FAUNA OF PROTECTED AREAS - 5

INSECT FAUNA OF SHENDURNY WILDLIFE SANCTUARY, KERALA

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Abstract

Altogether 322 species of insects were collected from the Sanctuary during the two-month survey, of which 301 species could be identified. These included 202 species of butterflies and moths, 49 species of beetles, 25 species of bugs and 12 species of bees and wasps. The butterflies included 73 species of which five were of protected status and three endemic to Western Ghats. The moth fauna was also very rich comprising mostly of arboreal feeding forms indicating a fairly undisturbed forest patch in the area. Among beetles, scavenger beetles showed richness. The passalid beetles found in rotting wood and scarabaeid beetles feeding in dung were the most important groups of scavenger beetles. The herbivorous beetles associated with various plants mostly belonged to the family Chrysomalidae. The bugs collected, include several species of agricultural importance. Among Hymenoptera, six wasp and three bee species could be recorded. In addition to these, six species of dragonflies, 21 unidentified species of flies, three species of grasshoppers and four species of other insects were recorded. An inventory of insects identified from the Sanctuary has been presented.

Keywords

Checklist, Insect fauna, Kerala, Shendurny Wildlife Sanctuary

Introduction

The Shendurny Wildlife Sanctuary (77°4'-77°7'E & 8°48'-8°58'N) is located in the Thenmala Forest Division of Kollam revenue District of Kerala State (Figure 1). It lies on either side of the Shendurny River and is a lush green valley, acclaimed for its biodiversity. The area was proclaimed a Wildlife Sanctuary in 1984 and is the only one in Kollam District. The locality name Shendurny has reference to the presence of the endemic tree species 'Chenkurungi' (*Gluta travancorica*), found abundantly in this area. The Sanctuary has an area of 100km^2, including the Kallada Reservoir, which has an extent of 13.72km^2. About 450ha of area within the notified boundary of the Sanctuary is under private possession. It has a core area of 45km^2 (Vignarajan, 1990). The Sanctuary is made up of hills interspersed with ravines. The height of slopes ranges from 120-1550m. Most of the hills are accessible except for a few which are rugged and steep. The highest peak Alvarakurichi is 1550m tall forming part of the Sahyadri Hills located along the eastern boundary of the Sanctuary. To meet the irrigation requirements of Kollam and Pathanamthitta Districts, a dam was constructed across the Kallada River (Parappar Dam). The resultant lake covering an area of 13.7km^2 together with the surrounding forests comprise the wildlife habitat. The Sanctuary receives an annual rainfall of 3200mm. The temperature varies from 16-35°C.

On to the east is the Courtallam Tourist Resort. This area used to have thick evergreen forest before the advent of Europeans. British planters had ruthlessly cleared the forest for tea and coffee cultivation. Vegetation of the Sanctuary has been classified into west coast tropical evergreen, southern hill top tropical evergreen, west coast semi evergreen and southern moist mixed deciduous forest following Chandrasekaran (1962) and Champion and Seth (1968).

Fauna

A diverse population of wildlife is present in the Sanctuary. Elephant, Gaur, Barking Deer, Tiger, Indian Porcupine, Three-striped Squirrel, Malabar Giant Squirrel, Flying Squirrel and Indian Wild Boar are the most commonly seen mammals. Reptiles such as Cobra, Viper, Python, Rat Snake and Flying Snake are also present. With regard to insects no detailed survey has been made. As per the report under Peoples Campaign for the Ninth Plan entitled "Forest and Biodiversity", only nine species of insects have been reported specifically from this district. In addition to this, some information on certain specific forest pests is also available. These include the bark

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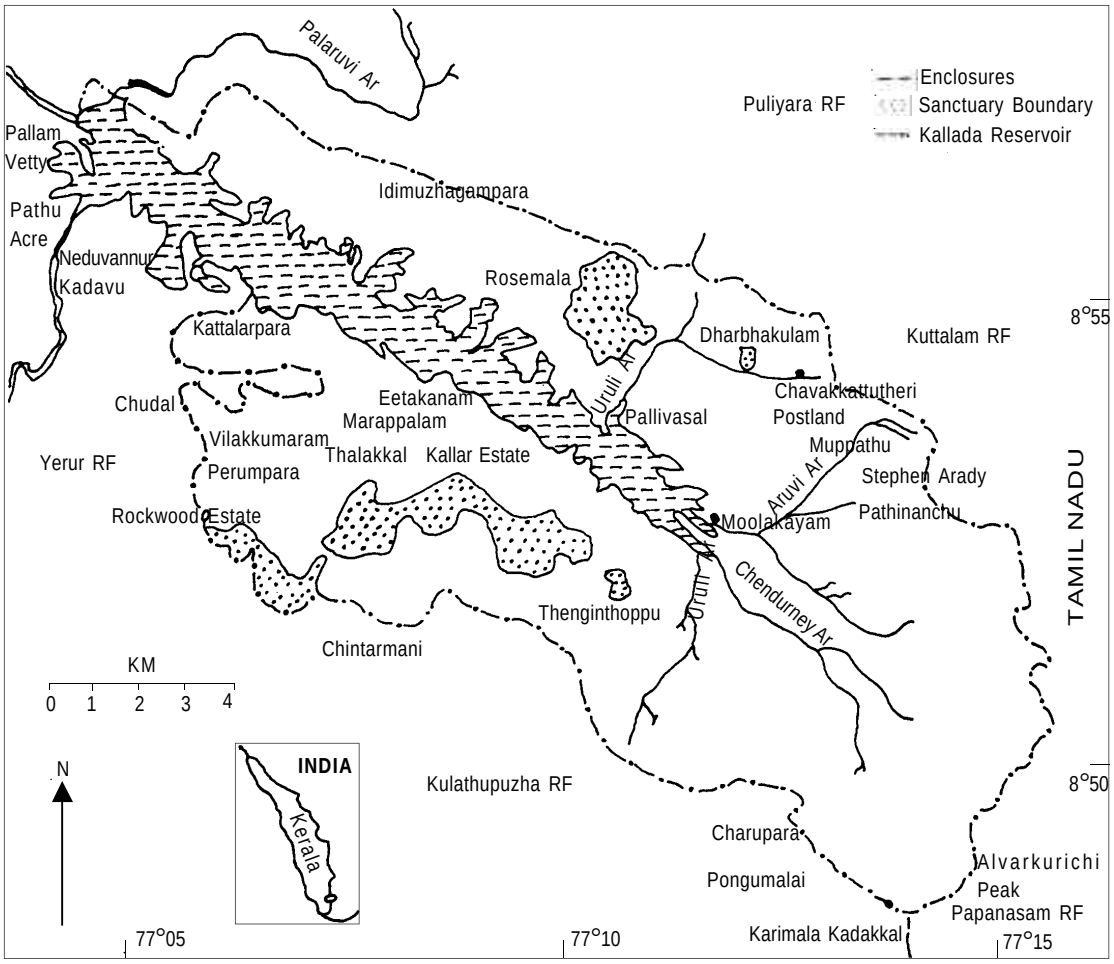

Figure 1. Map of Shendurny Wildlife Sanctuary

caterpillar, *Indarbela quadrinotata* (*Paraserianthes falcataria*), *Albizia* defoliator (*Eurema blanda*) and the *Albizia* bagworm (*Pteroma plagiophleps*).

Materials and Methods

Sampling of insects was done using a battery operated light trap specially fitted with a switching device to facilitate self-operation at specified hours (Mathew & Rahmathulla, 1995). The trap was fitted with solar panels so as to facilitate charging of battery during the day. In addition to trap catches, collections were also made during day times (0800-1300) using hand nets. Collections were made for a period of two weeks in 2000 and the insects collected were sorted out to species and identified by comparison to material available in the KFRI collections.

Results and Discussion

Altogether 322 species of insects were collected from the Sanctuary during the two-week survey of which 301 species could be identified as given in Table 1. These included 202 species of butterflies and moths, 49 species of beetles, 25 species of bugs, 12 species of bees and wasps, six species of dragonflies, 21 unidentified species of flies, three species of grass hoppers and four species of other insects. The butterflies included 73 species comprising of five protected species and three Western Ghats endemics. The protected species included *Papilio budha, Euthalia lubentina, Hypolimnas misippus, Mycalesis anaxias* and *Castalius rosimon.* Some of the butterflies recorded in this area like *Papilio paris tamilana, Cyrestis thyodamas, Kaniska canace, Cupha erymanthis maja, Junonia iphita pulvialis, Cepora nadina* and *Pantoporia ranga* are currently rather rare in distribution. Moths included *Achaea janata* (vegetable pest), *Heliothis obsolete, Mocis frugalis, Parallelia joviana, Prodenia litura, Spodoptera* sp., *Dasychira mendosa,*

Table 1. List of insects recorded from Shendurny Wildlife Sanctuary

Scientific name	Remarks
Lepidoptera: Rhopalocera	
Papilionidae	
Chilasa clytia Lin.	Rare
Graphium sarpedon Felder	Common
G. agamemnon agamemnon Lin.	Common
G. doson doson Felder	Common
Papilio helenus Lin.	Common
P. polymnestor parinda Moore	Common
P. buddha Westwood	Rare, endemic to the Western Ghats. Schedule II
P. dravidarum Wood-Mason	Rare, endemic to the Western Ghats
P.polytes thesus Cramer	Common
P. demoleus demoleus Lin.	Common
P. paris tamilana Moore	Rare
Pachliopta aristolochiae Lin.	Common
P. hector Lin.	Common
Troides minos Cram.	Endemic to Western Ghats
Nymphalidae	
Argynnis hyperbius (Johannsen)	Common
Cupha erymanthis maja Fruhstorfer	Rare
Cyrestis thyodamas Kollar	Not rare
Ariadne merione Cramer	Common
Euthalia lubentina (Cramer)	Rare. Schedule IV
Hypolimnas bolina Lin.	Common
H. misippus Lin.	Common. Schedules I & II
Neptis hylas varmona Moore	Very common
N. perius perinus Fruhstorfer	Rare
Pantoporia ranga (Moore)	Rare
Phalanta phalantha Drury	Common
Junonia atlites Lin.	Common
J. hierta Fb.	Very common
J. iphita pluvialis Fruhstorfer	Rare
J. lemonias vaisya Fruhstorfer	Common
Kaniska canace Moore	Not rare
Danaidae	
Danaus genutia genutia Cramer	Common
D. chrysippus (Lin.)	Common
Euploea core core Cramer	Very common
Parantica aglea Stoll	Fairly common
Tirumala limniace leopardus Butler	Common
T.septentrionis dravidarum Fruhstorfer	Rare
Pieridae	
Delias eucharis Drury	Common
Appias indra Moore	Rare
A. lyncida (Cramer)	Not rare
Catopsilia florella (Fb.)	Fairly common
C. pomona Fb.	Very common
C. pyranthe (Lin.)	Very common
Cepora nadina Moore	Rare
Cepora nerissa Fb.	Fairly common
Eurema blanda Boisd.	Common
E.brigitta Stoll	Common
E. hecabe Lin.	Common
Ixias marianne (Cramer)	Common
I. pyrene Lin.	Common
Leptosia nina Fb.	Common
Satyridae	
Elymnias caudata Butler	Common
Melanitis leda Lin.	Very common
Mycalesis anaxias Hewitson	Not rare, Schedule II
M. patnia Moore	Common
Lethe rohria Frushstorfer	Common
Ypthima ceylonica Hewitson	Fairly common
Ypthima sp.	Fairly common
Hesperidae	
Badamia exclamationis Fb.	Fairly common
Celaenorrhinus leucocera (Kollar)	Common
Potanthus pava pava Fruhstorfer	-
Pelopidas mathias Fb.	Fairly common
Tagiades litigiosa Moschler	Fairly common
Taractrocera ceramas (Hewitson)	Rare
Telicota acigias Lin.	Fairly common
Lycaenidae	
Arhopala centaurus Moore	Common
Castalius rosimon (Fb.)	Rare Schedule II
Cheritra freja (Fb.)	Rare,
Euchrysops cnejus (Fb.)	Common
Jamides alecto (Felder)	Rare
Loxura atymnus Cramer	Fairly common
Talicada nyseus (Guerin.)	Fairly common
Riodinidae	
Abisara echerius Stoll	Common
Acraeidae	
Acraea violae (Fb.)	-
Heterocera	
Noctuidae	
Achaea janata Fb.	Pest of vegetables
Anomis figlina Butler	-
A. flava (Fb.)	-
Carea endophaea Hamp.	Pest of *Syzygium*
C. subtilis Walker	Pest of *Syzygium*
Chasmina rejecta Fb.	-
Condica illecta Walker	-
Ericeia inangulata Guen.	-
Heliothis obsoleta	Crop pest
Heliothis sp.	Crop pest
Hyblaea puera Cram.	Teak skeletonizer
Ischyja sp.	-
Laphygma exigua Hb.	-
Lophoptera sp.	-
Mocis frugalis Fb.	Crop pest

Scientific name	Remarks
Mythimna curvilinea Hamp.	-
M. vittata Hamp.	-
Nycteola grisea Hamp.	-
Nyctipao macrops Lin.	-
Olethreutes paragramma Meyrick	-
Ophideres materna Lin.	Fruit moth
O. fullonica Lin.	Fruit moth
Othreis ancilla Cram.	Fruit moth
Ozarba sp.	-
Parallelia joviana Stoll.	Crop pest
P. crameri Moore	-
Polytela gloriosae Fb.	Pest of Lilly
Prodenia litura Fb.	Crop pest
Spiredonia retorta Cram.	-
Spodoptera litura (Fb.)	Crop pest
S. mauritia Boisduval	Crop pest
Tiracola plagiata Walker	-
Lymantriidae	
Dasychira mendosa Hb.	Crop pest
D. cerigoides Walker	Crop pest
Euproctis fraterna Moore	Crop pest
E. bipunctapex Hamp.	-
Orgyia sp.	-
Redoa sp.	-
Eupterotidae	
Eupterote flavida Moore	-
Arctiidae	
Amata extensa Walker	-
Argina syringa Cram.	-
A. argus Koll.	-
A. astrea Drury	Pest of legumes
A. cribraria Clerck	Pest of legumes
Argina sp.	Pest of legumes
Asura conferta Walker	Pest of mosses
Asura sp.	-
Chionaema peregrina Walker	-
Creatonotus gangis Lin.	Pest of Lily
Diacrisia obliqua Walker	Polyphagous pest
Eilema tetragona Walker	-
E. tumida Walker	-
Eligma narcissus Cram.	Pest of *Ailanthus triphysa*
Estigmene perotetti	Pest of Bamboo
Hypsa alciphron Cram.	Pest of Ficus
Pericallia ricini Fb.	Pest of Castor
Yponomeutidae	
Atteva fabriciella Swed.	Pest of *Ailanthus*
Geometridae	
?Catoria sp.	Feeds of foliage of forest trees
Abraxas sp. nr. *latizonata* Hamp.	Feeds of foliage of forest trees
Abraxas sp. of *poliaria* Swinhoe	Feeds of foliage of forest trees
Buzura? suppressaria Walker	Feeds of foliage of forest trees
Cleora sp. prob. *alienaria* Walker	Feeds of foliage of forest trees

Scientific name	Remarks
Epiplema quadricaudata Walker	Pest of *Haldina cordifolia*
E.fulvilinea Hamp.	Pest of forest trees
Eumelea rosalia Cram.	-
Eumelea sp.	-
Heterostegane sp.	-
Hypochrosis sp.? *abstractaria* Walker	-
Hypomecis pallida Hamp.	-
Hypomecis sp.	-
Hyposidra talaca Walker	Feeds of foliage of forest trees
Lomographa sp. ? *simpliciaria* Walker	-
Scopula sp.	-
Semiothisa quadraria Moore	Feeds of foliage of forest trees
Thalassodes sp.	-
Pyralidae	
Acrobasis olivalis Hamp.	-
Agathodes ostentalis Hubn.	Crop pest
Agrotera basinotata Hamp.	Crop pest
Antigastra catalunalis Swinh.	Pest of Gingelli
Botyodes asialis Guen.	-
Bocchoris inspersalis Zell.	-
Bradina admixtalis Walker	Pest of Graminae
Charltona consociella Walker	Pets of Graminae
Cirrhochrista fumipalpis Feld.	-
Cnaphalocrocis medinalis Guen.	Pest of rice / graminaceous plants
Conogethes suralis Guen.	-
Dichocrocis sp.	Borer in castor
Endotricha sp.	-
Etiella zinckenella Treit.	Pod borer
Eutectona macheralis Walker	Teak skeletonizer
Eurrhyparodes tricoloralis Zell.	-
Filodes fulvidorsalis Hubn.	-
Galleria mellonella Lin.	Pest of bees
Glyphodes celsalis Walker	Pest of forest trees
G. bicolor Swains.	Pest of forest trees
G. laticostalis Guen.	Pest of forest trees
G. vertumnalis Guen.	Pest of Jack
G. glauculalis Guen.	-
G. indica Saund.	Pest of Cucumber
G. itysalis Walker	-
G. marginata Hamp.	Pest of forest trees
Isocentris filalis Guen.	-
Lamprosema sp.	Pest of pulses
Lepyrodes geometralis Guen.	-
Lygropia. orbinusalis Walker	-
Marasmia trapezalis Guen.	Pest of grasses
Nacoleia diemenalis Guen.	Pest of pulses
Nephopteryx atrisquamella Hamp.	-
Nymphula crisonalis Walker	Pest of Graminae
N. fluctuosalis Zell.	Pest of Graminae
N. foedalis Guen.	Pest of Graminae
Protrigonia zizanialis Swinh.	-
Psara bipunctalis Fb.	Pest of pulses
Pycnarmon caberalis Guen.	Pest of *Coleus*
Pygospila tyres Cram.	-
Sylepta sp.	-
Syngamia abruptalis Walker	Pest of *Ocimum*

Scientific name	Remarks
S. latimarginalis Walker	-
Syngamia sp.	-
Terastia egialealis Walker	Pest of *Erythrina*
Vitessa suradeva Moore	-
Tineidae	
Setomorpha rutella Zell.	Borer in animal bones, horns, etc.
Notodontidae	
Phalera procera Feld.	-
Sphingidae	
Acherontia lachesis Fb.	Crop pest
Acherontia sp.	Crop pest
Herse convolvuli Lin.	Crop pest
Theretra sp.	Crop pest
Saturnidae	
Attacus atlas Lin.	-
Loepa sikkima Moore	-
Coleoptera	
Cicindelidae	
Cicindela sexpunctata Fb.	Predatory on other insects
Neocollyris sp.	Predatory on other insects
Lucanidae	
Odontolabis cuvera Hope	-
Odontolabis sp.	-
Anthribidae	
Baryrrhynchus planicollis Walker	-
Passalidae	
Pleurarina brachyphyllus Stal.	-
Carabidae	
Chlaenius tenuelimbatus Ball.	-
Omphra sp.	-
Coccinellidae	
Coccinella septempunctata Lin.	-
Epilachna septima Dieke	-
E. vigintioctopunctata Fb.	-
Scarabaeidae	
Anomala ruficapilla Burmeister	Adult feeds on foliage
Anomala sp.	Adult feeds on foliage
Copris sp.	Feeds in dung
Gymnopleurus sinuatus (Olivier)	Feeds in dung
Heliocopris dominus Bates	Feeds in dung
Heterorrhina sp.	Feeds in dung
Holotrichia rufoflava Brenske	Larva feeds on roots
H. fessa Brenske	Larva feeds on roots
H. serrata Fb.	Larva feeds on roots
Maladera sp.	Adult feeds on foliage
Mimela sp.	Adult feeds on foliage
Popillia complanata Newm.	Adult feeds on foliage
Buprestidae	Adult feeds on foliage
Chrysochroa sp.	Larva feeds inside woody stem
Sphenoptera cyaniceps Kerr.	Larva feeds inside woody stem
Cerambycidae	
Aeolesthes holocericea Fb.	Wood boring
Acalolepta rusticatrix Fb.	Borer in *Gmelina*
Acanthophorus serraticornis Oliv.	Polyphagous borer
Batocera sp.	Polyphagous borer
Cerosterna scabrator (Fb.)	Polyphagous borer
Nupserha madurensis Pic.	Polyphagous borer
N. malabarensis Pic.	Polyphagous borer
Prionomma atratum Gmelin.	Polyphagous borer
Plocaederus obesus	Polyphagous borer
Xystrocera globosa Oliv.	*Albizia* borer
Chrysomelidae	
Aulacophora cincta (Fb.)	Feeds on foliage
Aulacophora unicolor Illig.	Feeds on foliage
Basilepta fulvicornis Jac.	Feeds on foliage
Hoplasoma unicolor Illig.	Feeds on foliage
Monolepta longitarsis Jac.	Feeds on foliage
Sagra femorata Drury	Borer in stem of *Erythrina*
Curculionidae	
Sternochaetus mangiferae Fb.	Borer in *Gluta travencorica, Mangifera* sp. etc.
Myllocerus viridanus Fb.	Polyphagous pest
M.dorsatus Fb.	Polyphagous pest
Dynastidae	
Oryctes rhinoceros Lin.	Pest of palms
Lampyridae	
Epicauta sp.	Fire fly
Lissomus sp.	Fire fly
Tenebrionidae	
Amarygmus purpureofossus Fairm.	Ground beetle
Lyprops curticollis Fairm.	Mooply beetle
Hemiptera	
Eurybrachidae	
Eurybrachis sp.	Plant bug
Ricaniidae	
Ricania sp.	Plant bug
Flattidae	
Flata ? ocellata Fb.	Plant bug
Dictyopharidae	
Dictyopharina ?viridissima Melicher	Borer in graminae

Scientific name	Remarks
Cercopidae	
Cosmocarta relata Dist.	Spittle bug
Cosmocarta sp.	Spittle bug
Eoscorta sp.	Spittle bug
Lygaeidae	
Dindymus lanius Stal.	-
D. sanguineus	-
Macropes sp.	-
Melamphaus fulvomarginalis	-
Odontopus nigricornis	-
Fulgoridae	
Kalidasa lanata Drury	-
Melicharia sp.	-
Pochazia fuscata Fb.	-
Cicadellidae	
Bothrogonia ferruginea Fb.	-
Krishna strigicollis Spinola	-
Tettigoniella indistincta Walker	-
Pentatomidae	
Nezara viridis Lin.	Ear-head bug of paddy
Plautia fimbriata Fb.	-
Tipulparra trivandera producta Ghauri	-
Placosternum taurus (Fb.)	-
Dysdercus cingulatus Fb.	Cotton bug
Notobitus sp.	-
Serinatha augur Fb.	-
Hymenoptera	
Apidae	
Apis dorsata Fb.	Honey bee
A.indica Fb.	Honey bee
Xylocopidae	
Xylocopa verticalis Lepel.	Carpenter bee
Eumenidae	
Eumenes conica Fb.	Mud wasp
Scoliidae	
Megascolia sp.	-
Pompilidae	
Salius aureosericeus Guer.	-
Sphecidae	
Ammophila laevigata Smith.	-
Chalybion bengalense Dahl.	-
Sceliphron javanum Lepel.	-
Sphex argentatus	-
Chrysididae	
Stilbum cyanurum Forster	Cuckoo wasp
Vespidae	
Vespa sp.nr.*cincta Fb.*	-
Odonata	
Orthetrum pruinesum neglectum (Ramb.)	-
Macromia sp.	-
Nemothemis fulvia Drury	-
N. intermedia (Ramb.)	-
Trithemis aurora (Burm.)	-
T.festiva (Ramb.)	-
Diptera	
Muscidae- 10 spp.	
Tabanidae- 2 spp.	
Syrphidae- 2 spp.	
Culicidae- 5 spp.	
Orthoptera	
Acrididae	
Catantops henryi Bol.	-
Catantops sp.	-
Onomarchus sp.	-
Dictyoptera	
Blattidae	
Placoblatta asymmetrica Bey-Bienko	-
Rhabdoblatta sp.	-
Mantidae	
Deroplatys desicata West	-
Humbertiella indica Sauss.	-

- Habits not known

D.cerigoides, Euproctis fraterna, Agathodes ostentalis, Agrotera basinotata (pests of several agricultural crops); *Bradina admixtalis, Charltona consociella, Nymphula crisonalis, N. fluctuosalis and N. foedalis* (pests of graminaceous plants) besides *Setomorpha rutella* which is a scavenger, deteriorating dead organic matter including buffalo horns and skeletons. The moth fauna had a good representation of arboreal feeding forms like *Carea endophaea* (pest of *Syzygium*), *Hyblaea puera* (teak defoliator), *Abraxes* sp., *Cleora* spp., *Epiplema quadricaudata, Semiothisa quadraria, Hyposidra talaca, Eligma narcissus, Glyphodes caesalis, G. celsalis* and *G. bicolor* (pests of several tree species) indicating a fairly undisturbed forest patch in the area. The host records of several species could not be determined except for a few

species which are already reported as pests of agricultural or forest plants. Some of the moths recorded in this study were very colourful and special mention may be made of the Atlas Moth *Attacus atlas*, which is the largest moth in addition to the beautiful saturnid *Loepa sikkima*.

Among beetles, the scavenger beetles showed richness. About a dozen species could be identified which included *Anomala ruficapilla, Copris* sp., *Gymnopleurus sinuatus, Heliocopris dominus, Holotrichia fessa* and *H. rufoflava*. *Mimela* sp., *Popillia complanata* and *Maladera* sp. recorded in this study are phytophagous causing injury to foliage of forest plants. The passalid beetle *Pleurarina brachyphyllus*, which is found in rotting wood is ecologically important as indicator of stand quality being found only in relatively undisturbed evergreen forest patches. These insects are important in the conversion of dead organic matter and have important roles in nutrient cycling. The buprestids *Chrysochroa* sp. and *Sphenoptera cyaniceps* as well as the cerambycids *Xystrocera globosa, Cerosterna scabrator, Acalolepta rusticatrix* and *Aeolesthes holoceriacea* are borers in woody stems sometimes causing mortality of trees. The chrysomalids *Aulacophora cincta, A. unicolor, Monolepta longitarsis* and *Basilepta fulvicornis* as well as the curculionids *Myllocerus viridanus* and *M. dorsatus* were some herbivorous beetles collected in this study. These insects were mostly associated with the herbaceous flora.

Among bugs, several families such as Eurybrachidae, Ricanidae, Flattidae, Dictyopharidae, Cercopidae, Cicadellidae, Fulgoridae, Lygaeidae and Pentatomidae were represented. Most species collected were already known as crop pests. These included the Paddy Ear-head Bug *Nezara viridis* and the Cotton Bug *Dysdercus cingulatus*. The hymenopterans included two species of honeybees *Apis dorsata* and *Apis indica* and six species of wasps, which included *Ammophila laevigata, Chalybion bengalense, Sceliphron javanum* and *Eumenes conica*. Odonates were found in plenty and six species could be identified. This included *Orthetrun pruinesum neglectum, Nemothemis fulvia* and *Trithemis aurora*. With regard to the dipteran flies, although 26 species could be collected, none have been identified. Several species of grasshoppers, preying mantids and roaches were also collected.

Future course of action

The insect fauna was found to be extremely rich comprising of several endemic and protected species. The study was carried out only for a short period of two months and hence we were not able to cover the area exhaustively. Inventorying is the first step in conservation. The list of insects presented here is a preliminary one. Considering the rich faunal diversity of the area, a more comprehensive study is required to take stock of the entire biodiversity present in this area.

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