

Box 1.1: Biodiversity in Papua New Guinea

New Guinea is the world's second largest island. It has the third largest block of unbroken tropical rainforest in the world and the largest remaining tract of primary rainforest in the Asia-Pacific region^a. New Guinea's rich biota includes between 5 and 10 percent of the world's plant and animal species on less than 1 percent of its land surface.

Pinnacle and tower karst countryside



Mountain cuscus



On a national basis, New Guinea ranks sixth in the world in terms of endemism^b for mammals, birds and amphibians. In terms of species per 1,000 square kilometers, New Guinea ranks fifth for mammals, ninth for birds and second for amphibians. The high degree of floral endemism and the fact that many plant families are better represented in New Guinea than anywhere else indicates strong independent development of the biota of New Guinea over a long period of time and, in particular, that New Guinea has developed its own flora. Similarly there are high levels of endemism at both genus and species level in the mammals (Flannery, 1995; Bonaccorso, 1998), the majority of which are obligate forest dwellers.

Few New Guinean mammals or birds have very small natural ranges and, amongst mammals at least, most of these narrow range species are on isolated ranges, e.g., the Tenkile (*Dendrolagus scottae*) in the Torricelli mountains, and those in the main cordillera are mostly inhabitants of subalpine habitats (e.g., the rodent *Mallomys gunung*). New Guinea has been the centre of diversity for the birds-of-paradise, bowerbirds, Australasian 'robins' (*Petroicidae*), cassowaries and owlet-nightjars, and is the only place in which berrypeckers, longbills and pitohuis are found (del Hoyo et al., 1999; 2007; 2008; Mack & Dumbacher, 2007). Of the more than 800 bird species recorded in New Guinea, some 330 are endemic (Coates, 1985; Beehler et al., 1986).

Papuan frogmouth



The tree frog *Litoria cf. arfakiana*



The herpetofauna of New Guinea consists of over 600 species recorded so far (Menzies, 2006; Allison, 2007) and expected to increase substantially, with up to 600 frog species expected (Gunther, 2006). This estimate is supported by recent taxonomic revisions of the fauna and exploration of remote regions that have discovered numerous new species, particularly of frogs (e.g., Richards, 2007) and the gecko genus *Cyrtodactylus* (e.g., Rösler et al., 2007; Oliver et al., 2008).

For probably all biological groups except birds, discovery of new species and major range extensions will continue as surveying continues; large areas of the island still remain unexplored biologically. Moreover, modern taxonomic research is uncovering many new species in existing collections. For example, studies of New Guinean 'moss-mice' collected since the last major revision of the 1950s has raised the diversity in this group from 6 to 15 species (Helgen & Helgen, 2009; Helgen et al., 2010), with more species still to name.

Over a thousand species from PNG are listed by IUCN. One third of these are data deficient reflecting the limited biological knowledge of New Guinea. The table shows the breakdown by species groups.

IUCN-listed species in Papua New Guinea

Species Groups	IUCN status [*]						Grand Total
	CR	EN	VU	NT	LR/cd	DD	
Mammals	11	18	12	12		46	99
Birds	1	1	34	47		15	98
Reptiles	2	3	4	1			10
Frogs	1		10	0		114	125
Fishes	6	2	30	35	0	43	116
Invertebrates	0	9	160	155	3	51	378
Plants	14	19	15	26	7	113	194
Grand Total	35	52	265	276	10	382	1,020

^{*}CR: critically endangered, EN: endangered, VU: vulnerable, NT: near threatened, LR/cd: low risk/conservation dependent, DD: data deficient.

^a http://www.thebiggive.org.uk/project.php?project_id=5217.

^b Endemic species are those that are only found in a given region or location and nowhere else in the world.

