

SINHARAJA FOREST RESERVE

# SINGING IN THE RAIN

The last remaining patch of rainforest  
in the tropical island of Sri Lanka  
is a veritable - and occasionally challenging -  
treasure trove of fascinating endemisms

■ *Green forest lizard Calotes calotes, commonly encountered in Sinharaja National Park. On the opening spread, another iconic species of the Sinharaja rainforest - a pair of the stunningly camouflaged Sri Lankan frogmouth Batrachostomus moniliger.*



■ *Gloriously beautiful, the Ground orchid Arundina graminifolia is a common sight in the Sinharaja secondary forest.*



TEXT BY ANDREA FERRARI  
PHOTOS BY ANDREA & ANTONELLA FERRARI

Encompassing the last extensive patch of primary lowland rainforest in Sri Lanka, world-famous but little-visited Sinharaja Forest Reserve is situated in the south-west lowland wet zone of the island. More than 60% of the trees found there are endemic, and many of them are considered rare. There is much endemic wildlife, especially birds, but the reserve is also home to over 50% of Sri Lanka's endemic species of mammals and butterflies, as well as many kinds of insects, reptiles and rare amphibians. Covering an area of 8,864 ha (about 11,000 ha according to some sources and if one takes the proposed reserve zones in consideration) and ranging from an altitude of 300 to 1,170 meters, it consists of 6,092 ha of Forest Reserve and 2,772 ha of Proposed Forest Reserve. This narrow strip of undulating terrain encompasses a series of ridges and valleys that are crisscrossed by an intricate network of streams. Draining to both the south and

north, these waterways flow into the Gin River on the southern boundary of the reserve and Kalu River via the Napola Dola, Koskulana Ganga and Kudawa Ganga on the northern boundary. Annual rainfall over the last 60 years has ranged from 3614 - 5006mm with most of the precipitation during the south-west monsoon (May-July) and the north-east monsoon (November - January), but such data can be misleading, making the planning of a visit an unpredictable venture. This is a very, very wet forest, which can only be explored on foot and which often requires negotiating muddy ground and wading small, shallow streams despite the presence of a good network of well-maintained forest tracks. Be prepared - Sinharaja can be jealous of its wonders and treasures (well, at least it was in our case - it never stopped raining while we visited, much to our annoyance since too much rain will keep many animal species in constant hiding!),

*continued on page 12* ➤

■ Another strikingly beautiful and strictly endemic species from the Sinharaja wet forest - the Sri Lanka blue magpie or Ceylon magpie *Urocissa ornata*.





■ The strange Hump-nosed lizard *Lyriocephalus scutatus* is one more extraordinary Sinharaja endemic.

and expect having to pick lots of blood-filled leeches from your tired limbs in the evening. It is worth the trouble of course - but be prepared, as wildlife photography in a dark and very wet rainforest full of leeches is anything but easy, and can often prove frustrating at the very least. But yes, it's worth it - after all, Sri Lanka is home to 830 endemic species, of which 217 trees and woody climbers are found in the lowland wet zone. Of these, 139 (64%) have been recorded in the reserve, including 16 rare species. Faunal endemism is particularly high for birds with 19 (95%) of 20 species recorded in the reserve being endemic to Sri Lanka. Endemism among mammals and butterflies is also greater than 50%. A number of threatened, endangered and/or rare species occur within the reserve including Sri Lankan leopard *Panthera pardus kotiya*, Indian elephant *Elephas maximus*, endemic Purple-faced Langur *Presbytis senex*, Sri Lanka wood pigeon *Columba torringtoni*, Green-billed Coucal *Centropus chlororrhynchus*, Sri Lankan white-headed starling *Sturnus senex*, Sri Lanka blue magpie *Urocissa ornata*, Ashy-headed babbler *Garrulax cinereifrons* and Sri Lankan broad-billed roller *Eurystomus orientalis irisi*.

**continued on page 14 >**

■ The beautiful Sri Lankan pit viper, Ceylon pit viper or Green pit viper *Trimeresurus trigonocephalus* is another endemic species and can be occasionally observed coiled in ambush on low branches.



■ A tiny and unidentified planthopper probably belonging to the family Dictyopharidae or Tropiduchidae.



### A UNESCO WORLD HERITAGE SITE

Sinharaja has been designated a World Heritage Site by UNESCO as it is the last remaining and relatively undisturbed patch of tropical humid evergreen forest in Sri Lanka. The flora found in the reserve is a relic of Gondwanaland, and it provides an important component to our scientific understanding of continental drift and an outstanding site for the study of the processes of biological evolution. A geological feature of considerable interest is the presence of the Sinharaja basic zone, with the reserve located within the transition zone of two important rock types characteristic of Sri Lanka; the south-western group and the highland group. Endemism within the area is extremely high. Protecting the last viable remnant of Sri Lanka's tropical lowland rainforest, Sinharaja is home to at least 139 endemic plant species within two main types of forest: remnants of *Dipterocarpus* in the valleys and on the lower slopes, and secondary forest and scrub where the original forest cover has been removed.

*continued on page 17* >




Left, Lantern bug *Pyrops maculatus*, an endemic species; right top, Tree-climbing freshwater crab *Perbrinckia scansor*, another endemic; right bottom, wasp-like moth *Syntomoides imaon*.







Green forest lizard   
Calotes calotes.

Sixteen of the endemic plant species within the reserve are considered rare, including the endemic palms *Loxococcus rupicola* and *Atalantia rotundifolia*. Faunal endemism is also high, particularly for mammals, birds and butterflies, exceeding 50%. Nineteen (95%) of Sri Lanka's 20 endemic birds are present in the property, which is also home to leopard and Indian elephant, both of which are threatened species. So, according to UNESCO criteria, Sinharaja Forest Reserve forms a sufficiently large conservation unit for the in-situ conservation of rare and endangered species while sustaining the on-going biological evolutionary processes for which it was inscribed. It is surrounded by 13 other adjacent natural forest areas that provide an added layer of protection to the property, whose boundaries however require further definition and demarcation. Efforts are **continued on page 21** ➤



Antonella ■  
photographing a male  
Hump-nosed lizard  
*Lyriocephalus scutatus*, a  
rainforest-dwelling  
endemic species.



Left, Pitcher plant *Nepenthes distillatoria*; right, male and female Sri Lankan frogmouth *Batrachostomus moniliger*.

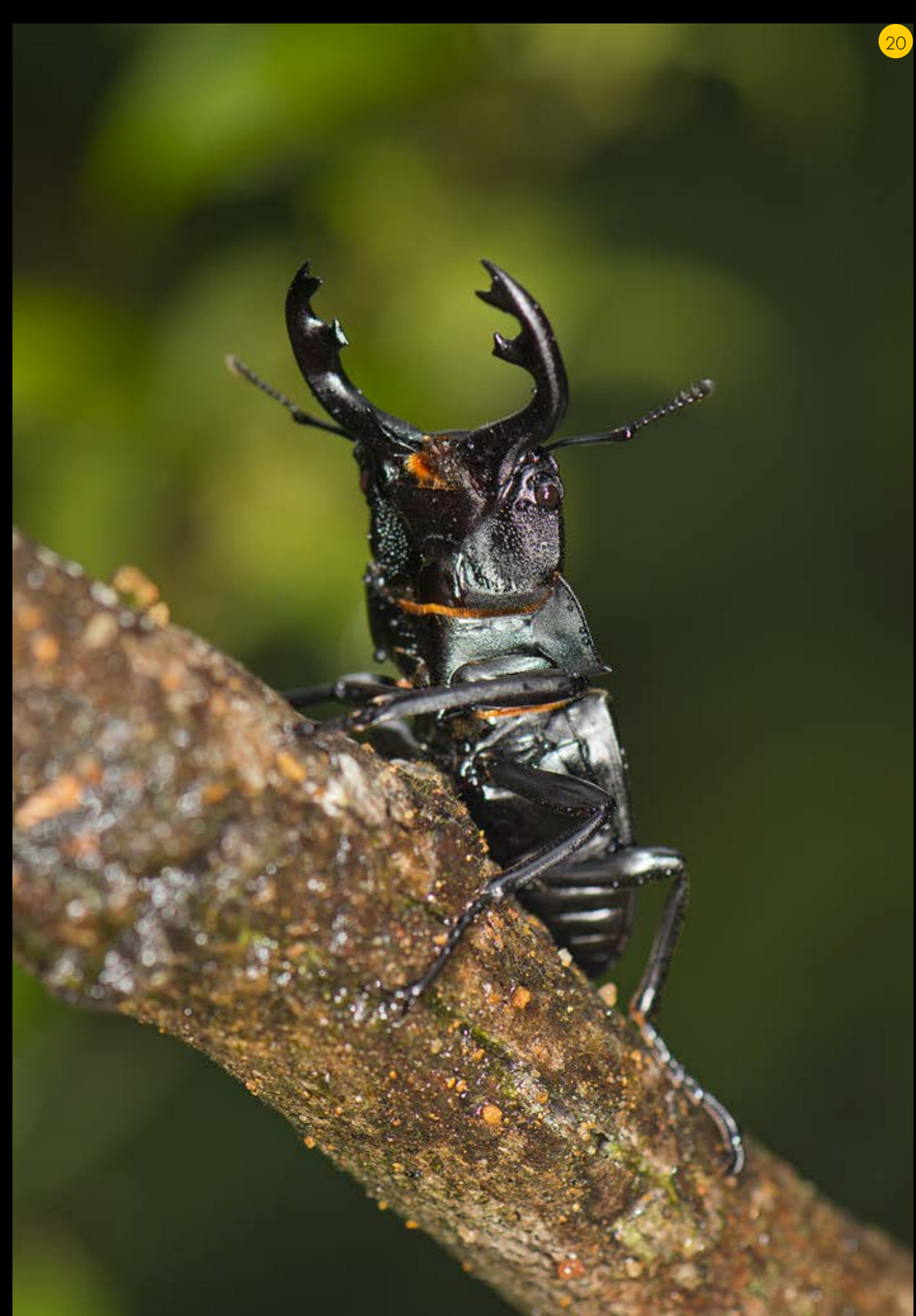


■ A tiny Ant-mimic  
Praying mantis  
*Odontomantis* sp.  
nymph.





■ Left,  
Sri Lankan or  
Brown-patched  
Kangaroo lizard  
*Otocryptis  
wiegmanni*,  
another endemic;  
right, male  
Stag beetle  
*Odontolabis  
nigrita*.



also being made by the management agency to further enhance the conservation status of the reserve through regulation of land uses occurring in the area surrounding the property, in the hope of further reducing the impact of intensive land use on the values of Sinharaja. Illicit timber felling, mining for gems and poaching (by locals and by foreign reptile and amphibian collectors for the exotic pet market) continue to be of concern with regards to the impacts on the values and integrity of the reserve, but the high level of public support for nature conservation and the large number of government bodies involved in regulation and proposal approval luckily results in strong opposition to resource exploitation proposals.

### CURRENT STATUS AND PAST HISTORY

Noted as a national heritage wilderness area on October 21st 1988, the majority of the area within the property was originally declared a forest reserve on May 3rd 1875, providing a long history of protection. The property is afforded the highest level of legal protection under the National Heritage and Wilderness Area Act of Sri Lanka and almost all the peripheral natural forests along the boundary have already been declared

*continued on page 25* >

Flower Praying mantis *Creobroter* sp. nymph.



■ *Tiger beetle*  
*Calochroa*  
*discrepans* - a very  
small but ferocious  
predator of the  
rainforest floor.





■ Top left, Sharp-snouted shrub frog *Pseudophilautus cuspis*, endemic; top right, Fulgorid planthopper, family Nogodinidae; bottom right, unidentified grasshopper; bottom left, Freshwater crab, family Parathelphusidae.







■ Large adult male Green forest lizard *Calotes calotes*.

■ Sri Lankan  
junglefowl  
*Gallus lafayetii*.



as conservation forests or reserved forests under the Forest Ordinance. The values encompassed by the property were further recognised when it was declared a Biosphere Reserve in April 1978 and subsequently inscribed on the World Heritage. The management plans for the property, prepared in 1985/86 and 1992/94, emphasize conservation, scientific research, buffer zone management, benefit sharing, and community participation. Sinharaja is provided with the highest level of legal protection under the National Heritage Wilderness Area Act and a high level of environmental awareness of the local community is extremely helpful in implementing management plan prescriptions. Forest dependency of local communities is very low and maintaining this healthy partnership with local communities is the main strategy to ensure future protection of this property. Historically protected as a result of its inaccessibility and steep, hilly terrain, the Forest Department prioritizes protection of the reserve over development pressures and resource extraction. Visitor numbers remain low with entry by permit only. Threats to the values and integrity of the property primarily come from encroaching cultivation, particularly along the southern

*continued on page 27* >

Top left,   
Besra Accipiter virgatus;  
top right, Spot-winged thrush  
Geokichla spiloptera, endemic;  
bottom right,  
Crimson marsh glider  
Trithemis aurora;  
bottom left,  
Spiny crab orb weaver  
Phoroncidia thwaitesii.



boundary. Development undertaken outside the property indirectly impacts the site through road developments which subsequently open up routes and entry points into the property, facilitating illegal logging and removal of resources, with illegal gem mining also posing a threat. The traditional use of forest products is now restricted to areas outside the boundaries. Sadly, low staffing levels hinder patrolling, and a lack of funding is a barrier to the effective, long-term management of the area. The management agency, the Sri Lankan Forestry Department, has designated the management of Sinharaja a high priority, allocating funds according to the priorities spelled out in the management plan and on-going management programmes.

### **ECOLOGY AND EVOLUTIONARY NOTES**

Also referred as Sinharaja Forest Reserve, the location of the Sinharaja Rain Forest is in the South Western part of the island, bordering three districts of the island, namely Galle, Matara and Ratnapura. The total area of

*continued on page 32* ➤



Geometrid Moth Berta sp.



■ Far left, land snail *Satiella* sp., an endemic species; center, Hump-nosed lizard *Lyriocephalus scutatus*; right, Green vine snake *Ahaetulla nasuta*.

■ The bane of Sinharaja - a harmless but bothersome leech waiting for its prey to pass by a rainforest trail.





■ Left, Flower Praying mantis *Creobroter* sp.; center, juvenile Green forest lizard *Calotes calotes*; right, Sri Lankan keelback water snake *Xenochrophis asperimus*.



■ Left, Sri Lanka blue magpie or Ceylon magpie *Urocissa ornata*; right, Purple-faced langur *Trachypithecus vetulus*, an endemic species.





Sinharaja Forest Reserve is very small: about 21 km lengthwise, with a minimum width of 3 km and a maximum width of 7 km throughout. The Rakwana Massif with its mountain ranges is part of the area covered by Sinharaja rain forest: the highest mountain peak found there is 1170 mt high and has eight peaks over 600 mt. This tormented topography affects the definition of vegetation zones, as the Sinharaja Forest is considered to be a Tropical Rainforest in the areas below 1000 mts. and a Sub-Montane Forest above 1000 mts. According to several sources the plant density inside the forest is 240,000 plants per hectare with 340 timber species of commercial value. Out of these 192 are endemic to Sri Lanka, and 19 out of these endemic species are found only within Sinharaja Forest. The formation of such a diverse and highly specific rainforest makes for an interesting story. The present rainforests in the world are an evolution of the earlier rainforests dating back to 150 - 200 million years. About 140 million years ago, during the Paleozoic era, a part of land from the Southern hemisphere called Gondwanaland - where present day India and Sri Lanka also were situated - started its slow process of separating from the main land. About 55 million years back - during the Cretaceous - the

*continued on page 34* ➤

■ Sinharaja can only be explored by walking.





■ Top left, Sharp-snouted shrub frog *Pseudophilautus cuspis*; top right, Sri Lanka Short-horned shrub frog *Pseudophilautus singu*. Bottom right, Asian grass frog *Ferjervaya limnocharis*; bottom left, Indian Green frog *Euphlyctis hexadactylus*.



■ Sri Lankan or Brown-patched Kangaroo lizard *Otocryptis wiegmanni*, an endemic species.



Deccan plate with Sri Lanka and India separated from the Southern hemisphere, started drifting towards the equator and joined with the Northern hemisphere called Laurussia. Due to this new environment, the life forms of that landmass started to undergo changes to evolve their own characteristics, making way to unique botanical and biological species. Later - around 20 million years ago - Sri Lanka separated from the Deccan plate. Today the rainforest in Sri Lanka is confined to its southern part, nearest to the equator. Forests in other parts of the island differ much from Sinharaja, as tropical rainforests need to have three main factors in common. First, there should be bright sunlight, second there needs to be a high rainfall, distributed all along the year and third, a high temperature, which keeps the region very humid. Only Sinharaja and few other scattered forests of lesser extent in the southwestern part of Sri Lanka fulfill the above criteria. Moreover, Sri Lanka was an

*continued on page 37* ➤



■ The beautiful Purple-faced langur *Trachypithecus vetulus* found in the Sinharaja rainforest is an endemic species.



■ Grizzled giant squirrel *Ratufa macroura melanochra*, another endemic.



■ *Left, one of the countless brooks and streams crisscrossing the rainforest landscape of Sinharaja; right, Sri Lanka blue magpie or Ceylon magpie Urocissa ornata.*

agricultural country since 4th century BC and much of the land in the northern and central part of the country, where there are forest covers now, had been under cultivation till around the 10th century AD, so the age of the forest cover there dates back only for around a thousand years. Taking note of the above, we now can finally add that the Sinharaja forest cover receives between 3000-6000 mm of rain throughout the year and has a minimum rainfall of over 200 mm, even during non-monsoon periods. The mean temperature is between 18-27 degrees centigrade with a humidity of 75% - 90%, and only a faint sunshine reaches the ground layer of the forest totalling a meager 5% - 15% of sunlight. As we already said, it's a very, very wet forest - but believe us, despite the leeches, at the end of a long day you'll be happily singing in the rain! ●



Sinharaja is crisscrossed by a large number of clear-water streams and brooks, mostly sandy and very shallow.





■ Left, an unidentified forest plant in bloom; right, the near-invisible shape of a Phasmid stick insect camouflaged on a tree's bark.





Due to its high ambient humidity, the forest of Sinharaja is home to a great variety of land snails, many of which are difficult to recognize for the non-specialist.



The rainforest landscape in Sinharaja offers a great variety of beautiful spots which are ideal for a brief pause - despite the harmless threat posed by the ever-present leeches!






■ Left, Sri Lankan or Brown-patched Kangaroo lizard *Otocryptis wiegmanni*, endemic; right, unidentified giant millipede. High ambient humidity is quite apparent in this latter image.



Sri Lankan junglefowl   
Gallus lafayettii.



A photograph of a rocky stream in a dense forest. The stream flows over large, dark, mossy rocks. The surrounding vegetation is lush and green, featuring large ferns on the left and various leafy plants on the right. The scene is captured from a slightly elevated perspective, looking down the length of the stream.

Many of the waterfalls and rocky streams in Sinharaja would be a challenge to negotiate - besides, walking in the Reserve is restricted to a network of well-marked forest trails.

Left, Sri Lankan or Brown-  
patched Kangaroo lizard  
*Otocryptis wiegmanni*.  
Right, a mosquito feeds  
undetected among the nuchal  
scales of an endemic  
Hump-nosed lizard  
*Lyriocephalus scutatus*.



■ *The unmistakable pitfall traps of the pitcher plant *Nepenthes distillatoria* are a common sight in the more open spots of Sinharaja's rainforest.*

