

BASELINE BIODIVERSITY SURVEY IN NATIONAL WILDLIFE RESEARCH AND TRAINING CENTER (NWRTC), GIRITALE, SRI LANKA

T.M.T.S. PRIYADARSHANA^{1,6,*}, W.G.M. EDIRISINGHE², G.V.I.H. WIJEWARDANA³,
A.L.A.C. JAYASOORIYA⁴, S.M.R.T.G. SAMARAKOON⁴, D.M.W. DISANAYAKA⁴,
K.G.P. NANAYAKKARA⁴ and W.A.K.L.M. WICKRAMASINGHA⁵

¹Department of Natural Resources, Faculty of Applied Sciences,
Sabaragamuwa University of Sri Lanka, Belihuloya, 70140, Sri Lanka.

²Wild Rescue Team of Sri Lanka, 183/6, Horana road, Kesbawa, Sri Lanka.

³Sri Lanka School of Agriculture, Department of Agriculture, Karapincha, Kuruwita, Sri Lanka.

⁴National Wildlife Research and Training Center (NWRTC), Elahera road, Giritale, Sri Lanka.

⁵Department of Computing and Information Systems, Faculty of Applied Sciences,
Sabaragamuwa University of Sri Lanka, Belihuloya, 70140, Sri Lanka.

*tharakas.priyadarshana@gmail.com

ABSTRACT - The large extent of habitats, most of the wildlife protected areas being found in the dry zone and also the rapid destruction of forest cover for development brings up a crucial need to explore and document the diversity of these less known dry zone habitats. A three month survey (February to April 2014) covering the entire area of the National Wildlife Research and Training Center (NWRTC) about the five taxonomic groups (Butterflies, Dragonflies, Amphibians, Reptiles and Small Mammals). Hitherto any systematic survey has not been done in the study area previously. A total of 116 butterfly species including three endemics, 33 dragonfly species (3 endemics), 18 amphibian species (4 endemics), 44 reptile species (13 endemics) and 18 small mammal species were recorded from the site. The discovery of an unknown *Suncus* species is the key findings in this survey. The study provides much required data for conservation decision making and this study can be used as a model for other protected areas.

KEY WORDS : Minneriya Giritale, decision making Butterflies, Dragonfly, Amphibians, Reptiles, Small mammals

INTRODUCTION

Biodiversity baseline surveys are conducted to determine current conditions of an area regarding its biodiversity and forms the basis for comparison of data, management planning, decision making and mitigation of negative effects on the biodiversity (Leverington *et al*, 2007). The primary aim of this survey is to assess the diversity of the five taxa; Butterflies, Dragonflies, Amphibians, Reptiles and Small mammals in the NWRTC premises. In the absence of any recorded attempt of work in the area, the survey intended to fill the gap of baseline data which would also serve another

number of significant uses. The surveyed area was the land adjacent to the only NWRTC in the country which provides education aspects in wildlife management and therefore this baseline biodiversity survey would contribute in enhancing the status of the same as an educational center.

This research surveyed about the five taxonomic groups in available habitat types which were distinguishable the NWRTC premises i.e. forest with anthropogenic activities, natural forest, and forest along the lake and connected water streams within the study site. The study revealed 116 species of butterflies, 36

species of dragonflies, 18 species of amphibians, 45 species of reptiles and 18 species of small mammals including possibly new species (*Suncus* sp) to the island.

STUDY SITE

The area surveyed belongs to the Minneriya Giritala nature Reserve, Block II; dry zone, Polonnaruwa district. Further, this area encompasses the margin of Flood Plains National park, Angamadilla National park and Minneriya National park with Gritale Tank (Gritalewewa). The typical ecosystem type is the dry mixed evergreen forest (Ashton *et al*, 1997). Mainly we observed the three different habitats type is on the study site i.e. forest with anthropogenic activities, natural forest, and forest along the lake and connected water streams.

METHODOLOGY

Sampling was conducted during the periods of 14–22 February, 01–12 March, March 18–April 11 and 16–26 April in 2014. All three habitat types were visited during each sampling period. Standardized sampling methods were used to ensure scientific accuracy and efficiency in obtaining biological information on the taxa. All selected taxa encountered during sampling were identified to the maximum possible level, documented and released back to the same habitat where it was found. Sampling included all three selected habitats surveyed using the Visual Encounter Survey technique, Trapping techniques and *ad lib* observations to enrich the checklist. Species Identification was done using currently available field guide books and with the assistance of experts.

Butterflies;

Strip transects method was used to sample the butterflies, also opportunistic observations and hand net used for field investigation. Field observations were made from 8.00 am to 4.00 pm in general. However, for the species those are active in early mornings and late evenings, sampling attempt was extended to those periods.

Dragonflies;

Dragonflies were sampled using line

transects method. Hand net and opportunistic observations used for field investigation. Field observations were made from 8.00 am to 4.00 pm in general. Specially, field observations carried near the water body which is possible area for the dragonflies.

Amphibians;

Amphibians were sampled using 5x2 m plots in every 25 meters along fixed line transects. All vertical layers including litter, herbs and shrubs were examined. Amphibians were captured, identified and released at the same location. Field visits were made from 7.00 pm to 10.00 pm and 4.00 am to 6.00 am or during the period of maximum vocalization.

Reptiles;

the same method used for amphibians was employed together in combination with pitfall traps for both taxonomic groups. Field observations were made from 6.30 am to 9.00 am and 4.00 pm to 6.00 pm. In addition, night time observations were made from 7.00 pm to 10.00 pm and 4.00 am to 6.00 am.

Small Mammals;

In addition to line transects, perpendicular transects were used with small mammal traps (sherman trap with bait). Night walks (fixed time) were used to gather data on small mammals. Field observations were made from 6.30 am to 9.00 am and 4.00 pm to 6.00 pm. In addition night observations were made from 7.00 pm to 10.00 pm and 4.00 am to 6.00 am. A bat detector was specially used (Magenta Bats-Digital Precision) to find the bats species.

RESULTS

The inbound premise of NWRTC has a high number of butterfly species. According to the survey result, 116 butterfly species were recorded on the site (Table 01). This represents 47% of the total species in Sri Lanka. During the present survey, three endemic species (*Troides darsius*, *Appias galen*, *Mycalesis subdita*) were recorded. One Critically Endangered (*Ionolyce helicon*), one Endangered (*Nacadubaberoe*), nine Vulnerable, nine Near Threatened, ninety six Least Concerned butterfly species were also encountered in the study (MOE, 2012).

TABLE 1: Checklist of Butterflies in NWRTC

Family/ Scientific Name	Common name	Criteria(NCS) 2012
PAPILIONIDAE		
<i>Troidesdarsius</i>	Sri Lanka Birdwing	LC
<i>Pachliopta hector</i>	Crimson Rose	LC
<i>Pachlioptaaristolochiae</i>	Common Rose	LC
<i>Papiliocrino</i>	Banded Peacock	VU
<i>Papiliodemoleus</i>	Lime Butterfly	LC
<i>Papiliopolytes</i>	Common Mormon	LC
<i>Papiliopolymnestor</i>	Blue Mormon	LC
<i>Papilioclytia</i>	Mime	LC
<i>Graphiumsarpedon</i>	Bluebottle	LC
<i>Graphiumdoson</i>	Common Jay	LC
<i>Graphiumagamemnon</i>	Tailed Jay	LC
<i>Graphiumnomius</i>	Spot Swordtail	VU
PIERIDAE		
<i>Leptosianina</i>	Psyche	LC
<i>Delias eucharis</i>	Jezebel	LC
<i>Ceporanerissa</i>	Common Gull	LC
<i>Appiaslyncida</i>	Chocolate Albatross	LC
<i>Appias albino</i>	Common Albatross	LC
<i>Appiasgalene</i>	Sri Lanka Lesser Albatross	LC
<i>Appiaslibythea</i>	Striped Albatross	LC
<i>Catopsiliapyranthe</i>	Mottled Emigrant	LC
<i>Catopsiliapomona</i>	Lemon Emigrant	LC
<i>Pareroniaceylanica</i>	Dark Wanderer	LC
<i>Euremahecabe</i>	Common Grass Yellow	LC
<i>Euremablanda</i>	Three Spot Grass Yellow	LC
<i>Hebomoiaaglaucippe</i>	Great Orange Tip	LC
<i>Belenoisaurora</i>	Pioneer	LC
NYMPHALIDAE		
<i>Tirumalalimniace</i>	Blue Tiger	LC
<i>Tirumalaseptentrionis</i>	Dark Blue Tiger	NT
<i>Paranticaaglea</i>	Glassy Tiger	LC
<i>Danauschrysippus</i>	Plain Tiger	LC
<i>Danausgenutia</i>	Common Tiger	LC
<i>Euploea core</i>	Common Crow	LC
<i>Euploeasylvester</i>	Double- branded Black Crow	NT
<i>Ariadne ariadne</i>	Angled Castor	LC
<i>Ariadne merione</i>	Common Castor	VU
<i>Cuphaerymanthis</i>	Rustic	LC
<i>Phalantaphalantha</i>	Leopard	LC
<i>Cirrochroathais</i>	Tamil Yeoman	LC
<i>Junonialemonias</i>	Lemon Pansy	LC

<i>Junoniaatlites</i>	Grey Pansy	LC
<i>Junoniaiphita</i>	Chocolate Soldier	LC
<i>Junoniaalmana</i>	Peacock Pansy	LC
<i>Hypolimnasbolina</i>	Great Eggfly	LC
<i>Hypolimnasmisippus</i>	DanaidEggfly	LC
<i>Neptishylas</i>	Common Sailor	LC
<i>Neptisjumbah</i>	Chestnut Streaked Sailor	LC
<i>Euthaliaalubentina</i>	Gaudy Baron	VU
<i>Euthaliaaconthea</i>	Baron	LC
<i>Polyuraathamas</i>	Nawab	LC
<i>Charaxes solon</i>	Black Rajah	NT
<i>Acraeaviolae</i>	Tawny Coster	LC
<i>Melanitisleda</i>	Common Evening Brown	LC
<i>Orsotriaenamedus</i>	Medus Brown	LC
<i>Mycalesisubdita</i>	Tamil Bushbrown	LC
<i>Mycalesismineus</i>	Dark-Brand Bushbrown	LC
<i>Mycalesisperseus</i>	Common Bushbrown	LC
<i>Mycalesispatnia</i>	GladeyeBushbrown	LC
<i>Ypthimaceylonica</i>	White Four-ring	LC
<i>Elymniashypermnestra</i>	Common Palmfly	LC
LYCAENIDAE		
<i>Curetisthetis</i>	Indian Sunbeam	LC
<i>Arhopalaamantes</i>	Large Oakblue	LC
<i>Zesiuschrysomallus</i>	Redspot	LC
<i>Rathindaamor</i>	Monkey-puzzle	LC
<i>Spindasisvulcanus</i>	Common Silverline	LC
<i>Viracholaperse</i>	Large Guava Blue	VU
<i>Spindasisictis</i>	Ceylon Silverline	LC
<i>Viracholaisocrates</i>	Common Guava Blue	LC
<i>Rapalamanea</i>	Slate Flash	LC
<i>Rapalavaruna</i>	Indigo Flash	VU
<i>Deudorixepijarbas</i>	Cornelian	VU
<i>Anthenelycaenina</i>	Pointed Ciliate Blue	LC
<i>Prosotasnora</i>	Common Lineblue	VU
<i>Prosotasdubiosa</i>	Tailless Lineblue	LC
<i>Jamidesbochus</i>	Dark Cerulean	LC
<i>Jamidesceleno</i>	Common Cerulean	LC
<i>Catochrysopsstrabo</i>	Forget-me-not	LC
<i>Lampidesboeticus</i>	Pea Blue	LC
<i>Leptotesplinius</i>	Zebra Blue	LC
<i>Castaliusrosimon</i>	Common Pierrot	LC
<i>Discolampaethion</i>	Banded Blue Pierrot	LC
<i>Chiladesputli</i>	Grass Jewel	LC
<i>Zizeeriakarsandra</i>	Dark Grass Blue	LC

<i>Zizinaotis</i>	Lesser Grass Blue	LC
<i>Zizulahylax</i>	Tiny Grass Blue	LC
<i>Evereslacturnus</i>	Indian Cupid	LC
<i>Chiladespandava</i>	Plains Cupid	LC
<i>Azanusjesous</i>	African Babul Blue	LC
<i>Acytolepispuspa</i>	Common Hedge Blue	LC
<i>Neopithecopszalmora</i>	Quaker	LC
<i>Megisbamalaya</i>	Malayan	LC
<i>Euchrysopscnejus</i>	Gram Blue	LC
<i>Chiladeslajus</i>	Lime Blue	LC
<i>Ionolyce helicon</i>	Pointed Lineblue	CR
<i>Nacadubaberoe</i>	Opaque Six Lineblue	EN
<i>Tajuriacippus</i>	Peacock Royal	LC
<i>Zesiuschrysomallus</i>	Redspot	LC
RIODINIDAE		
<i>Abisaraecherius</i>		Plum Judy LC
HESPERIIDAE		
<i>Badamiaexclamationis</i>	Brown Awl	LC
<i>Coladeniaindrani</i>	Tricolor Pied Flat	NT
<i>Sarangesadasahara</i>	Common Small Flat	NT
<i>Tagiadesjapetus</i>	Ceylon Snow Flat	LC
<i>Capronaransonnettii</i>	Golden Angle	LC
<i>Ampittiadioscorides</i>	Bush Hopper	LC
<i>Iambrixsalsala</i>	Chestnut Bob	LC
<i>Spialiagalba</i>	Indian Skipper	LC
<i>Taractroceramaevius</i>	Common Grass Dart	LC
<i>Oriensgoloides</i>	Common Dartlet	NT
<i>Potanthusconfucius</i>	Tropic Dart	LC
<i>Cephrenestrichopepla</i>	Yellow Palm Dart	LC
<i>Borbocinnara</i>	Wallace's Swift	LC
<i>Telicotabambusae</i>	Dark Palmdart	VU
<i>Parnarabada</i>	Smallest Swift	NT
<i>Pelopidas agna</i>	Little Branded Swift	NT
<i>Hasorataminatus</i>	White Banded Awl	NT
<i>Suastusgremius</i>	Indian Palm Bob	LC
<i>Hasorachromus</i>	Common Banded Awl	LC

33 species of dragonflies were recorded (Table 02) from the study site. This represents 26% of the total species in Sri Lanka. Out of this, three species were endemic to Sri Lanka (*Libellagoadami*, *Libellagogreeni* and *Indolestesdivisus*). One Critically Endangered (*Agriocnemisfemina*), two Endangered (*Libellagogreeni*, *Indolestesdivisus*), one

Vulnerable (*Libellagoadami*), seven Near Threatened (*Ischnura aurora*, *Gynacanthad-ravida*, *Epophthalmiavittata*, *Lathrecistaasiatica*, *Orthetrumpruinsum*, *Neurothemisinter-medida*, *Trithemis pallidinervis*) and twenty two Least Concerned species (MOE, 2012) of Dragonflies were encountered.

A total of 18 species (Table 03) of amphibians, including four endemics (*Duttaphrynus atukoralei*, *Polypedates cruciger*, *Pseudophilautus regius*, *Hylaranagracilis*) two Vulnerable (*Duttaphrynus scaber*, *Pseudophilautus regius*), one Near Threatened (*Duttaphrynus atukoralei*) and fifteen Least Concerned species (MOE, 2012) were recorded during the Survey.

There are 44 species of reptiles, including 13 endemics (Table 04) (MOE, 2012; Gupta *et al*, 2015), one Critically Endangered (*Typhlops mirus*), two Vulnerable (*Hemiphyllodactylus typus*, *Geckoellayakhuna*), eight Near Threatened (*Crocodylus palustris*, *Geochelone elegans*, *Dasiahalianus*, *Calotesceylonensis*, *Boiga forsteni*, *Macropisthodon plumbicolor*, *Cylindrophis maculata*, *Calliophis melanurus*) and 33 Least Concerned species were recorded during the survey. Three endemic species of Skinks (*Dasiahalianus*, *Eutropistamma*, *Lankascincus fallax*), five endemic snake species (*Oligodon sublineatus*, *Cylindrophis maculata*, *Typhlops mirus*, *Rhinophis oxyrynchus*, *Trimeresurus trigonocephalus*),

two endemic gecko species (*Hemidactylus depressus*, *Geckoellayakhuna*), two endemic Agamid species (*Calotesceylonensis*, *Otocryptis nigristigma*) and one endemic Trionychid species (*Lissemysceylonensis*) were recorded (MOE, 2012).

There were 18 of Small mammals species recorded from this study with unknown *Suncus* (Table 05). One Endangered bat species (*Taphozous longimanus*), three bat species Vulnerable (*Rhinolophus beddomei*, *Megadermas pasma*, *Pipistrellus coromandra*), 13 Least Concerned Small mammals species were recorded (MOE, 2012). Also, permanent roosting colonies were recorded for some rare bat species; *Taphozous longimanus*, *Rhinolophus beddomei*, *Megadermas pasma*, *Pipistrellus coromandra*. The unidentified *Suncus* species (Fig. 1.a) was the most significant record related to the Small mammals from study area. The specimen was captured by using Sherman traps and that specimen deposited in the NWTC laboratory. There are some significant differences on the hind foot and ears. However,



FIGURE 1a: An unknown *Suncus* species from the National Wildlife Research and Training Center (NWRTC) premises, Gritale, Sri Lanka

TABLE 2: Checklist of Dragonflies in NWRTC

Family/ Scientific Name	Common name	Criteria(NCS) 2012
Chlorocyphidae		
<i>Libellagoadami</i>	Sri Lanka Adam's Gem	VU
<i>Libellagogreeni</i>	Sri Lanka Green's Gem	EN
Coenagrionidae		
<i>Agriocnemisfemina</i>	White-backed Wisp	CR
<i>Agriocnemispygmaea</i>	Wandering Wisp	LC
<i>Ischnura aurora</i>	Dawn Bluetail	NT
<i>Ischnurasenegalensis</i>	Common Bluetail, Marsh Bluetail	LC
<i>Ceriagrioncoromandelianum</i>	Yellow Waxtail	LC
<i>Pseudagrionmicrocephalum</i>	Blue Sprite	LC
<i>Pseudagrionrubriceps</i>	Sri Lanka Orange-faced Sprite	LC
Platycnemididae		
<i>Coperamarginipes</i>	Yellow Featherleg	LC
Gomphidae		
<i>Ictinogompusrapax</i>	Rapacious flangetail	LC
Aeshnidae		
<i>Anaxindicus</i>	Elephant emperor	LC
<i>Gynacanthadravida</i>	Indian duskhawker	NT
Corduliidae		
<i>Epophthalmiavittata</i>	Blue eyed pondcruiser	NT
Libellulidae		
<i>Brachydiplaxsobrina</i>	Sombre lieutenant	LC
<i>Lathrecistaasiatica</i>	Pruinosedbloodtail	NT
<i>Orthetrumpruinatum</i>	Pink skimmer	NT
<i>Orthetrum sabina</i>	Green skimmer	LC
<i>Potamarcha congener</i>	Blue pursuer	LC
<i>BrachythemisContaminata</i>	Asian groundling	LC
<i>Bradinopygageminata</i>	Indian rockdweller	LC
<i>Crocothemisservilia</i>	Oriental scarlet	LC
<i>Diplacodes trivialis</i>	Blue percher	LC
<i>Neurothemisintermedida</i>	Paddyfield parasol	NT
<i>Neurothemistullia</i>	Paid parasol	LC
<i>Trithemis aurora</i>	Crimson dropwing	LC
<i>Trithemispallidinervis</i>	Dancing dropwing	NT
<i>Rhyothemisvariegata</i>	Variegated flutterer	LC
<i>Pantalaflavescens</i>	Wandering glider	LC
<i>Tramealimbata</i>	Sociable glider	LC
<i>Tholymistillarga</i>	Foggy-winged twister	LC
<i>Urothemissignata</i>	Scarlet basker	LC
Lestidae		
<i>Indolestesdivisus</i>	Sri Lanka Metallic-backed Reedling	EN

TABLE 3: Check list of Amphibians in NWRTC

Family/ Scientific Name	Common name	Criteria(NCS) 2012
Bufonidae		
<i>Duttaphrynusatukoralei</i>	Atukorale's toad	NT
<i>Duttaphrynusmelanostictus</i>	Common toad	LC
<i>Duttaphrynusscaber</i>	Schneider's toad	VU
Ranidae		
<i>Euphlyctiscyanophlyctis</i>	Indian skipper frog	LC
<i>Euphlyctishexadactylus</i>	Indian green frog	LC
<i>Hoplobatrachuscrassus</i>	Jurdon's bullfrog	LC
<i>Polypedatesmaculatus</i>	Spotted tree frog	LC
<i>Polypedatescruciger</i>	Common hourglass tree frog	LC
<i>Pseudophilautusregius</i>	Polonnaruwa shrub	VU
<i>Hylaranagracilis</i>	Sri Lanka wood frog	LC
<i>Sphaerothecarolandae</i>	Roland's burrowing	LC
<i>Sphaerothecabreviceps</i>	Short-headed burrowing frog	LC
<i>Fejervaryalimnocharis</i>	Common paddy fieldfrog	LC
Microhylidae		
<i>Kaloulataprobatica</i>	Sri Lankan bullfrog	LC
<i>Microhylarubra</i>	Ornate narrowmouthed frog	LC
<i>Microhylaornata</i>	Ornate narrow mouthed frog	LC
<i>Ramanellavariegata</i>	Variegated dramanella	LC
<i>Uperodonsystema</i>	Marbled balloon frog	LC

further studies including molecular work will need to confirm it.

DISCUSSION

The results show that NWRTC premises support a high diversity of species, of which a significant proportion is threatened. The NWRTC and Department of Wildlife Conservation (DWC), Sri Lanka already plan to upgrade the NWRTC status to the international level. Therefore a lot of implementations might take place in near future. Therefore this study will be a major asset for the decision making and also will function as a base for future studies.

A wildlife research and training center requires precise details about the Biodiversity in that area but before this study there has not been any systematic study to estimate the Biodiversity in that premises. Therefore this study fulfills that gap. Basically this study was carried out focusing on Butterflies, Dragonflies, Amphibians, Reptiles and Small mammals.

These taxa are suitable indicators that are representative of the diversity of the area.

Several types of human activity occur around the Gritale Tank (Gritalewewa). Some of these activities affected Ecological Diversity in that area and also it's affect the sociological environment. MineriyaGritale Nature Reserve Block II is restricted area but there are some legal and illegal activities. Such as fishery and poaching because there is chance for villagers to access the Gritale Tank to fishery therefore villagers enter to the forest. Our suggestion is need a proper monitoring plan implement to conserve the protected area.

Further research and survey work are desperately needed to gather more information on species' distributions, taxonomy, ecology and their utilization and threats. Findings from future field surveys will undoubtedly uncover more threatened species, and will likely add to the growing body of evidence that biodiversity

TABLE 4: Checklists of Reptiles in NWRTC

Family/ Scientific Name	Common name	Criteria(NCS) 2012
Crocodylidae		
<i>Crocodylus palustris</i>	Mugger crocodile / Marshcrocodile	NT
Testudinidae		
<i>Geochelone elegans</i>	Indian star tortoise	NT
Trionychidae		
<i>Lissemys ceylonensis</i>	Flapshell turtle	LC
Gekkonidae		
<i>Hemidactylus lankae</i>	Termite hill gecko	LC
<i>Hemiphyllodactylus typus</i>	Slender gecko	VU
<i>Hemidactylus leschenaultii</i>	Bark gecko / Sycamore gecko	LC
<i>Hemidactylus frenatus</i>	Common house-gecko	LC
<i>Hemidactylus depressus</i>	Kandyan gecko	LC
<i>Hemidactylus parvimaclulatus</i>	Spotted housegecko	LC
<i>Gehyra mutilata</i>	Four-claw gecko	LC
<i>Geckoellayakhuna</i>	Blotch bowfinger gecko / Demon gecko	VU
Scincidae		
<i>Dasia halianus</i>	Haly's treeskink	NT
<i>Eutropis carinata</i>	Common skink	LC
<i>Eutropis macularia</i>	Bronzegreen little skink	LC
<i>Eutropis tammanna</i>	Tammanna skink	LC
<i>Lankascincus fallax</i>	Common lankaskink	LC
<i>Lygosoma punctatus</i>	Dotted skink	LC
Agamidae		
<i>Calotes calotes</i>	Green garden lizard	LC
<i>Calotes ceylonensis</i>	Painted lip lizard	NT
<i>Calotes versicolor</i>	Common garden lizard	LC
<i>Otocryptis nigrigemma</i>	Black spotted kangaroo lizard	LC
Varanidae		
<i>Varanus bengalensis</i>	Land monitor	LC
<i>Varanus salvator</i>	Water monitor	LC
Colubridae		
<i>Ahaetullana suta</i>	Green vine snake	LC
<i>Ahaetulla pulverulenta</i>	Brown vine snake	LC
<i>Boiga forsteri</i>	Forsten's cat snake	NT
<i>Dendrelaphis tristis</i>	Common bronze back	LC
<i>Chrysopele atapobanica</i>	Striped flying snake	LC
<i>Oligodon sublineatus</i>	Dumerul's kuki snake	LC
<i>Ptyas mucosa</i>	Rat snake	LC
<i>Amphiesmastolatum</i>	Buff striped keelback	LC
<i>Macropisthodon plumbicolor</i>	The green keelback	NT

<i>Lycodonauolicus</i>	Wolf snake, house snake	LC
Cylindrophidae		
<i>Cylindrophismaculata</i>	Pipe snake	NT
Elapidae		
<i>Calliophismelanurus</i>	Sri Lanka coral snake	NT
<i>Najanaja</i>	Indian cobra	LC
Pythonidae		
<i>Python molurus</i>	Indian python	LC
Typhlopidae		
<i>Typhlopsmirus</i>	Jan's blind snake	CR
Uropeltidae		
<i>Rhinophisoxyrynychus</i>	Schneider's earth snake	LC
Viperidae		
<i>Daboiarusselii</i>	Russell's viper	LC
<i>Hypnalehypnale</i>	The Merrem's Hump nose viper	LC
<i>Trimeresurustrigonocephalus</i>	Green pit viper	LC
Varanidae		
<i>Varanusbengalensis</i>	Land monitor	LC
<i>Varanussalvator</i>	Water monitor	LC

TABLE 5: Checklist of Small Mammals in NWRTC

Family/ Scientific Name	Common name	Criteria(NCS) 2012
Manidae		
<i>Suncusmurinus</i>	Common musk shrew	LC
<i>Suncussp (Unknown)</i>	Null	Null
Emballonuridae		
<i>Taphozouslongimanus</i>	Long-armedsheath-tailed bat	EN
Pteropodidae		
<i>Pteropusgiganteus</i>	Flying fox	LC
Rhinolophidae		
<i>Rhinolophusbeddomei</i>	Great horseshoe bat	VU
<i>Rhinolophusrouxii</i>	Rufous horseshoe bat	LC
Hipposideridae		
<i>Hipposiderosater</i>	Bicoloredleaf-nosed bat	LC
<i>Hipposiderosspeoris</i>	Schneider'sleaf-nosed bat	LC
Molossidae		
<i>Megadermaspasma</i>	Lesser False Vampire bat	VU
Vespertillionidae		
<i>Pipistrellustenuis</i>	Pigmy pipistrel	LC
<i>Pipistrelluscoromandra</i>	Indian pipistrel	VU
Muridae		
<i>Bandicotaindica</i>	Malabar bandicoot	LC
<i>Rattusrattus</i>	Common rat	LC
<i>Tateraindica</i>	Antelope rat	LC

Sciuridae		
<i>Funambuluspalmarum</i>	Palm squirrel	LC
<i>Ratufamacroua</i>	Giant squirrel	LC
Hystricidae		
<i>Hystrixindica</i>	Porcupine	LC
Leporidae		
<i>Lepusnigricollis</i>	Black-naped hare	LC

has great value to local livelihoods. The study also highlights the need to scientifically explore lesser known but unique sites which may contain important species that need urgent conservation measures. Facilitating taxonomic work is a point that should be addressed at policy level in order to identify and safeguard the existing biodiversity.

ACKNOWLEDGEMENT

We wish to thank Enoka P. Kudavidanage (Sabaragamuwa University, Sri Lanka), Kanishka D. B. Ukuwela (Rajarata university, Sri Lanka), W.M.K.S. Chandratathne (Assistant Director of the NWRTC, Sri Lanka), LakshmanPieris (Department of Wildlife Conservation, Sri Lanka), Chamitha De Alwis (Sabaragamuwa University, Sri Lanka), DeepchandiLekamge (Sabaragamuwa University, Sri Lanka) for the assistance and support given. Then we wish to thank the staff of NWRTC for the support given. We also thank Department of Wildlife Conservation, Sri Lanka.

REFERENCES

- Ashton, M., S. Gunatilleke, N. De Zoysa, M.D. Dassanayake, N. Gunatilleke, and S. Wijesundera (1997). *A field guide to the common trees and shrubs of Sri Lanka*. Colombo: Published by WHT Publication (Pvt.) for the Wildlife Heritage Trust of Sri Lanka. 9
- Bates, P.J.J. and D.L. Harrison (1997). *Bats of the Indian Subcontinent*. Harrison Zoological Museum, Kent: 159.
- Bedjaniç, M., K. Conniff, N.V. Poorten, and A. Salamun (2014). *Dragonfly fauna of Sri Lanka: Distribution and biology, with threat status of its endemics*. Pensoft, Sofia.
- Corbet, G.B. and J.E. Hill (1992). *The mammals of the Indomalayan Region: a systematic review*. Natural History Museum Publications, Oxford University Press: 488.
- d'Abbrera, B. (1998). *The butterflies of Ceylon*. Wildlife Heritage Trust (WHT), Colombo, Sri Lanka.
- Francis, C.M. (2008). *A Field Guide to the Mammals of South East Asia*. New Holland Publishers, UK: 392
- Guptha, B., N.V.S. Prasad, S.T. Maddock, and V. Deepak (2015). First record of *Chrysopelapatrobanica* Smith, 1943 (Squamata: Colubridae) from India. *Check List*, **11(1)**: 1523.
- Leverington, F., J. Courrau, H. Pavesa and K. L. Costa (2007) 'Management effectiveness evaluation in Latin America and the Caribbean—Part B: Summary of methodologies', Report to OAS InterAmerican Biodiversity Information Network For the project "Identify available Protected Area Management Effectiveness data, Methods and Results in Latin America and Caribbean to Support the Protected Areas Thematic Network" Brisbane, Australia June 2007 The material for this Part B of the report is extracted from: Fiona *Report for the project 'Global study into management effectiveness evaluation of protected areas'*, University of Queensland, IUCN, TNC, WWF, Gatton, Australia. Contact: Fiona.Leverington@uq.edu.au.

- Manamendra-Arachchi, K. and R. Pethiyagoda (2006) *Sri Lankawe Ubhayajeeven "Amphibian Fauna of Sri Lanka"* (text in Sinhala). Wildlife Heritage Trust of Sri Lanka.
- Perera, G.A.D. (2001). *Vegetation and the regeneration of moist deciduous forests at Sigiriya, Sri Lanka*.
- Phillips, W.W.A. (1935). *A Manual of the Mammals of Ceylon*. Ceylon Journal of Science, London. Dulau & Company: 152.
- Phillip, W.W.A. (1980). *Manual of the Mammals of Sri Lanka*. Part 1, 2nd Revised Edition., Wildlife and Nature Protection Society of Sri Lanka, Colombo: 116
- Somaweera, R. and N. Somaweera (2009). *Lizards of Sri Lanka: A Colour Guide with Field Keys*. Chimaira Buchhandelsgesellschaft mbH, Germany.
- Somaweera, R. (2006). *Sri Lankava Sarpain "The Snakes of Sri Lanka"* (text in Sinhala). Wildlife Heritage Trust of Sri Lanka, Colombo.
- Srinivasulu, C., P.A. Racey and S. Mistry (2010). A key to the bats (Mammalia: Chiroptera) of South Asia. *Journal of Threatened Taxa* 2(7): 1001-1076.
- Sutherland, W.J. ed. (1996). *Ecological Census Techniques—a handbook*. Cambridge: University of Cambridge Press.
- Van der Poorten, G. (2012). *The Taxonomy and Conservation Status of the Butterflies of Sri Lanka*. In: *The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora*.
- Weerakoon, D.K. and S. Wijesundara (Eds.), Ministry of Environment, Colombo, Sri Lanka: 26–41.
- van der Poorten, N. and K. Conniff (2012). *The Taxonomy and Conservation Status of the Dragonfly Fauna (Insecta: Odonata) of Sri Lanka*. In: *The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora*.
- Weerakoon, D.K. and S. Wijesundara (Eds.), Ministry of Environment, Colombo, Sri Lanka: 1–10.
- Weerakoon, D.K. (2012). *The Taxonomy and Conservation Status of Mammals in Sri Lanka*. In: *The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora*.
- Weerakoon, D.K. and S. Wijesundara (Eds.), Ministry of Environment, Colombo, Sri Lanka: 134–144.
- Wickramasinghe, L.J.M. (2012). *The Taxonomy and Conservation Status of the Reptile Fauna in Sri Lanka*. In: *The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora*.
- Weerakoon, D.K. and S. Wijesundara (Eds.), Ministry of Environment, Colombo, Sri Lanka: 99–113.
- Yapa, A. and G. Ratnavira (2013). *The Mammals of Sri Lanka*. Field Ornithology Group of Sri Lanka, University of Colombo, Colombo, Sri Lanka: 1001.

Received: 15 June 2015

Accepted: 25 June 2015