington* 78(1): 83.

Distribution in India

Tamil Nadu (The Nilgiris, Coonoor)

Elsewhere

None

Remarks

Endemic to India.

Tribe Morphnini

Genus *Rhabdoblatta* Kirby, 1903

4. *Rhabdoblatta lineaticollis* (Bolívar, 1897)

1897. *Epilampra lineaticollis* Bolívar. *Annls Soc. ent. Fr.* 66: 298.

1904. *Heterolampra lineaticollis* Kirby *Syn. Cat. Orthop.*: 120.

1967. *Rhabdoblatta lineaticollis* Princis. *Orthopterorum Catalogus* (11): 672.

Distribution in India

Tamil Nadu

Elsewhere

None

Remarks

Endemic to India.

Genus *Stictolampra* Hanitsch, 1930

5. *Stictolampra plicata* (Navás, 1904)

1904. *Opisthoplatia plicata* Navás. *Bol. Soc. aragon. Cienc. Nat.* 3: 130.

1910. *Rhcnoda plicata* Shelford. *Genera Insectorum* 109: 9.

1967. *Stictolampra plicata* Princis, *Orthopterorum Catalogus* (11): 683.

Distribution in India

Tamil Nadu, Maghalaya, West Bengal, Himachal Pradesh, Gujarat, Madhya Pradesh, Bihar, Orissa, Tripura, Assam, Arunachal Pradesh: Sikkim, Karnataka and Kerala.

Elsewhere

Borneo, Java. Malaysia.

Tribe Thoracini

Genus *Phlebonotus* Saussure, 1862

6. *Phlebonotus pallens* (Serville, 1831)

1831. *Phorasapis pallens* Serville, *Ann. Sci. nat. Zoologie* 22: 43.

1863. *Epilampra cribrata* Saussure. *Mém. Soc. Phys. hist. Nat. Gèneve* 17: 144.

1868. *Epilampra intacta* Walker. *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Mus.*: 205.

1904. *Phlebonotus pallens* Kirby *Syn. Cat. Orthop.* : 110.

1967. *Phlebonotus pallens* Princis. *Orthopterorum Catalogus* (11): 641.

Distribution in India

Tamil Nadu, Assam, West Bengal and Karnataka

Elsewhere

Sri Lanka

Genus *Thorax* Saussure, 1862

***Thorax porcellana* Saussure, 1862**

1862. *Phorasapis (Thorax) porcellana* Saussure, *Rev. Mag. Zool.* 2(14): 228.

1865. *Paraphorasapis notata* Brunner von Wattenwyl. *Nouveau Système des Blattaires*: 164.

1870. *Thorax porcellana* Saussure, *Miss. scient. Mexique, Rech. zool.*: 79.

1967. *Thorax porcellana* Princis. *Orthopterorum Catalogus* (11): 640

2014. *Thorax porcellana* Anisyutkin *Zootaxa* 3847 (3): 321.

Distribution in India

Tamil Nadu, Kerala and Karnataka

Elsewhere

Sri Lanka and Victoria

Subfamily Panesthiinae Serville, 1831

Genus *Panesthia* Serville, 1831

7. *Panesthia birmanica* Brunner von Wattenwyl, 1893

1893. *Panesthia birmanica* Brunner von Wattenwyl, *Annali Mus. civ. Stor. nat. Genova* 33: 54.

1965. *Panesthia birmanica* Princis. *Orthopterorum Catalogus* (7): 319.

1979. *Panesthia birmanica* Roth. *Australian journal of zoology* 74: 67.

Distribution in India

Tamil Nadu (Coimbatore-Anamalai Hills)

Elsewhere

Burma, China, Myanmar, Vietnam and Thailand.

8. *Panesthia monstrosa* Wood-Mason, 1876

1876. *Panesthia monstrosa* Wood-Mason, *J. Asiat. Soc. Bengal*: 189.

1897. *Panesthia panteli* Bolívar. *Annls Soc. ent. Fr.* 66: 307.

1903. *Dicellonotus laevis* Kirby. *Ann. Mag. nat. Hist.* 7(11): 409.

1965. *Panesthia monstrosa* Princis. *Orthopterorum Catalogus* (7): 330.

1979. *Panesthia monstrosa* Roth *Australian journal of zoology* 74: 107.

Distribution in India

Tamil Nadu (Coimbatore: Anaimalai Hills, Cinchona, Coonoor, Nilgiri, Attakatti, Marudamalai Hills, Valparai, Thiruchirapalli and Madurai) Kerala, West Bengal and Sikkim.

Elsewhere

None

Subfamily Perisphaerinae Brunner von Wattenwyl, 1865

Genus *Corydidarum* Brunner von Wattenwyl, 1865

9. *Corydidarum sericea* (Saussure, 1863)

1863. *Perisphaeria sericea* Saussure, *Mém. Soc. Phys. hist. Nat. Gèneve* 17: 138.
 1863. *Perisphaeria emortualis* Saussure. *Mém. Soc. Phys. hist. Nat. Gèneve* 17: 138.
 1964. *Trichoblatta sericea* Princis. *Orthopterorum Catalogus* (6): 208.

Distribution in India

Tamil Nadu, Andhra Pradesh, Bihar, Gujrat, Karnataka, Kerala, Maharashtra, Orissa, Sikkim. West Bengal, Arunachal Pradesh and Meghalaya.

Elsewhere

None

Subfamily Pycnoscelinae Princis, 1960

Genus *Pycnoscelus* Scudder, 1862

10. *Pycnoscelus surinamensis* (Linnaeus, 1758)

1758. *Blatta surinamensis* Linnaeus, *Systema naturae*: 424.
 1813. *Blatta melanocephala* Stoll. *Represent. exact. coloreed'apres nature d. Spectres.* 7
 1838. *Blatta corticum* Serville. *Librairie Encyclopédique de Roret*: 90.
 1841. *Perispherus laevis* Le Guillou. *Revue zool.*: 292.
 1862. *Pycnoscelus obscurus* Scudder. *Boston J. nat. Hist.* 7: 422.
 1868. *Panchlora celebesa* Walker. *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Mus.*: 26.
 1868. *Polyzosteria latipes* Walker. *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Mus.*: 165.
 1868. *Polyzosteria crassipes* Walker. *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Mus.*: 166.
 1871. *Panchlora occipitalis* Walker. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. Part V. Supplement to the Catalogue of Blattariae*: 7.
 1894. *Epilampra tatei* Tepper. *Trans. R. Soc. S. Aust.* 18: 174.
 1906. *Epilampra dimorpha* Shiraki. *Annot. zool. Japon* 6(1):17.
 1917. *Pycnoscelus surinamensis* (Linnaeus): Hebard, *Mem. Amer. Ent. Soc.*, 2: 192.
 1964. *Pycnoscelus surinamensis* Princis. *Orthopterorum Catalogus* (6): 264.

Common name

The Surinam cockroach or Greenhouse cockroach

Distribution in India

Tamil Nadu (Coimbatore: Vellaiyangiri hills) West Bengal, Arunachal Pradesh and Sikkim.

Elsewhere

Circumtropical species

II. Family Ectobiidae Brunner Von Wattenwyl, 1865

Subfamily Blattellinae Karny, 1908

Genus *Blattella* Caudell, 1903

11. *Blattella germanica* (Linnaeus, 1767)

1767. *Blatta germanica* Linnaeus, *Systema naturae* 1: 688.
 1838. *Blatta bivittata* Serville. *Librairie Encyclopédique de Roret*: 108.
 1893. *Ischnoptera paralella* Tepper. *Trans. R. Soc. S. Austral.* 17: 57.
 1895. *Phyllodromia magna* Tepper. *Trans. R. Soc. S. Aust.* 19: 19.

1908. *Blattella germanica shuguroffi* Karny. *Denkschr. med.-naturw. Ges. Jena* 13: 377.

1925. *Phyllodromia cuneivittata* Hanitsch. *Sarawak Museum Journal* 3(1): 86.

1931. *Phyllodromia nitakana* Shiraki. *Ins. matsumurana*. 5 (4): 204.

1969. *Ischnoptera paralella* Princis. *Orthopterorum Catalogus* (13): 1011.

1969. *Blattella germanica* Princis. *Orthopterorum Catalogus* (13): 807.

1985. *Blattella germanica* Roth. *Entomologica Scandinavica Supplement* 22: 18.

Common name

German cockroach

Distribution in India

Tamil Nadu: (Coimbatore; Anamalai Hills, Coimbatore: Vellaiyangiri hills) Arunachal Pradesh, West Bengal and Sikkim.

Elsewhere

Cosmopolitan species

Remarks

This species is found throughout the world and is probably the Worst **Domiciliary Pest**.

12. *Blattella humbertiana* (Saussure, 1863)

1863. *Polyzosteria humbertiana* Saussure, *Mém. Soc. Phys. hist. Nat. Gèneve* 17: 131.

1865. *Loboptera humbertiana* Brunner von Wattenwyl. *Nouveau Système des Blattaires.*: 411.

1865. *Phyllodromia cognata* Brunner von Wattenwyl. *Nouveau Système des Blattaires.*: 92.

1871. *Blatta subreticulata* Walker. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. Part V. Supplement to the Catalogue of Blattariae*: 23.

1969. *Blattella humbertiana* Princis, *Orthopterorum Catalogus* (13): 842.

Distribution in India

Tamil Nadu (Coimbatore, Madurai) Bombay, Arunachal Pradesh and West Bengal.

Elsewhere

Sri Lanka, Burma and China.

Genus *Malaccina* Hebard, 1929

13. *Malaccina pallidula* (Bolívar, 1897)

1897. *Theganopteryx pallidula* Bolívar, *Anns Soc. ent. Fr.* 66: 287.

1908. *Luppariapallidula* Shelford, *Gen. Ins.* 73: 16.

1906. *Lupparia pallidula* Princis. *Orthopterorum Catalogus* (13): 962.

1996. *Malaccina pallidula* Roth, *Oriental Insects* 30:351.

Distribution in India

Tamil Nadu (Kodaikanal, Coimbatore-Vellaiyangiri hills) Andhra Pradesh and Maharashtra.

Elsewhere

None

Subfamily Pseudophyllodromiinae

Genus *Supella* Shelford, 1911

14. *Supella longipalpa* (Fabricius, 1798)

1798. *Blatta longipalpa* Fabricius, *Suppl. Ent. syst.* 185.

1838. *Blatta (Phyllodromia) supellectilium* Serville. *Librairie Encyclopédique de Roret*: 114.

1862. *Blatta cubensis* Saussure. *Rev. Mag. Zool.* 2(14):165.

1863. *Blatta phalerata* Saussure. *Mém. Soc. Phys. hist. Nat. Genève* 17: 151.

1868. *Blatta extenuata* Walker. *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Museum*: 221.

1868. *Blatta incise* Walker. *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Museum*: 109.

1868. *Schnoptera quadriplaga* Walker. *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Museum*: 121.

1868. *Ischnoptera vacillans* Walker. *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Museum*: 114.

1871. *Blatta subfasciata* Walker. Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. Part V. *Supplement to the Catalogue of Blattariae*: 26.

1871. *Blatta transversalis* Walker. Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. Part V. *Supplement to the Catalogue of Blattariae*: 25.

1969. *Supella longipalpa* Princis. *Orthopterorum Catalogus* (13):917.

Common name

Brown banded cockroach.

Distribution in India

Tamil Nadu: (Coimbatore-Vellaiyangiri hills) Maharashtra and West Bengal

Elsewhere

Circumtropical species

Superfamily Blattoidea Latreille, 1810

Epifamily Blattoidae Latreille, 1810

III. FAMILY BLATTIDAE LATREILLE, 1810

Subfamily Blattinae Latreille, 1810

Genus *Blatta* Linnaeus, 1758

15. *Blatta orientalis* Linnaeus, 1758

1758. *Blatta orientalis* Linnaeus, *Systema naturae* 1, ed. 10: 424.

1846. *Blatta europaea* Bartsch. *Saros Megye Helyirata* : 30.

1851. *Blatta castanea* Blanchard. *Hist. fis. polit. de Chile, Zool.* 6: 18.

1863. *Blatta badia* Saussure. *Mém. Soc. Phys. hist. Nat. Genève* 17:150.

1910. *Stylopyga orientalis gracilis* Adelung. *Horae Soc. Ent. Ross.* 39: 337.

1966. *Blatta orientalis* Princis. *Orthopterorum Catalogus* (8):475.

Common name

Oriental Cockroach

Distribution in India

Tamil Nadu (Velliangiri hills)

Elsewhere

Cosmopolitan species

Genus *Neostylopyga* Shelford, 1911

16. *Neostylopyga rhombifolia* (Stoll, 1813)

1813. *Blatta rhombifolia* Stoll, *Represent. exact. coloreed'apres nature d. Spectres*: 5.

1822. *Blatta signata* Eschscholtz. *Entomographien*: 88.

1864. *Periplaneta histrio* Saussure. *Revue Et. mag. de zoologie.* 318.

1865. *Periplaneta decorata* Brunner von Wattenwyl. *Nouveau Système des Blattaires*: 224.

1871. *Polyzosteria heterospila* Walker, F. Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. Part V. *Supplement to the Catalogue of Blattariae*: 35.

1966. *Neostylopyga rhombifolia* Princis. *Orthopterorum Catalogus* (8):536.

Common name

Harlequin Cockroach

Distribution in India

Tamil Nadu, Maharashtra, Meghalaya, Andaman and Nicobar Islands, Andhra Pradesh, Bihar, Madhya Pradesh, Orissa, Uttar Pradesh, and West Bengal and Himachal Pradesh,

Elsewhere

Circumtropical species

17. *Neostylopyga sexpustulata* (Walker, 1871)

1871. *Polyzosteria sexpustulata* Walker, Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. Part V. *Supplement to the Catalogue of Blattariae*: 36.

1966. *Neostylopyga sexpustulata* Princis. *Orthopterorum Catalogus* (8):537.

Distribution in India

Tamil Nadu: (Coimbatore-Vellaiyangiri hills) Maharashtra, Uttar Pradesh, Bihar, Orissa, Karnataka and Andhra Pradesh

Elsewhere

Java (Indonesia).

Genus *Periplaneta* Burmeister, 1838

18. *Periplaneta americana* (Linnaeus, 1758)

1758. *Blatta americana* Linnaeus, *Systema naturae* 10: 424.

1813. *Blatta siccifolia* Stoll. *Represent. exact. coloreed'apres nature d. Spectres*: 14.

1822. *Blatta heros* Eschscholtz. *Entomographien*; 83.

1868. *Periplaneta stolid* Walker. *Cat. of the Specimens of Blattariae in the Coll. Brit. Museum*: 128.

1901. *Periplaneta americana colorata* Rehn. *Transactions of the American Entomol. Society*: 220.

1966. *Periplaneta americana* Princis. *Orthopterorum Catalogus* (8): 405.

Common name

American Cockroach

Distribution in India

Tamil Nadu (Thiruchirapalli, Coimbatore: Vellaiyangiri hills), Arunachal Pradesh, West Bengal and Sikkim.

Elsewhere

Cosmopolitan species

Remarks

This is a cosmopolitan species and one of the most important domiciliary cockroach pests.

19. *Periplaneta australasiae* (Fabricius, 1775)

1771. *Blatta australasiae* Fabricius, *Syst. ent.*: 271.

1805. *Blatta domingensis* Palisot de Beauvois. *Ins. rec. Afr. et Amer*: 182.

1813. *Blatta aurantiaca* Stoll. *Represent. exact. coloreed'apres nature d. Spectres*: 5.

1842. *Periplaneta zonata* Haan. *Verhand.natuurl. Geschied.* Nederl. overz. Besitt.16: 49.
 1868. *Periplaneta inclusa* Walker, *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Mus.* : 126.
 1868. *Periplaneta repanda* Walker, *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Mus.*: 125.
 1868. *Periplaneta subcincta* Walker, *Cata. of the Spec. of Blattariae in the Coll. of the Brit. Mus.*:126.
 1871. *Periplanetaemittens* Walker, *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. Part V. Supplement to the Catalogue of Blattariae*: 37.
 1871. *Polyzosteriasubornata* Walker, *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. Part V. Supplement to the Catalogue of Blattariae*: 35.

Common name

Australian Cockroach

Distribution in India

Tamil Nadu: (Coimbatore-Vellaiyangiri hills), West Bengal, Maharashtra, Arunachal Pradesh and Sikkim.

Elsewhere

Circumtropical species

Remarks: Domiciliary pest.

Super family Corydioidea Saussure, 1864

IV. Family Corydiidae Saussure, 1864

Subfamily Corydiinae Saussure, 1864

Genus *Therea* Billberg, 1820

20. *Therea petiveriana* (Linnaeus, 1758)

1758. *Cassida petiveriana* Linnaeus, *Systemanaturae*1: 364.

1767. *Cassida septemguttata* Linnaeus. *Systemanaturae* 1(2): 577.

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Common name

Domino Cockroach

Distribution: India

Tamil Nadu (Coimbatore: Vellaiyangiri hills) and Pondicherry.

Elsewhere

None

Remarks

Endemic to India

Table 1: Population Studies Cockroaches collected from study area during the period from 2013 to 2014

S. No.	Name of Species	2013	2014
1.	<i>Calolamprodes (calolamprodes) characterosa</i>	5	3
2.	<i>Opisthoptalia orientalis</i>	6	11
3.	<i>Princisola pulchra</i>	1	2
4.	<i>Rhabdoblatta lineaticollis</i>	7	13
5.	<i>Stictolampra plicata</i>	3	1
6.	<i>Phlebonotus pallens</i>	0	3
7.	<i>Thorax porcellana</i>	9	12
8.	<i>Panesthia birmanica</i>	2	1
9.	<i>Panesthia monstruosa</i>	7	5
10.	<i>Corydidarum sericea</i>	2	5
11.	<i>Pycnoscelus surinamensis</i>	36	29
12.	<i>Blattella germanica</i>	60	57
13.	<i>Blattella humbertiana</i>	2	0
14.	<i>Malaccina pallidula</i>	12	10
15.	<i>Supella longipalpa</i>	34	41
16.	<i>Blatta orientalis</i>	40	35
17.	<i>Neostylopyga rhombifolia</i>	17	9
18.	<i>Neostylopyga sexpustulata</i>	6	8
19.	<i>Periplaneta americana</i>	39	47
20.	<i>Periplaneta australasiae</i>	9	5
21.	<i>Therea petiveriana</i>	62	58
Total		359	355

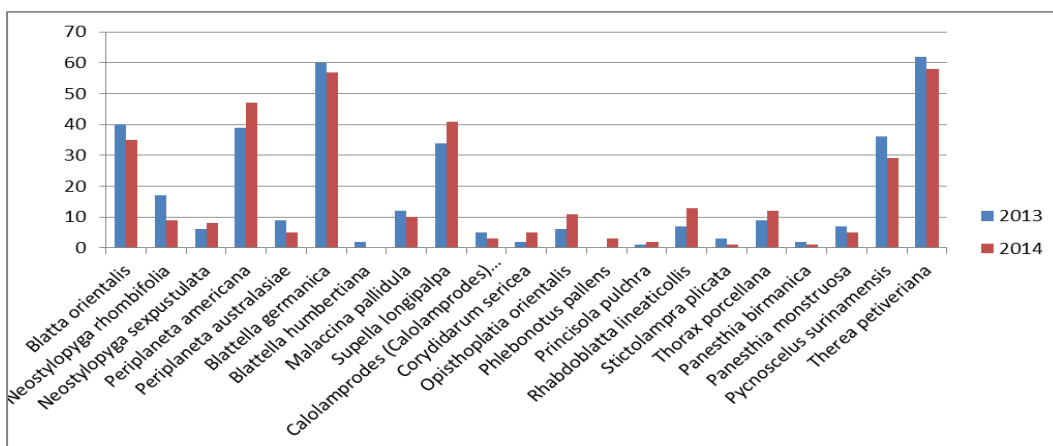


Fig 1: Shows Cockroach population during the period of 2013 and 2014

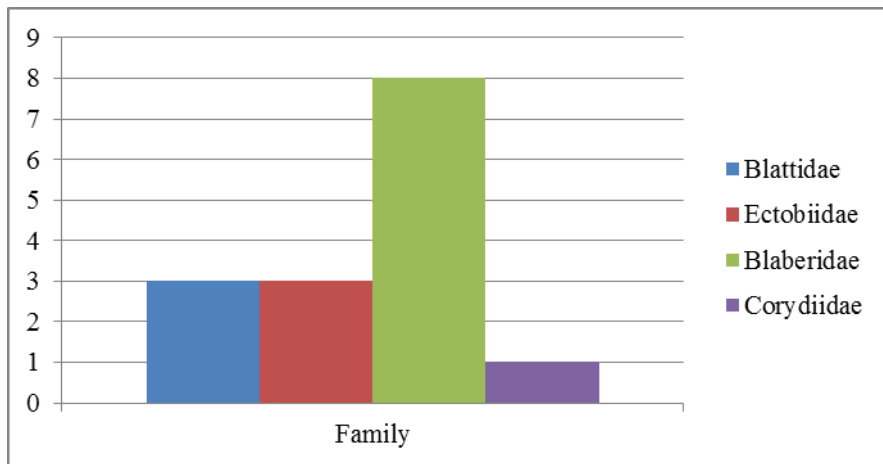


Fig 2: Shows Family level Cockroach population during the period of 2013 and 2014

Table 2: Diversity index of cockroach population during period of 2013 and 2014

Diversity Index	2013	2014
Taxa_S	20	20
Individuals	359	355
Dominance_D	0.1073	0.1059
Simpson_1-D	0.8927	0.8941
Shannon_H	2.478	2.485
Evenness_e^H/S	0.5956	0.6002

Discussion

There is a serious threat for faunal diversity by both natural and manmade causes. The natural causes responsible for the threat to faunal include fluctuations in the abiotic parameters of the environment such as cyclones, long dry spells of weather, earth quakes, landslides, Tsunami, forest fire and biotic parameters such as natural competition between species, biology of species and natural regeneration, disease and spread species etc. A thorough taxonomic study of the cockroaches and of forests is essential to understand and assess the richness of their biodiversity. Since development and conservation should go in hand, existing forests, which deserve to be protected and conserved, should be identified and recommended only after undertaking such detailed studies. Unfortunately the biodiversity rich middle and southern Western Ghats have received scanty attention with regard to cockroach diversity notwithstanding the fact they however several endemic and phylogenetically significant species in related taxa. Conservation and preservation of cockroach diversity is an important social, economic and moral issue and has deep interconnections with all bio-resources. There is an urgent need for intensive inventorying and monitoring of cockroach in different habitats especially in the montane forest of Southern India in order to promote effective conservation of this sensitive taxon as part of a holistic strategy of cockroach conservation.

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