

Gorilla gorilla

(Savage and Wyman, 1847)

(Eng) Gorilla
(Fre) Gorilla

Taxonomic notes

Three subspecies are widely recognised, namely *G. g. gorilla* (Western lowland gorilla) *G. g. graueri* (Grauer's or Eastern lowland gorilla) and *G. g. beringei* (Mountain gorilla) (Oates, 1996; Wilson & Reeder, 1993).

IUCN threat category

The gorilla is listed as Endangered (EN: criteria A2cd) as *G. gorilla*; Endangered (EN: criteria A2cd) as *G. g. gorilla*; Endangered (EN: criteria A1cd+2cd) as *G. g. graueri*; Critically Endangered (CR: criteria A1c, C2a) as *G. g. stock* (Nigerian gorilla) in Cameroon, Nigeria and Critically Endangered (CR: criteria C2b) as *G. g. beringei* (Baillie & Groombridge, 1996).

Available information

The gorilla is among the most studied mammal species in the world, and literature available is abundant. Here only a selection of the references available is reported. The species' ecology has been intensely studied in the Virunga Volcanoes (Rwanda, Uganda, former Zaire) by several authors. Habitat use and preferences, activity, and spacing patterns are analysed in Watts (1988, 1991). Diet and foraging strategies are described in Fossey & Harcourt (1977), in which aspects of the species' behaviour are also reported. Notes on its feeding habits are also found in Vedder (1990). The species' behaviour has been intensely investigated, and detailed information is available on the matter (Harcourt et al., 1976; Watts, 1994). Population numbers, structure, and dynamics are described in Aveling & Harcourt (1994) and Weber & Vedder (1983). Population management and conservation issues are discussed in Harcourt (1977), Harcourt & Fossey (1981), and Harcourt et al. (1983). The species' ecology has also been intensely studied outside the Virunga Volcanoes. Feeding habits and foraging behaviour were investigated in the Nouabalé-Ndoki National Park (Congo) by Nishihara (1995). Some information on its diet is also found in Sabater (1977), who researched on the species in Rio Muni (Equatorial Guinea); a comparative study of the feeding habits of gorillas and chimpanzees was carried out by Yamagiwa (1995) in the Kahuzi-Biega National Park (former Zaire) and by Tutin & Fernandez (1985) in Gabon. Seasonal changes in its diet are analysed in Yamagiwa et al. (1994) and Rogers et al. (1987). Specific information on the relation between habitat and nest types is found in Tutin et al. (1995). Data on population numbers and density are available for Likouala Swamp Forest (Congo) (Blake et al., 1995; Fay et al., 1989), the Dzanga-Sangha region (Central African Republic) (Carroll, 1988; Fay, 1989), the Lualaba region (former Zaire) (Colyn, 1987) and the Kahuzi-Biega National Park (former Zaire) (Murnyak, 1981). A survey in part of Cameroon and Congo was conducted by Mitani (1990), who reports information on the species in those areas. Most of the authors mentioned report information on the habitat in which the species is found. The main aspects of the ecology of the species are described in several authors (Bourlière, 1985; Dixon, 1981; Eisenberg et al., 1979; Harcourt, 1984; MacKinnon, 1976; Groves, 1971; Tuttle, 1990). A bibliographical review of the literature available is found in Balwin & Teleki (1973) and Williams (1991). Data on the species' presence, population numbers, and status are reported for Cameroon (Prescott et al., 1993/94), Gabon (Blom et al., 1992), Nigeria (Harcourt et al., 1989), Rwanda (Monfort, 1992; Harcourt & Curry-Lindahl, 1978; Wilson, 1991), and former Zaire (Prescott et al., 1993/94; Aveling & Aveling, 1989; Verschuren, 1975). Status, threats, and conservation issues are discussed in Bearder (1991), Cousins (1978a, 1978b), Harcourt (1995), Mace (1988), Mittermeier (1986), Oates (1994, 1996), and Struhsaker (1981). General information on the species biology is found in Kingdon (1997) and Stuart & Stuart (1997).

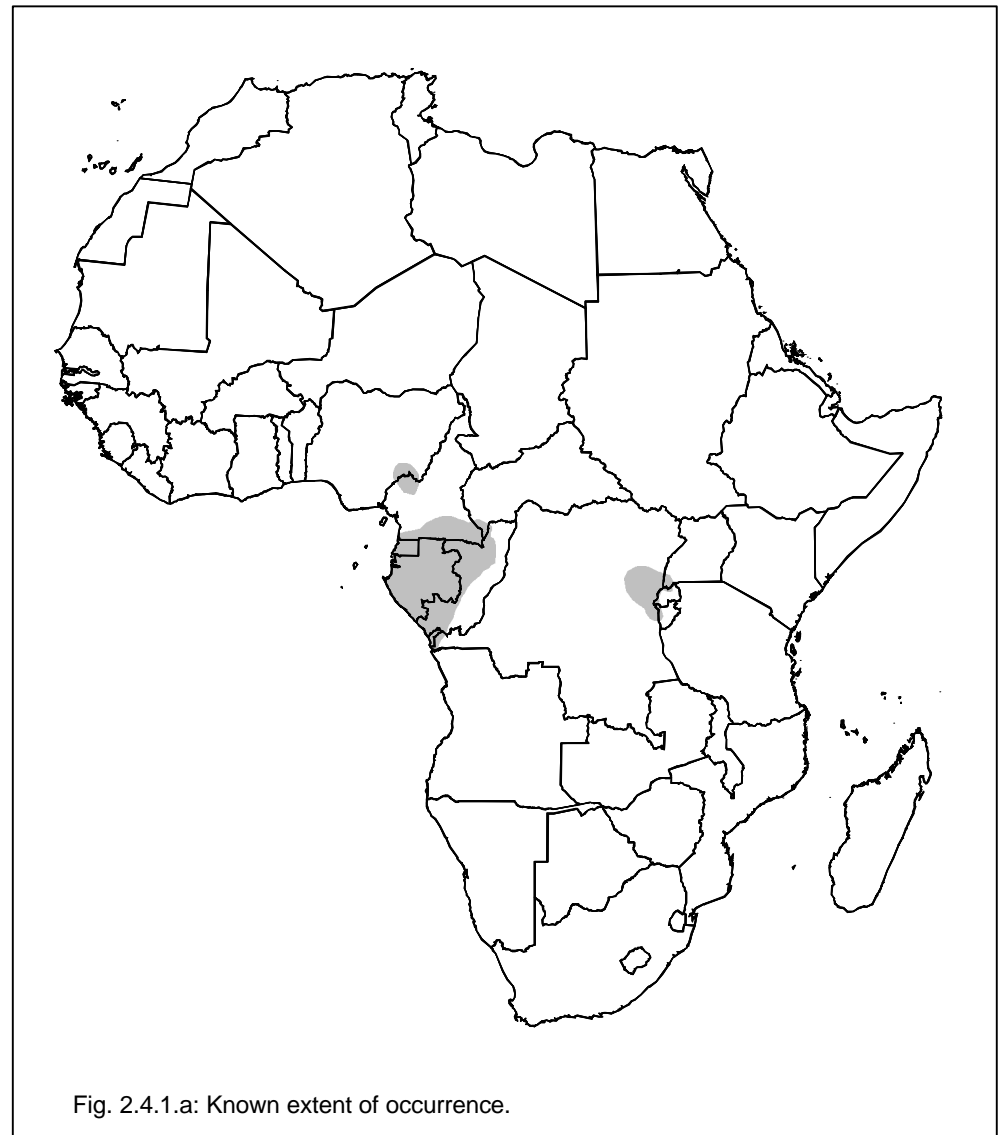


Fig. 2.4.1.a: Known extent of occurrence.

Known extent of occurrence

The Western lowland gorilla occurs from Cameroon to the Zaire/Sangha River and as a relict population in south-eastern Nigeria, while the Eastern lowland gorilla occurs in former Zaire east of the Lualaba/Zaire Rivers and west of the Lakes Edward and Tanganyka. The mountain gorilla occurs in separate populations in Rwanda, Uganda and former Zaire (Oates, 1996). The distribution range, shown in Fig. 2.4.1.a, has been obtained from Oates (1996).

Categorical-discrete (CD) distribution model

This species occurs in rain forest, both in lowlands and mountains, where it shows a marked preference for secondary stands and clearings (Kingdon, 1997; Dixon, 1981; Eisenberg et al., 1979; Blake et al., 1995; Stuart & Stuart, 1997).

Based on these environmental preferences, the following scores were assigned (Fig. 2.4.1.b) (Tab. 2.4.1.a):

Score

- 1 Secondary and fragmented forests.
- 2 Primary forest and forest mosaics.
- 3 Savannas and croplands.

suitable		moderately suitable		unsuitable		Total	
km ²	%	km ²	%	km ²	%	km ²	%
119 614	17	444 624	62	154 328	21	718 566	100

Tab 2.4.1.a: Cumulative size (km²) of areas pertaining to each environmental suitability class within the Extent of Occurrence.

	Number Patches (NP)	Mean Patch Size (MPS) km ²	Patch Size SD (PSSD) km ²	Largest Patch Index (LPI) %	Mean Shape Index (MSI)	Area-Weighted Mean Shape Index (AWMSI)
suitable	845	140	824	3.52	1.25	3.76
moderately suitable	296	1 503	22 298	68.21	1.38	18.33
Total AO	160	3 518	39 155	88.11	1.36	11.57

Tab 2.4.1.b: Area of Occupancy fragmentation indexes.

Probabilistic-continuous (PC) distribution model

The output of the probabilistic-continuous (PC) distribution model is shown in Fig. 2.4.1.c.

Validation

% of EO in sample areas	Number of valid plots	Index of Accordance (%)
16.83	56	75.00

Tab 2.4.1.c: Categorical-discrete (CD) distribution model validation parameters.

Comments and conservation issues

As for most large and charismatic species, the EO of this species is precisely known. However, the species is strongly affected by human pressure (disturbance and/or direct persecution) and its distribution within the EO is very patchy and irregular. The overall suitability of the EO is rather high (79%), with frequent unsuitable areas in the southern part of the main distribution range. Both models identify large unsuitable patches within the two smaller ranges in eastern former Zaire/Rwanda/Uganda and in Nigeria. This is especially important as these patches are the last ranges of two important sub-species which are highly endangered: in these areas the small populations are confined to small and isolated forest pockets. The accordance with field work results (75%) reflects the good overall knowledge of the species. The fragmentation indexes refer mainly to the largest range of the species: NP and MPS show a relatively limited fragmentation and the LPI confirms the availability of a potentially suitable area that would account for 88.11% of the total AO. Despite its Endangered status and its importance, the species is poorly protected by the existing parks and reserves, and less than 8% of its total potential AO is protected.

SUITABILITY CLASS	inside	outside	Total
suitable	1.51	15.13	16.65
moderately suitable	4.71	57.17	61.88
unsuitable	2.37	19.10	21.48
Total	8.60	91.40	100

Tab 2.4.1.d: Percent of environmental suitability classes within EO (as obtained from the categorical-discrete distribution model) inside and outside the protected areas.

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