

Summary of Ph.D. Thesis : Bird Community structure in selected forest types of Kerala

P.O. Nameer*

Editors' note : P. O. Nameer is a "strategic associate" of Zoo Outreach Organisation/CBSG, South Asia and several of our other networks. Nameer assisted us with an India mammal list in 1997 when we were organising the BCPP CAMP workshops for seven taxonomic groups in India. The list was his project at the wildlife training course at Chicago Field Museum, and Nameer said he had learned of the course from ZOO. Since that time Nameer has been exchanging information and assistance with ZOO. We invited Nameer to some small mammal CAMPs and training workshops and he returned the favour by hosting a very successful training in Kerala Agricultural University. Nameer learned a technique of "carding" for keeping and examination of biological samples in one of our workshops and taught it to his students, one of whom demonstrated the technique in another of our training workshops. Nameer has learned the CAMP Data Entry System and PHVA Modelling through various experiences and courses and now assists us with almost every workshop. We are happy to have the news that Nameer was awarded his Ph.D. Degree recently and requested him for a summary of his thesis for publication in ZOOS' PRINT and as an excuse to introduce him to our readers.

The information available about the bird communities of the various forest types in Kerala is very meager and is evident from the available literature. Hence, a study was carried out in the major forest types of Kerala, with a broad objective of finding out the bird community structure in the forest types of Kerala such as evergreen forests, moist deciduous forests, dry deciduous forests and shola forests. These four forest types were chosen because of the fact that these are the major forest types in Kerala. The study was conducted between November 2000 and December 2004.

Standard methods were followed for the conduct of the study. The major findings are:

1. Bird species richness was the maximum at moist deciduous forests followed by evergreen forests and was the lowest at shola forests.
2. Bird species abundance and diversity also followed a similar pattern.
3. The bird fauna was showing greater amount of dissimilarity among the four different habitats studied. In all the cases, the dissimilarity was > 50%, with maximum dissimilarity of 65% between birds of dry deciduous forests and shola forests.
4. Though the bird species richness, abundance and diversity were more in deciduous forests, the bird fauna of the deciduous forests were characterised by more generalist species, while the evergreen and shola forests were characterised by the specialists.
5. Similarly evergreen and shola forests supported more restricted range (endemic), endangered and migratory species of birds.
6. During the present study, 115 species of birds were recorded from Silent Valley (evergreen forests). Small

Sunbird (*Nectarinia minima*), Yellow-browed Bulbul (*Iole indica*), Small Green Barbet (*Megalaima viridis*), Malabar Whistling Thrush (*Myiophonus horsfieldii*), Jerdon's Imperial Pigeon (*Ducula badia*), Black Bulbul (*Hypsipetes leucocephalus*), Quaker Babbler (*Alcippe poioicephala*), Greenish Leaf-Warbler (*Phylloscopus trochiloides*), Lorikeet (*Loriculus vernalis*) and Blyth's Reed Warbler (*Acrocephalus dumetorum*) were the ten common species of birds recorded at Silent Valley.

7. Silent valley (evergreen forests) is perhaps the only protected area in the State that supports eight (26.7%) out of the 30 Red Data Book (RDB) species that are found in Kerala.

8. The Red Data Book species found in Silent Valley (evergreen forests) are Rufous-breasted Laughingthrush (*Garrulax cachinnans*), Nilgiri Wood-pigeon (*Columba elphinstonii*), White-bellied Shortwing (*Brachypteryx major*), Broad-tailed Grassbird (*Schoenicola platyura*), Great Hornbill (*Buceros bicornis*), Nilgiri Pipit (*Anthus nilghiriensis*), Black and Orange Flycatcher (*Ficedula nigrorufa*) and Nilgiri Flycatcher (*Eumyias albicaudata*).

9. Out of the eight red data book birds reported from Silent Valley (evergreen forests) Nilgiri Laughing thrush (*Garrulax cachinnans*) is having the Endangered (EN) status of IUCN (World Conservation Union), while the Nilgiri Wood-pigeon (*Columba elphinstonii*), White-bellied Shortwing (*Brachypteryx major*) and Broad-tailed Grassbird (*Schoenicola platyura*) belong to the Vulnerable (VU) category of IUCN. The Great Hornbill (*Buceros bicornis*), Nilgiri Pipit (*Anthus nilghiriensis*), Black and Orange Flycatcher (*Ficedula nigrorufa*) and Nilgiri Flycatcher (*Eumyias albicaudata*) belong to the Near Threatened (NT) category of IUCN.

10. The following birds were sighted from Silent Valley (evergreen forests) which is not included in *Birds of Kerala* of Salim Ali (1969). They are Nilgiri Laughingthrush (*Garrulax cachinnans*), White-bellied Shortwing (*Brachypteryx major*), Northern House-Martin (*Delichon urbica*), Streak-throated (Cliff) Swallow (*Hirundo fluviicola*), Eurasian Crag-Martin (*Hirundo rupestris*), Oriental Scops-Owl (*Otus sunia*) and Wire-tailed Swallow (*Hirundo smithii*).

11. One hundred and eight species have been recorded from Chinnar (dry-deciduous forests). The ten most common birds sighted at Chinnar were Spotted Dove (*Streptopelia chinensis*), Red-vented Bulbul (*Pycnonotus cafer*), Ashy Drongo (*Dicrurus leucophaeus*), Purple-rumped Sunbird (*Nectarinia zeylonica*), Indian Robin (*Saxicoloides fulicata*), White-headed Babbler (*Turdoides affinis*), Common Bee-eater (*Merops orientalis*), Ring Dove (*Streptopelia decaocto*), Purple Sunbird (*Nectarinia asiatica*) and Paradise Flycatcher (*Terpsiphone paradisi*).

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12. Chinnar (dry-deciduous forests) also support three RDB species such as White-rumped Vulture *Gyps bengalensis*, Nilgiri Wood-pigeon *Columba elphinstonii* and Yellow-throated Bulbul *Pycnonotus xantholaemus*. The White-rumped Vulture has the Critically Endangered (CR) conservation status of IUCN, while the Nilgiri Wood-pigeon and the Yellow-throated Bulbul are having the Vulnerable (VU) status.

13. The sighting of the Yellow-throated Bulbul (*Pycnonotus xantholaemus*) from Chinnar (dry-deciduous forests) is of significance as this is the first sighting of the Yellow throated Bulbul from Kerala.

14. Idukki (moist-deciduous forests) reported 114 species of birds during the present study. The ten birds commonly sighted in Idukki during the present survey were Small Green Barbet (*Megalaima viridis*), Purple Sunbird (*Nectarinia asiatica*), Hill Myna (*Gracula religiosa*), Red-whiskered Bulbul (*Pycnonotus jocosus*), Little Egret (*Egretta garzetta*), Grey-breasted Kingfisher (*Halcyon smyrnensis*), Golden Oriole (*Oriolus oriolus*), Racket-tailed Drongo (*Dicrurus paradiseus*), Blue-winged Parakeet (*Psittacula columboides*) and Orange Minivet (*Pericrocotus flammeus*).

15. Idukki (moist-deciduous forests) has six Red Data Book species, five are Near Threatened and one is Vulnerable. They are Nilgiri Wood-Pigeon (*Columba elphinstonii*), Nilgiri Flycatcher (*Eumyias albicaudata*), Darter (*Anhinga melanogaster*), Greater Grey-headed Fish-Eagle (*Ichthyophaga ichthyaetus*), Black-and-Orange Flycatcher (*Ficedula nigrorufa*) and Nilgiri Flycatcher (*Eumyias albicaudata*). Nilgiri Wood-Pigeon is the species with Vulnerable status, while the rest five species are of Near Threatened category of IUCN.

16. Forty-nine species of birds have been reported from Mannavan Shola (shola forests). The ten common species sighted at Mannavan shola are Grey-breasted Laughing thrush (*Garrulax jerdoni*), Grey-headed Flycatcher (*Culicicapa ceylonensis*), Greenish Leaf-Warbler (*Phylloscopus trochiloides*), White Eye (*Zosterops palpebrosa*), Nilgiri Flycatcher (*Eumyias albicaudata*), Velvet-fronted Nuthatch (*Sitta frontalis*), Quaker Babbler (*Alcippe poioicephala*), Black Bulbul (*Hypsipetes leucocephalus*), Black and Orange Flycatcher (*Ficedula nigrorufa*), Yellow-browed Bulbul (*Pycnonotus luteolus*).

17. Mannavan shola (shola forests) support six out of 30 RDB species of Kerala. They are Nilgiri Wood-pigeon *Columba elphinstonii*; White-bellied Shortwing *Brachypteryx major*; Nilgiri Pipit *Anthus nilghiriensis*; Greybreasted Laughing thrush *Garrulax jerdoni*; Black and Orange Flycatcher *Ficedula nigrorufa* and Nilgiri Flycatcher *Eumyias albicaudata*.

18. The general trend in the feeding guild structure was that in all the sites the guilds that predominated were the understorey insectivores (UND), nectarivores-insectivores (NEC), canopy insectivores (CAN) and frugivores (FRU), at varying degrees of concentration among the sites.

19. Parasitic cuckoos were conspicuous by their absence

in both the primary vegetation types viz. Silent Valley (evergreen forests) and Mannavan Shola (shola forests).

20. Silent Valley (evergreen forests) has 15 (93.75%) out of the sixteen endemic species of birds of Kerala. They are, Nilgiri Wood-Pigeon (*Columba elphinstonii*), Blue-winged Parakeet (*Psittacula columboides*), Grey-headed Bulbul (*Pycnonotus priocephalus*), Wynaad Laughing thrush (*Garrulax delesserti*), Nilgiri Laughing thrush (*Garrulax cachinnans*), Rufous Babbler (*Turdoides subrufus*), Broadtailed Grassbird (*Schoenicola platyura*), Nilgiri Flycatcher (*Eumyias albicaudata*), White-bellied Blue-Flycatcher (*Cyornis pallipes*), Black-and-Orange Flycatcher (*Ficedula nigrorufa*), Small Sunbird (*Nectarinia minima*), Malabar Grey Hornbill (*Ocyrceros griseus*), White-bellied Shortwing (*Brachypteryx major*), Nilgiri Pipit (*Anthus nilghiriensis*) and White-bellied Treepie (*Dendrocitta leucogastra*).

21. Silent Valley (evergreen forests) is perhaps the only location in Kerala where all the endemic species of birds of Kerala other than Grey-breasted Laughingthrush are seen.

22. Chinnar (dry-deciduous forests) has 11 (68.75%) out of the sixteen endemic species of birds of Kerala. They are Nilgiri Wood-Pigeon (*Columba elphinstonii*), Blue-winged Parakeet (*Psittacula columboides*), Grey-headed Bulbul (*Pycnonotus priocephalus*), Rufous Babbler (*Turdoides subrufus*), Nilgiri Flycatcher (*Eumyias albicaudata*), Whitebellied Blue-Flycatcher (*Cyornis pallipes*), Black-and-Orange Flycatcher (*Ficedula nigrorufa*), Small Sunbird (*Nectarinia minima*), Malabar Grey Hornbill (*Ocyrceros griseus*), Nilgiri Pipit (*Anthus nilghiriensis*) and White bellied Treepie (*Dendrocitta leucogastra*).

23. Idukki (moist-deciduous forests) has 11 (68.75%) out of the sixteen endemic species of birds of Kerala. They are, Nilgiri Wood-Pigeon (*Columba elphinstonii*), Blue-winged Parakeet (*Psittacula columboides*), Grey-headed Bulbul (*Pycnonotus priocephalus*), Wynaad Laughing thrush (*Garrulax delesserti*), Rufous Babbler (*Turdoides subrufus*), Nilgiri Flycatcher (*Eumyias albicaudata*), White-bellied Blue-Flycatcher (*Cyornis pallipes*), Black-and-Orange Flycatcher (*Ficedula nigrorufa*), Malabar Grey Hornbill (*Ocyrceros griseus*), Small Sunbird (*Nectarinia minima*) and White-bellied Treepie (*Dendrocitta leucogastra*).

24. Mannavan (shola forests) has nine (56.25%) out of the sixteen endemic species of birds of Kerala. They are, Nilgiri Wood-Pigeon (*Columba elphinstonii*), Blue-winged Parakeet (*Psittacula columboides*), Grey-breasted Laughing thrush (*Garrulax jerdoni*), Nilgiri Flycatcher (*Eumyias albicaudata*), White-bellied Blue-Flycatcher (*Cyornis pallipes*), Black-and-Orange Flycatcher (*Ficedula nigrorufa*), Small Sunbird (*Nectarinia minima*), White bellied Shortwing (*Brachypteryx major*) and Nilgiri Pipit (*Anthus nilghiriensis*).

25. 22% of the total birds of Silent Valley (evergreen forests) are migratory in nature. Some of the migratory birds of Silent Valley are Montagu's Harrier (*Circus pygargus*), Northern House-Martin (*Delichon urbica*), Eurasian Crag-Martin (*Hirundo rupestris*), Rusty-tailed Flycatcher (*Muscicapa ruficauda*), Brown-breasted Flycatcher

(*Muscicapa muttui*), Red-throated Flycatcher (*Ficedula parva*), Verditer Flycatcher (*Eumyias thalassina*), Blue-throated Flycatcher (*Cyornis rubeculoides*), Tickell's Leaf Warbler (*Phylloscopus affinis*), Greenish Leaf-Warbler (*Phylloscopus trochiloides*), Large-billed Leaf-Warbler (*Phylloscopus magnirostris*), Western Crowned Warbler (*Phylloscopus occipitalis*), Eurasian Golden Oriole (*Oriolus oriolus*), Black-naped Oriole (*Oriolus chinensis*) and Ashy Drongo (*Dicrurus leucophaeus*).

26. Fourteen percent of the total birds of Chinnar (dry-deciduous forests) are migratory in nature. Some of the migratory birds of Chinnar are Booted Eagle (*Hieraaetus pennatus*), Wood Sandpiper (*Tringa glareola*), Common Sandpiper (*Actitis hypoleucos*), Drongo Cuckoo (*Surniculus lugubris*), Northern House-Martin (*Delichon urbica*), Forest Wagtail (*Dendronanthus indicus*), Grey Wagtail (*Motacilla cinerea*), Rusty-tailed Flycatcher (*Muscicapa ruficauda*), Brownbreasted Flycatcher (*Muscicapa muttui*), Tickell's Leaf Warbler (*Phylloscopus affinis*), Greenish Leaf-Warbler (*Phylloscopus trochiloides*), Large-billed Leaf-Warbler (*Phylloscopus magnirostris*), Western Crowned Warbler (*Phylloscopus occipitalis*), Eurasian Golden Oriole (*Oriolus oriolus*) and Ashy Drongo (*Dicrurus leucophaeus*).

27. Fifteen percent of the total birds of Idukki (moist-deciduous forests) are migratory in nature. Some of the migratory birds of Idukki are Pallid Harrier (*Circus macrourus*), Common Buzzard (*Buteo buteo*), Osprey (*Pandion haliaetus*), Kentish Plover (*Charadrius alexandrinus*), Green Sandpiper (*Tringa ochropus*), Wood Sandpiper (*Tringa glareola*), Common Sandpiper (*Actitis hypoleucos*), Whiskered Tern (*Chlidonias hybridus*), Blue-tailed Bee-eater (*Merops philippinus*), Indian Pitta (*Pitta brachyuran*), Forest Wagtail (*Dendronanthus indicus*),

White Wagtail (*Motacilla alba*), Yellow Wagtail (*Motacilla flava*), Grey Wagtail (*Motacilla cinerea*), Brown Shrike (*Lanius cristatus*), Blue-headed Rock-Thrush (*Monticola cinclorhynchus*), Rusty-tailed Flycatcher (*Muscicapa ruficauda*), Brown-breasted Flycatcher (*Muscicapa muttui*), Greenish Leaf-Warbler (*Phylloscopus trochiloides*), Large-billed Leaf-Warbler (*Phylloscopus magnirostris*), Western Crowned Warbler (*Phylloscopus occipitalis*), Eurasian Golden Oriole (*Oriolus oriolus*) and Ashy Drongo (*Dicrurus leucophaeus*).

28. 18.4% of the total birds of Mannavan (shola forests) are migratory in nature. Some of the migratory birds of Idukki are Eurasian Golden Oriole (*Oriolus oriolus*), Ashy Drongo (*Dicrurus leucophaeus*), Brown-breasted Flycatcher (*Muscicapa muttui*), Verditer Flycatcher (*Eumyias thalassina*), Blyth's Reed Warbler (*Acrocephalus dumetorum*), Tickell's Leaf-Warbler (*Phylloscopus affinis*), Large-billed Leaf-Warbler (*Phylloscopus magnirostris*), Greenish Warbler (*Phylloscopus trochiloides*), Western Crowned Warbler (*Phylloscopus occipitalis*), Indian Blue Robin (*Luscinia brunnea*), Grey Wagtail (*Motacilla cinerea*) and Common Rosefinch (*Carpodacus erythrinus*).

29. The bird species richness, bird diversity and bird density were found to be negatively correlated with woody plant species diversity as well as with woody plant species richness, canopy density, tree density and vertical stratification at the shola forest.

30. The evergreen forests and shola forests both harbour species poor communities. However, the evergreen forests and shola forests are cohesive assemblages of restricted geographical distributions, while those of deciduous forests comprise of species of widespread occurrence.

Funding available for BGCI's 6th International Congress on Education in Botanic Gardens.

A series of scholarships, worth up to £1,500, have been made available to help towards transport, accommodation and congress fees of developing country participants. Anyone interested in applying for a scholarship needs to complete a scholarship application form (Go to the website www.bgci.org/educationcongress) and email, fax or post it back to BGCI by the deadline – **30th November 2005**. Applications received after this time cannot be considered.

Applicants will be required to:

- Submit a rationale and budget for their participation in the congress,
- Deliver a paper, workshop or poster at the congress on their education work,
- Disseminate the knowledge gained at the congress in their home country,
- Be conversant in either English or Spanish,
- Obtain support from their line manager or Head of Department.



For more details of the scholarships, and congress, visit the website above. Please note; if individuals are applying from a botanic garden, it must be a signatory of the **International Agenda for Botanic Gardens in Conservation**. The education congress, "**The Nature of Success: Success for Nature**" is being hosted next year by the University of Oxford Botanic Gardens, in collaboration with Royal Botanic Gardens Kew and BGEN (Botanic Gardens Education Network). The congress is taking place in the heart of the magnificent city of Oxford, UK, from **Sunday 10th – Thursday 14th September 2006** and will be addressing themes such as '*Achieving sustainability: ideas and solutions*', '*Public awareness of plants*', '*Reflection on practice*' and '*Education for all: working with challenging groups*'.

The congress committee are also calling for abstracts for presentations, workshops and posters to be submitted by 30th December 2005, via email to educationcongress@bgci.org. More details of accommodation costs, registration fees, facilities, how to find funding and key note speakers can be found on the education congress website, www.bgci.org/educationcongress.

For further information or questions about applying the above, please contact: Sarah Kneebone, Education Officer, Botanic Gardens Conservation International Descanso House, 199 Kew Road, Richmond, Surrey, TW9 3BW, U.K. Fax: +44 (0) 208332 5956, sarah.kneebone@bgci.org, www.bgci.org