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Insectivores (Pearl-breasted Swallow, above) figure prominently among African migrants, whereas frugivores (Crested Barbet, right) are almost entirely sedentary.

Fitztitute spearheads international migration study

For more than 2 000 years scientists have been fascinated by the migrations of birds. Much of this interest has centred on the ways in which birds orientate and navigate during their migrations and has spawned some ingenious and elaborate experiments. Partly because of the global distribution of scientists, long-distance migrants breeding in the far north have received a disproportionate amount of attention. Given that most of these migrations have arisen quite recently in evolutionary time, they may provide rather little insight into the evolution of migration itself.

One of the fundamental facets of migration that has been largely ignored involves predicting which species will be migratory and under what conditions. If we can answer this, it may give us insight not only into the evolution of migration, but also into the likely changes to migration patterns that will evolve in the future as a result of global climate change. Preliminary studies at the Fitztitute have identified some very interesting patterns among African birds. For example, species that eat insects, especially highly mobile insects or their larvae, are much more likely to be migratory than are species with different diets. Granivores, for example, are often nomadic, moving around opportunistically and unpredictably in response to rainfall. Frugivores, at the other extreme of the spectrum, are almost entirely sedentary. The latter raises some fascinating questions because in the New World tropics migration among frugivores is widespread – why the difference?

The way in which migrants move within Africa also differs from the New World and Asia/Australasia. Many African savanna-dwellers have populations that migrate from the tropics both north and south of the Equator to breed. Elsewhere, individual species tend to go either south or north, but not both. Preliminary analyses suggest this pattern has to do with the global distribution patterns of tropical forests and savannas, but other factors may come in to play. For example, many widespread species penetrate much further south in Africa than they do in Asia. Is this a response to habitat availability, or is it more to do with the stretches of water they have to cross while travelling through Indonesia? And another fascinating question – given that many landbird species that breed in the northern hemisphere migrate far south into Africa, why do only three such species, two of them swifts, make the journey to equivalent latitudes in Australia?

These broad-scale questions are of fundamental importance to our understanding of the phenomenon of bird migration, yet most of them remain only partially answered or languish in the realms of conjecture. Starting in 2001, Phil Hockey will be spearheading a team of South African, Australian, Asian and American scientists in a project geared at tackling these tantalising unknowns. The project will concentrate on migrations occurring at tropical and subtropical latitudes, because these might most closely resemble the ancestral journeys of birds. If we can explain why migration patterns differ across the three major north–south flyways, we will be one step closer to understanding how the most spectacular journeys undertaken by any animals on the planet came into being and how they might change in the future. □

Visit the FitzPatrick website: http://www.uct.ac.za/depts/fitzpatrick
Percy FitzPatrick Institute of African Ornithology, University of Cape Town, Rondebosch 7701, Cape Town, South Africa.
Tel. (021) 650 3290; fax (021) 650 3295; e-mail birds@botzoo.uct.ac.za