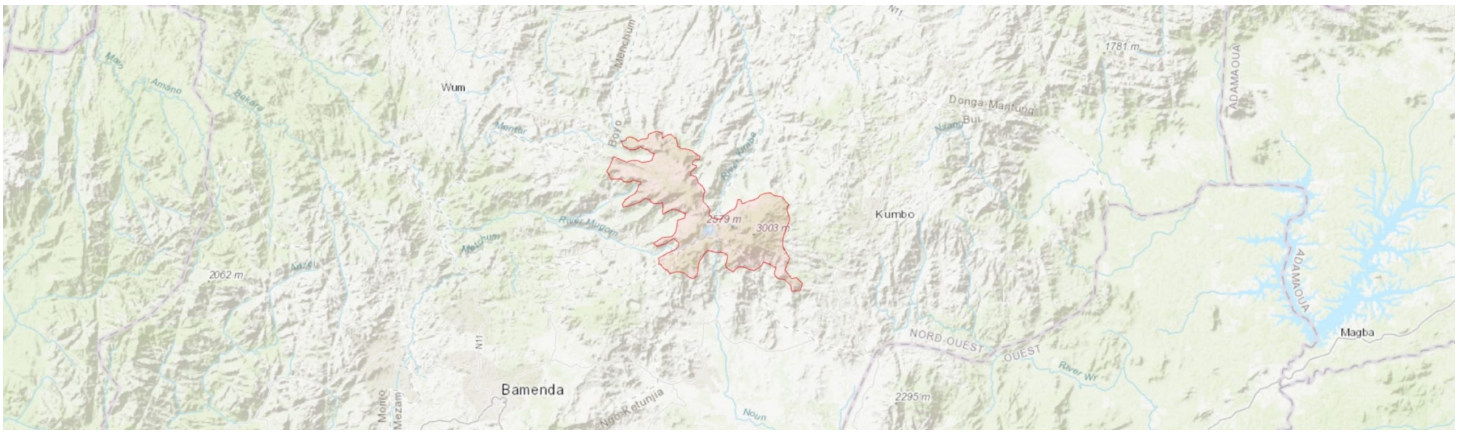
Mount Oku and the Kilum-Ijim forests

CMNTIPA037



Country: **Cameroon**
Administrative region: **Northwest (Region)**
Central co-ordinates: **6.22000 N, 10.44000 E**
Area: **289km²**

Qualifying IPA criteria

A(i)

IPA assessment rationale

Mount Oku and the Ijim Ridge qualifies as a potential IPA under criterion A(i) through the occurrence of numerous globally threatened species, several of which are narrowly endemic. It would likely qualify also under criterion B(ii) due to a high diversity of restricted or nationally endemic species, and also under criterion C(iii) as one of the top national sites for montane forest, subalpine vegetation or montane sphagnum bog.

Site description

Rising to around 3,000 m, Mt Oku is the second highest peak in Cameroon. Situated along the Cameroon Volcanic Line 280 km northeast of Mount Cameroon and the Gulf of Guinea coast, and 175-150 km northeast of Mt Kupe and Mount Manenguba, it is part of the Bamenda Highlands, an area which has been intensively populated and largely deforested. The proposed IPA is based on the Oku Ijim IBA (150 km2) which is similar to the core area surveyed by Cheek et al. (2000), both having been based on the the Kilum Forest Project Area (c. 200 km2 Maisels et al. 2000) which approximately follows the 2,000 m contour line. However, the area has been extended here, bringing the total area up to 289 km2. Communities surround the site, including the villages of Elak (where the headquarters of the Kilum Project was based), Oku and Jikijem to the northeast, Njinikom and Fundong to the west and northwest, Ibal to the south, and the suburbs of the larger town of Kumbo spreading from the east. Laikom, where the Fon of Kom's palace is sited, lies within the Ijim project area and within the proposed TIPA zone at the western tip of the Ijim Ridge. At the centre of the area at approximately 2,240 m lies lake Oku, a large crater lake.

Botanical significance

Mount Oku and the Ijim ridge is one of a handful of key sites for afromontane and subalpine vegetation outside of east Africa (Cheek et al., 2000; White, 1986). Cheek et al. (2000) recorded 850 species within a zone similar to the IPA proposed here. While the flora has natural affinities with other sites along the Cameroon line (Mt Cameroon, the Bakossi mountains, Mt Kupe, Tchabal Mbabo), it is also notably different, peaking at higher altitude than all but Mt

Cameroon and largely limited to the montane and upper submontane altitudinal bands. Mt Cameroon and Mt Oku are the only two sites reaching sufficient altitude for Afro-alpine vegetation (above 2,800 m) but Letouzey (1985) showed forest extended higher at Oku (to 3,000 m) than at Mt Cameroon. The site is the largest remaining and best preserved part of the formerly forested Bamenda Highlands, which have lost c. 95% of their original forest cover above 1,500 m (Cheek et al., 2000). Other remaining submontane forest patches in this area include the forests of Dom and Bali Ngemba, both also proposed as IPAs but both much smaller in size. The previously important forest at Bafut Ngemba has been all but obliterated, with 99% of the canopy estimated to have been lost or replaced by Eucalyptus; a similar fate is suspected at Kejodsam (Cheek et al., 2000).

The summit area of Mt Oku also features the highest known sphagnum bog in West Africa at 2,900 m, surveyed in 1997 (Maisels et al., 2000), as well as other rare natural habitat types (Cheek et al., 2000).

Around 50 globally threatened species are listed here, with nearly half estimated to have 10% or more of their global population at the site, an indication of the rarity of this habitat. Seven taxa are noted as narrowly endemic, including Alchemilla fischeri subsp. camerunensis (CR), which occurs only at the summit of Mt Oku itself, creating a silver carpet visible on satellite imagery. It is threatened by grazing and fire (Cheek et al., 2000). Other notable taxa include the two separate subspecies of Bafutia tenuicaulis, a genus confined to the Bamenda highlands area and named after Bafut Ngemba reserve where it is likely extinct; subsp. zapfackii is considered endemic to the Oku IPA. Newtonia camerunensis (CR) was feared extinct until rediscovered here and at one other site. Prunus africana has been heavily impacted by collection but Oku remains an important site.

The Oku-Ijim area is the sole location for Scleria cheekii (VU), although not all the records are quite within the IPA boundary (Bauters et al., 2019; Larridon et al., 2019). The same is true for Ledermanniella keayi (CR) (Diop, 2010). The site is one of only two locations where the medicinally important Ternstroemia cameroonensis (CR) has been recorded, although the collecting location was deforested and it has not been rediscovered at the site (Cheek et al., 2004). Angraecopsis lisowskii (EN) is only otherwise recorded from a few collections near Bamenda (Simo et al., 2018). Crotalaria bamendae is worthy of mention as it appears rare despite having a large range of occurrence extending to Angola and an IUCN status of Least Concern (Cheek, 2015); if threatened at Oku then it might qualify as threatened. Saxicolella ijim (provisionally CR) is known only from a waterfall close to the edge of the TIPA site at 1300 m. Saxicolella marginalis (CR) is also recorded nearby but not within the IPA boundaries. Polystachya anthoceros (EN) is known from Bali Ngemba and Baba II forests and from Oku village where it was collected from a coffee plantation, epiphytic on a coffee plant. This location is outside the IPA proposed here. A second location in the area of Oku-Ijim is also indicated by Simo-Droissart et al. (2020) but the specimen was not located and also appears to be outside the boundary. Schefflera hierniana (VU) is recorded along the route from Belo to Oku (Keay & Lightbody, 28519) but it is unclear if it occurs within the IPA.

A further eight undescribed species are thought likely to be threatened (Cheek et al., 2000), including apparently endemic Xyris and Gladiolus species, and an Oncoba sp. which has now also been collected at Bali Ngemba and which, it is is feared, may be extinct at the Oku site.

Habitat and geology

The Mount Oku massif is a Tertiary era stratovolcano complex, approximately 100 km in diameter, consisting of mainly trachyte and basalt lava overlying granite and migmatite basement rocks (Wooley, 2001). It consists of four individual stratovolcanoes, Mt Oku itself, the highest, reaching over 3,000 m, Mount Nkambe to the northeast, Mount Babanki to the southwest and Mt Nyos, with it's CO_2 emitting lake, to the northwest (Brunt, 2000; Konfor et al, 2007; Djukem et al., 2020). Mount Oku itself shows three periods of volcanic activity: a lower series of trachyte and rhyolite plugs and flows from 24-22 Ma, a middle series from 18-14 Ma of basalt, trachyte and rhyolite lavas intercalated by pyroclastic flows; and an upper series of recent

Conservation issues

Between 1963 and 1986 the forest at Kilum Ijim was estimated to have been reduced by 50% due to conversion for farmland (Macleod, 1987; Maisels & Forboseh, 1999). This sparked involvement by Birdlife International (then ICBP) and, in collaboration with MINEF, the creation of the Kilum and Ijim Forest Projects, which have operated together since 1995 (BirdLife International, 2003). The Projects aimed to prevent further forest loss and provide sustainable alternatives for local people (Maisels & Forboseh, 1999). In 2003 the project was transferred to MINEF and the local communities (Birdlife International, 2003). GIS analysis of the period has shown that the most intense forest loss occurred between 1984-1988, with forest limits being largely preserved from the onset of the Forest Projects, and net forest recovery recorded after 1995 (Baena et al., 2010). Without the change in deforestation trajectory associated with the initiation of the Forest Project it is estimated, based on rates of loss in 1987, that the forest would have completely disappeared by 1998 (Baena et al., 2010). However, threats remain and more recent reports suggest the forest continues to deteriorate due to grazing, burning, edge effects, fuelwood cutting, bark harvesting and building (Forboseh et al., 2003; Doherty-Bone & Gvoždík, 2017; Maisels et al, 2001; Stewart, 2009). Improvements to roads through the forest are likely to further increase pressure on the habitat (Doherty-Bone & Gvoždík, 2017). Grazing is a particular threat; it is not not thought to be a traditional practice (Cheek et al., 2000), and was halted within the forest after the onset of the forest project but has subsequently resumed (Maisels et al., 2001). The extinction of natural seed dispersers (megafauna and birds) is an additional concern to the long-term survival of the plantlife (Maisels et al., 2001). The forest is also used fairly intensively for non-timber forest products. Harvesting of Prunus africana bark constitutes a major threat to one

of the key montane forest species at the site (Stewart, 2009) but efforts have been made to promote cultivation and sustainable management of P. africana amongst local communities (Stewart, 2009).
A small part of the site around the lake (10 km2) has been designated a national Plantlife Sanctuary (IUCN category IV). The rest of the site has no formal protection but is managed by local communities in collaboration with MINEF.

Site assessor(s)

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IPA criterion A species

SPECIES	QUALIFYING SUB-CRITERION	≥ 1% OF GLOBAL POPULATION	≥ 5% OF NATIONAL POPULATION	1 OF 5 BEST SITES NATIONALLY	ENTIRE GLOBAL POPULATION	SOCIO-ECONOMICALLY IMPORTANT	ABUNDANCE AT SITE
Psychotria moseskemei Cheek	A(i)	✓	✓	✓	–	–	
Eugenia gilgii Engl. & Brehme	A(i)	✓	✓	✓	–	–	
Oxyanthus okuensis Cheek & Sonké	A(i)	✓	✓	✓	–	–	
Lefebvrea camerunensis (Jacq.-Fél.) Cheek & I.Darbysh.	A(i)	✓	✓	✓	–	–	
Polystachya superposita Rchb.f.	A(i)	✓	✓	✓	–	–	
Disperis nitida Summerh.	A(i)	✓	✓	✓	–	–	
Habenaria obovata Summerh.	A(i)	✓	✓	✓	–	–	
Millettia conraui	A(i)	✓	✓	✓	–	–	
Acanthopale decempedalis C.B.Clarke	A(i)	✓	✓	✓	–	✓	
Scleria cheekii Bauters	A(i)	✓	✓	✓	✓	✓	Abundant
Prunus africana (Hook.f.) Kalkman	A(i)	✓	–	✓	–	✓	
Dissotis bamendae Brenan & Keay	A(i)	✓	–	✓	–	–	
Anthocleista scandens Hook.f.	A(i)	✓	✓	✓	–	–	
Ixora foliosa Hiern	A(i)	✓	–	✓	–	–	
Tapinanthus letouzeyi (Balle) Polhill & Wiens	A(i)	✓	✓	✓	–	–	
Begonia oxyanthera Warb.	A(i)	✓	–	✓	–	–	
Crassocephalum bauchiense (Hutch.) Milne-Redh.	A(i)	–	–	✓	–	–	

SPECIES	QUALIFYING SUB-CRITERION	≥ 1% OF GLOBAL POPULATION	≥ 5% OF NATIONAL POPULATION	1 OF 5 BEST SITES NATIONALLY	ENTIRE GLOBAL POPULATION	SOCIO-ECONOMICALLY IMPORTANT	ABUNDANCE AT SITE
Crotalaria ledermannii Bak.f.	A(i)	✓	✓	✓	–	–	
Phyllopentas ledermannii (K.Krause) Kårehed & B.Bremer	A(i)	✓	✓	✓	–	–	
Polystachya bicalcarata Kraenzl.	A(i)	✓	✓	✓	–	–	
Bidens mannii T.G.J.Rayner	A(i)	✓	–	✓	–	–	
Isoglossa nervosa C.B.Clarke	A(i)	✓	✓	✓	–	–	
Ternstroemia cameroonensis Cheek	A(i), A(iii)	–	–	✓	–	✓	Occasional
Wahlenbergia ramosissima (Hemsl.) Thulin subsp. ramosissima	A(i)	✓	✓	✓	–	–	
Kniphofia reflexa Hutch. ex Codd	A(i)	✓	✓	✓	–	–	
Dombeya ledermannii Engl.	A(i)	✓	–	✓	–	–	
Stachys pseudohumifusa subsp. saxeri	A(i)	✓	✓	✓	–	–	
Coleus maculosus (Lam) A.J.Paton subsp. lanatus (J.K.Morton) A.J.Paton	A(i)	✓	✓	✓	–	✓	
Newtonia camerunensis Villiers	A(i)	✓	✓	✓	–	–	
Diaphananthe bueae (Schltr.) Schltr.	A(i)	✓	–	✓	–	–	
Genyorchis macrantha Summerh.	A(i)	✓	✓	✓	–	–	
Bafutia tenuicaulis C.D.Adams var. zapfackiana Beentje & B.J.Pollard	A(iii)	✓	✓	✓	✓	–	

SPECIES	QUALIFYING SUB-CRITERION	≥ 1% OF GLOBAL POPULATION	≥ 5% OF NATIONAL POPULATION	1 OF 5 BEST SITES NATIONALLY	ENTIRE GLOBAL POPULATION	SOCIO-ECONOMICALLY IMPORTANT	ABUNDANCE AT SITE
Crotalaria mentiens Polhill	A(i)	✓	✓	✓	–	–	
Orbivestus bamendae (C.D.Adams) Isawumi	A(i)	✓	✓	✓	–	–	
Alchemilla fischeri subsp. camerunensis Letouzey	A(i)	✓	✓	✓	✓	–	
Dipsacus narcisseanus Lawalrée	A(i)	✓	✓	✓	–	–	
Indigofera patula Baker subsp. okuensis Schrire & Onana	A(i)	✓	✓	✓	✓	–	
Habenaria maitlandii Summerh.	A(i)	✓	✓	✓	–	–	
Dovyalis cameroonensis Cheek & Ngolan	A(i)	✓	✓	✓	–	–	Scarce
Afroligusticum townsendii (Charpin & Fern.Casas) P.J.D.Winter	A(i)	✓	✓	✓	–	–	
Ledermanniella keayi (G.Taylor) C.Cusset	A(iv)	✓	✓	✓	–	–	
Brachystephanus giganteus Champl.	A(i)	✓	✓	✓	–	✓	
Schefflera mannii (Hook.f.) Harms	A(i)	–	–	✓	–	–	
Epistemma decurrens H.Huber	A(i)	✓	✓	✓	–	–	
Pentarrhinum ledermannii (Schlechter) Goyder & Liede	A(i)	–	✓	✓	–	–	
Deinbollia onanae Cheek	A(i)	✓	✓	✓	–	✓	
Angraecopsis lisowskii Szlach. & Olszewski	A(i)	✓	✓	✓	–	–	
Morella arborea (Hutch.) Cheek	A(i)	✓	✓	✓	–	–	

SPECIES	QUALIFYING SUB-CRITERION	≥ 1% OF GLOBAL POPULATION	≥ 5% OF NATIONAL POPULATION	1 OF 5 BEST SITES NATIONALLY	ENTIRE GLOBAL POPULATION	SOCIO-ECONOMICALLY IMPORTANT	ABUNDANCE AT SITE
Rhabdotosperma densifolia (Hook.f.) Hartl	A(i)	✓	✓	✓	–	–	
Rhabdotosperma ledermannii (Murb.) Hartl	A(i)	✓	✓	✓	–	–	
Scleria afroreflexa Lye	A(i)	✓	✓	✓	–	–	
Eragrostis camerunensis W.D.Clayton	A(i)	✓	✓	✓	–	–	
Pavetta hookeriana Hiern var. hookeriana	A(i)	✓	✓	✓	–	–	
Ledermanniella musciformis (G.Taylor) C.Cusset	A(iv)	✓	✓	✓	–	–	

IPA criterion C qualifying habitats

HABITAT	QUALIFYING SUB-CRITERION	≥ 5% OF NATIONAL RESOURCE	≥ 10% OF NATIONAL RESOURCE	1 OF 5 BEST SITES NATIONALLY	AREAL COVERAGE AT SITE

General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Montane Forest	70	Major
Grassland - Subtropical/Tropical High Altitude Grassland	20	Major
Wetlands (inland) - Permanent Rivers, Streams, Creeks [includes waterfalls]	–	Unknown
Wetlands (inland) - Permanent Freshwater Marshes/Pools [under 8 ha]	–	Major

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Nature conservation	4	Major
Agriculture (arable)	–	Minor
Agriculture (pastoral)	20	Major
Harvesting of wild resources	–	Unknown

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	High	Ongoing - trend unknown
Residential & commercial development - Tourism & recreation areas	Medium	Ongoing - trend unknown
Agriculture & aquaculture - Livestock farming & ranching - Small-holder grazing, ranching or farming	High	Ongoing - trend unknown
Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity	High	Ongoing - trend unknown
Biological resource use - Gathering terrestrial plants - Intentional use (species being assessed is the target)	Medium	Ongoing - trend unknown
Biological resource use - Logging & wood harvesting	Medium	Ongoing - trend unknown

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Kilum Ijim, Mont Oku	IV: Floral Sanctuary	IPA encompasses protected/conservation area	10

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Mount Oku	Alliance for Zero Extinction Site	IPA encompasses protected/conservation area	167
Mount Oku	Important Bird Area	IPA encompasses protected/conservation area	200

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Site management plan in place	Kilum and Ijim Forest Project managed by local communities with MINEF.	–	–

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