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Range extension for *Duttaphrynus kotagamai* (Amphibia: Bufonidae) and a preliminary checklist of herpetofauna from the Uda Mäliboda Trail in Samanala Nature Reserve, Sri Lanka

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***Abstract.*—Uda Mäliboda Trail is an unstudied, remarkable forest located in the northwest region of Samanala Nature Reserve (SNR) in Sri Lanka's wet zone. Here we report the first record of *D. kotagamai* from Uda Mäliboda Trail and the lowest elevation records of four highland Rhacophorid frogs: *Pseudophilautus alto*, *P. asankai*, *P. femoralis*, and *Taruga eques*. Further, we present results of a preliminary study of herpetofaunal diversity in Uda Mäliboda Trail. Thirty-four amphibian (26 endemic and 19 Threatened) and 59 reptile (32 endemic and 19 Threatened) species were observed. This wet zone forest supports high herpetofaunal diversity; however activities such as deforestation, human encroachment, mining, agriculture, dumping, road construction, and a hydroelectric power station threaten the ecology of this biologically diverse forest.**

Key words. Amphibians, awareness, conservation, *Duttaphrynus*, global biodiversity hotspot, *Pseudophilautus*, reptiles, Sri Lanka, threatened, wet zone

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Introduction

Western Ghats and Sri Lanka have collectively been designated a global biodiversity hotspot (Mittermeier et al. 2004; Myers et al. 2000). Favorable environmental factors such as high rainfall, humidity, and a high density of undergrowth vegetation in this region have assisted in sustaining regional diversity and distinctness (Bossuyt et al. 2005; Gunawardene et al. 2007). Sri Lanka comprises the smaller portion of the hotspot, with a total land area of 65,610 km^2. Despite its small size, the region has a spectacular assemblage of amphibians and reptiles. Recent molecular studies on amphibians (Rhacophorids and Caecilians) and Uropeltid snakes have shown that Sri Lanka has maintained a fauna distinct from the Indian mainland (Bossuyt et al. 2004; Meegaskumbura et al. 2002; Pethiyagoda 2005), yet these subregions are separated only by about 300 kilometers (direct distance).

Of Sri Lanka's three major climatic zones (wet, intermediate, and dry) the wet zone harbors a significantly high level of herpetofaunal diversity and endemism (Bambaradeniya et al. 2003; Senanayake et al. 1977; Wijesinghe and Dayawansa 2002). The wet zone receives abundant rainfall (annual average 3,000 mm), has considerable forest cover, and maintains favorable humidity and temperatures to support such high herpetofaunal diversity. Previous studies have noted that some herpetofaunal species as well as the wet zone forests themselves are threatened due to a variety of human activities (e.g., IUCN-SL and MENR-SL 2007). Many wet zone forests have yet to be studied. Uda Mäliboda in the Kegalle district (Sabaragamuwa Province) is one such unstudied wet zone forest.

Kotagama's dwarf toad (*Duttaphrynus kotagamai*) is endemic and Endangered and is one of the rarest bufonids in Sri Lanka (De Silva 2009). Originally described from the Sinharaja World Heritage Site in 1994 by Prithiviraj Fernando and Nihal Dayawansa (Fernando et al. 1994) this toad is known only from the Kitulgala, Massena, Erathna, and Delwala forest areas (Dutta and Manamendra-Arachchi 1996; Goonatilake and Goonati-

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lake 2001). It favors a few primary lowland rain forests in the wet zone with elevations below 1,070 m (IUCN-SL 2011). According to Manamendra-Arachchi and Pethiyagoda (2006) the holophoront (USNM 311595 H) has been lost from the National Museum of Natural History, Washington, D.C. (USA). Herein we describe new localities and a range extension for *D. kotagamai* from a lowland rain forest in the northwestern boundary of the Samanala Nature Reserve (SNR) and further provide a preliminary checklist of herpetofauna from the Uda Mäliboda Forest area.

Materials and methods

We used visual encounter survey methods (Crump and Scott 1994) to conduct herpetofaunal surveys for a total of 17 days and nights between 2006 and 2011. Night searches were performed using headlamps and flashlights. We searched specific microhabitats including underneath stones and decaying logs, inside tree holes, and other potential herpetofaunal retreats. Road kills and data from animals dispatched by villagers were also used as sources of information. Specimens were hand captured, photographed, identified using field guides and scientific publications (Ashton et al. 1997; De Silva 2009; Dutta and Manamendra-Arachchi 1996; Maduwage et al 2009; Manamendra-Arachchi et al. 2007; Manamendra-Arachchi and Pethiyagoda 2006; Meegaskumbura et al. 2010; Somaweera 2006; Somaweera and Somaweera 2009; Vogel and Rooijen 2011; Wickramasinghe et al. 2007a, b), and then released back to the original capture site without injury. Species nomenclature was based on Frost et al. (2006), Kotaki et al. (2010), Sumida et al. (2007), and Senaratna (2001), and conservation status was evaluated on the IUCN-SL and MENR-SL (2007).

Study area and habitats

The Samanala Nature Reserve (SNR) is one of the largest and most important forest areas for endemic biodiversity in Sri Lanka and is owned by the Central Highlands World Heritage Centre (UNESCO 2011). The Study area lies between 6°53'01.58'' N and 80°26'31.18'' E with elevations ranging from 300-700 m (Fig. 1). This forest area is part of the Kegalle district in Sabaragamuwa Province. Average annual rainfall ranges from 3,000-4,500 mm and the average annual temperature is 27.9 °C (Fig. 2). The vegetation of Uda Mäliboda Trail is categorized as lowland wet evergreen forest (Gunatilleke and Gunatilleke 1990) and is comprised of the following dominant genera: *Doona*, *Stemonoporus*, *Calophyllum*, *Syzygium*, *Shorea*, *Dipterocarpus*, *Cullenia*, and *Mesua* (Table 1). Pilgrims use four main trails annually between December and April to reach Adams Peak to worship. The Uda Mäliboda Trail starts from the "Uda Mäliboda village" and continues through Madáhinna (Kuruwita trail) via Adams Peak (elevation 2,245 m). This is the longest trail and is seldom used by pilgrims since it consists of rough terrain and narrow foot paths (Karunarathna et al. 2011).

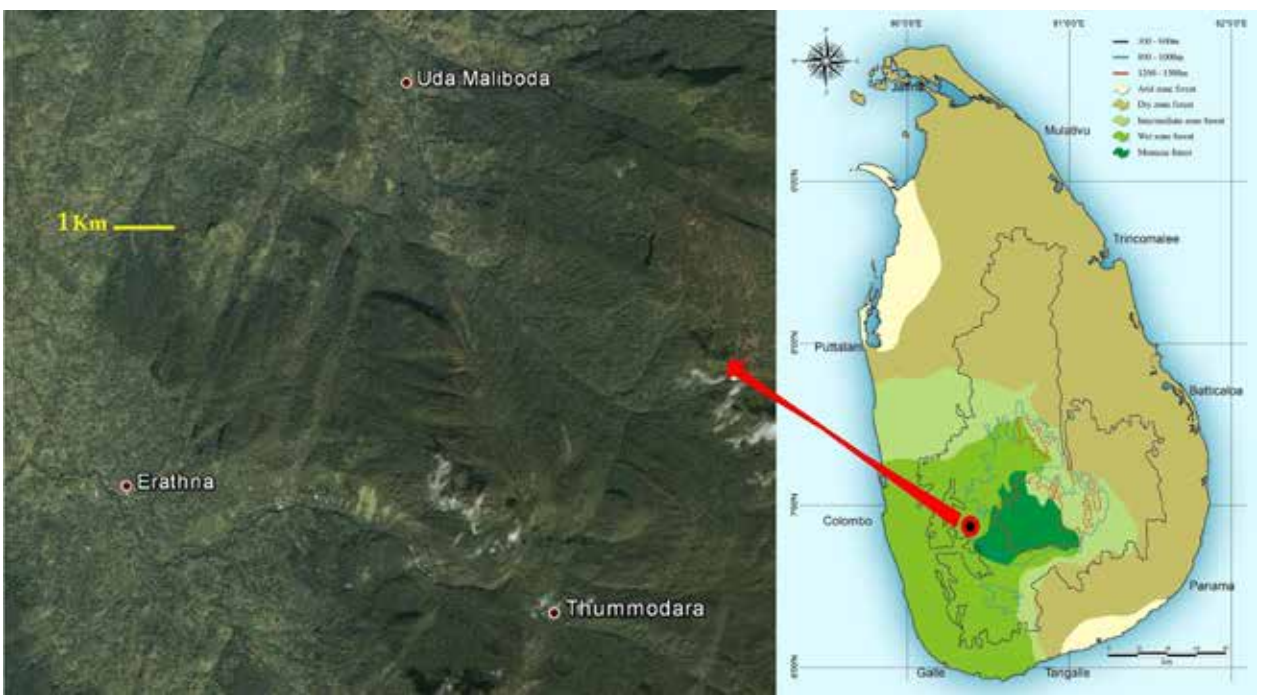

Figure 1. Map of study area (sky view source: Google map).

Table 1. Floral species presence in different level of Uda Mäliboda area (Uda Mäliboda Trail in SNR).

Prominent layer	Plant species diversity
Canopy	*Adinandra lasiopetala, Bhesa ceylanica, Calophyllum trapezifolium, Cullenia ceylanica, Shorea affinis, S. gardneri, Litsea gardneri, and Palaquium rubiginosum*
Subcanopy	*Apodytes dimidiata, Artocarpus nobilis, Calophyllum walkeri, Caryota urens, Cinnamomum ovalifolium, Cryptocarya wightiana, Dillenia triquetra, Elaeocarpus amoenus, Eugenia mabaeoides, Garcinia quaesita, Gordonia speciosa, Madhuca moonii, Mesua ferrea, Oncosperma fasciculatum, Schumacheria alnifolia, Stemonoporus gardneri, S. oblongifolia, Syzygium firmum, and S. turbinatum*
Climbers	*Calamus thwaitesii, Cosinium fenestratum, Cyclea peltata, Freycinetia walkeri, Rubus rugosus, and Smilax perfoliata*
Understory	*Acronychia pedunculata, Agrostistachys coriacea, Alpinia abundiflora, Amomum echinocarpum, Amomum masticatorium, Amorphophallus paeoniifolius, Arundina graminifolia, Calanthes* sp., *Cinnamomum verum, Clusia rosea, Cyathea crinita, Hedychium coronarium, Hortonia ovalifolia, Ipsea speciosa, Macaranga indica, Neolitsea cassia, Osbeckia aspera, Osbeckia lantana, Rhodomyrtus tomentosa, Strobilanthes* sp., *Syzygium cordifolium, Syzygium revolutum, and Utricularia striatula*

Results and discussion

New record for *D. kotagamai*

We report the occurrence of the Endangered, rare, and endemic *D. kotagamai* (Fernando and Dayawansa 1994) from Uda Mäliboda forest (Uda Mäliboda Trail) in the northwest region of the Samanala Nature Reserve (SNR = Peak Wilderness Sanctuary). According to Fernando et al. (1994), this species is distinguished from other *Duttaphrynus* species known from Sri Lanka and southern India by combination of the following characters: prominent parietal ridges on the head; long and narrow unlobulated parotoid glands; most areas of the anterior back are smooth; warts present on upper flank, supraorbital, and parietal ridges; tips of digits and tips of spinous warts black; first finger slightly longer than second finger (Fernando et al. 1994). Coloration in life is described as: orange-brown on dorsal surface mottled with dark brown (juveniles dorsal color is light golden); light cross band between eyes and distinct dark cross band on forearm, forefoot, tarsus, and tibia; less distinct cross band on upper arm and femur; lower jaw with alternate dark and light markings; ventral surface whitish mottled with dark brown, especially over sternum.

Eleven *D. kotagamai* were encountered during our survey. These toads were only found in primary forest and absent from human-disturbed areas. Except for one specimen, all were found within ~10 m of a small stream. (Fig. 3), and all but four individuals were observed at night. Three individuals from Uda Mäliboda measured: two males SVL 32.6 mm, 35.2 mm, and a female SVL 38.5 mm. We also found *D. kotagamai* in another previously unknown locality on an adjacent mountain in Deraniyagala in Kegalle district (Table 2). This mountain is located about five km north of Uda Mäliboda. There are no previous records of *D. kotagamai* from the Uda Mäliboda Trail (SNR; see De Silva 2009; Dutta and Manamendra-Arachchi 1996; IUCN-SL 2011; Manamendra-Arachchi and Pethiyagoda 2006; Goonatilake and Goonatilake 2001). The Uda Mäliboda locality is approximately six km (direct distance) from "Eratne" (Kuru river basin), the nearest published location. The direct distance between the onymotope and the new location is about 80 km. All of these areas have closed canopies with wet and cool habitats (Fig. 4).

Figure 2. View of forest in Uda Maliboda (larger water resource in the SNR).

Figure 3. Cascade habitat: shrub mixed with riverine forest patch.

Figure 4. Inside forest: tall trees, mixed vegetation with good leaf litter.

Based on the infrequent calls heard during our survey periods this species is presumably rare in Uda Mäliboda. It is aggressive when handled and releases a low-pitched distress call "crick, crick, crick…". With two new locations and a subsequent range extension, we can trace the probable distribution of *D. kotagamai* prior to fragmentation. The new locations indicate a larger distribution than previously concluded. As a result of severe fragmentation and habitat degradation in the area, local extinctions of previous populations have likely occurred in the past with current populations known only from a few isolated primary forest patches.

Herpetofaunal diversity

During the study we encountered 34 amphibian species representing 15 genera and seven families (Table 3). Among those genera *Adenomus*, *Lankanectes*, *Nannophrys*, and *Taruga* are endemic to Sri Lanka. Our results show that at least 31% of Sri Lanka's extant amphibians occur in the Uda Mäliboda area (Fig. 5). Twenty-six of the 34 species encountered (76%) are endemic, five (14%) are considered Near Threatened, four (11%) are Vulnerable, and ten (29%) are classified as Endangered (IUCN-SL and MENR-SL 2007). Families with the greatest number of endemic species include Rhacophoridae (16 species) and Dicroglossidae (six species), while the family Ichthyophiidae, Ranidae (two species each) and Nyctibatrachidae (one species) show the lowest rates of endemism. When considering the 34 species by their primary mode of living, 15 (44.1%) were arboreal, 10 (29.4%) terrestrial, seven (20.6%) aquatic, and two (5.9%) fossorial species.

Most amphibian species observed after brief periods of rain since many species frequently use temporary pools created by these showers. Two large streams course forest acting as barriers that restrict some species to particular habitats. Among the most commonly encountered amphibians were *Pseudophilautus folicola*, found on low growing woody vegetation near water bodies under closed canopy, and *Fejervarya kirtisinghei*, occurred near water bodies lacking canopy. Four Endangered and endemic highland species: *P. alto* (1,890-2,135 m elevation), *P. asankai* (810-1,830 m), *P. femoralis* (1,600-2,135 m), and *Taruga eques* (1,750-2,300 m; Manamendra-Arachchi and Pethiyagoda 2006) were encountered at this study site, approximately 700 m elevation (lowest elevation ever recorded for these species).

We report a range extension for *Pseudophilautus sarasinorum*, an Endangered species previously known only from the following localities: Peradeniya (07°16' N, 80°37' E; Onymotope); Bogawanthalawa-Balangoda road (near 25th km post), elevation 1,300 m (06°45' N, 80°2' E); Corbett's Gap, elevation 1,000 m (07°22' N, 80°50' E); Hunnasgiriya, elevation 367 m (07°23' N, 80º41' E); Agra Arboretum, elevation 1,555 m (06º50'

Table 2. Description of the 11 observed *D. kotagamai* individuals during the study period from Uda Mäliboda.

Date	Sex	Micro-habitat
18 January 2009	Male	Mid-stream boulder
	Male	Forest floor with leaf litter
	Female	Stream-bank boulder
17 April 2009	Female	Rock crevice
	Male	Stream-bank boulder
25 December 2009	Male	Stream-bank
07 May 2010	Male	Stream-bank
	Male	Stream-bank
22 August 2010	Female	Forest floor with leaf litter
	Male	On footpath
03 October 2011	Male	Stream-bank boulder

N, 80º40' E; Manamendra-Arachchi and Pethiyagoda 2005). Sumida et al. (2007) suggested the Sri Lankan population of *F. limnocharis* (in Dutta and Manamendra-Arachchi 1996; Manamendra-Arachchi and Pethiyagoda 2006) could be *F. syhadrensis*. However, recent molecular evidence revealed the Sri Lankan population of *F*. cf. *syhadrensis* is a separate and unnamed population belonging to a unique clade, together with *F. granosa* and *F. pierrei* (Kotaki et al. 2010). Therefore, we refrain from referring to the third *Fejervarya* species in Sri Lanka as *F. limnocharis* (in Dutta and Manamendra-Arachchi 1996; Manamendra-Arachchi and Pethiyagoda 2006) and instead refer it to as *F*. cf. *syhadrensis*.

Fifty-nine species of reptiles representing 37 genera from 11 families were recorded during these surveys (Table 4). Among those genera *Aspidura*, *Balanophis*, *Ceratophora*, *Cercaspis*, *Haplocercus*, *Lankascincus*, *Lyriocephalus*, and *Nessia* are considered endemic to Sri Lanka. Twenty-eight percent of Sri Lanka's extant reptiles were recorded in the study area (Fig. 5) including 28 species of lizards and 31 species of snakes. Of these 59 reptile species 32 (54%) are endemic, six (10%) Data Deficient, ten (17%) Near Threatened, five (8%) Vulnerable, and four (7%) Endangered (IUCN-SL and MENR-SL 2007). Families with the greatest species representation include Colubridae (17 species), Scincidae (11 species), and Gekkonidae (nine species), while the least represented family were Cylindrophidae, Pythonidae, and Typhlopidae (one species each). The highest number of endemic species were in the family Scincidae (nine species) and Colubridae (seven species), while the lowest number were in Cylindrophidae, Elapidae, and Typhlopidae (one species each). When considering the 59 species by primary mode of living: 24 (40.7%) were terrestrial, 21 (35.6%) arboreal, 11 (18.6%) fossorial, and three (5.1%) aquatic species.

Among the reptiles, *Otocryptis wiegmanni*, *Lankascincus greeri*, *Dendrelaphis schokari*, and *Hypnale zara* were the most commonly encountered species in and around footpaths. One unidentified species from the genus *Cyrtodactylus* was recorded during this survey and may be new to science. Several species of lizards (*Cnemaspis scalpensis*, *C. silvula*, *Hemiphyllodactylus typus*, *Eutropis beddomii*, and *Varanus bengalensis*) and snakes (*Boiga beddomei*, *Cercaspis carinatus*, *Haplocercus ceylonensis*, *Aspidura guentheri*, *Balanophis ceylonensis*, and *Typhlops mirus*) are noteworthy records. The Uda Mäliboda forest area also supports three highly venomous snakes: *Bungarus ceylonicus* (Sri Lanka krait), *Daboia russelii* (Russell's viper), and *Naja naja* (Indian cobra). Hence, both venomous and non-venomous snakes are frequently killed in this area due to fear and ignorance as a precautionary measure against snakebites. We failed to record any turtle species in the area, possibly due to low water temperatures in streams.

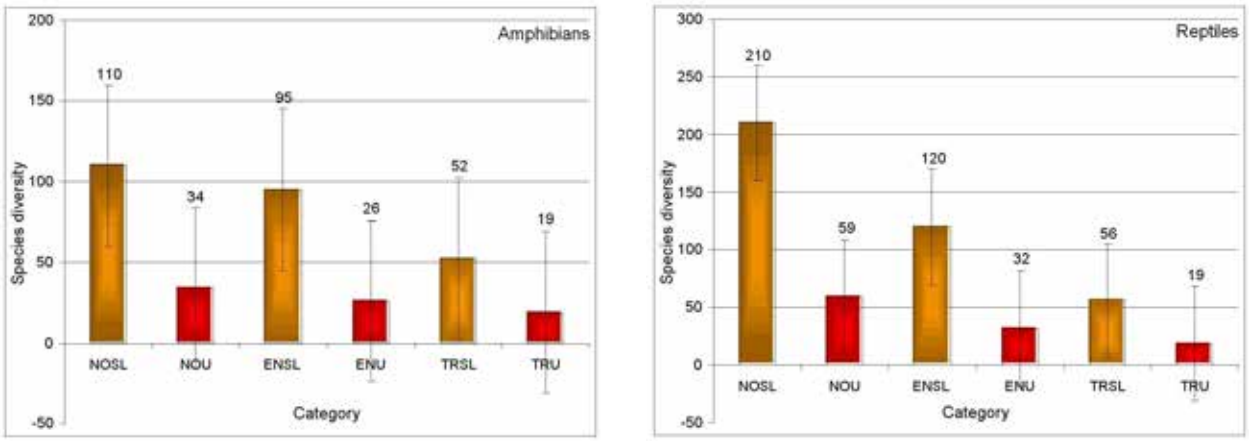

Figure 5. Comparison of amphibian (left) and reptile (right) diversity of Uda Mäliboda area with rest of the Sri Lankan species (Abbreviations: NOSL – total number of species in Sri Lanka; NOU – total number of species in Uda Mäliboda; ENSL – number of endemic species to Sri Lanka; ENU – number of endemic species in Uda Mäliboda; TRSL – number of threatened species in Sri Lanka and TRU – number of threatened species in Uda Mäliboda).

Table 3. Checklist of amphibian species in the Uda Mäliboda area (Abbreviations: E – endemic; EN – Endangered; VU – Vulnerable; NT – Near Threatened).

Family and species name	Common name
Bufonidae	
Adenomus kelaartii	Kelaart's dwarf toad [E]
Duttaphrynus kotagamai	Kotagama's dwarf toad [E, EN]
Duttaphrynus melanostictus	Common house toad
Microhylidae	
Kaloula taprobanica	Common bull frog
Microhyla rubra	Red narrow mouth frog
Ramanella nagaoi	Nagao's pugsnout frog [E, VU]
Ramanella obscura	Green-brown pugsnout frog [E, NT]
Nyctibatrachidae	
Lankanectes corrugatus	Corrugated water frog [E]
Dicroglossidae	
Euphlyctis cyanophlyctis	Skipper frog
Euphlyctis hexadactylus	Sixtoe green frog
Fejervarya kirtisinghei	Montain paddy field frog [E]
Fejervarya cf. *syhadrensis*	Common paddy field frog
Hoplobatrachus crassus	Jerdon's bull frog
Nannophrys ceylonensis	Sri Lanka rock frog [E, VU]
Rhacophoridae	
Pseudophilautus abundus	Labugagama shrub frog [E]
Pseudophilautus alto	Horton plains shrub frog [E, EN]
Pseudophilautus asankai	Asanka's shrub frog [E, EN]
Pseudophilautus cavirostris	Hollow snouted shrub frog [E, EN]
Pseudophilautus femoralis	Leafnesting shrub frog [E, EN]
Pseudophilautus folicola	Leaf dwelling shrub frog [E, EN]
Pseudophilautus hoipolloi	Anthropogenic shrub frog [E]
Pseudophilautus popularis	Common shrub frog [E]
Pseudophilautus reticulatus	Reticulated-thigh shrub frog [E, EN]
Pseudophilautus rus	Kandiyan shrub frog [E, NT]
Pseudophilautus sarasinorum	Muller's shrub frog [E, EN]
Pseudophilautus sordidus	Grubby shrub frog [E, NT]
Pseudophilautus stictomerus	Orange-canthal shrub frog [E, NT]
Polypedates cruciger	Common hour-glass tree frog [E]
Taruga eques	Mountain tree frog [E, EN]
Taruga longinasus	Long-snout tree frog [E, EN]
Ranidae	
Hylarana aurantiaca	Small wood frog [VU]
Hylarana temporalis	Common wood frog [E, NT]
Ichthyophiidae	
Ichthyophis glutinosus	Common yellow-band caecilian [E]
Ichthyophis pseudangularis	Lesser yellow-band caecilian [E, VU]

Threats and conservation

We believe the high diversity in wet zone forest habitats is due mainly to availability of abundant suitable microhabitat features (e.g., tree holes, caves, tree barks, rock boulders, crevices, water holes, decaying logs, loose soil, and other small niches) which create favorable environmental conditions for herpetofauna. According to our results, Uda Mäliboda area has a rich herpetofaunal diversity and endemism compared with other wet zone forests in Sri Lanka. A large number of people including tourists, devotees, and laborers annually visit Adams Peak via Uda Mäliboda Trail located within the SNR. As a result endemic and Threatened species, like many other fauna, are seriously affected by increasing pressure caused by habitat loss and degradation in montane forests, lower montane forests, and marshes. Major threats identified include illegal timber harvesting, illegal human encroachment, slash and burn forest clearing for human settlement and monoculture plantations (especially for tea cultivation), and gem mining. According to interviews with illegal timber harvesters, some rare tree species may be new to science are being harvested. Therefore, a further comprehensive study of flora is recommended.

Present human activities, the most severe being the construction of a hydroelectric power plant, continue to degrade and erode the remaining vestiges of this lush primary forest. Additionally, garbage (polythene) disposal along the Uda Mäliboda Trail by visitors and devotees is a threat that must be duly monitored by the Department of Wildlife Conservation (DWC) and the Forest Department (FD) of Sri Lanka. The Young Zoologists' Association (YZA) together with the Central Environmental Authority (CEA) has conducted annual polythene removal programs on other trail (Hatton) of SNR for the past 10 years. This has prompted other Government institutions and non-governmental organizations to engage in similar activities. We recommend that such programs be initiated on this trail in order to prevent further degradation of this lush forest.

Some human-altered landscapes such as tea plantations and *Pinus*, *Eucalyptus*, *Cyprus*, and *Casuarina* forest plantations are located in the foothills of the SNR. Most of these altered landscapes can be found up to about 800 m in elevation. There is an ongoing hydroelectric power plant development project in the study area (Fig. 6) and increased road traffic further threatens the area's fauna. Since a considerable area of the forest is altered by human activity, herpetofauna face increased threats because, in general, they are often highly sensitive to even slight environmental changes (e.g., McCallum 2007; Pough et al. 2004; Spellerberg 1991). Thus, the identification and designation of forest reserves on the perimeter of the SNR could function as suitable buffer zones. Additionally, public awareness programs are needed to help guide local people and policy makers de-

Table 4. Checklist of reptile species in Uda Mäliboda area (Abbreviations: E – endemic; EN – Endangered; VU – Vulnerable; NT – Near Threatened; DD – Data Deficient.

Family and species name	Common name
Agamidae	
Calotes calotes	Green garden lizard
Calotes liolepis	Whistling lizard [E, VU]
Calotes versicolor	Common garden lizard
Ceratophora aspera	Rough horn lizard [E, EN]
Lyriocephalus scutatus	Lyre-head lizard [E, NT]
Otocryptis wiegmanni	Sri Lankan kangaroo lizard [E, NT]
Gekkonidae	
Cnemaspis scalpensis	Gannoruva day gecko [E, DD]
Cnemaspis silvula	Forest day gecko [E]
Cyrtodactylus cf. *subsolanus*	Forest gecko sp.
Geckoella triedrus	Spotted bowfinger gecko [E, NT]
Gehyra mutilata	Four-claw gecko
Hemiphyllodactylus typus	Slender gecko [EN]
Hemidactylus depressus	Kandyan gecko [E]
Hemidactylus frenatus	Common house gecko
Hemidactylus parvimaculatus	Spotted house gecko
Scincidae	
Eutropis beddomii	Beddome's stripe skink [E, EN]
Eutropis carinata	Common skink
Eutropis macularia	Bronzegreen little skink
Eutropis madaraszi	Spotted skink [E, NT]
Lankascincus dorsicatenatus	Catenated lankaskink [E]
Lankascincus fallax	Common lankaskink [E]
Lankascincus gansi	Gans's lankaskink [E, NT]
Lankascincus greeri	Greer's lankaskink [E]
Lankascincus munindradasai	Munidradasa's lankaskink [E, DD]
Lankascincus sripadensis	Peakwilderness lankaskink [E, DD]
Nessia burtonii	Three toed snakeskink [E, EN]
Varanidae	
Varanus bengalensis	Land monitor
Varanus salvator	Water monitor
Pythonidae	
Python molurus	Indian python
Cylindrophidae	
Cylindrophis maculatus	Sri Lanka pipe snake [E, NT]
Colubridae	
Ahaetulla nasuta	Green vine snake
Ahaetulla pulverulenta	Brown vine snake [NT]
Boiga barnesii	Barnes's cat snake [E, NT]
Boiga beddomei	Beddoms cat snake [DD]
Boiga ceylonensis	Sri Lanka cat snake [VU]
Cercaspis carinatus	Sri Lanka wolf snake [E, VU]
Coeloganthus helena	Trinket snake
Dendrelaphis bifrenalis	Boulenger's bronze back [E]
Dendrelaphis caudolineolatus	Gunther's bronze back
Colubridae (cont.)	
Dendrelaphis schokari	Common bronze back [E]
Haplocercus ceylonensis	Black spine snake [E, DD]
Lycodon aulicus	Common wolf snake
Lycodon striatus	Shaw's wolf snake
Oligodon calamarius	Templeton's kukri snake [E, VU]
Oligodon sublineatus	Dumerul's kuki snake [E]
Ptyas mucosa	Rat snake
Sibynophis subpunctatus	Jerdon's polyodent
Natricidae	
Amphiesma stolatum	Buff striped keelback
Aspidura guentheri	Ferguson's roughside [E, NT]
Balanophis ceylonensis	Sri Lanka keelback [E, VU]
Atretium schistosum	Olive keelback
Xenochrophis asperrimus	Checkered keelback [E]
Typhlopidae	
Typhlops mirus	Jan's blind snake [E, DD]
Elapidae	
Bungarus ceylonicus	Sri Lanka krait [E, NT]
Naja naja	Indian cobra
Viperidae	
Daboia russelii	Russell's viper
Hypnale hypnale	Merrem's hump nose viper
Hypnale zara	Zara's hump-nosed viper [E]
Trimeresurus trigonocephalus	Green pit viper [E]

velop agendas that consider the importance of herpetofauna in maintaining a balanced and healthy ecosystem.

There is no doubt that SNR provides habitat for a high number of amphibian and reptiles species (many endemic and Threatened). We affirm that it is one of the most important herpetofaunal diversity areas in Sri Lanka, especially when considering the future conservation of endemic and threatened herpetofauna. Sri Lanka is known as an important herpetofaunal global hotspot (Bossuyt et al. 2004; Gunawardene et al. 2007; Meegaskumbura et al. 2002; Pethiyagoda 2005) and harbors an unusually high number of endemic species. Therefore, scientists and policy makers are strongly encouraged to make efforts conducting further research on other faunal groups, vegetation, and the forest's ecosystem as a whole. Furthermore, preserving the valuable herpetofaunal resources of the Uda Mäliboda Trail is paramount to the conservation of global biological diversity.

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Figure 6. Hydroelectric power plant (note: concrete wall built across the steam and concrete particles dump into the steam).

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Figure 7. *Duttaphrynus kotagamai* (Male; Endangered).

Figure 8. *Lankanectes corrugatus* (relict).

Figure 9. *Psedophilautus femoralis* (Endangered).

Figure 10. *Psedophilautus reticulates* (Endangered).

Figure 11. *Pseudophilautus alto* (Endangered).

Figure 12. *Pseudophilautus sarasinorum* (Endangered).

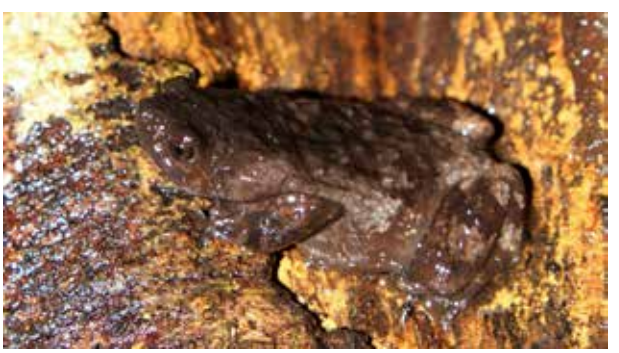

Figure 13. *Ramanella nagaoi* (Vulnerable).

Figure 14. *Taruga longinasus* (Endangered).

Figure 15. *Oligodon calamarius* (Vulnerable).

Figure 16. *Dendrelaphis schokari* (Endemic).

Figure 17. *Amphiesma stolatum* (red variety).

Figure 18. *Trimeresurus trigonocephalus* (plain variety).

Figure 19. *Hemidactylus depressus* (endemic).

Figure 20. Unidentified *Cyrtodactylus* cf. *subsolanus.*

Figure 21. *Lankascincus greeri* (endemic).

Figure 22. *Eutropis macularia* (common).

Figure 23. *Ceratophora aspera* (Endangered).

Figure 24. *Calotes liolepis* (Vulnerable).

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