

Mahausakande Tropical Rainforest Regeneration Initiative

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SPECIES RICHNESS AND DIVERSITY OF SOME INVERTEBRATE AND VERTEBRATE FAUNAL GROUPS IN MAHAUSAKANDE REGENERATING RAINFOREST IN SRI LANKA

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EXECUTIVE SUMMARY

A survey on selected faunal groups in the Mahausakande regenerating tropical rainforest (MRF) in Kiriella was carried out using rapid assessment techniques. The survey was intended to document the species richness of selected vertebrate and invertebrate fauna, and evaluate their temporal changes over the past five years in relation to forest regeneration. A total of 117 vertebrates and 123 invertebrates were recorded MRF, including 50 endemic species. Among the faunal species recorded, 15 are listed as nationally threatened. The invertebrate fauna recorded in MRF included Odonates (32 species - 8 endemic), Butterflies (75 species - 5 endemic and 5 threatened), Freshwater crabs (3 species – all endemic), Land snails (11 species – all endemic), Theraphosid spiders (2 species, both endemic). The vertebrates included Mammals (20 species - 4 endemic and 5 threatened), Birds (89 species - 11 endemic and 2 threatened), and Freshwater fish (8 species - 5 endemic and 1 threatened). The observations of the present survey indicate that the species richness of fauna in MRF has increased over the past five years. The vertebrate fauna shows a 25% increase in species richness, while the butterflies exhibit a 50% increase over the past five years.

Key Words: Species Richness, Vertebrates, Invertebrates, Endemic species

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1. INTRODUCTION

1.1 Faunal Diversity in Sri Lanka

Sri Lanka harbours a rich diversity of vertebrate and invertebrate fauna. Among the vertebrates are 490 species of birds (33 endemic)¹; 88 freshwater fish species (44 endemic)²⁻⁵; and 93 species of mammals (19 endemic)⁶⁻⁸. The invertebrate fauna documented to date includes 51 freshwater crab species (50 endemic)⁹; 244 species of butterflies (20 endemic)¹⁰; seven species of mygalomorph spiders (5 endemic)¹¹; 247 species of land snails (205 endemic)¹²; and 122 species of damselflies and dragonflies (59 endemics).¹³ A majority of the endemic fauna are restricted to the wet zone, including the central highlands.

1.2 The Study Area

The Mahausakande regenerating tropical rainforest (MRF) is situated in Kiriella (6°76' 68.9" N and 80°25' 38.4" E) of Ratnapura district (Sabaragamuwa Province) of Sri Lanka. The site consists of approximately 40 acres spread across a hilly terrain, 190-320 m a.s.l. The Bambarakande Forest Reserve is located in the vicinity of the MRF site at a higher altitude (280-700 m a.s.l.), and most of the peripheral lands are used for tea plantations, rubber plantations and semi wild tree dominated home gardens. The MRF site was managed as a rubber plantation till year 2002, which was subsequently abandoned. A forest restoration programme was initiated by the Ellawala Foundation Trust (EFT) to convert the site into a tropical rainforest ecosystem through assisted forest regeneration activities. At present, the main forest community is composed of rubber trees mixed with pioneers and primary forest species typical of lowland wet zone rainforest areas. The area receives an annual rainfall of over 4000 mm, and the mean temperature is around 31 °C. Over 6000 saplings of rainforest plants have been introduced to the site over the past decade. Two major streams flow across the MRF site, and this mosaic habitat is a paradise for rainforest associate faunal groups. The habitat types of the site consists of abandoned rubber, agricultural land, regenerating forest, secondary forest, rock-outcrop, riparian forest, manmade ponds and home garden. Preliminary investigations carried out at the MRF from 2004-2010 has documented 53 species of butterflies, 4 species of freshwater fish, 11 amphibian species, 21 reptiles species, 60 bird species, and 14 mammal species.

1.3 Rationale

The Mahausakande tropical rainforest restoration initiative provides a unique opportunity to study the temporal changes in biodiversity associated with tropical forest regeneration. Therefore, a systematic study was undertaken to document the diversity and richness of selected groups of vertebrate (birds, freshwater fishes, mammals) and invertebrate fauna (freshwater crabs, tarantulas, butterflies, land snails, dragonflies and damselflies) associated with the different habitat types of MRF.

1.4 Research Hypothesis

The main hypothesis investigated through the present research was that the forest regeneration in MRF has resulted in an increase in the species richness of fauna.

1.5 Objectives

The present survey intended to fulfill the following specific objectives related to selected faunal groups in MRF:

1. Update the knowledge base on the occurrence of birds, freshwater fishes, mammals, freshwater crabs, tarantulas, butterflies, land snails, dragonflies and damselflies.
2. Determine the distribution pattern and habitat relationships of selected fauna.

2. METHODOLOGY

The biodiversity surveys of MFR were conducted during the month of April 2012. All faunal groups selected were primarily surveyed using the Visual Encounter Survey (VES) method conducted at day and night with the aid of headlamps and flash lights. The specific sampling methods used to document different species of vertebrates and invertebrates are summarized in Table 2.1. The species were identified using relevant field guides and taxonomic keys (see Table 2.2). The threatened species were based on the most recent national Red List (IUCN-SL & MENR-SL, 2007).

Table 2.1: Survey methods

Group	Methodology
Freshwater Fish	Qualitative Surveys in Streams, Ponds to document species present. Hand/cast nets were used to capture species for identification, and released back into water body.
Birds	Quantitative surveys through transect walks: 15 minute records from 7:00AM to 10:00AM and 4:00PM to 6:00PM, repeated over 3 days (the transect walk should cover 2 transects during each morning and evening, E-W and N-S); the birds on 25m either side of transect were recorded by direct observation and/or calls.
Mammals	Diurnal and nocturnal visual encounter surveys along transect walks covering representative habitats (qualitative); used nine traps to capture small mammals and mist nets for bats – captured mammals were released after identification. Also used indirect observations to document species (tracks, scat etc.).
Butterflies	Quantitative surveys through transect walks: 15 minute records from 8:00AM to 12:00AM noon, repeated for 2 days. A sweep net was used to capture species only for identification purposes.
Odonates	Qualitative records (near streams and ponds): Species were captured using a sweep net for identification.
Land snails	Quadrant surveys (Quantitative): three 5x5m quadrates in each habitat (managed rubber plot; abandoned rubber plot, secondary forest, regenerating forest; riparian forest along stream, home garden around bungalow; rock-outcrop forest), identified live species and counted individuals
Freshwater crabs	Diurnal qualitative surveys along streams, and in ponds
Theraphosid spiders	Nocturnal qualitative surveys in ground/arboreal (tree hole/crevice) habitats

Table 2.2: Resources for identification and nomenclature of fauna

Taxonomic Group	Guide/s
Freshwater Fish	Pethiyagoda (1991); Goonatilake (2007)
Birds	Warakagoda et al (2012); Rasmussen & Anderton (2005)
Mammals	DeSilva Wijeyaratne (2008); Phillips (1980); Weerakoon & Goonatilake (2006)
Butterflies	D’Abrera (1998); Gamage (2007)
Dragon Flies	De Fonseka (2000); Bedjanic et al. (2007)
Land Snails	Naggs and Raheem (2002); Raheem and Naggs (2004)
Freshwater Crabs	Bahir (2008)
Theraphosid spiders	Samarawickrama et al. (2009)

Plate 1: Placement of traps to capture small mammals for identification



3. RESULTS AND DISCUSSION

A total of approximately 500 man hours were spent in the field to document the selected groups of fauna in MRF. The sampling effort included 21 litter cleaning and loose soil digging plots for land snails, 27 trap cages for mammals, over 100 sweep netting for butterflies, over 150 sweep netting for odonates, about 50 hand netting and mesh netting for freshwater fish, at least 80 sites searched for freshwater crabs, and 72 visual encounter surveys conducted during day and night time at MRF. Among the different sampling methods adopted, the VES conducted during day and diurnal time enabled to document the highest number of species and individuals of most faunal groups in different habitats types of MRF. Most of the mygalomorph spiders, freshwater crabs, mammals and few species of birds were observed during nocturnal surveys. Most of the birds, butterflies and dragonflies were recorded during the morning hours than evening hours (7.00 am to 10.00 am). But small mammals were recorded at midnight (1.00am to 3.00 am). More than half of dragonflies were observed in shaded areas of the MRF.

The main findings related to the fauna surveyed in MRF are elaborated below, while the checklists of species recorded from MRF are provided in Appendix I.

3.1 Species richness and relative abundance of selected vertebrate fauna

The survey enabled to document eight species of freshwater fish (5 endemic), 89 species of birds (11 endemic) and 21 species of mammals (5 endemic). As highlighted in Table 1, the survey shows an increase in species richness among the vertebrate fauna in MRF over the past five years, and this supports the hypothesis of this study. The birds included 10 species of winter migrants as well. Among the vertebrates recorded, one fish, five mammals, and two bird species are considered as nationally threatened.

Among the freshwater fish species recorded in aquatic habitats, the Striped Rasbora (*Rasbora dandia*) was the most common species in MRF, followed by the Filamented Barb (*Puntius singhala*) (see Appendix IIA). The most commonly encountered birds species in MRF included Alexandrine Parakeet (*Psittacula eupatria*), Red-vented Bulbul (*Pycnonotus cafer*), and the Black Bulbul (*Hypsipetes leucocephalus*) (see Appendix IIC). The mammals in MRF were dominated by the Common Palm Squirrel (*Funambulus palmarum*) (see Appendix IIB).

3.2 Species richness and relative abundance of selected invertebrate fauna

The selected invertebrate recorded in MRF included 77 species of butterflies (5 endemic), 32 species of odonates (8 endemic), 11 land snail species (all endemic), three freshwater crab species (all endemic), and two mygalomorph ('tarantula') spiders (both endemic to Sri Lanka). As highlighted in Table 1, the present survey shows a 50% increase in the species richness of butterflies in MRF over the past five years, which is another fact that supports the survey hypothesis. The other four invertebrate groups have been surveyed for the first time in MRF since the initiation of forest restoration work there. Among the invertebrates recorded in MRF, five species of butterflies, and one land snail are considered as nationally threatened.

The butterflies in MRF were dominated by the White Four Ring (*Ypthima ceylonica*) (see Appendix IID), followed by the Common Cerulean (*Jamides celeno*) and Common Crow (*Euploea core*). The most commonly encountered odonate was Dark Forest Damsel (*Platysticta cf. apicalis*) followed by Brinck's Shadow Damsel (*Drepanosticta brincki*) (see Appendix IIE). The land snails in MRF were dominated by *Cyclophorus menkeanus* (see Appendix IIF).

Table 1: Statistics of faunal species recorded from Mahausakande regenerating rainforest

Group	Total Native Species in Sri Lanka	Fauna Recorded in Mahausakande	
		April 2007	April 2012
Freshwater fish	88 (44E)	06 (2E)	08 (5E)
Amphibians	111+(93E)	11 (7E)	22 (15E)
Inland Reptiles	186 (125E)	33 (6E)	45 (26E)
Birds	226 (33E)	78 (11E); 6WV	89 (11E);10WV
Mammals	93 (19E)	20 (4E)	21 (5E)
Total Vertebrates	701 (312E)	148 (30E)	185 (62E)
Butterflies	243 (20E)	50 (2E)	77 (5E)
Odonates	122 (59E)	NS	32 (8E)
Land Snails	247 (205E)	NS	11 (11E)
Freshwater Crabs	51 (50E)	NS	3 (3E)
Theraphosid Spiders	7 (5E)	NS	2 (2E)

Note: E – Endemic; WV – Winter Visitor; NS – Not Surveyed

3.3 Habitat affinities of some fauna in MRF

Earlier studies conducted in MRF had documented several species of freshwater fish inhabiting the two streams “Heen dola” and “Themkapu dola” flowing through MRF. These included *Garra ceylonensis*, *Puntius dorsalis*, *P. pleurotaenia*, *Devario malabaricus*, *Rasbora dandia*, *Heteropneustes fossilis*, *Clarias brachysoma*, *Schistura notostigma* and *Channa orientalis*. However, only *S. notostigma* and *C. orientalis* were recorded in these two streams during the present study, although suitable habitat for species such as *G. ceylonensis*, *D. malabaricus* and *R. dandia* prevail in these streams. Interestingly, several species of freshwater fish (*P. kelumi*, *P. singhala*, *S. notostigma*, *R. dandia*, *D. malabariucs*, *G. ceylonensis*, *A. day*) were recorded in these streams outside the boundary of MRF. The Sudu olu vila (Nelum pokuna) pond harboured the highest number of freshwater fish species in MRF, including *P. singhala*, *P. cumingii*, *A. dayi*, *R. dandia*, *P. vittatus* and *Trichogaster trichopterus*. This shady deep pond with organic debris, muddy bottom and submerged roots provide suitable habitat that is conducive for breeding of the freshwater fishes recorded.

The species richness of small mammals was higher in rock-outcrop forest (ROF) and buildings (BUD). Few caves and rock crevices in MRF are important as a roosting and resting site for insectivorous bats.

According to odonate data in MRF, their species richness and abundance was much higher in home garden habitats around the bungalow (HGB) and riparian forest along stream (RFS), while they were low in regenerating forest (REF) and rock-outcrop forest (ROF).

Among the land snails, the families Corillidae and Cyclophoridae seems to prefer riparian forest habitats along streams, as highlighted by the data gathered during this survey. They prefer to inhabit the ground surface with the leaf litter of *Artocarpus nobilis* (Wal del tree)s. The family Acavidae chooses trees with loose outer bark for hiding day time. *Ratnadvipia irradians* was found in trees. The critically endangered *Tortulosa decora* was recorded only in a single site which is close to Nana-dola. The two species *Cryptozona chenui* and *Cyclophorus menkeanus* were found in almost all habitat types, and they live in groups.

PHOTO LOG

Invertebrate Fauna of Mahausakande Regenerating Tropical Rainforest



Photo 1: The Commander.



Photo 2: Common Pierrot



Photo 3: Sri Lanka Sabre Tail



Photo 4: Indigo Drowwing



Photo 5: *Cryptozonia chenui*



Photo 6: *Cyclophorus menkeanus*

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Appendix I

Checklists of Fauna of MRF

(A) List of Freshwater fishes observed in MRF

(Abbreviations: E = Endemic; IN = Introduced; VU = Vulnerable).

Family	Species name	Common name	Sinhala name
Aplocheilidae	<i>Aplocheilus dayi</i> ^E	Day's Killifish	Uda Handeya
Belontiidae	<i>Trichogaster trichopterus</i> ^{IN}	Three spot Gourami	Gourami
Channidae	<i>Channa orientalis</i> ^E	Smooth breasted Snakehead	Kola Kanaya
Cyprinidae	<i>Puntius cumingii</i> ^{E,VU}	Cuming's Barb	Depulliya
	<i>Puntius singhala</i> ^E	Filamented Barb	Dankola Pethiya
	<i>Puntius vittatus</i>	Silver Barb	Bandi Tittaya
	<i>Rasbora dandia</i>	Striped Rasbora	Iri Dandiya
Balitoridae	<i>Schistura notostigma</i> ^E	Banded mountain Loach	Puwak Badilla

(B) List of Mammals Observed in MRF

(Abbreviations: E = Endemic; EN = Endangered; VU = Vulnerable).

Family	Species name	Common name	Sinhala name
Manidae	<i>Manis crassicaudata</i>	Pangolin	Kabellewa
Pteropodidae	<i>Pteropus giganteus</i>	Flying Fox	Ma Vavula
Mustelidae	<i>Lutra lutra</i> ^{VU}	Otter	Diya Balla
Viverridae	<i>Paradoxurus aureus</i> ^E	Golden wetzone palm Civet	Sri Lanka Ran Kalawedda
Tragulidae	<i>Moschiola kathygre</i> ^E	Mouse Deer	Meminna
Leporidae	<i>Lepus nigricollis</i>	Black-naped Hare	Wal Hawa
Megadermatidae	<i>Megaderma lyra</i>	False vampire Bat	Boru ley Vavula
Rhinolophidae	<i>Rhinolophus beddomei</i> ^{EN}	Great horse-shoe Bat	Maha ashwaladan Vavula
Vespertilionidae	<i>Pipistrellus tenuis</i>	Pigmy Pipistrel	Heen koseta Vavula
Cercopithecidae	<i>Semnopithecus vetulus</i> ^{E,VU}	Purple-faced leaf Monkey	Sri Lanka kalu Wandura
	<i>Macaca sinica</i> ^E	Sri Lanka toque monkey	Sri Lanka Rilawa
Suidae	<i>Sus scrofa</i>	Wild Boar	Wal Ura
Hystricidae	<i>Hystrix indica</i>	Porcupine	Ittewa
Muridae	<i>Mus mayori</i> ^{E,VU}	Sri Lanka spiny Rat	Depahe-katu heen Miya
	<i>Rattus rattus</i>	Common Rat	Podu ge Miya
	<i>Bandicota bengalensis</i>	Mole Rat	Heen uru Miya
Sciuridae	<i>Funambulus palmarum</i>	Palm Squirrel	Leena
	<i>Ratufa macroura</i> ^{VU}	Giant Squirrel	Dandu Leena
Herpestidae	<i>Herpestes vitticollis</i>	Stripe-necked Mongoose	Maha Mugatiya
	<i>Herpestes brachyurus</i>	Brown Mongoose	Bora Mugatiya

(C) List of Birds Observed in MRF

(Abbreviations: E = Endemic; EN = Endangered; VU = Vulnerable; VW = Winter visitor).

Family	Species name	Common name	Sinhala name
Picidae	<i>Dendrocopus nanus</i>	Brown-capped Woodpecker	Bora esasi gomara Karela
	<i>Picus chlorolophus</i>	Yellow-napped Woodpecker	Heen kaha-gelasi Karela
	<i>Dinopium benghalense</i>	Black-rumped Flameback	Rath Karela
	<i>Chrysocolaptes lucidus</i> ^E	Greater Flameback	Lepita maha Karela
Ramphastidae	<i>Megalaima zeylanica</i>	Brown-headed Barbet	Polos Kottoruwa
	<i>Megalaima flavifrons</i> ^E	Yellow-fronted Barbet	Sri Lanka Kottoruwa
	<i>Megalaima rubricapilla</i> ^E	Crimson-fronted Barbet	Rathmhunath Kottoruwa
Bucerotidae	<i>Ocyrceros gingalensis</i> ^E	Grey Hornbill	Alu Kandaththa
Alcedinidae	<i>Alcedo atthis</i>	Common Kingfisher	Mal Pilihuduwa
	<i>Halcyon smyrnensis</i>	White-throated Kingfisher	Layasudu Pilihuduwa
Meropidae	<i>Merops philippinus</i> ^{WV}	Blue-tailed Bee-eater	Nilpenda Binguharaya
Cuculidae	<i>Cuculus micropterus</i> ^{WV}	Indian Cuckoo	Indu Kookilaya
	<i>Clamator coromandus</i> ^{WV}	Chestnut-winged Cuckoo	Thambala-piya Kondakoha
	<i>Cuculus varius</i> ^{WV}	Common hawk Cuckoo	Ukusukoha
	<i>Eudynamys scolopacea</i>	Asian Koel	Kowula
	<i>Centropus sinensis</i>	Greater Coucal	Ati Kukula
Psittacidae	<i>Loriculus beryllinus</i> ^E	Hanging Parakeet	Giramaliththa
	<i>Psittacula eupatria</i>	Alexandrine Parakeet	Labu Girawa
	<i>Psittacula krameri</i>	Rose-ringed Parakeet	Rana Girawa
	<i>Psittacula cyanocephala</i>	Plum-headed Parakeet	Pandu Girawa
	<i>Psittacula calthropae</i> ^E	Layard's Parakeet	Alu Girawa
Apodidae	<i>Apus affinis</i>	House Swift	Punchi Thurithaya
	<i>Collocalia unicolor</i>	Indian Swiftlet	Indu upa Thurithaya
	<i>Cypsiurus balasiensis</i>	Asian palm Swift	Asiaa thal Thurithaya
Strigidae	<i>Bubo nipalensis</i>	Spot-bellied eagle Owl	Ulama
	<i>Glaucidium radiatum</i>	Jungle Owlet	Wana Upabassa
	<i>Ketupa zeylonensis</i>	Brown fish Owl	Bora kewul Bakamoona
	<i>Otus bakkamoena</i>	Collard scops Owl	Karapati Kanbassa
Podargidae	<i>Batrachostomus moniliger</i>	Frogmouth	Madi Muhuna
Columbidae	<i>Chalcophaps indica</i>	Emerald Dove	Neela Kobeiyya
	<i>Columba livia</i>	Feral Pigeon	Podu Paraviya
	<i>Ducula aenea</i>	Green imperial Pigeon	Neela Mahagoya
	<i>Streptopelia chinensis</i>	Spotted Dove	Alu Kobeiyya
	<i>Treron bicincta</i>	Orange-breasted green Pigeon	Laya-ran Batagoya
	<i>Treron pompadora</i> ^E	Sri Lanka green Pigeon	Lanka Batagoya
Rallidae	<i>Rallina eurizonoides</i> ^{WV}	Slaty-legged Crake	Alu-pa Keraliya
	<i>Amaurornis phoenicurus</i>	White-breasted Waterhen	Laya-sudu Korawakka
Accipitridae	<i>Accipiter badius</i>	Shikra	Kurulugoya
	<i>Haliastur indus</i>	Brahminy Kite	Bamunu Piyakussa
	<i>Ictinaetus malayensis</i>	Black Eagle	Kalukussa
	<i>Pernis ptilorhynchus</i>	Oriental honey Buzzard	Silu Bambarakussa
	<i>Spilornis cheela</i>	Crested serpent Eagle	Silu Sarapakussa
	<i>Spizaetus cirrhatus</i>	Changeable hawk Eagle	Perali Kondakussa
Phalacrocoracidae	<i>Phalacrocorax niger</i>	Little Cormorant	Punchi Diyakava

Ardeidae	<i>Ardeola grayii</i>	Indian pond Heron	Kana Kkoka
	<i>Egretta garzetta</i>	Little Egret	Punchi Koka
Pittidae	<i>Pitta brachyura</i> ^{WV}	Indian Pitta	Avichchiya
Chloropseidae	<i>Chloropsis jerdoni</i>	Blue-winged Leafbird	Nilpiya Kolarisiya
Laniidae	<i>Lanius cristatus</i> ^{WV}	Brown Shrike	Bora Sabariththa
Oriolidae	<i>Oriolus xanthornus</i>	Black-hooded Oriole	Kahakurulla
Dicruidae	<i>Dicrurus caerulescens</i>	White-bellied Drongo	Kawuda
Monarchidae	<i>Hypothymis azurea</i>	Black-napped Monarch	Kalu-gelasi Radamara
	<i>Terpsiphone paradisi</i>	Asian Paradise- flycatcher	Asia Rahanmara
Corvidae	<i>Corvus splendens</i>	House Crow	Kolamba Kaputa
	<i>Corvus levaillantii</i>	Large-billed Crow	Kalu Kaputa
Campephagidae	<i>Coracina melanoptera</i>	Black-headed Cuckooshrike	Kalu-his kovul Saratiththa
	<i>Pericrocotus cinnamomeus</i>	Small Minivet	Punchi Miniviththa
	<i>Pericrocotus flammeus</i>	Scarlet Minivet	Dilirath Miniviththa
	<i>Hemipus picatus</i>	Bar-winged flycatcher shrike	Wairapiya masi Saratiththa
Aegithinidae	<i>Aegithina tiphia</i>	Common Iora	Podu Iorawa
Muscicapidae	<i>Copsychus saularis</i>	Oriental magpie Robin	Polkichcha
	<i>Cyornis tickelliae</i>	Tickell's blue Flycatcher	Tickel nil Masimara
	<i>Muscicapa daurica</i> ^{WV}	Asian brown Flycatcher	Asia bora Masimara
	<i>Saxicoloides fulicata</i>	Indian Robin	Indu Kalukichcha
Sturnidae	<i>Acridotheres tristis</i>	Common Myna	Mayna
	<i>Gracula religiosa</i>	Hill Myna	Salalihiniya
Sittidae	<i>Sitta frontalis</i>	Velvet-fronted Nuthatch	Villuda nalal Yatikiriththa
Hirundinidae	<i>Hirundo domicola</i> ^{EN}	Hill Swallow	Sethkara Wahilihiniya
	<i>Hirundo rustica</i>	Barn Swallow	Atu Wahilihiniya
Pycnonotidae	<i>Pycnonotus melanicterus</i> ^E	Black-crested Bulbul	Kalu hisasi Kondaya
	<i>Pycnonotus cafer</i>	Red-vented Bulbul	Kondaya
	<i>Pycnonotus luteolus</i>	White-browed Bulbul	Bamasudu Kondaya
	<i>Iole indica</i>	Yellow-browed Bulbul	Bamakaha Guluguduwa
	<i>Hypsipetes leucocephalus</i>	Black Bulbul	Kalu Kondaya
Cisticolidae	<i>Prinia sylvatica</i>	Jungle Prinia	Wana Priniya
Zosteropidae	<i>Zosterops palpebrosus</i>	Oriental White-eye	Peradigu Sithasiya
Sylviidae	<i>Orthotomus sutorius</i>	Common Tailorbird	Battichcha
	<i>Phylloscopus magnirostris</i> ^{WV}	Large-billed leaf Warbler	Mathusu Gassraviya
Timalidae	<i>Pellorneum fuscicapillum</i> ^E	Brown-capped Babbler	Boraga Demalichcha
	<i>Pomatorhinus melanurus</i> ^E	Scimitar Babbler	Da Demalichcha
	<i>Rhopocichla atriceps</i>	Dark-fronted Babbler	Wathanduru Demalichcha
	<i>Turdoides affinis</i>	Yellow-billed Babbler	Demalichcha
Dicaeidae	<i>Dicaeum vincens</i> ^{E,VU}	Legge's Flowerpecker	Lanka Pililichcha
	<i>Dicaeum erythrorhynchos</i>	Pale-billed Flowerpecker	Lathudu Pililichcha
Nectariniidae	<i>Nectarina zeylonica</i>	Purple-rumped Sunbird	Nithamba Dam Sutikka
	<i>Nectarina lotenia</i>	Loten's Sunbird	Lotenge Sutikka
Motacillidae	<i>Motacilla cinerea</i> ^{WV}	Grey Wagtail	Alu Halapenda
Ploceidae	<i>Ploceus manyar</i>	Streaked Weaver	Pan Wadukurulla
Estrididae	<i>Lonchura striata</i>	White-rumped Munia	Nithamba-sudu Weekurulla

(D) List of Butterflies Observed in MRF

(Abbreviations: E = Endemic; CR = Critically Endangered; EN = Endangered; VU = Vulnerable).

Family	Species name	Common name	Sinhala name
Papilionidae	<i>Troides darsius</i> ^E	Ceylon Birdwing	Maha kurulu piya Papilia
	<i>Pachliopta hector</i>	Crimson Rose	Maha rosa Papilia
	<i>Pachliopta aristolochiae</i>	Common Rose	Podu rosa Papilia
	<i>Papilio domoleus</i>	Lime Butterfly	Kaha Papilia
	<i>Papilio polytes</i>	Common Mormon	Kalu Papilia
	<i>Papilio polymnestor</i>	Blue Mormon	Maha Nilaya
	<i>Papilio clytia</i>	Mime	Rawana Papilia
	<i>Graphium sarpedon</i>	Blue Bottle	Nil Papilia
	<i>Graphium doson</i>	Common Jay	podu Papilia
	<i>Graphium agamemnon</i>	Tailed Jay	Kola Papilia
Pieridae	<i>Leptosia nina</i>	Psyche	Kalu-thith Sudda
	<i>Delias eucharis</i>	Jezebel	Podu Maha Sudda
	<i>Appias indra</i> ^{CR}	Plain Puffin	Dumbra Sudana
	<i>Appias albina</i>	Common Albatross	Podu Sudana
	<i>Hebomoia glaucippe</i>	Great Orange-tip	Yoda Sudana
	<i>Catopsilia pyranthe</i>	Mottled Emigrant	Thith-piya Piyasariya
	<i>Catopsilia pomona</i>	Lemon Emigrant	Kaha Piyasariya
	<i>Catopsilia Scylla</i>	Orange Migrant	Thabili Piyasariya
	<i>Pareronia ceylanica</i>	Dark Wanderer	Anduru nil Piyasariya
	<i>Eurema hecabe</i>	Common grass Yellow	Maha Kahakolaya
	<i>Eurema blanda</i>	Three-spot grass Yellow	Thun-thith Kahakolaya
Nymphalidae	<i>Idea iasonia</i> ^E	Tree Nymph	Pawenna
	<i>Tirumala limniace</i>	Blue Tiger	Podu nil Kotithiya
	<i>Parantica aglea</i>	Glassy Tiger	Suduwan nil Kotithiya
	<i>Danaus chrysippus</i>	Plain Tiger	Podu koti Thambiliya
	<i>Danaus genutia</i>	Common Tiger	Iri Koti Thambiliya
	<i>Euploea core</i>	Common Crow	Podu kaka Kotithiyaya
	<i>Phalantha phantha</i>	Leopard	Podu thith Thambiliya
	<i>Vindula erota</i>	Cruiser	Yoda Thambiliya
	<i>Cethosia nieteri</i>	Ceylon lace Wing	Lanka seda Piyapatha
	<i>Junonia atlites</i>	Grey Pansy	Aluwan Alankarikya
	<i>Junonia iphita</i>	Chocolate Soldier	Podu Alankarikya
	<i>Junonia almana</i>	Peacock Pansy	Monera Alankarikya
	<i>Hypolimnas bolina</i>	Great Eggfly	Maha Alankarikya
	<i>Hypolimnas misippus</i>	Danaid Eggfly	Kela Alankarikya
	<i>Pantoporia hordonia</i>	Common Lasker	Kaha Selaruwa
	<i>Neptis hylas</i>	Common Sailor	Gomara Selaruwa
	<i>Neptis jumbah</i>	Chestnut-streaked Sailor	Thambala-iri Selaruwa
	<i>Moduza procris</i>	Commander	Maha Selaruwa
	<i>Parthenos Sylvia</i>	Clipper	Yoda kela Selaruwa
	<i>Euthalia aconthea</i>	Baron	Achchilaya
<i>Polyura athamas</i>	Nawab	Kaha Kumaraya	
<i>Charaxes psaphon</i>	Tawny Rajah	Maha Kumaraya	
<i>Acraea violae</i>	Tawny Costor	Thambily panduru Boraluwa	

	<i>Melanitis leda</i>	Common evening Brown	Podu Dumburuwa
	<i>Melanitis phedima</i>	Dark evening Brown	Anduru Dumburuwa
	<i>Orsotriaena medus</i>	Nigger	Maha-iri panduru Dumburuwa
	<i>Mycalesis perseus</i>	Common Bushbrown	Podu panduru Dumburuwa
	<i>Nissanga patina</i>	Gladeye Bushbrown	Visithuru panduru Dumburuwa
	<i>Ypthima ceylonica</i>	White Four-ring	Podu heen Dumburuwa
	<i>Elymnias hypermnestra</i>	Common Palmfly	Podu thal Dumburuwa
Lycaenidae	<i>Abisara echerius</i>	Plum Judy	Kela Rathambalaya
	<i>Arhopala amantes</i>	Large Oakblue	Maha gas Nilaya
	<i>Caleta decidia</i>	Angled Pierrot	Gomara mal Nilaya
	<i>Castalius rosimon</i>	Common Pierrot	Podu mal Nilaya
	<i>Everes lacturnus</i>	Indian Cupid	Indiyanu Panduru Nilaya
	<i>Hypolycaena nilgirica</i> ^{VU}	Nilgiri Tit	Nilgiri Nilaya
	<i>Jamides bochus</i>	Dark Cerulean	Anduruwan seru Nilaya
	<i>Jamides celeno</i>	Common Cerulean	Podu seru Nilaya
	<i>Jamides coruscans</i> ^{E,EN}	Ceylon Cerulean	Lanka seru Nilaya
	<i>Jamides lacteata</i> ^E	Milky Cerulean	Sudu seru Nilaya
	<i>Loxura atymnus</i>	Yamfly	Kaha gas Nilaya
	<i>Neopithicops zalmora</i>	Quaker	Maha thith dumburu Nilaya
	<i>Rathinda amor</i>	Monkey-puzzle	Visituru vanduru Nilaya
	<i>Spalgis epeus</i>	Apefly	Wanduru Nilaya
<i>Talicada nyseus</i>	Red Pierrot	Rathu panduru Nilaya	
Hesperiidae	<i>Ampittia dioscorides</i>	Bush Hopper	
	<i>Celaenorrhinus spilothyris</i> ^{E,VU}	Black Flat	
	<i>Iambrix salsala</i>	Chestnut Bob	
	<i>Panara bada</i>	Smallest Swift	
	<i>Spialia galba</i>	Indian Skipper	
	<i>Suastus gremius</i>	Indian palm Bob	
	<i>Taractrocera maevius</i>	Common grass Dart	
	<i>Telicota colon</i>	Pale palm Dart	
	<i>Udaspes folus</i> ^{EN}	Grass Demon	

(E) List of Dragonflies and Damselflies Observed in MRF
(Abbreviations: E = Endemic)

Family	Species name	Common name
Calopterygidae	<i>Neurobasis chinensis</i>	Oriental green Wing
	<i>Vestalis apicalis</i> ^E	Black-tipped Flashwing
Chlorocyphidae	<i>Libellago greeni</i> ^E	Green's Gem
Euphaeidae	<i>Euphaea splendens</i> ^E	Shining Gossamerwing
Coenagrionidae	<i>Agriocnemis pygmaea</i>	Wandering Wisp
	<i>Onychargia atrocyana</i>	Marsh Dancer
	<i>Ischnura aurora</i>	Dawn Bluetail
	<i>Ceriagrion cerinorubellum</i>	Painted Waxtail
	<i>Ceriagrion coromandelianum</i>	Yellow Waxtail
Platynemididae	<i>Copera marginipes</i>	Yellow Featherleg
Platystictidae	<i>Drepanosticta brincki</i> ^E	Brinck's Shadowdamsel
	<i>Platysticta cf. apicalis</i> ^E	Dark Forestdamsel
Protoneuridae	<i>Elatoneura bigemmata</i> ^E	Two-spotted Threadtail
	<i>Elatoneura centralis</i> ^E	Dark-glittering Threadtail
Gomphidae	<i>Megalogomphus ceylonicus</i> ^E	Sri Lanka Sabretail
	<i>Ictinogomphus rapax</i>	Rapacious Flangetail
Libellulidae	<i>Orthetrum chrysis</i>	Spine-tufted Skimmer
	<i>Orthetrum glaucum</i>	Asian Skimmer
	<i>Orthetrum luzonicum</i>	Marsh Skimmer
	<i>Orthetrum pruinosum</i>	Pink Skimmer
	<i>Orthetrum Sabina</i>	Green Skimmer
	<i>Acisoma panorpoides</i>	Asian Pintail
	<i>Neurothemis tullia</i>	Pied Parasol
	<i>Trithemis aurora</i>	Crimson Dropwing
	<i>Trithemis festiva</i>	Indigo Dropwing
	<i>Rhodothemis rufa</i>	Spine-legged Redbolt
	<i>Rhyothemis triangularis</i>	Sapphire Flutterer
	<i>Rhyothemis variegata</i>	Variiegated Flutterer
	<i>Brachythemis contaminata</i>	Asian Groundling
	<i>Tramea limbata</i>	Sociable Glider
	<i>Crocothemis servilia</i>	Oriental Scarlet
	<i>Diplacodes trivialis</i>	Blue Percher

(F) List of Freshwater Crabs observed in MRF
(Abbreviations: E = Endemic)

Family	Species name	Common name	Sinhala name
Parathelphusidae	<i>Ceylonthelphusa</i> sp. ^E	-	Lanka miridiya Kakuluwa
	<i>Mahatha</i> sp. ^E	-	Mahatha miridiya Kakuluwa
	<i>Perbrinckia</i> sp. ^E	-	Kalu miridiya Kakuluwa

(G) List of Land Snails observed in MRF

(Abbreviations: E = Endemic; VU = Vulnerable; CR = Critically endangered)

Family	Species name	Common name
Ariophantidae	<i>Cryptozona chenui</i> ^E	-
	<i>Cryptozona bristalis</i> ^E	-
	<i>Ratnadvipia irradians</i> ^E	-
Acavidae	<i>Acavus haemastoma</i> ^E	-
	<i>Acavus superbus</i> ^E	-
	<i>Oligospira polei</i> ^E	-
Corillidae	<i>Corilla colletti</i> ^{E,VU}	-
Cyclophoridae	<i>Cyclophorus menkeanus</i> ^E	-
	<i>Aulopoma itieri</i> ^E	-
	<i>Pterocyclus cumingi</i> ^E	-
Pupinidae	<i>Tortulosa decora</i> ^{E,CR}	-

(H) List of Mygalomorph Theraphosid spiders observed in MRF

(Abbreviations: E = Endemic; EN = endangered).

Family	Species name	Common name	Sinhala name
Theraphosidae	<i>Chilobrachys cf. nitelinus</i> ^E	Ground Tarantula	Kalu divi Makuluwa
	<i>Poecilotheria ornata</i> ^E	Bird-eating Tarantula	Gas divi Makuluwa

Appendix II

Faunal Species Abundance Data

(A). Abundance of freshwater fish recorded through sweep nets and cast nets in aquatic habitats of MRF (Abbreviation: NEP = Nelum pokuna; NGP = Naram gahayata pokuna; NDP = Nana dola pokuna; RUW = Rukattana vila; SOV = Sudu olu vila; AHV = Ahatu vila; ISV = Issu vila; TPK= Tikiri pokuna).

Species name	NEP	NGP	NDP	RUW	SOV	AHV	ISV	TPK	Total
<i>Aplocheilus dayi</i>	00	07	00	00	12	02	00	05	26
<i>Trichogaster trichopterus</i>	00	00	00	00	02	00	00	00	02
<i>Channa orientalis</i>	00	00	02	00	00	00	01	00	03
<i>Puntius cumingii</i>	00	00	00	00	26	00	00	00	26
<i>Puntius singhala</i>	00	00	00	00	42	00	00	00	42
<i>Puntius vittatus</i>	00	00	00	00	05	00	00	00	05
<i>Rasbora dandia</i>	00	15	00	00	35	28	00	27	105
<i>Schistura notostigma</i>	00	08	03	00	00	02	00	03	16
Total	00	30	05	00	122	32	01	35	225

(B). Abundance of mammals recorded through trap cages and VES in MRF (Abbreviation: MRP = Managed rubber plot; ARP = Abandoned rubber plot; SEF = Secondary forest; REF = Regenerating forest; RFS = Riparian forest along stream; HGB = Home garden around bungalow; ROF = Rock-outcrop forest; BUD = buildings).

Species name	MRP	ARP	SEF	REF	RFS	HGB	ROF	BUD	Total
<i>Megaderma lyra</i>	00	00	00	00	00	00	00	01	01
<i>Rhinolophus beddomei</i>	00	00	00	00	00	00	03	00	03
<i>Pipistrellus tenuis</i>	00	00	00	00	00	00	00	04	04
<i>Semnopithecus vetulus</i>	00	00	00	00	00	05	00	00	05
<i>Sus scrofa</i>	00	00	00	00	00	00	01	00	01
<i>Hystrix indica</i>	00	00	00	00	00	00	01	00	01
<i>Mus mayori</i>	00	00	00	00	00	00	00	01	01
<i>Rattus rattus</i>	01	00	00	00	00	00	00	00	01
<i>Bandicota bengalensis</i>	01	01	00	00	00	00	00	00	02
<i>Funambulus palmarum</i>	01	01	04	01	02	02	02	01	14
<i>Ratufa macroura</i>	00	01	00	00	00	00	00	00	01
<i>Herpestes brachyurus</i>	00	00	01	00	00	00	00	00	01
Total	03	03	05	01	02	07	07	07	35

(C). Abundance of Birds recorded through transect and VES in MRF
(Abbreviation: M = morning; E = evening).

Species name	M		E		M		E		M		E		Total
	1	2	1	2	1	2	1	2	1	2	1	2	
<i>Dendrocopus nanus</i>	01	00	00	00	00	01	00	00	00	00	00	00	02
<i>Dinopium benghalense</i>	02	00	00	01	00	00	00	03	00	00	01	01	08
<i>Megalaima zeylanica</i>	02	03	01	02	02	01	02	02	04	03	00	01	23
<i>Megalaima flavifrons</i>	01	02	02	01	01	02	01	01	03	00	02	01	17
<i>Megalaima rubricapilla</i>	00	00	00	01	01	00	00	00	02	01	00	00	05
<i>Ocyrceros gingalensis</i>	00	01	00	00	02	00	00	00	01	00	00	01	05
<i>Alcedo atthis</i>	00	00	01	00	01	00	00	00	00	00	00	01	03
<i>Halcyon smyrnensis</i>	01	01	00	00	00	00	00	02	00	00	00	01	05
<i>Eudynamys scolopacea</i>	00	00	01	00	00	00	00	00	00	00	01	01	03
<i>Centropus sinensis</i>	01	00	00	02	00	01	00	00	02	01	02	01	10
<i>Loriculus beryllinus</i>	01	03	01	01	02	02	01	00	02	02	00	00	15
<i>Psittacula eupatria</i>	02	03	08	07	03	05	02	00	05	07	00	03	45
<i>Psittacula cyanocephala</i>	00	00	10	00	02	00	00	00	00	00	00	01	13
<i>Psittacula calthropae</i>	00	04	03	00	00	00	00	00	08	00	04	02	21
<i>Collocalia unicolor</i>	02	03	01	00	03	02	00	00	06	00	03	02	22
<i>Chalcophaps indica</i>	01	00	01	02	00	00	00	02	01	01	01	01	10
<i>Ducula aenea</i>	00	04	02	00	03	02	00	03	00	05	01	02	22
<i>Streptopelia chinensis</i>	01	01	00	02	00	01	00	00	01	00	00	01	07
<i>Treron bicincta</i>	01	00	00	05	03	03	00	02	05	02	00	00	21
<i>Treron pompadora</i>	00	03	04	00	00	03	01	00	03	03	01	00	18
<i>Amaurornis phoenicurus</i>	00	00	01	00	00	00	00	01	00	00	01	00	03
<i>Accipiter badius</i>	00	00	00	00	01	00	00	01	00	00	00	00	02
<i>Pitta brachyura</i>	00	00	00	00	00	00	01	00	00	00	01	00	02
<i>Chloropsis jerdoni</i>	02	01	04	02	00	03	02	00	01	02	00	00	17
<i>Oriolus xanthornus</i>	01	02	02	02	01	01	01	01	00	03	00	00	14
<i>Dicrurus caeruleus</i>	00	00	02	01	00	00	02	02	03	00	02	01	13
<i>Hypothymis azurea</i>	00	01	00	00	00	00	00	01	01	00	01	00	04
<i>Terpsiphone paradisi</i>	02	02	01	01	00	01	01	00	00	00	01	00	09
<i>Corvus leucomelas</i>	02	00	00	02	00	01	02	00	00	01	01	01	10
<i>Pericrocotus flammeus</i>	03	05	00	04	00	05	02	00	05	06	03	00	33
<i>Hemipus picatus</i>	00	03	02	00	00	02	00	00	00	00	01	00	08
<i>Aegithina tiphia</i>	00	02	01	01	00	01	00	00	02	01	01	00	09
<i>Copsychus saularis</i>	00	00	01	00	01	00	00	00	00	01	01	00	04
<i>Cyornis tickelliae</i>	01	01	02	01	00	02	02	01	00	00	01	01	12
<i>Acridotheres tristis</i>	02	03	00	02	02	00	00	00	03	00	05	03	20
<i>Gracula religiosa</i>	03	00	00	00	02	00	02	02	00	00	01	02	12
<i>Sitta frontalis</i>	00	00	02	00	00	00	00	00	03	00	01	00	06
<i>Hirundo rustica</i>	03	00	07	02	00	02	00	06	00	00	01	02	23
<i>Pycnonotus melanicterus</i>	02	03	00	03	02	02	02	03	02	02	02	02	25

<i>Pycnonotus cafer</i>	03	06	03	02	03	03	03	07	03	02	00	05	40
<i>Iole indica</i>	03	06	04	03	05	03	00	03	04	03	01	01	36
<i>Hypsipetes leucocephalus</i>	04	05	02	03	02	06	00	07	03	02	02	04	40
<i>Zosterops palpebrosus</i>	04	01	04	05	01	03	00	00	02	04	01	02	27
<i>Orthotomus sutorius</i>	00	00	02	00	00	01	00	00	01	02	02	01	09
<i>Phylloscopus magnirostris</i>	00	00	01	00	00	00	00	00	00	00	01	02	04
<i>Pellorneum fuscicapillum</i>	00	00	01	01	02	00	00	01	01	01	02	02	11
<i>Pomatorhinus melanurus</i>	01	00	00	00	00	01	02	00	00	00	00	00	04
<i>Rhopocichla atriceps</i>	04	00	00	00	00	00	00	05	00	00	03	00	12
<i>Turdoides affinis</i>	00	05	00	05	00	00	00	03	06	08	05	04	36
<i>Dicaeum vincens</i>	01	01	00	00	01	01	00	00	00	00	01	01	06
<i>Dicaeum erythrorhynchos</i>	02	00	02	01	03	00	00	03	00	05	03	01	20
<i>Nectarina zeylonica</i>	01	00	01	00	01	02	00	00	02	01	02	00	10
<i>Nectarina lotenia</i>	00	02	01	01	01	00	02	00	00	01	01	01	10
Total	60	77	81	66	51	63	31	62	85	70	64	56	766

(D). Abundance of Butterflies documented through transect and VES in MRF
(Abbreviation: T = transects).

Species name	T1	T2	T2	T2	T3	T3	T4	T4	Total
<i>Troides darsius</i>	00	00	01	01	00	00	00	02	04
<i>Pachliopta hector</i>	01	00	00	00	01	00	01	00	03
<i>Pachliopta aristolochiae</i>	00	02	00	00	01	00	01	02	06
<i>Papilio polytes</i>	01	00	00	02	00	00	02	01	06
<i>Papilio polymnestor</i>	00	01	01	02	01	00	00	02	07
<i>Papilio clytia</i>	00	00	00	00	00	01	00	01	02
<i>Graphium doson</i>	01	03	00	00	00	00	02	00	06
<i>Leptosia nina</i>	02	01	00	00	00	00	05	02	10
<i>Delias eucharis</i>	02	00	00	00	00	00	01	01	04
<i>Appias indra</i>	00	00	00	00	00	00	01	00	01
<i>Hebomoia glaucippe</i>	00	00	00	02	00	00	01	00	03
<i>Catopsilia pyranthe</i>	02	02	00	00	00	00	00	04	08
<i>Pareronia ceylanica</i>	01	00	00	00	00	01	00	01	03
<i>Eurema hecabe</i>	02	03	02	00	00	00	06	02	15
<i>Idea iasonia</i>	00	00	00	01	02	00	01	00	04
<i>Parantica aglea</i>	01	04	00	00	00	00	02	00	07
<i>Euploea core</i>	02	01	04	00	06	00	03	05	21
<i>Cethosia nietneri</i>	00	01	00	00	00	01	00	01	03
<i>Junonia atlites</i>	02	00	01	02	00	02	01	02	10
<i>Junonia iphita</i>	01	00	02	03	00	03	01	02	12
<i>Pantoporia hordonia</i>	00	01	00	01	00	02	00	01	05

<i>Neptis hylas</i>	02	01	02	02	00	04	01	03	15
<i>Moduza procris</i>	00	00	01	00	01	00	00	00	02
<i>Parthenos sylvia</i>	00	01	00	00	03	02	01	01	08
<i>Nissanga patnia</i>	00	01	00	00	00	02	00	00	03
<i>Ypthima ceylonica</i>	02	01	03	17	28	14	05	11	81
<i>Elymnias hypermnestra</i>	00	01	00	00	02	00	02	00	05
<i>Abisara echerius</i>	00	00	00	00	01	00	00	00	01
<i>Arhopala amantes</i>	00	00	00	00	00	00	00	01	01
<i>Caleta decidia</i>	00	01	00	00	00	00	01	00	02
<i>Castalius rosimon</i>	00	00	00	03	00	00	00	01	04
<i>Everes lacturnus</i>	02	00	00	03	02	00	01	02	10
<i>Jamides bochus</i>	00	01	03	00	00	01	00	02	07
<i>Jamides celeno</i>	01	05	02	20	07	04	03	05	47
<i>Jamides coruscans</i>	00	00	00	00	00	00	01	00	01
<i>Jamides lacteata</i>	00	00	02	00	00	00	00	00	02
<i>Loxura atymnus</i>	00	00	01	00	00	00	00	00	01
<i>Neopithicops zalmora</i>	00	01	00	00	02	00	00	00	03
<i>Talicauda nyseus</i>	00	01	01	00	00	00	01	00	03
<i>Spialia galba</i>	00	00	00	02	00	02	01	01	06
<i>Taractrocera maevius</i>	01	02	00	00	00	00	00	00	03
<i>Telicota colon</i>	00	00	01	00	01	00	02	00	04
Total	26	35	27	61	58	39	47	56	349

(E). Abundance of odonates documented through transect and VES in MRF

(Abbreviation: MRP = Managed rubber plot; ARP = Abandoned rubber plot; SEF = Secondary forest; REF = Regenerating forest; RFS = Riparian forest along stream; HGB = Home garden around bungalow; ROF = Rock-outcrop forest).

Species name	MRP	ARP	SEF	REF	RFS	HGB	ROF	Total
<i>Neurobasis chinensis</i>	00	00	00	00	08	00	00	08
<i>Vestalis apicalis</i>	00	00	00	00	03	00	00	03
<i>Libellago greeni</i>	00	00	00	00	01	00	00	01
<i>Euphaea splendens</i>	00	00	00	00	11	00	00	11
<i>Agriocnemis pygmaea</i>	00	00	00	00	00	05	00	05
<i>Onychargia atrocyana</i>	00	00	00	00	04	02	00	06
<i>Ischnura aurora</i>	00	00	00	00	00	13	00	13
<i>Ceriagrion cerinorubellum</i>	03	00	00	00	00	02	00	05
<i>Ceriagrion coromandelianum</i>	00	00	00	00	00	07	00	07
<i>Copera marginipes</i>	00	00	00	00	00	03	00	03
<i>Drepanosticta brincki</i>	02	05	03	03	01	00	04	18
<i>Platysticta cf. apicalis</i>	03	02	04	02	07	00	02	20
<i>Elatoneura bigemmata</i>	00	00	00	00	02	00	00	02
<i>Elatoneura centralis</i>	00	00	00	00	04	00	00	04
<i>Megalogomphus ceylonicus</i>	00	00	00	00	02	00	00	02
<i>Ictinogomphus rapax</i>	00	00	00	00	00	05	00	05
<i>Orthetrum chrysis</i>	00	00	00	00	00	03	00	03

<i>Orthetrum glaucum</i>	00	00	00	00	00	15	00	15
<i>Orthetrum luzonicum</i>	00	00	00	00	00	06	00	06
<i>Orthetrum pruinosum</i>	00	00	00	00	00	02	00	02
<i>Orthetrum sabina</i>	00	00	00	00	00	09	00	09
<i>Acisoma panorpoides</i>	00	00	00	00	00	04	00	04
<i>Neurothemis tullia</i>	00	00	00	00	00	08	00	08
<i>Trithemis aurora</i>	00	00	00	00	00	03	00	03
<i>Trithemis festiva</i>	00	00	00	00	00	12	00	12
<i>Rhodothemis rufa</i>	00	00	00	00	00	02	00	02
<i>Rhyothemis triangularis</i>	00	00	00	00	00	07	00	07
<i>Rhyothemis variegata</i>	00	00	00	00	00	02	00	02
<i>Brachythemis contaminata</i>	00	00	00	00	00	05	00	05
<i>Tramea limbata</i>	00	00	00	00	00	02	00	02
<i>Crocothemis servilia</i>	00	00	00	00	00	06	00	06
<i>Diplacodes trivialis</i>	00	00	00	00	00	02	00	02
Total	08	07	07	05	43	125	06	201

(F). Abundance of Land Snail documented through transect and VES in MRF

(Abbreviation: ROF = Rock-outcrop forest; ARP = Abandoned rubber plot; MRP = Managed rubber plot; RFS = Riparian forest along stream; REF = Regenerating forest; HGB = Home garden around bungalow; SEF = Secondary forest).

Species name	ROF	ARP	MRP	RFS	REF	HGB	SEF	Total
<i>Cryptozonia chenui</i>	07	00	02	04	01	02	03	19
<i>Cryptozonia bristalis</i>	00	02	00	00	00	00	00	02
<i>Ratnadvipia irradians</i>	00	00	00	01	00	00	00	01
<i>Acavus haemastoma</i>	00	00	00	00	00	01	00	01
<i>Acavus superbus</i>	00	00	00	00	00	00	00	00
<i>Oligospira polei</i>	00	00	00	00	00	00	00	00
<i>Corilla colletti</i>	00	00	00	10	00	00	00	10
<i>Cyclophorus menkeanus</i>	06	00	01	08	00	63	00	78
<i>Aulopoma itieri</i>	01	00	00	02	00	00	03	06
<i>Pterocyclus cumingi</i>	08	00	01	02	00	03	02	16
<i>Tortulosa decora</i>	00	00	00	12	00	00	00	12
Total	22	2	4	39	1	69	8	145