



## World Heritage Sites

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## DJA FAUNAL RESERVE CAMEROON

*This is one of the largest and best-protected rainforests in Africa, almost completely surrounded by the Dja river which forms its boundary. 90% of its area is still undisturbed. It is one of IUCN's fifteen critical zones for the conservation of central African biodiversity and as a result of its inaccessibility, its transitional climate, floristic diversity and borderline location retains a rich vertebrate fauna with 109 species of mammals and a wide variety of primates. Threats to the site: inadequate management has resulted in erosion of biodiversity, a growth of forest exploitation, agricultural clearance and potential pollution from a cobalt mine.*

### COUNTRY

Cameroon

### NAME

Dja Faunal Reserve

### NATURAL WORLD HERITAGE SITE

1987: Inscribed on the World Heritage List under Natural Criteria ix and x.

### STATEMENT OF OUTSTANDING UNIVERSAL VALUE

The UNESCO World Heritage Committee issued the following Statement of Outstanding Universal Value at the time of inscription:

#### Brief Synthesis

Founded in 1950, the Dja Faunal Reserve is an integral part of the dense rain forests that form the Congo Basin. This vast range is one of the largest and best-protected of the African rainforests: 90% of its area remains undisturbed. Almost completely surrounded by the Dja River, which forms a natural boundary, the Reserve is especially noted for its biodiversity and a wide variety of primates. Covering an area estimated at around 526,000 ha, the Reserve is home to many animal and plant species, several of which are globally threatened (western lowland gorilla, chimpanzee, forest elephant).

**Criterion (ix):** The primary forest of the Dja Reserve is interesting for its diversity of species and its unique pristine condition. With its topographical diversity and its three biogeographical and geological influences, it has a rich and varied ecosystem that reflects the ecological evolution in progress in this type of environment. It belongs to the forest block considered to be the largest in Africa for the maintenance of biological diversity.

**Criterion (x):** The Dja Reserve is one of Africa's most species-rich rainforests. It includes the habitat of numerous remarkable animal and plant species, many of which are globally threatened. It has over 100 species of mammals, of which at least 14 primates (including several endangered species such as the western lowland gorilla, chimpanzee, white-collared mangabey, mandrill and drill). In addition, flagship species are found in the Reserve, such as the endangered forest elephant, and the nearly extinct African gray parrot, bongo and leopard.

#### Integrity

The Dja Reserve is one of Africa's largest and best-protected rainforests. At the time of World Heritage listing in 1987, 90% of the area was considered intact and human pressure was low. The Reserve has a population of Baka

pygmies who live in a relatively traditional manner and confer a recognized cultural value to the site. Agriculture and commercial hunting are prohibited, but the Pygmies are allowed to hunt traditionally.

At the time of inscription on the World Heritage List, thousands of people were already living on the outskirts of the Reserve. Traditional agriculture remains their main economic activity and hunting their main source of animal protein supply. Mining and forestry prospecting were also underway in the region. No deposits have yet been discovered inside the property, but mining activities in the periphery could be harmful to its integrity. The harvesting of timber remains a possibility, but the legal constraints and the inaccessibility of the region make it unlikely. The protection of the property against this type of activity as well as against other threats outside the boundaries of the property is essential.

#### **Protection and Management Requirements**

At the institutional level, the Dja Faunal Reserve is managed by the Dja Conservation Services (DCS), headed by a conservator. The management of the Reserve receives significant support from international cooperation partners of Cameroon through many projects. Sustained funding for the Dja Faunal Reserve is critical to move towards financial autonomy and ensure an adequate staff and management of resources.

At the operational level, the natural resources affected by high pressure have been identified and a local anti-poaching strategy has been developed. There are regular patrols in the forest and on the road in and around the Reserve, and a cooperative framework with the forestry operators for continuous monitoring of their concessions is in place.

The strengthening of education and communication is vital to the management of the property, including increased awareness of local populations and the general public. The DCS is strongly committed to this work, and the establishment of a collaboration with 19 village vigilance committees is an important priority. The main areas of work include priority issues such as anti-poaching, collection of forest data, and the code of laws and procedures. A legal toolbox is also available and the optimal use of management effectiveness assessments to guide future management of the property, including its links with neighbouring areas is part of the process.

#### **INTERNATIONAL DESIGNATION**

1981: Designated a Biosphere Reserve under the UNESCO Man & Biosphere Programme (526,000ha).

#### **IUCN MANAGEMENT CATEGORY**

VI Managed Resource Protected Area

#### **BIOGEOGRAPHICAL PROVINCE**

Congo Rain Forest (3.2.1)

#### **GEOGRAPHICAL LOCATION**

On and nearly surrounded by the Dja River in the Centre-Sud and Est Provinces of Cameroon, 243 km south-east of the capital, Yaoundé, and 5 km west of Lomié. The river forms a natural boundary except to the northeast. Coordinates: 2°49'-3°23'N, 12°25'-13°35'E.

#### **DATES AND HISTORY OF ESTABLISHMENT**

1932: The area received some protection. In 1947 certain species within Dja were protected by Decree 2254 which regulated hunting in the French African territories;

1950: Protected as a *Réserve de Faune et de Chasse* by Arrêté 75/50;

1973: Protected as a *Réserve de Faune* (623,619 ha) under National Forestry Act Ordinance 73/18.

1999: Yaoundé Declaration on Conservation and Sustainable Management of Forests signed by seven heads of state;

2004: The TRIDOM project set up between Cameroon, Gabon and the Congo Republic, later also Chad, the Central African Republic, Equatorial Guinea and the Democratic Republic of Congo to coordinate long-term transboundary conservation and ecological corridors between the seven countries.

## LAND TENURE

State Administered by the *Coordonnateur du Programme du Réserve Forestière et de Faune du Dja* of the Ministry of Forests and Fauna through the *Service de Conservation du Dja*.

## AREA

526,000 ha

## ALTITUDE

400m to 800m.

## PHYSICAL FEATURES

The Reserve is a forest virtually encircled by the Dja River, which flows west along its northern boundary, south along the west boundary and east along the southern boundary before flowing southeast as a tributary to the Congo. Cliffs associated with rapids and waterfalls run for some 60 km along the river in the south. Except in the southeast, the Reserve is a low fairly flat plateau of round-topped hills. A major faultline on the southern edge followed by the Dja River, has resulted in the formation of deeper cut valleys in the southeast. The underlying substratum is formed of Precambrian basement rocks, part of the Mbalmayo-Bengbis series, principally schists, gneisses and quartzite. The soil is porous red ferralitic clay, fragile and poor in nutrients though valleys are floored by hydromorphic and swamp soils.

## CLIMATE

The climate is equatorial in type, with four seasons: the long rains from mid-September to December, a three month dry season, the small rains between mid-March and June, and a short dry season from July to September. The mean annual rainfall is around 1,570mm with less than 100mm falling during the driest months. Humidity is high all year. Temperatures are similar throughout the year with a mean of 23.3°C (recorded at 640m). August is the coolest month, with a mean monthly minimum of 18°C and maximum of 27°C; April is the hottest month with a mean minimum temperature of 19°C and a mean maximum of 30°C.

## VEGETATION

Dja is located between the Gulf of Guinea and the Congo Basin in a transitional zone between the Atlantic equatorial coastal forests of southern Nigeria and western Cameroon and the evergreen forests of the northwestern Congo lowlands. There are four main forest types: Atlantic, semi-deciduous, Congolese and monospecific. The forests of the region have long been a resource to local people and were even farmed in places, now secondary forest, but have remained 90% entire. Its tree cover is as almost much semi-deciduous as evergreen, but is dominated by the dense semi-evergreen Congo rain forest with a canopy at 30-40m rising to 60m.

Some 43 species of tree form the canopy, legumes being particularly common. Species listed include *Azelia bipindensis* (VU), *Anthonotha ferruginea* and *Piptandeniastrum africanum* in the Leguminosae, *Sterculia oblonga* and *Triplochiton scleroxylon* in the Sterculiaceae, rouge *Entandrophragma ferrugineum*, *Guarea cedrata* (VU) and African walnut *Lovoa trichilioides* (VU) in the Meliaceae, and djave nut *Baillonella toxisperma* (VU) in the Sapotaceae; also *Afrostryax lepidophyllus* (VU), *Anopyxis klaineana* (VU), *Terminalia superba*, kapok *Ceiba pentandra*, *Nauclea diderrichii* (VU), and *Canarium schweinfurthii*. The shrub layer contains over 53 species including species of *Diospyros*, *Drypetes* and *Cola*; *Staudtia kamerunensis*, *Syzygium jambos*, *Macaranga* sp. and *Dacryodes buettneri*. The forest is also rich in lianas. The herbaceous layer is composed principally of Marantaceae and *Mapania* spp. The Congo rainforest is also characterised by almost pure stands of *Gilbertiodendron dewevrei* forest on flood-prone alluvial soils. Other main vegetation types are riverine and swamp vegetation with *Anthocleista nobilis*, *Raphia hookeri* and *Alstonia congensis*, and secondary forest around villages abandoned on establishment of the Reserve in 1946 and more recently abandoned cocoa and coffee plantations. The secondary forest is noticeably different as seen from the relative scarcity of Meliaceae. The results of a 1987 vegetation survey are given in Bedel *et al.* (1987).

## FAUNA

The Guineao-Congolian forests have the highest biodiversity in Africa, and Dja, owing to its inaccessibility, is one of the last Cameroonian wilderness forest ecosystems to be barely disturbed by man. Its transitional climate, floristic diversity and borderline location has resulted in the persistence of a rich, often rare, vertebrate fauna which, in the densest forest, has often to be inferred from signs such as scat, rather than seen, though hunting pressure may contribute to this. However, in mid-2008, it was reported that 125,000 western lowland gorillas had been discovered in the north of the neighbouring Republic of Congo (McConville, 2008). The forest has a very high biomass and is one of IUCN's fifteen critical zones for the conservation of central African biodiversity, though endemism is not marked.

According to a systematic inventory of the fauna taken between 1993 and 1995 under the auspices of ECOFAC (*Conservation and Utilisation Naturelle des Ecosystemes Forestiers d'Afrique Centrale*), 109 species of mammals in 34 families were recorded within the Reserve, and a possible 176 species in both Reserve and its surroundings (ECOFAC Cameroun, 1998). The area has a wide range of primate species including western lowland gorilla *Gorilla gorilla gorilla* (CR) and western chimpanzee *Pan troglodytes troglodytes* (EN; total numbers of both ape species:>4000, WHRC, 2005). These are both susceptible to the Ebola virus from nearby protected areas. Other primates include putty-nosed monkey *Cercopithecus nictitans*, moustached monkey *C. cephus*, crowned monkey *C. pogonias*, southern talapoin monkey *Miopithecus talapoin*, white-collared mangabey *Cercocebus torquatus* (VU), golden-bellied mangabey *C. chrysogaster*, black mangabey *Lophocebus aterrimus*, angola colobus *Colobus a. angolensis*, drill *Mandrillus leucophaeus* (EN), mandrill *M. sphinx* (VU), potto *Perodicticus potto* and the lemuroid Demidoff's dwarf bushbaby *Galago demidovii*. Other mammals include African elephant *Loxodonta africana* (VU), estimated in 1995 to number about 1,150 (ECOFAC Cameroun, 1998), giant pangolin *Smutsia gigantea*, the viverrid Cameroon cusimanse *Crossarchus platycephalus*, leopard *Panthera pardus*, warhog *Phacochoerus aethiopicus*, giant forest hog *Hylochoerus meinertzhageni*, and western bongo *Tragelaphus e. euryceros*, sitatunga *T. spekei* and African forest buffalo *Syncerus caffer nanus*.

The site is designated an Important Bird Area by BirdLife International. A 1993 inventory of the avifauna recorded 349 resident species and some 80 more or less regular migrants. They include Bates's weaver *Ploceus batesi* (EN), which is endemic to southern Cameroon, the grey-necked rockfowl *Picathartes oreas* (VU) probably also occurs in this reserve. The type locality of Dja River warbler *Bradypterus grandis* is near the Reserve. The African grey parrot *Psittacus erithacus* is threatened, being a target of the wildlife trade. Reptiles include python, lizard and two species of crocodile, one being the African long-snouted crocodile *Crocodylus cataphractus*. 60 species of fish are known, only one being endemic, the Dja river catfish *Synodontis pardalis* (EN).

## CONSERVATION VALUE

As a result of its inaccessibility, Dja is one of the least peopled, least exploited and most diverse of tropical forests in Africa. Its transitional climate, floristic diversity and borderline location have resulted in a rich vertebrate fauna. With the adjoining forests it is one of IUCN's fifteen critical zones for the conservation of central African biodiversity. The Reserve lies within a WWF Global 200 Freshwater Eco-region, a UNESCO MAB Biosphere Reserve and a WWF/IUCN Centre of Plant Diversity.

## CULTURAL HERITAGE

Two small populations of Baka pygmies live within the Reserve in small encampments, maintaining an essentially traditional semi-nomadic lifestyle, though with increasing use of more modern techniques. Theirs is an ancient and unique culture which may have been isolated for 10,000-20,000 years in intimate balance with the forest on which they totally depend and which is their spiritual home. They have a profound knowledge of forest resources and live without cultivation or tree-cutting but are experienced elephant hunters. A transhumant population of about 25,000 Baka in 42 clans is scattered from the Reserve south into Gabon, northwest Congo and a corner of the Central African Republic. They are mixed among Bantu villagers but are unified by the Ubangian language and common customs

and beliefs. Except for recent over-hunting of elephants for ivory, the impact of the pygmies on their environment is barely perceptible (Gabon DFC, 2004).

### **LOCAL HUMAN POPULATION**

In the 1940s, on the establishment of the Reserve, villagers who had settled within the forest were relocated. These were Bantu groups, from the Bajoue, Nzime, Bulu and Fang peoples, the first two living in the north and east, the others in the south and west. The pygmies remained free to roam and to hunt using traditional methods. Population density in the region was then low, but by 1999 there were 37 villages with about 3,000 inhabitants living in the Reserve. These people are very poor and depend heavily on forest plants for medicines for which 350 species are used: rattan cane and raffia (of 4 main genera), on wild fruits of which at least 68 species are eaten (ECOFAC Cameroun, 1998), and on hunting. There is both subsistence and commercial hunting for deer and monkeys, but intensified elephant hunting by the Baka and by ivory poachers from outside is potentially more disruptive of the traditional order. The surrounding population was about 22,500 in 1998, often living along the bounding roads on fishing, and cultivating cocoa and coffee in a mosaic of plantations within the forest edge (Bedel *et al.*, 1987).

### **VISITORS AND VISITOR FACILITIES**

The area has potential for ecotourism. It is in the centre of a picturesque dense forest landscape which has a greater diversity of habitat, flora and fauna than anywhere else in the region. Tourism development is at present held up by the area's inaccessibility and fear of the Ebola virus which has reduced the gorilla and chimpanzee populations by two thirds in the nearby forest reserves of Minkébé in Gabon and Odzala in the Republic of Congo (Huijbregts *et al.*, 2003).

### **SCIENTIFIC RESEARCH AND FACILITIES**

Research has been carried out on phytogeography (Letouzey, 1968), fauna (Rowell, (1975) and great apes, by teams from the Universities of Louvain and Antwerp. A study of hornbills by a group from the University of San Francisco uncovered their importance in the dissemination of fruit-bearing forest trees. A systematic inventory of the fauna was taken under the auspices of the EU organisation ECOFAC between 1993 and 1995. An IUCN program in 1994-5, under the aegis of the Golden Ark Foundation, studied the large mammals. Local villagers and the use of the forest and its products by the surrounding population have been the subjects of ECOFAC studies summarised in *Canopée* in 1998. There are no research facilities on site but there is a headquarters building and training centre at Somalomo nearby and a national ranger training school at the *École pour la Formation de Spécialistes de la Faune* at Garoua in the north of the country. A Scientific Committee advises the Park Authority (UNESCO, 2006).

### **MANAGEMENT**

The condition of the Reserve in 2006 was not noticeably degraded (UNESCO, 2006). It is surrounded by community forests, agro-forestry zones and logging concessions which all impinge on it and which share much of the same wildlife. It is managed by the Coordinator for Dja for the Ministry of Forests and Fauna. . Since its establishment management of the Reserve has been largely restricted to protection of its resources, and to anti-poaching activities which become more necessary as more logging roads are built. The Dja River forms a natural boundary round much of the Reserve; there are also at present seven guard posts on its borders to the east and north-west, and six in nearby villages. Access to the Reserve is restricted and both agriculture and hunting are prohibited though both are important to the livelihood of the local population. No commercial logging has taken place within the Reserve itself, but traditional rights to the use of forest resources are allowed. Hunting is widely practised, and the use of non-traditional methods by commercial hunters needs to be controlled. In 2003 a management plan for the Biosphere Reserve was drawn up but a provisional National Park management plan prepared at the *École de Faune* at Garoua in 2003 had been neither approved nor implemented by 2006. Management is shared between the local stakeholders, the Planning and Scientific committees. Until the end of ECOFAC project funding, Village Watch Committees (*Comités Villageois de Vigilance*) from the 18 villages on the northeast boundary, assisted in the watch for poachers. A Conservation Coordination

Unit was set up in 2007 with four new surveillance posts to improve the contacts between conservation and forestry officials, and within the agencies, to fight poaching, to sensitise local people on the impacts of their hunting and the bushmeat trade; also to promote ecotourism (UNESCO, 2006). The decree enforcing the Management Plan should be published and its implementation initiated.

Dja was one of the sites identified by IUCN/WWF Project 1613 which aimed to further the conservation of primates and tropical rain forest in West Africa. ECOFAC established a training centre at Somalomo for 36 trainees and has supported studies by the MAB program at Mékas village in the Reserve. In 2004 the TRIDOM (Tri-National Dja-Odzala-Minkebe) project was set up with help from UNDP and GEF covering 147,000 km<sup>2</sup> of tropical forest, or 7.5% of the total for central Africa. This follows the Yaoundé Declaration on Conservation and Sustainable Management of Forests signed by the heads of state of Chad, Cameroon, Central African Republic, Congo-Brazzaville, Equatorial Guinea and Gabon in March 1999, and recently joined by the Democratic Republic of Congo. It was set up to accelerate trans-boundary conservation of ecological corridors and strengthen the management of existing protected areas. These include the Dja Faunal Reserve, Mengamé Gorilla Sanctuary, the Bouma Bek and Nki National Parks in Cameroon, the Minkébé, Ivindo and Mwagné National Parks in Gabon, and the Odzala National Park, Lossi Sanctuary and Djoua-Ivindo potential protected area in the Congo Republic (d'Huart & Dembele, 2005).

### **MANAGEMENT CONSTRAINTS**

Four main threats to the Reserve's integrity existed in 2006: commercial hunting, exploitation for timber and for agriculture, and potential mining near the site and the reserve's management, planning and surveillance are barely operational. Hunting is important to the local population, but the traditional pygmy hunting methods are being superseded. Poaching for bushmeat has become very profitable, facilitated by forestry roads, and the certification and trafficking of meat (and timber) have grown beyond the control of the Conservation Service and are a major menace to several protected species: during the one year 2005-6 some 1,500 pieces of bushmeat were seized (UNESCO, 2006). The Service is very understaffed and underfunded and can only use dissuasion. Stronger enforcement is needed to register the origin of timber and bushmeat, and to monitor the exit roads for their illicit export. There are also increasing markets for wildlife and ivory, the elephants falling to Baka hunters as a traditional prey. Improvement of anti-poaching laws and their effective enforcement are still needed, as is awareness of the damage that hunting is doing to the Reserve's potential for ecotourism. There is a need to fund more effective surveillance and to legalise and integrate the Village Watch Committees into anti-poaching programmes and help them with the work.

Government-licensed logging of the buffer zone forests, managed by *Unités Forestières d'Aménagement*, is isolating the Reserve from other forests and is not popular with the locals: dues are paid them to make up for lost use of their trees, but roadside tree-cutting, hunting and looting of forest resources are made easier by loggers' tracks and villagers are sometimes defrauded over the dues. Communes inside the core zone are paid no compensation and need an alternative source of income such as ecotourism (UNESCO, 2006). The area has also been subject to forest inventories in violation of existing legislation because it contains useful species, so the threat of commercial scale logging remains. Agricultural encroachment, which is slight at present, will grow as the population grows wherever the border demarcation remains unclear. This leads to burning and clearing the forest for cocoa, coffee and village subsistence plots within the reserve, particularly on the northern and western borders. A larger threat still is industrial scale plantations, now developing on the western periphery. Better coordination with these surrounding interests is needed as well as within the Conservation Service itself.

The GEOVIC Cameroon company, authorised to mine in 2003, has started to develop the deposits of cobalt, nickel and manganese 40 km east of the border. A legal, environmental and social impact study of the concession is still needed, detailing the potential for heavy pollution from settling ponds and of the potential impacts of 700 workers and 2.000 incomers. The pollution could affect the health of the local populations, especially the Baka pygmies. The Trans-African highway, though on the other side of the river, runs close to the southern boundary of the Reserve. The Reserve was recently explored for oil

and gas and the existence of calcareous bodies on the south-east border of the Reserve could lead to open-cast mining for cement production.

## STAFF

During the ECOFAC project from 1993-5, there were funds for 60-85 staff up to the end of the project. The staff in 2006 consisted of a Conservator, a forest engineer, an agricultural technician, a financial administrator and a secretary, 4 station heads and 45 guards (half the number needed for the area; adequate equipment is also lacking). The co-existence of a Conservator and Coordinating Forester causes some confusion (UNESCO, 2006). A Reserve headquarters with staff housing at Somalomo is located on the northern boundary, 4 main and 9 other guard stations existed in 2006.

## BUDGET

The initial annual budget in 1987 was around 1.5 million FCA (US\$3,000) to cover salaries, and some 30 million FCA (US\$600,000) for the administrative buildings and staff accommodation. US\$29,900 was received in 1987 from the Netherlands Funds-in-Trust and WHF to support training (WHC, 1998). Further funding is to be channelled via the US\$45,000,000 TRIDOM project. But funds for sufficient guards and equipment to keep the various threats under control were still lacking in 2006 (UNESCO, 2006). In 2008 provision of US\$81,700 for technical assistance and training from International sources was noted. UNESCO also provided US\$60,000 from the Netherlands Funds-in-Trust, part of the US\$193,275 allocated to the South-eastern Cameroon region in 2008 and part of the US\$118,725 allocated to the South-eastern Cameroon region by the Central Africa World Heritage Forest Initiative (UNESCO, 2010).

## LOCAL ADDRESS

M. le Coordonnateur du Programme du Réserve Forestière et de Faune du Dja, Ministère des Forests et de la Faune, Yaoundé, Cameroun.

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## **DATE**

June 1987. Updated 5-1990, 8-1997, 8-2008, 9- 2010, 5-2010, January 2012.