

Mount Cameroon National Park

CMNTIPA039



Country: **Cameroon**

Administrative region: **Southwest (Region)**

Central co-ordinates: **4.21400 N, 9.17610 E**

Area: **581.78km²**

Qualifying IPA criteria

A(i)

IPA assessment rationale

Around 80 globally threatened species are thought to have populations at the site sufficient to qualify MCNP as an IPA under criterion A(i). The site would very likely also qualify under criterion C when fully assessed because of the uniqueness of the high altitude zones and probably other habitats too. Species richness within habitats, and of restricted range species, might also qualify the site under criterion B(i) or B(ii) when appropriate lists are completed. It might also represent a top site for social, economic and culturally useful species (criterion Biii).

Site description

At 4040 m, Mount Cameroon, known locally as Fako, is the highest

mountain in West or Central Africa and also the only active volcano. It is the high point of the Cameroon Volcanic Line which extends between offshore islands Annobon, Sao Tome, Principe and Bioko and then inland roughly parallel to the Cameroon-Nigeria border. The National Park has been in existence since 2009. On the southwestern side the border extends as low as 130m, incorporating much of the transition from coastal lowland rainforest to subalpine summit grassland that makes the mountain unique in Africa. The border meets the Onge proposed reserve (Mokoko-Onge proposed IPA site) in the west and incorporates much of the former Bomboko forest reserve in the northwest. On the eastern side, the border is much higher up the mountain's flanks, up to 2500 m in the northeast and further south above Likombe. Although incorporating the important upland forests of Mount Etinde (1700 m) south of the main summit, the border runs at c.500 m on the south side above Batoke, excluding the lower slopes.

Botanical significance

Mount Cameroon is noted as the only site in Africa featuring an intact transition of natural vegetation from lowland forest at the coastal edge to subalpine summit grassland at 4000 m altitude (Cheek et al., 1996; Forbeseh et al., 2011). It has been a target for European botanists since 1861 when Gustav Mann collected hundreds of specimens there for RBG, Kew's director Sir William Hooker (Cable & Cheek, 1998). The far greater altitude compared to

any other site in West or Central Africa gives the site many locally or regionally rare taxa in the montane grassland zone from c. 1900 m to the summit (Cable & Cheek, 1998). Several taxa known only from historical collections by Mann are probably from this zone and could possibly have become extinct since as fire has increasingly been used on the upper slopes. Some species are historically recorded with uncertain locations and may or may not be extant within MCNP, including *Peperomia dusenii*, *Liparis kamerunensis*, *Triclisia macrophylla* and *Ardisia oligantha*.

Montane and submontane forest are found beneath this zone, and feature many species found also on other peaks of the Cameroon Volcanic Line and sometimes more distant montane sites. These include trees such as *Prunus africana*, *Morella arborea*, *Ixora foliosa* and *Schefflera* spp. Perhaps because of the unique climate or particular geology, some taxa at this altitude are also rare or locally endemic, such as *Impatiens etindensis* (EN).

The rare surviving evergreen forest on the lower slopes is perhaps the richest and most threatened habitat. It extends down to below 200 m in the southwest where it adjoins the Mokoko-Onge forest, and on the southern slopes the border meets the coastal plantation zone at 150-700 m. The forest around Mt Etinde is rich and relatively well preserved (BirdLife International, 2020).

As an active volcano, Mt Cameroon is a constantly evolving habitat with recent lava flows gradually maturing into fertile soils. Together with the effects of altitude and climate this makes it a particularly interesting theatre for ecological succession and evolution.

Habitat and geology

Mt Cameroon has areas with some of the highest rainfall in the world but the climate varies considerably over relatively small distances. At Cape Debundscha just outside the site boundary to the southwest the long term annual average from 1965-1993 was 9086 mm, slightly less than the >10 m cited by Courade (1974) presumably from a shorter period; the maximum annual total was nearly 17 m (Fraser et al., 1998). Elsewhere at Mokoko and Mbonge (15-20 km northwest of the boundary) and at Buea-Molyko (below the boundary on the eastern flanks at c.600 m), the yearly mean drops to 2-3 m. Precipitation follows a seasonal pattern peaking in July and August when southwesterly winds bring moisture from the Atlantic but is much reduced between November and March as the inter-tropical convergence zone moves south and the Harmattan is the prevailing wind bringing dry dusty air from the north with less than 50 mm of rain per month away from the coast (Fraser et al., 1998).

Mean monthly maximum and minimum temperatures vary very little seasonally but minimums are a few degrees lower at Mokundange (17.1-18.9 °C) than at Debuschanda (21.6-23.3 °C) and maxima a little higher (27.9-31.7 °C versus 27.2-30 °C).

Mt Cameroon is an active volcano with soils of varying age and maturity from different eruptions up to the present. It is formed of alkali basalt and basanite lavas overlying Cretaceous to Miocene (or more recent) sediments which in turn rest on Precambrian metamorphic basement rocks (Dereulle et al., 1987; Mathieu et al.,

2011). The mountain is considered to be a horst structure by Dereulle et al., 1987): ie. its height is constituted by uplift from below rather than just by accumulation of lava. Surface lavas have all been dated to 1-2 mya (Marzoli et al., 2000; Mathieu et al., 2011; Wembenyui et al. 2020) although upper Miocene age was previously estimated by Vincent 1971 (Dereulle et al., 1987) and 10 Ma by Fitton (1983). The unusual nephelinitic larva (Etindite) of Mt Etinde has been dated to 0.65 Ma and is now considered approximately simultaneous with Mt Cameroon (Nkoumbou et al., 1995; Ntounde et al., 2016) having previously been estimated to represent an earlier, Miocene, volcanic formation than the main massif (Dereulle et al., 1987; Cable and Cheek 1998).

Seven eruptions were recorded in the 20th century from various Mt Cameroon vents, with major lava flows within the national park area associated with the 1909, 1922, 1954, 1982, 1999 and 2000 eruptions, and a further brief eruption in 2012. The 1922 eruption reached the sea at Bibundi-Ideanau and the 1999 eruption descended 2500 m down the southern flank to stop just before the sea to the west of Bakingili (Geiger et al., 2016). Landslides and block falls are also common (Thierry et al., 2008). Many cinder cones are also present on the southern flanks. The soils of Mt Cameroon are mostly highly fertile and targeted by farmers (Hawkins & Brunt, 1965). The southern coastal strip has been particularly targeted for agri-plantations.

Several different vegetation types have been distinguished within the national park area (Letouzey 1968, 1981; Thomas & Cheek, 1992; Maley & Brenac 1998; Cable & Cheek, 1998). As well as those discussed above and their subdivisions, a large area of Marantacea open canopy forest is notable on the western side between approximately 500-2000 m (Cable & Cheek, 1999). The combined 1982-1999 lava flow which reaches the coast near Bakingili has been studied as a potential exclusion barrier, restricting elephants to the western side where they also frequent several crater lakes (Maicher et al., 2010). Lower tree diversity and a sparser, lower canopy but more large trees were found in the elephant zone.

Conservation issues

Although better preserved than much of the surrounding forest, the National Park is not without threats, particularly fire and small-scale timber and wood extraction by the growing populations of surrounding settlements, as well as farming within the MCNP (Awono et al., 2014). BirdLife International (2021) report that montane grassland is burnt annually in the dry season and is consequently impoverished. Clearance of forest outside the boundaries is also isolating the site and increasingly exposing the perimeter to edge effects. On the southern, southwestern and eastern boundaries, many threatened taxa are recorded from very close to the boundary or just outside and these populations are therefore highly threatened or may already be lost, particularly where agri-plantations have been established. The lack of protection even at high altitude on the eastern flanks above Buea is also of urgent concern since many important species are collected from here: this area is proposed as an additional (Eastern Mt Cameroon) IPA but

would be best managed in close association with the National Park. The National Park is unfortunately cut off from the coast, interrupting the unique altitudinal transition. A hard-surfaced coastal road runs between Ideanau and Limbe. The latter town is now connected to Mokundange and Batoke by continuous urban sprawl which has engulfed former plantation areas. A major new "Limbe Deep Sea Port" is planned at Ngeme, east of Mokundange, which is anticipated to bring 20,000 jobs and stimulate development in the area (Nghah, 2016). There is also an oil refinery at Mokundange and oil prospecting in the area. According to Birdlife International (2021), the best surviving forest of the whole mountain is around Mt Etinde, although its lower slopes are outside the National Park. Continued development around Batoke and the deep sea port will inevitably further threaten these slopes unless serious conservation efforts are made. The port is also anticipated to increase tourism to the area which, if managed well, could be positive for conservation (Olsen et al., 2001). The DFID and German Government funded Mount Cameroon Project, established in 1994, funded development projects in the area in collaboration with MINEF under a Participatory Biodiversity Conservation Strategy but international funding has diminished since 2008.

As in many parts of Cameroon areas, high levels of internal migration (up to 90% in the north part of the park Awono et al., 2014) and community conflicts complicate conservation action and undermine traditional stewardship of natural resources and biodiversity by indigenous groups.

Lava flows and landslides have the potential to eliminate small populations of some taxa at any time.

Site assessor(s)

Bruce Murphy, Royal Botanic Gardens, Kew

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
<i>Chassalia laikomensis</i> Cheek	A(i), A(iii)	–	–	–	–	–	
<i>Ardisia schlechteri</i> Gilg	A(i)	✓	✓	✓	–	–	
<i>Liparis kamerunensis</i> Schltr.	A(i)	✓	✓	✓	–	–	
<i>Peperomia dusenii</i> C.D.C.	A(i)	✓	✓	✓	✓	–	
<i>Impatiens grandisepala</i> Grey-Wilson	A(i)	✓	✓	✓	–	–	
<i>Psychotria bimbiensis</i> Bridson & Cheek	A(i)	✓	✓	✓	–	–	
<i>Cola metallica</i> Cheek	A(i)	✓	✓	✓	–	–	
<i>Chlorophytum petrophilum</i> K.Krause	A(i)	✓	✓	✓	–	–	
<i>Ardisia etindensis</i> Taton	A(i)	✓	✓	✓	–	–	
<i>Disperis kamerunensis</i> Schltr.	A(i)	✓	✓	✓	–	–	
<i>Aframomum</i>	A(i)	✓	✓	✓	–	–	
<i>Lecaniodiscus punctatus</i> J.B.Hall	A(i)	✓	✓	✓	–	–	
<i>Andropogon pusillus</i> Hook.f.	A(i)	✓	✓	✓	–	–	
<i>Manniella cyprapedioides</i> Salazar, T.Franke, Zapfack & Beenken	A(i)	✓	✓	✓	–	–	
<i>Polystachya cooperi</i> Summerh.	A(i)	✓	✓	✓	–	–	
<i>Peperomia kamerunana</i> C.D.C	A(i)	✓	✓	✓	–	–	
<i>Pavetta brachycalyx</i> Hiern	A(i)	✓	✓	✓	–	–	
<i>Habenaria batesii</i> la Croix	A(i)	✓	✓	✓	–	–	

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<i>Impatiens etindensis</i> Cheek & Eb.Fisch.	A(i)	✓	✓	✓	–	–	
<i>Uvariopsis korupensis</i> Gereau & Kenfack	A(i)	✓	–	✓	–	–	
<i>Disperis nitida</i> Summerh.	A(i)	✓	✓	✓	–	–	
<i>Luzula mannii</i> (Buchenau) Kirschner & Cheek	A(i)	✓	✓	✓	–	–	
<i>Anopyxis klaineana</i> (Pierre) Engl.	A(i)	–	–	✓	–	✓	
<i>Uvariadendron giganteum</i> (Engl.) R.E.Fr.	A(i)	✓	✓	✓	–	–	
<i>Deinbollia maxima</i> Gilg ex Engl.	A(i)	–	–	✓	–	–	
<i>Calycosiphonia macrochlamys</i> (K.Schum.) Robbr.	A(i)	–	–	✓	–	–	
<i>Piptostigma macrophyllum</i> Ghogue, Sonké & Couvreur	A(i)	✓	✓	✓	–	–	
<i>Helichrysum biafranum</i> Hook.f.	A(i)	✓	✓	✓	✓	–	
<i>Salacia volubilis</i> Loes. & H.J.P.Winkl.	A(i)	✓	✓	✓	–	–	
<i>Coleus cataractum</i> (B.J.Pollard) A.J.Paton	A(i)	✓	✓	✓	–	–	
<i>Leeuwenbergia africana</i> Letouzey & N.Hallé	A(i)	✓	–	✓	–	–	
<i>Leeuwenbergia letestui</i> Letouzey & N.Hallé	A(i)	✓	–	✓	–	–	
<i>Peperomia laeteviridis</i> Engl.	A(i)	✓	✓	✓	–	–	
<i>Palisota preussiana</i> K.Schum. ex C.B.Clarke	A(i)	✓	✓	✓	–	–	

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<i>Mikaniopsis maitlandii</i> C.D.Adams	A(i)	✓	✓	✓	–	–	
<i>Mikaniopsis tedliei</i> (Oliv. & Hiern) C.D.Adams	A(i)	–	✓	✓	–	–	
<i>Grossera major</i> Pax	A(i)	✓	✓	✓	–	–	
<i>Tricalysia atherura</i> N.Hallé	A(i)	✓	–	✓	–	–	
<i>Amorphophallus preussii</i> (Engl.) N.E.Br.	A(i)	✓	✓	✓	–	–	
<i>Xylopia africana</i> (Benth.) Oliv.	A(i)	✓	✓	✓	–	–	
<i>Hypseochloa cameroonensis</i> C.E.Hubb.	A(i)	✓	✓	✓	✓	–	
<i>Begonia oxyanthera</i> Warb.	A(i)	✓	–	✓	–	–	
<i>Oncoba lophocarpa</i> Oliv.	A(i)	✓	✓	✓	–	–	
<i>Lobelia columnaris</i> Hook.f.	A(i)	✓	–	✓	–	–	
<i>Acanthopale decempedalis</i> C.B.Clarke	A(i)	✓	✓	✓	–	–	
<i>Brachystephanus longiflorus</i> Lindau	A(i)	✓	✓	✓	–	–	
<i>Brillantaisia lancifolia</i> Lindau	A(i)	✓	✓	✓	–	–	
<i>Isoglossa nervosa</i> C.B.Clarke	A(i)	✓	✓	✓	–	–	
<i>Anthocleista scandens</i> Hook.f.	A(i)	✓	✓	✓	–	–	
<i>Calochone acuminata</i> Keay	A(i)	✓	✓	✓	–	–	
<i>Ixora foliosa</i> Hiern	A(i)	✓	✓	✓	–	–	
<i>Psychotria camerunensis</i> E.M.A.Petit	A(i)	✓	–	–	–	–	
<i>Psychotria podocarpa</i> Petit	A(i)	✓	✓	✓	–	–	
<i>Brachystephanus</i>	A(i)	✓	✓	✓	–	–	

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<i>giganteus</i> Champl.							
<i>Allophylus bullatus</i> Radlk.	A(i), A(iii)	✓	✓	✓	–	–	
<i>Schefflera mannii</i> (Hook.f.) Harms	A(i)	✓	✓	✓	–	–	
<i>Oxyanthus montanus</i> Sonké	A(i)	✓	✓	✓	–	–	
<i>Myosotis cameroonensis</i> Cheek & R.Becker	A(i)	✓	✓	✓	✓	–	
<i>Hamilcoa zenkeri</i> (Pax) Prain	A(i)	✓	–	–	–	–	
<i>Bidens mannii</i> T.G.J.Rayner	A(i)	✓	✓	✓	–	–	
<i>Pseudagrostistachys africana</i> subsp. <i>africana</i>	A(i)	–	✓	✓	–	–	
<i>Polygala tenuicaulis</i> Hook.f. subsp. <i>tenuicaulis</i>	A(i)	✓	✓	✓	✓	–	
<i>Cheirostylis divina</i> (Guinea) Summerh. var. <i>ochyrae</i> Szlach. & Olszewski	A(i)	✓	✓	✓	–	–	
<i>Deschampsia mildbraedii</i> Pilg.	A(i)	✓	✓	✓	–	–	
<i>Sporobolus montanus</i> Engl.	A(i)	✓	✓	✓	–	–	
<i>Afroligusticum townsendii</i> (Charpin & Fern.Casas) P.J.D.Winter	A(i)	✓	✓	✓	–	–	
<i>Chassalia petitiiana</i> Piesschaert	A(i)	–	–	✓	–	–	
<i>Morella arborea</i> (Hutch.) Cheek	A(i)	–	–	✓	–	–	
<i>Panicum acrotrichum</i> Hook.f.	A(i)	✓	✓	✓	–	–	
<i>Bulbophyllum teretifolium</i> Schltr.	A(i)	–	–	✓	–	–	
<i>Impatiens frithii</i> Cheek	A(i)	✓	✓	✓	–	–	

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<i>Uvariopsis submontana</i> Kenfack, Gosline & Gereau	A(i)	✓	✓	✓	–	–	
<i>Genyorchis macrantha</i> Summerh.	A(i)	✓	✓	✓	–	–	
<i>Dracaena kupensis</i> Mwachala, Cheek, Eb.Fisch. & Muasya	A(i)	✓	✓	✓	–	–	
<i>Habenaria obovata</i> Summerh.	A(i)	✓	✓	✓	–	–	
<i>Sclerochiton preussii</i> (Lindau) C.B.Clarke	A(i)	✓	✓	✓	–	–	
<i>Begonia quadrialata</i> Warb. subsp. <i>dusenii</i> (Warb.) Sosef	A(i)	✓	✓	✓	–	–	
<i>Wahlenbergia ramosissima</i> (Hemsl.) Thulin subsp. <i>ramosissima</i>	A(i)	✓	–	✓	–	–	
<i>Diospyros korupensis</i> Gosline	A(i)	✓	✓	✓	–	–	
<i>Globimetula oreophila</i> (Oliv.) Tiegh.	A(i)	✓	–	✓	–	–	
<i>Triclisia macrophylla</i> Oliv.	A(i)	–	–	✓	–	–	
<i>Drypetes burnleyae</i> Cheek	A(i)	✓	✓	✓	–	–	
<i>Oxyanthus doucetii</i> Sonké & O.Lachenaud	A(i)	✓	✓	✓	–	–	
<i>Stenandrium thomense</i> (Milne-Redh.) Vollesen	A(i)	✓	✓	✓	–	–	
<i>Mussaenda epiphytica</i> Cheek	A(i)	✓	✓	✓	–	–	
<i>Bulbophyllum josephi</i> (Kuntze) Summerh. var. <i>mahonii</i> (Rolfe) J.J.Verm.	A(i)	✓	✓	✓	–	–	

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<i>Mischogyne gabonensis</i> (Pelleg. ex Le Thomas) Gosline	A(i)	✓	✓	✓	–	–	
<i>Bulbophyllum gravidum</i> Lindl.	A(i)	–	–	✓	–	–	
<i>Crudia letouzeyi</i> Breteler & Nguema	A(i)	✓	✓	✓	–	–	
<i>Bulbostylis densa</i> (Wall.) Hand.-Mazz. var. cameroonensis S.S.Hooper	A(i)	✓	✓	✓	–	–	
<i>Beilschmiedia hutchinsoniana</i> Robyns & R.Wilczek	A(i), A(iv)	✓	✓	✓	–	–	
<i>Pavetta hookeriana</i> Hiern var. <i>hookeriana</i>	A(i)	✓	–	✓	–	–	
<i>Beilschmiedia myrciifolia</i> (S.Moore) Robyns & R.Wilczek	A(i)	✓	✓	✓	–	–	
<i>Dryopteris glandulosopaleata</i> J.P.Roux	A(iv)	✓	✓	✓	–	–	
<i>Festuca camerunensis</i> E.B.Alexeev	A(iii)	✓	✓	✓	✓	–	
<i>Sabicea urbaniana</i> Wernham	A(iv)	✓	✓	✓	–	–	
<i>Thelypteris pseudoguintziana</i> (Bonap.) Alston	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
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General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Montane Forest	–	Major

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Lowland Forest	–	Major
Grassland - Subtropical/Tropical High Altitude Grassland	–	Major

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Nature conservation	100	Major

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Annual & perennial non-timber crops - Agro-industry farming	Medium	Ongoing - increasing
Residential & commercial development - Housing & urban areas	Medium	Ongoing - increasing
Agriculture & aquaculture - Annual & perennial non-timber crops - Shifting agriculture	Medium	Ongoing - trend unknown
Biological resource use - Logging & wood harvesting	Medium	Ongoing - trend unknown
Biological resource use - Hunting & collecting terrestrial animals	Medium	Ongoing - trend unknown
Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity	High	Ongoing - trend unknown

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Mount Cameroon National Park	National Park	protected/conservation area matches IPA	100

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Mount Cameroon and Mokoko-Onge	Important Bird Area	protected/conservation area encompasses IPA	54
Mount Cameroon and Mokoko-Onge	Key Biodiversity Area	protected/conservation area encompasses IPA	54
Mount Cameroon and Mokoko-Onge	Alliance for Zero Extinction Site	protected/conservation area encompasses IPA	54

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Site management plan in place	A management plan for the National Park succeeding that expiring in 2019 has not been seen but is likely to exist	—	—

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