

WORLD HERITAGE NOMINATION --IUCN SUMMARY

LE SANCTUAIRE NATUREL ET CULTUREL DE LA FALAISE DE BANDIAGARA (MALI)

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Summary prepared by IUCN (March 1989) based on the original nomination submitted by the Government of Mali. This original and all documents presented in support of this nomination will be available for consultation at the meetings of the Bureau and the Committee.

1. LOCATION:

The village of Sangha (Sanga or Songo), on the crest of the Bandiagara plateau escarpment, is located at the centre of the sanctuary. It overlooks the village of Banani at the Bandiagara cliff base, 44km north-east of Bandiagara town and 107km east of Mopti, in the Mopti fifth administrative and economic region. 14°00'-14°45'N, 3°00'-3°50'W. The sanctuary totals 400,000ha.

2. JURIDICAL DATA:

The area was constituted as a natural and cultural sanctuary, initially based on Ordinance No. 52 of 3 October 1969 regulating the export of objects of art and subsequently by Law No. 85-40/AN-RM of 26 July 1985 and Decree No. 203/PG-RM of 13 August 1985 safeguarding the cultural heritage, whilst Decree No. 299/PG-RM of 19 September 1986 relates to the excavation of sites. The Law No. 68-8/AN-RN of February 1968 sets out the Forestry Code and Ordinance No. 60/CMLN of 11 November 1969 sets out the Hunting Code.

3. IDENTIFICATION:

The sanctuary lies at the southern limit of the Sahara in an arid sahelian region with averages of 580mm of rainfall per year. The area exhibits three distinctive geomorphological features: Bandiagara plateau, Bandiagara escarpment and the plaine du Sino. The landscape consists of an ancient eroded terrain of flat tablelands, messa and sandstone buttes. The rock substrate is predominantly upper sandstone of the Cambrian and Ordovician periods, formed into horizontal strata and characterised by a great variety of facies. Exposed horizontal strata periodically result in rock polygonation. In some areas the plateau is crowned by laterite, ironstone shield or impervious conglomerates. The Bandiagara escarpment extends over 150km in a south-west - north-east direction from Douentza in the north to Ouou in the south and varies in height from 100m in the south to over 500m in the north. The escarpment has formed into numerous irregularities, indentations, promontories and is pierced by thalweg ravines, gorges, or rocky passages connecting the plain and plateau. Thalwegs maintain a humid and shaded microclimate able to support dense vegetation. Water is also retained in rock fissures, resulting in seasonal boggy areas on horizontal or gently sloping rock strata.

The predominant vegetation type is Sudano-Sahelian open wood savanna with mosaics of steppe and chasmophytic flora. The plateau of Bandiagara is covered in a typically sudanian savanna vegetation, including communities of Daniella oliveri in association with Butyrospermum parkii and Terminalia macroptera, and brush species such as Combretum micranthum and Guiera senegalensis. Along the edge of the plateau, the terrain is rocky and arid and characterised by Euphorbia balsamifera and Senecio cliffordianus. Cliff and ravine vegetation is often very diverse and dense, the chasmophytic flora includes Cissus quadrangularis, Ficus lecardii, Euphorbia sudanica, Lannea microcarpa and Combretum lecardii, along with notable hygrophilic species such as Pachystela pobeguiniiana and Diospyros mespiliformis as well as Selaginella sp., Begonia rostrata and Ceratopteris cornuta. At the foot of the escarpment, such as in the plain of Douentza, there is a preponderance of sahelian species such as Acacia raddiana, Dalbergia melanoxydon, Combretum aculeatum and Tamarindus indica.

A wide range of animal species is found in the region. The cliff and rock habitats support a diversity of species including fox-kestrel Falco alopex, Gabar goshawk Melierax gabar, yellow-billed shrike Corvinella corvina, scarlet-chested sunbird Chalcomitra senegalensis, abundant cliff chats Thamnolea cinnamomeiventris and rock doves Columba livia. Mammal species which occur in the region and probably exist in the Bandiagara escarpment region include rock hyrax Procavia capensis, porcupine Hystrix spp., wild dog Lycaon pictus, common jackal Canis aureus and pale fox Vulpes pallida. Tree, shrub and savanna species include the bustard Eupodotis senegalensis and stone partridge Ptilopachus petrosus. Dorcas gazelle Gazella dorcas (V) and dama gazelle Gazella dama (V) are also reported in the area.

The region is one of the main centres for the Dogon culture, rich in ancient traditions and rituals, art culture and folklore. The village of Sangha or Songo, with its 130,490 Dogon inhabitants, is celebrated for its triennial circumcision ceremonies and its rock carvings. The Dogon subsistence farmers themselves did not arrive until the 15th and 16th centuries, yet the region is rich in unique architecture, ranging from flat-roofed huts to unusual tapering granaries each capped with thatch, and cliff cemeteries. Symbolic relationships occur with the environment such as with semi-domesticated crocodiles, pale fox and the jackal, and the development of elaborate masks, head dresses and ritual dances.

#### 4. STATE OF PRESERVATION/CONSERVATION:

Hunting is restricted under the Hunting Code Ordinance of November 1969 and scrub and tree felling prohibited under Forestry Code of February 1968. The natural and cultural sanctuary is an area set aside to protect and conserve particular species, communities or cultural heritage.

Responsibility of cultural heritage management belongs to the Ministère de la Jeunesse, des Sports, des Arts et de la Culture (Ministry of Sports, Arts and Culture). With management under local authority by the Direction Régionale de la Jeunesse, des Sports, des Arts et de la Culture, Division Régionale du Patrimoine Culturel at Mopti. The Direction Régionale is charged with preserving and conserving the ensemble of national cultural heritage in its administrative region. In practice, the cultural and historic elements are protected by the local populations.

The greatest threats to the area include the Sahelian drought and desertification. The most significant human impact on the sanctuary would appear to be the influence of uncontrolled tourism which is adversely affecting the economic structure and Dogon traditions. The savanna vegetation has been profoundly degraded by fire and scrub clearance, most notably in the vicinity of the villages.

5. JUSTIFICATION FOR INCLUSION ON THE WORLD HERITAGE LIST:

The Sanctuaire naturel et culturel de la falaise de Bandiagara Nomination, as presented by the Government of Mali provides the following justification for designation as a World Heritage property:

C) Cultural heritage properties

(iv) An outstanding example of an architectural ensemble of the Dogon culture.

(v) An outstanding example of a traditional human settlement which is representative of the Dogon culture and which has become vulnerable under the impact of tourism.

D) Natural heritage properties

A single justification for inclusion of natural properties has been listed by the Government of Mali:

a (iii) Exceptional combinations of natural and cultural elements. The complex ritual relationships of the Dogon people with the environment include the use of curative and medicinal wild plants and the sacred associations with pale fox, jackal and crocodile.

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**NAME** Le Sanctuaire Naturel et Culturel de la Falaise de Bandiagara  
(Bandiagara Escarpment Natural and Cultural Sanctuary)

**MANAGEMENT CATEGORY** VII (Anthropological Reserve)

**BIOGEOGRAPHICAL PROVINCE** 3.12.07 (Western Sahel)

**GEOGRAPHICAL LOCATION** The village of Sangha (Sanga or Songo), on the crest of the Bandiagara plateau escarpment, is located at the centre of the sanctuary. It overlooks the village of Banani at the Bandiagara cliff base, 44km north-east of Bandiagara town and 107km east of Mopti, in the Mopti fifth administrative and economic region. 14°00'-14°45'N, 3°00'-3°50'W

**DATE AND HISTORY OF ESTABLISHMENT** Existing legal provisions relate to the cultural heritage and include the following: Ordinance No. 52 of 3 October 1969 regulating the export of objects of art, Law No. 85-40/AN-RM of 26 July 1985 dealing with the protection and promotion of the national cultural heritage and Decree No. 275/PG-RM of 4 November 1985 regulating archaeological excavations. Both Law No. 86-61/AN-RM of 26 July 1986 and Decree No. 299/PG-RM of 19 September 1986 specifically control excavations, commerce and the export of cultural objects. Law No. 68-8/AN-RN of February 1968 sets out the Forestry Code and Ordinance No. 60/CMLN of 11 November 1969 sets out the Hunting Code.

**AREA** 400,000ha

**LAND TENURE** Sangha villagers private ownership and state lands.

**ALTITUDE** 518m near Sangha rising to 777m at Mount Bamba to the northeast (Jaeger and Winkoun, 1962).

**PHYSICAL FEATURES** The area exhibits three distinctive geomorphological features: Bandiagara plateau, Bandiagara escarpment and the plaine du Sino. The escarpment and Bandiagara plateau extend beyond the sanctuary to the Mossi massif, which separates the Sino plain from the low-lying Niger wetlands (inner Niger delta). The site consists of an ancient eroded terrain of flat tablelands, messa and sandstone buttes. The rocks are predominantly upper sandstone of the Cambrian and Ordovician periods, formed into horizontal strata and characterised by a great variety of facies. Exposed horizontal strata periodically result in rock polygonation. In some areas the plateau is crowned by a hard layer of laterite, ironstone shield or impervious conglomerates.

The flat Bandiagara plateau is sandstone, with rock slabs riddled with holes, faults and caves that link into seepages along the base of the cliffs as springlines. At low levels the ravines are blocked by immense detached blocks of rock (Wright, pers. comm. 1989).

The Bandiagara escarpment extends over 150km in a south-west - north-east direction from Douentza in the north to Ouo in the south and varies in height from 100m in the south to over 500m in the north. The escarpment has formed into numerous irregularities, indentations, promontories and is pierced by thalweg ravines, gorges, or rocky passages connecting the plain and plateau and is noted for the abrupt cliff plateau edge near Sangha-Bongo. Thalwegs maintain a humid and shaded microclimate able to support dense vegetation. Water is also retained in rock fissures, resulting in seasonal boggy areas on horizontal or gently sloping rock strata.

**CLIMATE** No recent data is available, but precipitation levels averaged 580mm per year at Bandiagara up to the early 1960s (Jaeger and Winkoun, 1962). Drought lasts for up to eight months per year and the irregular rainy season occurs mainly from June to September. In May the shade temperatures are reported to be some of the highest in the Sahel region (Pern, 1985).

**VEGETATION** Sudano-Sahelian vegetation encircles Bandiagara and Sangha, dominated by open savanna and steppe with scattered Acacia raddiana, A. albida, Balanites aegyptiaca and Cenchrus ciliaris (Jaeger and Winkoun, 1962). The plateau of Bandiagara is covered in a typically Sudanian savanna flora, including communities of Daniella oliveri in association with Butyrospermum parkii, Parkii biglobosa, Terminalia macroptera, Khaya senegalensis, Vitex cienkowskii, Prosopis africana and brush species such as Combretum micranthum, Heeria insignis and Guiera senegalensis (Jaeger and Winkoun, 1962).

Along the edge of the plateau, the terrain is rocky and arid and characterised by Caralluma dalzielii, Euphorbia balsamifera and Senecio cliffordianus. Open scattered vegetation includes xerophytes, cryptograms and deep-rooted trees in rock fissures where they are protected from fire.

Cliff and ravine vegetation is often very diverse and dense, the chasmophytic flora includes Cissus quadrangularis, Ficus lecardii, Boscia angustifolia, Euphorbia sudanica, Lannea microcarpa and Combretum lecardii (Rousselot, 1939; Jaeger and Winkoun, 1962). In rainy seasons the horizontal rock strata contain water which gives rise to boggy areas which act as refugia for species such as Cyanotis rubescens, Ramphicarpa fistula and Bulbostylis sp. The escarpment thalwegs maintain a humid microclimate supporting Combretum along with Stereospermum kunthianum, Gloriosa simplex, Cissus populnea, Acacia ataxacantha and A. sieberiana. Notable hygrophilic species include Celtis integrifolia, Pachystela pobequiniana and Diospyros mespiliformis, as well as Selaginella sp., Begonia rostrata, Fleurya aestuans and Ceratopteris cornuta. At the foot of the escarpment, in the plain of Douentza, there is a preponderance of Sahelian species such as Acacia albida, A. raddiana, Dalbergia melanoxylon, Combretum aculeatum and Tamarindus indica (Jaeger and Winkoun, 1962).

The Sangha rock pool depressions support aquatic plants such as Nymphaea maculata, Naias graminea, Ottelia ulvifolia, Cyperus sp., Saccolipsis sp. and Melochia corchorifolia. Other shallow water vegetation includes floating carpets of Pistia stratiotes, Neptunia oleracea, Ipomoea reptans and Naias graminea (Jaeger and Winkoun, 1962).

**FAUNA** The diverse vegetation communities support notable resident and migratory bird fauna, including cliff species such as fox-kestrel Falco alopex, Gabar goshawk Melierax gabar, yellow-billed shrike Corvinella corvina, scarlet-chested sunbird Chalcomitra senegalensis, rose-ringed parakeet Psittacula krameri, abundant cliff chats Thamnolea cinnamomeiventris and rock doves Columba livia. The pools act as haven for Egyptian plover Pluvianus aegyptius and grey-headed kingfisher Halcyon leucocephala, whilst tree, shrub and savanna species include bustard Eupodotis senegalensis, stone partridge Ptilopachus petrosus and laughing dove Streptopelia senegalensis. Species abundant around the villages include grey-headed sparrow Passer griseus and hooded vulture Necrosyrtes monachus (Rousselot, 1939; Pern, 1985).

Mammal species which occur in the region and probably exist in the Bandiagara escarpment region include rock hyrax Procavia capensis, porcupine Hystrix spp, wild dog Lycaon pictus, common jackal Canis aureus and pale fox Vulpes pallida. Dorcas gazelle Gazella dorcas (V) and dama gazelle Gazella dama (V) are also reported (Sayer, 1977).

**CULTURAL HERITAGE** The region is one of the main centres for the Dogon culture, rich in ancient traditions and rituals, art culture and folklore. The village of Sangha or Songo is celebrated for its triennial circumcision ceremonies and its rock carvings. Archaeological evidence suggests human occupancy of the cliffs for at least the last 1,000 years, although the Dogons themselves did not arrive until the 15th and 16th centuries. By tradition they consisted of four tribes, the Dyon, Ono, Arou and Domno which migrated from the land of Mandí. The present-day local Dogon population is divided into small village communities, each Dogon member having a village surname shared by every inhabitant (Diakite, 1988). Village communities are divided into the inneomo and innepuru, living men and dead man respectively, the latter forming a symbiotic union with the inneomo. In some cases there has been the development of secret languages. Symbolic relationships occur with the environment such as with the pale fox and the jackal, and the development of elaborate masks and head dresses (Griaule, 1941). Semi-domestic crocodiles are kept as sacred village protectors of Bandiagara and its ancient founder, Nangabanou Tembèly. They are also revered so as to ensure continued rains in the ritual rain dances (Yaro and Diko, 1940).

The Bandiagara region is rich in unique architecture, ranging from thatched flat-roofed huts to distinctive tapering granaries each capped with thatch. The Bandiagara escarpment abounds in a whole series of cliff cemeteries accessed by Dogon-style ladders (Jaeger and Winkoun, 1962).

**LOCAL HUMAN POPULATION** The resident population consists of desert-edge subsistence farmers who inhabit the plateau area. There are 130,490 Dogon inhabitants in the village of Sangha and its surrounding areas (part of the estimated 701,460 Dogon people in Mali) (Pern, 1985; Diakite, 1988). Subsistence crops primarily include millet and also sorghum, calabash and cassava. Rice is grown in cultivated rock pools and gardens are found on horizontal sections of the cliffs. The Dogon rely for permanent water on supplies from springlines along the base of the Bandiagara escarpment (Jaeger and Winkoun, 1962; Pern, 1985; Diakite, 1988).

**VISITORS AND VISITOR FACILITIES** There is a small airfield at Bandiagara and another at Mopti and rest houses at Sangha and Bandiagara. Mopti is a centre of tourism and a hotel has been constructed. The Mali Office of Tourism publicises the historic sites of the Bandiagara region (FAO, 1969).

**SCIENTIFIC RESEARCH AND FACILITIES** The Division de la Recherche Forestière et Hydrobiologique of the Ministère de l'Élevage et des Eaux et Forêts maintains a hydrological laboratory at Mopti. The laboratory carries out research on fish systematics and biology. Work on the botany of the area was initiated between 1950-1952 by G. Dieterlen and followed by Jaeger and Winkoun in the 1960s for the Institut Français d'Afrique Noir. A herbarium collection of 300 species was made from the region of Sangha (Dieterlen, 1952; Jaeger and Winkoun, 1962). A current fauna and flora survey is being undertaken on behalf of the "cantonnements forestiers" (Diakite, 1988).

**CONSERVATION MANAGEMENT** Hunting is restricted under the Hunting Code ordinance of November 1969 and scrub and tree felling prohibited under Forestry Code of February 1968. The Bandiagara Natural and Cultural Sanctuary is an area set aside to protect and conserve particular species, communities and cultural heritage. Responsibility of cultural heritage management belongs to the Ministère de la Jeunesse, des Sports, des Arts et de la Culture (Ministry of Sports, Arts and Culture). With management under local authority by the Direction Régionale de la Jeunesse, des Sports, des Arts et de la Culture, Division Régionale du Patrimoine Culturel at Mopti. The Direction Régionale is charged with preserving and conserving the ensemble of national cultural heritage in its administrative region. In practice, the cultural and historical elements are protected by the local populations (Diakite, 1988).

The government justification for conserving the area is based on the exceptional architectural structures and the interaction between man and the natural environment. One of the key management aims is the maintenance of traditional Dogon culture and their associated houses, granaries, ritual sanctuaries and "toguna". Also of importance are the surrounding natural features and landscape (Daikite, 1988).

The Bandiagara plateau near Sangha-Bongo has been described as one of the most impressive geological and landscape features in West Africa (Jaeger and Winkoun, 1962). The botany of the region is of great phytogeographic interest. The escarpment represents important refuge biotopes rich in relict species and haven for vegetation otherwise felled or burnt by man's activities in more accessible localities. The Sangha flora communities represent a crossroads and interface between different phytogeographical regions (Sudano-Sahelian and Sahelian) and consist of residual ravine vegetation (ancient humid flora) in an otherwise Sahelian arid climate (for details see report by Jaeger and Winkoun, 1962). Restricted species include the localised endemic Acridocarpus monodii (R) found in the Bandiagara escarpment at Kikara (Jaeger and Winkoun, 1962).

**MANAGEMENT PROBLEMS** The greatest threats to the area include the Sahelian drought and desertification. Uncontrolled tourism is affecting the economic structure and menacing the basis of the Dogon culture. Dogon traditions are also under threat from the continued islamisation and evangelism taking place in certain localities within the region (Diakite, 1988). The savanna vegetation has been profoundly degraded by fire and scrub clearance, most notably in the vicinity of village communities (Jaeger and Winkoun, 1962).

**STAFF** No information

**BUDGET** No information

**LOCAL ADMINISTRATION** Gouverneur de Mopti, 5ème région, Direction Régionale de la Jeunesse, des Sports des Arts et de la Culture, Division Régionale du Patrimoine Culturel

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