

BIRDWATCHERS IN ACTION

A survey of the avifaunal diversity of Samanala Nature Reserve, Sri Lanka, by the Young Zoologists' Association of Sri Lanka

D. M. S. SURANJAN KARUNARATHNA, A. A. THASUN AMARASINGHE & IMESH NUWAN BANDARA

Introduction

Samanala Nature Reserve, more commonly known as the Peak Wilderness Sanctuary (PWS) or simply Sri Pada, is one of the largest and most important forested areas in Sri Lanka. Sri Pada is the local name for Adam's Peak (2,245 m), the most prominent peak in the area and a mountain with great religious significance. On Sri Pada there is the outline of a footprint which is believed to be that of Gauthama Buddha by the Buddhists, of Shiva by the Hindus and of Adam by the Christians and Muslims. Every year thousands of people visit Adam's Peak to worship at this historical religious site. Whichever legend you care to believe, the fact remains that this holy mountain has been a pilgrimage site for over 1,000 years; the pilgrim season starts in December and continues until the Vesak festival in May. During this period the several pilgrim trails are very busy both with pilgrims and with traders who provide refreshments and facilities for them. For those with different interests and objectives this is not the ideal time to visit the area!

The PWS is the remnant of what was a huge tropical rainforest before colonial times, but large areas were cut down during the British colonial rule (1815–1948) and converted to tea plantations particularly in the Nuwara Eliya district, whilst other areas were cleared for different agricultural purposes. Fortunately the PWS was first declared

a wildlife sanctuary before the end of the colonial era in October 1940. It is difficult to quantify the size of the sanctuary accurately as there are few specific boundaries—most are marked by government- or privately owned tea plantations, and only the eastern boundary is clearly defined by the Pidurutalagala range and the Horton Plains National Park (Figure 1 shows the location of the PWS in relation to main settlements and access roads). In addition to Sri Pada (Adam's Peak), the two other prominent peaks of the range are Bena Samanala (2,012 m) and Kunudiya Parwathaya (1,582 m). The PWS plays an important role as a

Figure 1. Map showing position of Adam's Peak in relation to Colombo and other main towns.

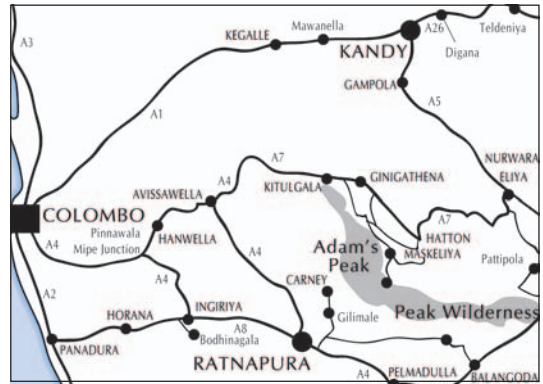


Plate 1. Panoramic view of Sri Pada or Adam's Peak (2,245 m), December 2010.



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Plate 2. Kunudiya Parwathaya (1,582 m), one of the other prominent peaks of the range.

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Plate 4. Near Belungala Amabalama.

watershed for three major Sri Lankan river systems, the Kelani flowing north-westwards, the Kalu flowing southwards, and the Walawe, which drains into the Udawalawe reservoir to the south-east. It lies between approx. 6.67°N 80.42°E and 7.00°N 80.83°E in the Nuwara Eliya district in Central province and Kegalle and Ratnapura districts in Sabaragamuwa province (Gunatilleke *et al.* 1996), and covers a total area of approx. 460 km² or about 0.7% of the land area of Sri Lanka (Wickramasinghe 1995).

Biologically the PWS is one of the richest forests in Sri Lanka for endemic biodiversity (Singhakumara 1995) and the highly dissected terrain is covered with some of the last remnants of altitudinal gradient rainforest, which extends from 400 m to the highest part of the range at over 2,200 m. The vegetation ranges from lowland wet evergreen forest or rainforest in Gilimale in the foothills on the south side through submontane evergreen forest (dominated by *Doona*, *Calophyllum* and *Syzygium*) to montane evergreen forest (dominated by *Michelia*, *Elaeocarpus*, *Syzygium* and *Gordonia*) at the highest elevations (Gunatilleke *et al.* 1996). Some human-altered landscapes such as chena (primitive shifting



Plate 3. Garbage tip after the pilgrim season at Ahalakanuwa, near Mahagiridambe, May 2004.

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Plate 5. Bena Samanala mountain range.

cultivation), rice, forestry (*Pinus*, *Eucalyptus*, *Cupressus* and *Casuarina*) and tea plantations are also found in the foothills up to about 800 m.

Survey of the avifauna of Samanala

The checklist of the avifauna of the PWS presented here (Appendix)—the first ever prepared for the area—was put together as a result of the extensive field surveys made by members of the Young Zoologists' Association of Sri Lanka (YZA) starting in 2001. Fourteen survey sites were chosen, all within the area of the PWS, located in Gilimale, Palabaddala, Lihini Hela, Induruwa, Kuruwita, Warna Gala, Dehena Kanda, Eratna, Bambarabotuwa, Moray, Maskeliya, Ratnapura, Bogawantalawa and Maliboda. The altitudinal range of these sites lay between 400 m and >2000 m. Survey work was carried out from June 2001 to August 2006 and teams visited each site every year. The team numbered 25 people in all and was split into small groups of 1–3 for the site visits, with about 30 working days (4–5 days per year) being spent at each site over the period.

Data were collected largely during the daytime using binoculars for direct visual identification but also via the indirect evidence of song and calls. In

addition several nocturnal field visits were made in the study areas using powerful flashlights to confirm identification. A comprehensive library of field guides was available to the team to aid identification (e.g. Kotagama & Fernando 1994, Henry 1998, Harrison 1999). In addition, basic environmental parameters were collected by the observers in the field.

Results and discussion

Sri Lanka has a high avian diversity, with 236 breeding and 203 migrant species. According to Warakagoda & Sirivardana (2009) 33 species and a further 68 subspecies are endemic and 46 species of birds in Sri Lanka, including 16 of the endemics, are classified as Threatened. The number of endemics is taxonomy-dependent, with a number of changes in the last 10–15 years (see, e.g., Rasmussen & Anderton 2005), so that the number of endemics has crept up to 33 if all the changes presently proposed are generally accepted. A total of 173 bird species summarised in the Appendix were recorded in the survey areas— about 40% of all the bird species recorded in Sri Lanka. All 33 endemics were recorded during the survey and we believe that the PWS is the only protected area where the island's full complement can be observed. The study area supports healthy populations of the endemic birds and the habitats to sustain them.

During the fieldwork, we saw many mixed feeding flocks, usually consisting of between about 70–150 individuals representing 8–27 species; these frequently included endemic species. We also had interesting records of non-avian species including the first record of an unknown shrew *Crociodura* species (Plate 6), which is probably new to science, and the first record (2002) for Sri Pada near Mahagiridambe (2,000 m) of a species of montane mouse deer that was first described from Horton Plains by Groves (2005).

Plate 6. This is the first image of an unknown shrew *Crociodura* species, probably new to science, Adavikanda, August 2007.



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Conservation issues

We assume that the large diversity in the avifauna is a consequence of the large number of ecosystems that exist in the PWS. Nowadays, however, human encroachment is a problem due to population growth; some areas of the PWS have been felled for tea and rubber plantations, mining of precious stones, and illegal new human settlements despite restrictions by the Departments of Forestry and Wildlife Conservation. All these human activities continue to degrade and erode the remaining areas of primary forest in the PWS. This is a major threat to some endemic bird species that require very shady, quiet, cool micro-habitats. It is also evident that PWS shelters very high numbers of birds and is an important refuge for many threatened bird species in the wet zone of Central and Sabaragamuwa provinces.

A positive development was the declaration of the 'Peak Wilderness Nature Reserve' as part of the 'Central Highland World Heritage Site of Sri Lanka' by UNESCO in August 2010. None-the-less, action is needed to conserve the PWS and its surrounding habitats, notably to identify and designate forest reserves on the perimeter of the sanctuary that could function as suitable buffer zones. The demarcation of boundaries and implementation of conservation education awareness programmes among villagers and visitors are a high priority. Monitoring vegetation changes such as forest die-back, invasion of exotic species in canopy openings such as footpaths and study of the migratory patterns of large and small animals are also needed. Another major priority is basic taxonomic and distribution surveys of the remnant forest area.

An important potential threat is the large volume of garbage including plastic sheeting (used for temporary shelters and stores) left by visitors and traders during the pilgrimage season; steps are needed to monitor this. During the season most birds and animals move away from the footpaths to the closed forest, but return afterwards and feed on the garbage directly and on worms, insects and their larval stages in the garbage.

There is also a need to review and complete taxonomic revisions to endemic species and races of the avifauna of Sri Lanka and make the literature and reference data available to Sri Lankan avifauna research workers. We suggest that the PWS is the most important avifaunal hotspot in Sri Lanka for the future conservation of the endemic avifauna.

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Plate 7. Sri Lanka Spurfowl *Galloperdix bicalcarata*, Kanneliya, Sri Lanka, January 2008.

Plate 8. Male Sri Lanka Grey Hornbill *Ocyceros gingalensis*, Seeta Gangula, Deraniyagala Road, October 2008.



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Plate 9. Female Sri Lanka Grey Hornbill *Ocyceros gingalensis*, Seeta Gangula, Deraniyagala Road, January 2009.



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Appendix. Checklist of bird species recorded at Samanala Nature Reserve between June 2001 and August 2006. Species in bold (24) are generally recognised as Sri Lankan endemics; species in bold italics (9) are not yet recognised as endemics in all quarters.

Rain Quail *Coturnix coromandelica*
 King Quail *Coturnix chinensis*
 Jungle Bush Quail *Perdica asiatica*
Sri Lanka Spurfowl *Galloperdix bicalcarata*
Sri Lanka Junglefowl *Gallus lafayetii*
 Asian Openbill *Anastomus oscitans*
 Woolly-necked Stork *Ciconia episcopus*
 Black-headed Ibis *Threskiornis melanocephalus*
 Striated Heron *Butorides striata*
 Indian Pond Heron *Ardeola grayii*
 Cattle Egret *Bubulcus ibis*
 Grey Heron *Ardea cinerea*
 Purple Heron *Ardea purpurea*
 Great Egret *Casmerodius albus*
 Intermediate Egret *Mesophox intermedia*
 Little Egret *Egretta garzetta*
 Spot-billed Pelican *Pelecanus philippensis*
 Little Cormorant *Phalacrocorax niger*
 Indian Cormorant *Phalacrocorax fuscicollis*
 White-bellied Sea Eagle *Haliaeetus leucogaster*
 Common Kestrel *Falco tinnunculus*
 Darter *Anhinga melanogaster*
 Peregrine Falcon *Falco peregrinus*
 Jerdon's Baza *Aviceda jerdoni*
 Black-winged Kite *Elanus caeruleus*
 Brahminy Kite *Haliastur indus*
 Grey-headed Fish Eagle *Ichthyophaga ichthyaeus*
 Crested Serpent Eagle *Spilornis cheela*
 Crested Goshawk *Accipiter trivirgatus*
 Shikra *Accipiter badius*
 Besra *Accipiter virgatus*
 Black Eagle *Ictinaetus malayensis*

Changeable Hawk Eagle *Spizaetus cirrhatius*
 White-breasted Waterhen *Amaurornis phoenicurus*
 Barred Buttonquail *Turnix suscitator*
 Red-wattled Lapwing *Vanellus indicus*
Sri Lanka Woodpigeon *Columba torringtoniae*
 Spotted Dove *Streptopelia chinensis*
 Emerald Dove *Chalcophaps indica*
 Orange-breasted Green Pigeon *Treron bicinctus*
Pompadour Green Pigeon *Treron pompadora*
 Green Imperial Pigeon *Ducula aenea*
Sri Lanka Hanging Parrot *Loriculus beryllinus*
 Alexandrine Parakeet *Psittacula eupatria*
 Rose-ringed Parakeet *Psittacula krameri*
 Plum-headed Parakeet *Psittacula cyanocephala*
Layard's Parakeet *Psittacula calthropae*
 Pied Cuckoo *Clamator jacobinus*
 Common Hawk Cuckoo *Hierococcyx varius*
 Indian Cuckoo *Cuculus micropterus*
 Banded Bay Cuckoo *Cacomantis sonneratii*
 Dronko Cuckoo *Surniculus lugubris*
 Asian Koel *Eudynamis scolopacea*
Red-faced Malkoha *Phaenicophaeus pyrrhocephalus* Greater
 Coucal *Centropus sinensis*
Green-billed Coucal *Centropus chlororhynchus*
 Oriental Bay Owl *Phodilus badius*
 Collared Scops Owl *Otus bakkamoena*
 Oriental Scops Owl *Otus sunia*
Serendib Scops Owl *Otus thilohoffmanni*
 Spot-bellied Eagle Owl *Bubo nipalensis*
 Brown Fish Owl *Ketupa zeylonensis*
 Brown Wood Owl *Strix leptogrammica*
 Jungle Owlet *Glaucidium radiatum*

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Plate 10. Sri Lanka Hanging Parrot *Loriculus beryllinus*, Malimboda, November 2008.

Plate 12. Layard's Parakeet *Psittacula calthropae*, Sinharaja, March 2007.

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Plate 11. Greater Racket-tailed Drongo *Dicurus paradiseus lophorinus*, Lihinihela, January 2007.

Plate 13. Eurasian Blackbird *Turdus merula kinnisii*, Seeta Gangula, Kuruwita Road, date unknown. Endemic to Sri Lanka, there is debate about its taxonomy.



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Plate 14. Scaly Thrush *Zosterda imbricata*, Bomburuetta, Sri Lanka, April 2006. This Sri Lankan endemic is Endangered.



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Plate 15. Dull Blue Flycatcher *Eumyias sordidus*, July 2006.

- Chestnut-backed Owlet** *Glaucidium castanonotum*
- Brown Hawk Owl *Ninox scutulata*
- Sri Lanka Frogmouth *Batrachostomus moniliger*
- Grey Nightjar *Caprimulgus indicus*
- Jerdon's Nightjar *Caprimulgus atripennis*
- Indian Swiftlet *Collocalia unicolor*
- Brown-backed Needletail *Hirundapus giganteus*
- Asian Palm Swift *Cypsiurus balasensis*
- Alpine Swift *Tachymarptis melba*
- House Swift *Apus affinis*
- Crested Treeswift *Hemiprocne coronata*
- Malabar Trogon *Harpactes fasciatus*
- Stork-billed Kingfisher *Halcyon capensis*
- White-throated Kingfisher *Halcyon smyrnensis*
- Oriental Dwarf Kingfisher *Ceyx erithacus*
- Common Kingfisher *Alcedo atthis*
- Green Bee-eater *Merops orientalis*
- Blue-tailed Bee-eater *Merops philippinus*
- Chestnut-headed Bee-eater *Merops leschenaulti*
- Sri Lanka Grey Hornbill** *Ocyrceros gingalensis*
- Brown-headed Barbet *Megalaima zeylanica*
- Yellow-fronted Barbet** *Megalaima flavifrons*
- Crimson-fronted Barbet** *Megalaima rubricapillus*
- Coppersmith Barbet *Megalaima haemacephala*
- Brown-capped Pygmy Woodpecker *Dendrocopus nanus*
- Rufous Woodpecker *Celeus brachyurus*
- Lesser Yellownape *Picus chlorolophus*

- Black-rumped Flameback *Dinopium benghalense*
- Greater Flameback** *Chrysocolaptes lucidus stricklandi*
- Indian Pitta *Pitta brachyura*
- Common Woodshrike** *Tephrodornis pondicerianus affinis*
- Ashy Woodswallow *Artamus fuscus*
- Common Iora *Aegithina tiphia*
- Large Cuckooshrike *Coracina macei*
- Black-headed Cuckooshrike *Coracina melanoptera*
- Small Minivet *Pericrocotus cinnamomeus*
- Scarlet Minivet *Pericrocotus flammeus*
- Bar-winged Flycatcher-shrike *Hemipus picatus*
- Brown Shrike *Lanius cristatus*
- Black-hooded Oriole *Oriolus xanthornus*
- White-bellied Drongo *Dicrurus caeruleus*
- Greater Racket-tailed Drongo** *Dicrurus paradiseus lophorinus*
- Black-naped Monarch *Hypothymis azurea*
- Asian Paradise-flycatcher *Terpsiphone paradisi*
- Sri Lanka Blue Magpie** *Urocissa ornata*
- House Crow *Corvus splendens*
- Large-billed Crow *Corvus macrorhynchos*
- Great Tit *Parus major*
- Barn Swallow *Hirundo rustica*
- Pacific Swallow *Hirundo tahitica*
- Red-rumped Swallow** *Hirundo daurica hyperythra*
- Rufous-winged Lark *Mirafra assamica*
- Oriental Skylark *Alauda gulgula*
- Zitting Cisticola *Cisticola juncidis*

Grey-breasted Prinia *Prinia hodgsonii*
 Jungle Prinia *Prinia sylvatica*
 Ashy Prinia *Prinia socialis*
 Plain Prinia *Prinia inornata*
 Common Tailorbird *Orthotomus sutorius*
Black-crested Bulbul *Pycnonotus melanicterus*
 Red-vented Bulbul *Pycnonotus cafer*
Yellow-eared Bulbul *Pycnonotus penicillatus*
 White-browed Bulbul *Pycnonotus luteolus*
 Yellow-browed Bulbul *Iole indica*
 Black Bulbul *Hypsipetes leucocephalus*
Sri Lanka Bush Warbler *Bradypterus palliseri*
 Clamorous Reed Warbler *Acrocephalus stentoreus*
 Greenish Warbler *Phylloscopus trochiloides*
 Large-billed Leaf Warbler *Phylloscopus magnirostris*
Brown-capped Babbler *Pellorneum fuscocapillus*
Indian Scimitar Babbler *Pomatorhinus horsfieldii melanurus*
 Tawny-bellied Babbler *Dumetia hyperythra*
 Dark-fronted Babbler *Rhopocichla atriceps*
 Yellow-eyed Babbler *Chrysomma sinense*
Orange-billed Babbler *Turdoides rufescens*
 Yellow-billed Babbler *Turdoides affinis*
Ashy-headed Laughingthrush *Garrulax cinereifrons*
 Oriental White-eye *Zosterops palpebrosus*
Sri Lanka White-eye *Zosterops ceylonensis*
 Velvet-fronted Nuthatch *Sitta frontalis*
Sri Lanka Myna *Gracula ptilogenys*
 Hill Myna *Gracula religiosa*

Common Myna *Acridotheres tristis*
White-faced Starling *Sturnus albobfrontatus*
Sri Lanka Whistling Thrush *Myophonus blighi*
Spot-winged Thrush *Zoothera spiloptera*
Scaly Thrush *Zoothera dauma imbricata*
 Eurasian Blackbird *Turdus merula*
 Oriental Magpie Robin *Copsychus saularis*
 Indian Robin *Saxicoloides fulvicatus*
 Asian Brown Flycatcher *Muscicapa dauurica*
Dull Blue Flycatcher *Eumyias sordidus*
 Tickell's Blue Flycatcher *Cyornis tickelliae*
 Grey-headed Canary Flycatcher *Culicicapa ceylonensis*
 Blue-winged Leafbird *Chloropsis cochinchinensis*
 Thick-billed Flowerpecker *Dicaeum agile*
Legge's Flowerpecker *Dicaeum vincens*
 Pale-billed Flowerpecker *Dicaeum erythrorhynchos*
 Purple-rumped Sunbird *Nectarina zeylonica*
 Purple Sunbird *Nectarina asiatica*
 Loten's Sunbird *Nectarina lotenia*
 House Sparrow *Passer domesticus*
 Black-headed Munia *Lonchura malacca*
 White-rumped Munia *Lonchura striata*
 Scaly-breasted Munia *Lonchura punctulata*
 Black-throated Munia *Lonchura kelaarti*
 Forest Wagtail *Dendronanthus indicus*
 Grey Wagtail *Motacilla cinerea*
 Paddyfield Pipit *Anthus rufulus*



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