

## The largest genus of birds takes a tumble



RAURI BOWIE (2)

The Golden-winged Sunbird *Nectarinia reichenowi* (below) has recently been placed in its own genus due to a deep groove on its forehead, but comparisons of DNA and plumage characters suggest that it is closely related to the Bronze Sunbird *N. kilimensis* (above).

**S**unbirds occur throughout sub-Saharan Africa and the islands of the Indian Ocean, extending across Asia and Indonesia, with one species reaching northern Australia. Most sunbirds are primarily forest dwellers, with many species having narrow ranges, but some have taken their nectarivorous lifestyle to such diverse habitats as deserts and Afro-alpine heaths and grasslands.

Despite the wide range of habitats occupied, sunbirds are remarkably uniform in terms of their structure. This has made it difficult to infer how the group evolved, and there is little consensus as to how the family should be classified. The lack of distinct characters has also led to many species being grouped together in a single genus, *Nectarinia*. With some 80 species, this is the largest genus of birds in the world.

The sunbirds traditionally are placed in five genera: *Nectarinia* and *Anthreptes* are found in both Africa and Asia, whereas the spiderhunters (*Arachnothera*), yellow-rumped sunbirds (*Aethopyga*) and Purple-naped Sunbird (*Hypogramma*) are restricted to Asia. The greater diversity of genera in Asia is in stark contrast to patterns of species-level diversity, with two-thirds of all sunbirds being endemic to Africa. Michael Irwin recently revised the classification of African sunbirds (1999, *Honeyguide*, Vol. 45), splitting *Nectarinia* into nine genera, eight of which are endemic to Africa. He used this reclassification to argue that the most ancient members of the family are African and not Asian. This classification has been largely adopted in volume VI of the *Birds of Africa* (Fry & Keith, 2000) and

*Sunbirds of the World* (Cheke, Mann & Allen: Helm Identification Guides, 2001).

FitzPatrick PhD student Rauri Bowie recently completed a study using DNA sequence data to examine relationships among 70 per cent of the world's sunbird species. His results confirm that the sugarbirds are not closely related to the Nectariniidae and that they should be placed in



their own family, the Promeropidae. The Asian spiderhunters, flowerpeckers and Purple-naped Sunbird form the base of the phylogeny (evolutionary tree), confirming their primitive status. Within the 'true' sunbirds, Asian species form a cluster that is basal to all other sunbirds, suggesting that the true sunbirds also originated in Asia. The exceptionally high species richness of the African sunbirds probably resulted from an explosive radiation after colonisation from Asia. However, one Asian species, the Olive-backed Sunbird *Nectarinia jugularis* is more closely related to African sunbirds than to any Asian species, suggesting that at least some birds moved back from Africa to Asia, possibly via the islands of the Indian Ocean.

The molecular evidence does not entirely support Irwin's recent reclassification of *Nectarinia*, but it is clear that the structural uniformity among sunbirds is often a result of convergence due to similar lifestyles rather than a common evolutionary history. □

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