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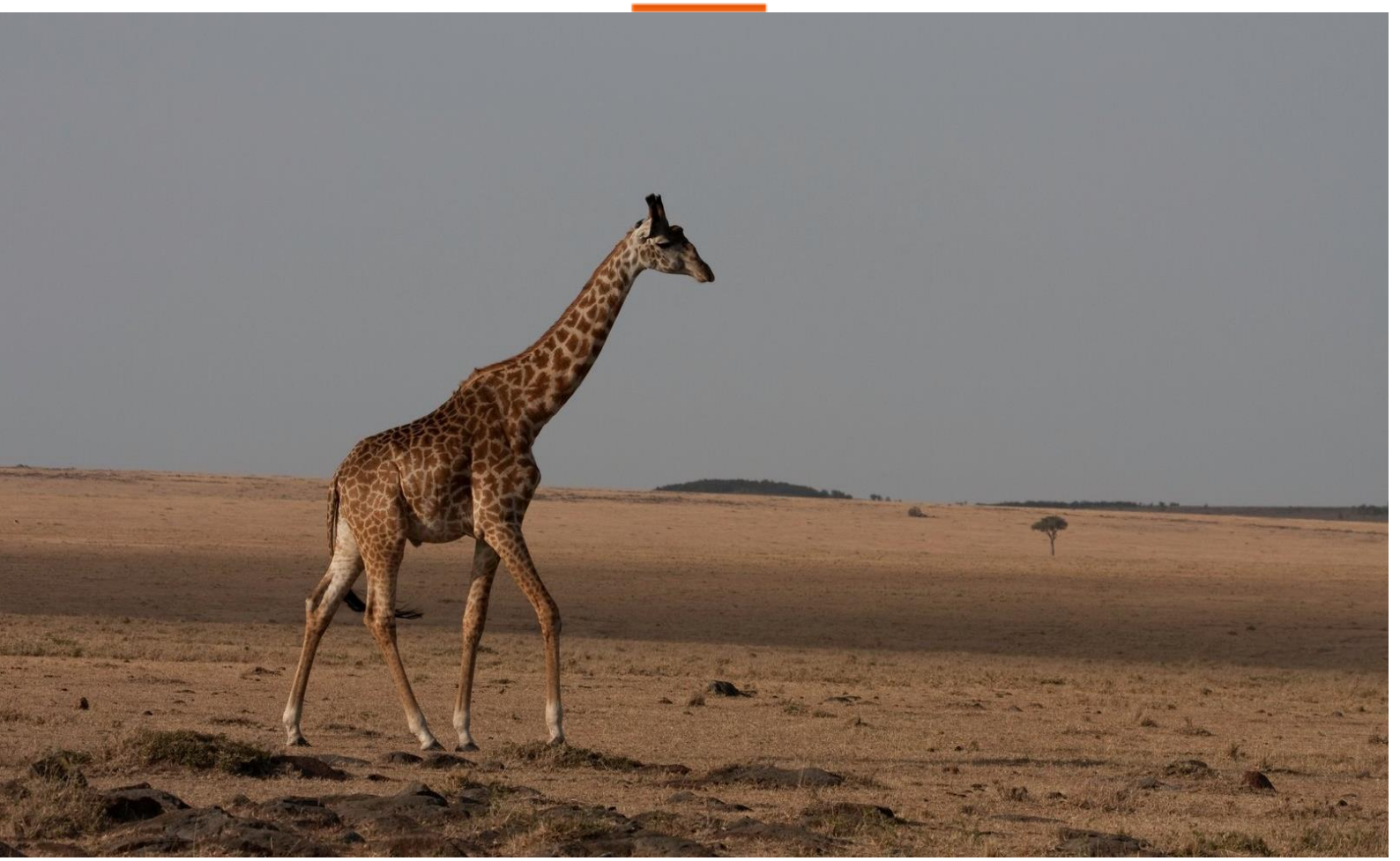

Larger than elephants

Inputs for the design of an EU strategic approach to Wildlife Conservation in Africa

Volume 4: Central Africa

DRAFT DOCUMENT

Development and Cooperation – EuropeAid

CENTRAL AFRICA

Western lowland gorilla, an iconic species of the Central African rainforests. An adult male displays in a forest clearing in Odzala-Koukoua National Park, Congo. Photo © Sylvain Gatti & Florence Levréro, CNRS, Station Biologique Paimpont-Université de Rennes

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ACRONYMS

AALF	Appui à l'Application de la Loi sur la Faune
ABC	Amis des Bonobos du Congo
ADB	African Development Bank
AECID	Agencia Espanola de Cooperacion Internacional para el Dearrollo (Spain)
AFD	Agence Française de Développement
AFRICOM	United States Africa Command
ANPN	Agence Nationale des Parcs Nationaux
AWF	African Wildlife Foundation
BAK	Biodiversité au Katanga
BCI	Bonobo Conservation Initiative
BIOPAMA	Biodiversity and Protected Areas Management in African, Caribbean and Pacific countries
BMZ	Federal Ministry for Economic Cooperation and Development (Germany)
CAR	Central African Republic
CAFEC	Central African Forest Ecosystem Conservation
CARPE	Central African Regional Programme for the Environment
CAWHFI	Central African World Heritage Forest Initiative
CBFP	Congo Basin Forest Partnership
CBNRM	Community Based Natural Resource Management
CBCSP	Community Based Conservation Security Partnerships
CIB	Congolaise Industrielle du Bois (now OLAM)
CITES	Convention for the International Trade in Endangered Species
CI	Conservation International
CIFOF	Center for International Forestry Research
COMIFAC	Commission des Forêts d'Afrique Centrale
DFGF	Dian Fossey Gorilla Fund
EAGLE	Eco Activists for Governance and Law Enforcement
ECCAS	Economic Community of Central African States (CEEAC in French)
ECOFAC	Programme Régional de Conservation et Utilisation Rationnelle des Ecosystèmes Forestiers d'Afrique Centrale
EFG	École de Faune de Garoua (Garoua Wildlife College – Cameroon)
ENF	École Nationale des Eaux et Forêt du Gabon
ERAIFT	École Régionale Post-Universitaire d'Aménagement et de Gestion Intégrés des Forêts et Territoires Tropicaux (DRC)
FAO	Food and Agriculture Organisation
FB	Fundacion Biodiversidad
FFI	Fauna and Flora International
FFEM	Fonds Français pour l'Environnement Mondial
FLEGT	Forest Law Enforcement, Governance and Trade
FSC	Forest Stewardship Council
FTNS	Fondation Tri National Sangha (TNS Trust Fund)
FZS	Frankfurt Zoological Society
GEF	Global Environment Fund
GIZ	Deutsche gesellschaft für technische Zusammenarbeit (German technical cooperation)
GIC	Gilman International Conservation
GRASP	Great Apes Survival Partnership
HGBF	Howard G. Buffet Foundation
ICCN	Institut Congolais pour la Conservation de la Nature
INCEF	International Conservation and Education Fund
INTERPOL	International Criminal Police Organization
IUCN	International Union for Conservation of Nature
KfW	Kreditanstalt für Wiederaufbau (German financial cooperation)
KLC	Key Landscape for Conservation
LAGA	Last Great Ape Alliance
LEM	Law Enforcement Monitoring
LRA	Lord's Resistance Army (a rebel group of Ugandan origin)
MAAMA	Ministerio de Agricultura, Alimentcion y Medio Ambiente (Spain)
MECNT	Ministère de l'Environnement, Conservation de la Nature et Tourisme
MINEF	Ministère des Eaux et Forêts
MIKE	Monitoring of Illegal Killing of Elephants

MIKES	Minimising the Illegal Killing of Elephants and other Endangered Species
MIST	Management Information System
MF	Murray Foundation
NCU	National Coordinating Unit
NGO	Non-Governmental Organisation
NTFP	Non Timber Forest Products
NP	National Park
NICFI	Norway's International Climate and Forest Initiative
OFAC	Central African Forest Observatory
PALF	Projet Appui à l'Application de la Loi sur la Faune
PAPECALF	Plan d'Action sous-régional des Pays de l'Espace COMIFAC pour le renforcement de l'Application des Législations nationales sur la Faune sauvage
PROGEPP	Projet de Gestion de la Périphérie du Parc National de Nouabalé-Ndoki
PREPAN	National Parks Rehabilitation Project (World Bank)
PNNN	Parc National de Nouablé-Ndoki
PNKB	Parc National de Kahuzi-Biega
PPP	Public Private Partnership
RDC	République Démocratique du Congo
REDD	Reducing Emissions from Deforestation and forest Degradation
RAPAC	Réseau des Aires Protégées d'Afrique Centrale
RFO	Réserve de Faune à Okapi (Okapi Wildlife Reserve)
SCAEMPS	Strengthening Central African Environmental Management and Policy Support
SI	Smithsonian Institute
SIV	Simian Immunodefficiency Virus
SMART	Self-Monitoring, Analysis and Reporting Technology
SSC	Species Survival Commission
SYVBAC	SYstème de suivi de la filière Viande de brousse en Afrique Centrale
TL2	Tshuapa-Lomami-Lualaba
TNS	Tri National Sangha
TRIDOM	Trinational Dja Odzala Minkébé
UNESCO	United Nations Education, Science and Culture Organisation
UNODC	United Nations Office on Drugs and Crime
UNEP	United Nations Environment Programme
USAID	Agence de coopération des Etats-Unis
USFWS	United States Fish and Wildlife Service
WHS	World Heritage Site
WWF	World Wide Fund for Nature
WCS	Wildlife Conservation Society
WCO	World Customs Organisation
WWF	World Wide Fund for Nature
ZSL	Zoological Society of London
ZSM	Zoological Society of Milwaukee

EXECUTIVE SUMMARY

The strategy is organised into six sections: (0) the overall rationale for the proposed EU strategic approach for wildlife conservation; (1) an introduction to the wildlife and habitats of Central Africa; (2) a review of challenges, threats and drivers of threats; (3) a review of ongoing conservation efforts; (4) lessons learnt and promising approaches particularly with respect to the landscape approach to protected area management, partnerships with the private sector, engagement with local communities, and law enforcement; (5) indicative conservation actions to achieve long-term wildlife conservation in Central Africa.

Section (0) sets out the rationale for an EU strategic approach for wildlife conservation in Africa by underlining the hitherto underappreciated scale of the wildlife crisis in Africa and the fact that with the burgeoning human population pragmatic strategic choices will have to be made as it will not be possible to conserve everything. Protected areas (PA) must therefore be at the heart of any strategic approach to wildlife conservation as these are the areas where the most intact assemblages of Africa's wildlife are found.

Section (1) describes the main natural habitats and ecosystems of Central Africa and the status of wildlife in the region. It describes the moist tropical forests that dominate Central Africa (including the volcanic islands in the Gulf of Guinea), the biodiversity rich moist forest-savanna transition zones, the sahelian savannas and woodlands to the north of the moist forest block and the miombo woodlands to the south. The moist forest block is by far the most extensive area of continuous forest in Africa and contains the planet's largest area of swamp forest. The Central African forests are characterised by high levels of endemism including several iconic species such as 4 sub species of gorillas, bonobos and okapi. They also represent a gigantic carbon sink and strongly influence local weather patterns. The generally intact nature of vast areas of habitat outside protected areas in Central Africa, particularly in the moist forest zone, together with the generally low human densities, means that it is not too late to do something for conservation.

Section (2) reviews long term threats to Central African wildlife. The commercial bushmeat trade is probably the single most pervasive threat and is leading to defaunation of large tracts of otherwise undisturbed forest ("empty forest" syndrome). The commerce is greatly aided by the industrial logging and mining activities which provide easy and rapid access for hunters deep into the most remote forest blocks. Habitat loss through deforestation, principally from shifting agriculture and fuelwood and charcoal collection, is a threat although deforestation rates are lower than anywhere else in Africa. Land grabbing for agro-industrial plantations, particularly oil palm, is a growing threat. The most important drivers of these threats are population growth, poverty and poor governance. Insecurity of land tenure and resource user rights and armed conflict are also important drivers. Finally insecurity and conflict have plagued the region for decades and have had a devastating effect on capacities to manage PAs and protect wildlife.

Section (3) reviews ongoing conservation efforts. The Central African Commission for Forests (COMIFAC) and the Congo Basin Forest Partnership (CBFP) provide the strategic framework for regional cooperation and donor collaboration in Central Africa. The section reviews the key bi and multi-lateral donors and conservation NGOs operating in Central Africa.

Section (4) reviews lessons learned and promising approaches. The key lesson is that PAs contain the most intact assemblages of wildlife and biodiversity and that the PAs where biodiversity is being most effectively protected are those that are receiving long term support from donor agencies and their technical partners. Public Private Partnerships (PPP) for management of PAs offer good opportunities for strengthening PA management in Central African countries where PA management capacities are very weak. The landscape approach, targeting groups of PAs and the areas linking them (including transfrontier conservation areas), significantly enhances conservation outcomes because habitats, particularly in the moist forest block, remain relatively intact. Promising opportunities exist for partnerships with private sector logging and mining operators whose concessions cover the majority of the forests linking PAs and who are required to integrate conservation measures in their legally binding management plans. Building constituencies for conservation among local communities has proved challenging because forest peoples are highly individualistic in their approach to natural resource use. Insecurity of land tenure further complicates the situation and contributes to situations of "open access" to resources resulting in overexploitation. There are few examples of successful livelihoods programmes that contribute to more sustainable natural resource use in Central Africa. Furthermore the "conservation-linked-to-development" paradigm that dominates modern biodiversity conservation thinking has resulted too often in conservation projects having to address all the socio-economic ills of populations living around protected areas, despite rarely having either the financial resources or the expertise to do this. Finally no lasting progress in wildlife conservation can be achieved if there is no political will at the very highest level.

Section (5) outlines a plan for achieving long term wildlife conservation in Central Africa. Long term support for Key Landscapes for Conservation (KLC) containing Central Africa's most important PAs is the central pillar of the plan since these are the areas that have the greatest chance of surviving the many pressures on wildlife and natural resources in the coming years. Priority is given to sites harbouring the most intact assemblages of Central African wildlife. World Heritage Sites (WHS) are also a priority by virtue of their WHS status which recognizes their global importance for nature conservation, as are sites which are on the counties' Tentative Lists for WHS status or which protect specific globally important features not found elsewhere. In total some 60 PAs are included in the KLCs identified. Three particularly important KLCs, all of which are also Transfrontier Conservation Areas (TFCA) are (i) Greater Virunga KLC (overlapping with Eastern Africa region) along the Albertine Rift which encompasses 11 PAs including 3 WHS, (ii) the Greater TRIDOM-TNS KLC encompassing 14 PAs including 3 WHS, and (iii) Gamba-Mayumba-Conkouati KLC encompassing 4 PAs. Between them these three KLCs protect a substantial proportion of Central Africa's floral and faunal diversity. They also include most of the priority areas identified in the Action Plans for gorillas and chimpanzees and encompass the majority of Africa's remaining forest elephants, of which Gabon alone probably holds 50%. These large KLCs also offer good opportunities for reinforcing existing, and developing new, public private partnerships (PPP) for PA management as well as for developing PPPs with the mining and logging sector for wildlife conservation and sustainable livelihood activities in the intervening buffer zones.

While on-the- job training will always be an important component of support to PAs, the major constraint to effective PA management is the weakness of the PA management authorities and the absence of career opportunities to encourage competent conservation practitioners (at all levels) to join the authority and stay with it to make their career. Support for institutional strengthening and/or reform of national PA authorities should therefore be a strategic priority of this plan.

Actions to dismantle wildlife crime networks are also key components of the plan and should focus on three themes (i) building collaboration between organizations and agencies; (ii) strengthening law enforcement; (iii) properly penalizing wildlife crime. COMIFAC's regional law enforcement action plan should be supported, as should the important efforts of NGO Wildlife Enforcement networks.

Lastly the issue of the unsustainable bushmeat trade must be addressed. Although there are no neat solutions to this intractable problem it cannot be ignored either. Most bushmeat is consumed in urban areas where it is more of a "luxury" item than for rural populations where it is more of a food security issue. The plan identifies three areas where action must be taken (i) reducing the demand for bushmeat including developing alternative sources of protein at a cost similar to bushmeat, (ii) improving the sustainability of the supply by better management of the resource, (iii) creating a conducive enabling institutional and policy environment so that local resource users have a secure stake in the resource and an incentive to manage it sustainably.

0 RATIONALE

The impetus for developing the strategic approach proposed in these volumes has come from the growing global awareness of a wildlife crisis in Africa. Although the much publicised plight of the African elephant and rhino has placed the issue at the forefront of international debate, conservation practitioners working on the ground in Africa have known for a long time that the wildlife crisis is by no means limited to a few iconic African wildlife species which are only the visible portion of an iceberg that hides a steady erosion of wildlife over a wide range of species in all biomes. The scale of the wildlife crisis is immense and one of the main aims of this document is to underline (a) just how much needs to be done and why, (b) what are likely to be the most realistic and effective strategic priorities for saving Africa's wildlife heritage, given the rate of human population growth and associated habitat loss. It is also hoped that the document will serve as a way of federating the different wildlife conservation actors, both within and outside Africa, around a balanced series of common themes.

One of the key points that emerges from the following is that the pressure on land and natural resources in Africa has increased conspicuously in recent decades, and is set to increase considerably more as a result of ongoing demographic and economic trends; more than ever before, Protected Areas have to be at the heart of any strategic approach to wildlife conservation as these are the areas where the most intact assemblages of Africa's wildlife are found. A second key point is that African people living in wildlife-rich areas need to have tangible benefits in the preservation of Africa's wildlife if they are (a) to accept the costs of living with it and (b) be able to continue using it sustainably. Thirdly, efforts to tackle the international illegal trade require concerted actions to stop the killing, stop the trafficking and stop the demand for wildlife and forest products. Fourthly good quality and up-to-date information is essential in order to inform the choice of strategic options and monitor outcomes. Lastly, all of the above will require a whole raft of institutional, policy and legal improvements or changes to occur in parallel.

Combining the above considerations brings us to an overall objective, or desired outcome, for the strategic approach to wildlife conservation:

> **A full suite of viable populations of the unique wildlife heritage of Sub-Saharan Africa maintained in healthy, functioning and resilient ecosystems supporting livelihoods and human development.**

Thus the strategic approach developed herein is primarily targeted at the conservation of large functioning ecosystems or landscapes supporting key African wildlife populations. It contributes to wider goals of biodiversity conservation by, for example, protecting many small areas of outstanding importance to particular threatened taxa where those small areas fall within larger conservation landscapes. A secondary tactic supporting wider biodiversity goals is to make conservation funds available to agencies and projects protecting small important sites that cannot be contained in the large key landscapes identified.

The Strategic Approach to Wildlife Conservation in Africa is presented in six volumes as follows:

Volume 1: Synopsis
Volume 2: Southern Africa
Volume 3: Eastern Africa
Volume 4: Central Africa
Volume 5: Western Africa
Volume 6: Additional Sections – Elephants, Rhinos, Trade, Madagascar, Birds, Other Wildlife

The first five volumes are each arranged according to six chapters (following an Executive Summary): 0. Rationale; 1. Special Features of the Region; 2. Conservation Challenges and Issues; 3. Ongoing Conservation Efforts; 4. Lessons Learnt and Promising Approaches; and 5. Indicative Conservation Actions. A somewhat different format is found in Volume 6 which begins with three chapters (Elephants, Rhinos, Trade) that relate to the wildlife crises currently affecting elephants, rhinos, numerous 'bushmeat' species including many rare forest specialist species, and various plants and trees that have market value. These three chapters contain relevant background information and strategic approaches aimed at stopping the killing, the trafficking and the demand. There is a separate chapter on Madagascar because of its unique conservation status and geographic isolation. A fifth chapter introduces priorities for bird conservation, highlighting the coordinated conservation of European-African bird migrations. An annex provides additional information on various other wildlife groups (including fish, amphibians, insects, large carnivores and great apes) that warrant special mention.

We recognise that the wildlife crisis is not confined to the terrestrial environment and that marine ecosystems are also critically impacted by unsustainable harvesting. Furthermore, we are aware that issues relating to the impoverishment of the marine environment are as far reaching as those of the terrestrial environment. A separate, but linked, strategic approach is therefore required for marine ecosystems. Similarly a separate but linked strategic approach may be required for conservation of freshwater ecosystems which recognizes unique elements of the aquatic fauna. Some freshwater ecosystems are incorporated into this strategy, particularly those wetlands that have importance for water birds, or as terrestrial ecosystems in their own

right (such as Okavango Delta, swamp forest areas in Central Africa, Rift Valley Lakes, the Sudd, Lake Chad, Senegal Delta and Inner Niger Delta), or have exceptional importance for biodiversity (Lakes Malawi and Tanganyika for example).

The European Union wishes to assist in building an inclusive strategic approach to the conservation of African wildlife that involves all political and organisational stakeholders working for the benefit of Africa, its wildlife heritage and its peoples. This document may be viewed as a first step in the process of building a consensus, after which the various strategic elements proposed will need to be translated into action through a series of programmes and projects for which detailed results and indicators will have to be developed and rigorous performance monitoring and accountability measures applied. Through cooperation we trust that the long-term future of African wildlife can be secured and that this will be done in such a way as to provide greatest benefits to the nations and peoples of Africa, and not least to the local people who live alongside and within some of the most spectacular wild ecosystems on the planet. The natural heritage of Africa greatly enriches the global natural heritage and we hope this strategic approach to its conservation will encourage others to adopt compatible strategic approaches in other regions.

1 SPECIAL FEATURES OF THE CENTRAL AFRICAN REGION

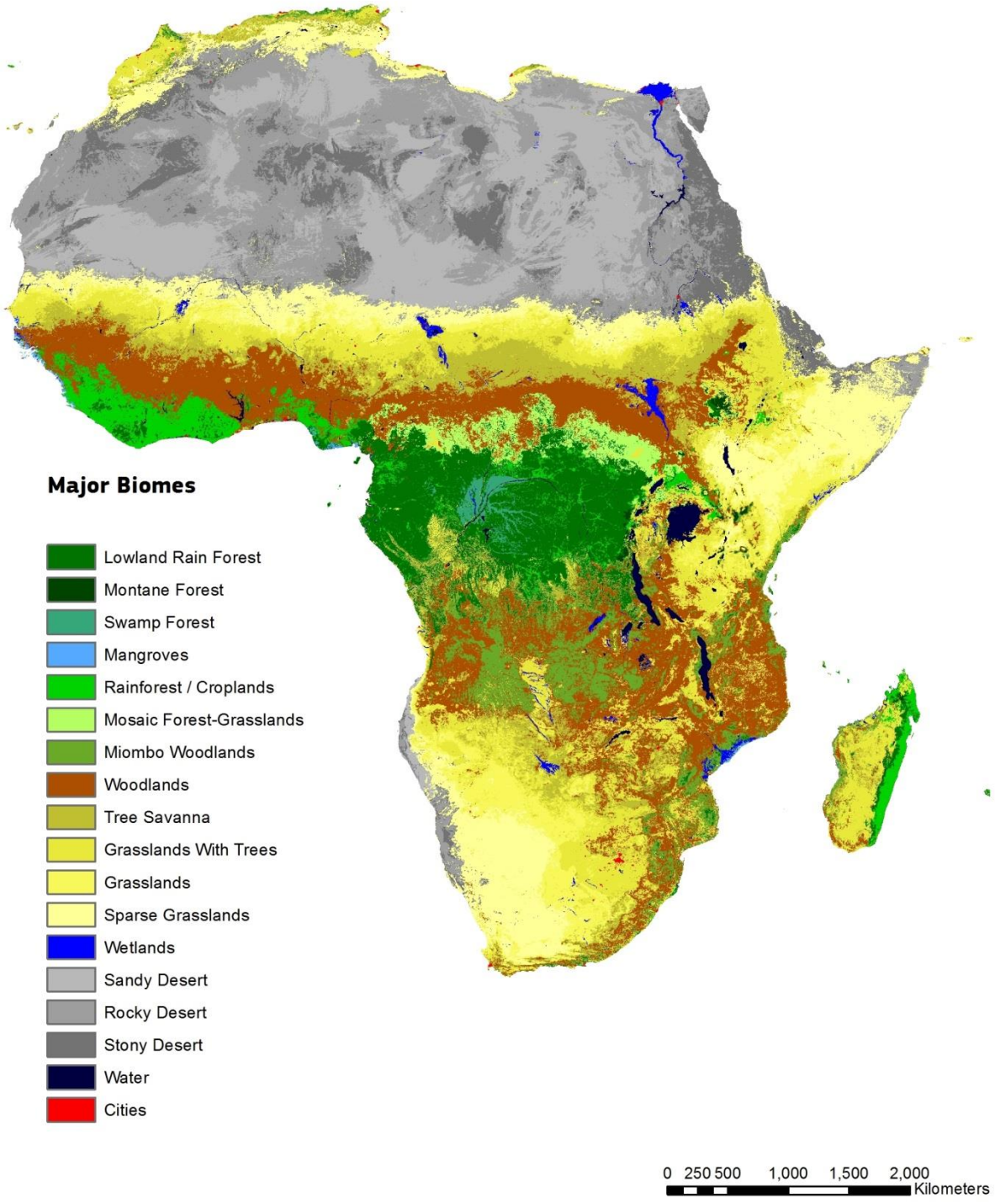


Figure 1. Major biomes of the Central African region

The Central African region as defined for the purposes of this report comprises 8 countries - Cameroon, Central African Republic, Chad, Republic of Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon and São Tomé e Príncipe.

The moist tropical forest block of what is loosely referred to as the Congo basin, is the dominant feature of the Central African region in terms of surface area, species richness and diversity, carbon sequestration and influence on climate. The gulf of Guinea islands of Equatorial Guinea and São Tomé e Príncipe also contain small, but biologically important, areas of moist tropical rainforest. To the north and south of the moist forest block the ecological transitions to woodland and savannas produce a number of biologically important ecosystems.

1.1 MOIST TROPICAL FORESTS

These forests constitute a vast block of tropical rainforests covering an estimated 1.79 million km² of Central Africa[1] and spanning 6 of the Central African states (Cameroon, Equatorial Guinea, Gabon, Central African Republic, Republic of Congo, and Democratic Republic of Congo) and extending also into small areas of Nigeria and Angola. The forests include a vast expanse of different types of lowland Congolian rainforests, and much more restricted, and threatened, areas of high biodiversity Afro-montane forests in the Mount Cameroon area in the west and the Albertine Rift in the east. This vast expanse of forests is often loosely referred to as the Congo basin, although it in fact covers several watersheds: Congo, Sanaga, Ntem, Ogooué, Nyanga, Niari and Kouilou, and in the east the Nile watershed. However roughly two thirds of these forests are drained by the Congo River and 60% of them fall within the DRC.

The moist tropical forests of Central Africa form an essentially uninterrupted forest block, with roughly 80% falling between 300 and 1,000m above sea level[2]. Average annual rainfall is between 1,600 and 2,000 mm, although along the coasts between Cameroon and Gabon annual rainfall is much higher (3,000 to 11,000 mm). The cycle of climate changes over the past 2 million years has had a profound influence on the forests of the Congo basin. In response to expansions and contractions of the polar ice caps, cool dry periods have alternated with warmer, humid periods, causing the forests to shrink and expand. During dryer periods, the forests were reduced to a series of scattered refuges situated along the Atlantic coastal mountain ranges, the highlands of eastern DRC, and along the gallery forests and swamps associated with the Congo River. These so called forest refuges acted as reservoirs of forest species in periods of forest contraction and as the forest fragmented and expanded, forest and non-forest species were repeatedly intermixed in a kind of "evolutionary whirlpool"[3]. The Okapi, the DRC's endemic forest giraffe, is a spectacular example of a forest species clearly displaying its savanna origins.

Overall diversity, particularly floral diversity, of the Central African forests is high, though not as high as the Southern African region. However what makes these forests particularly interesting is that much of the fauna and flora is found nowhere else in the world and this is true not only at the species level but also at the genus and even family levels. The lowland forests contain around 10,000 higher plants, of which 30% are endemic (including 9 endemic families), while the afro-montane forests contain around 4,000 species, of which 70% are endemic (including 2 endemic families)[4]. Several endemic and charismatic mammals occur in the Central African forests including the okapi, bongo, aquatic genet, gorilla (four subspecies) and bonobo and many of the small primates and forest duikers are also unique to these forests. In addition to the endemic Congo peacock the forests contain at least 5 bird families endemic to Africa. Amphibian, reptile and fish diversity are also high although all three groups are relatively poorly known and new species are regularly discovered. In the DRC alone over 1,000 species of freshwater fish are known. Several of the more charismatic regional endemics are confined to the DRC including the okapi, bonobo, Grauer's gorilla, aquatic genet and Congo peacock and new mammal species are still being discovered in remote areas.

In addition to its importance in terms of species diversity and endemism the Congo basin is one of the last regions in the world where vast areas of interconnected rainforest allow biological processes to continue undisturbed. Rainforests cover only 13% of Africa's landmass but they account for more than 90% of the carbon stored in the continent's terrestrial ecosystems[5]. The Congo basin is therefore a gigantic carbon sink and as such plays a vital role in regulating the planet's greenhouse gases. Lastly it has a dominating influence on local weather patterns since over 50% of the rain that falls on the central Congo basin comes from evaporation and evapo-transpiration from the forest itself[6]. It is important to underline that average rainfall over the Congo basin is relatively low (approximately 2,000mm) compared with Amazonia and south east Asia and places it close to the threshold of dry forests. This means that most, if not all, of the moist forest tree species would likely be lost if rainfall

[1] Mayaux P, Pekel J-F, Desclée B, Donnay F, Lupi A, Achard F, Clerici M, Bodart C, Brink A, Nasi R, Belward A. 2013 State and evolution of the African rainforests between 1990 and 2010. Phil Trans R Soc B 368: 20120300. http://dx.doi.org/10.1098/rstb.2012.0300
[2] The Forests of the Congo Basin. State of the Forests 2006 (Chapter 1)
[3] J. Kingdon. 1990. Island Africa. Academic Press.
[4] R.A.Mittermeier, C. GoettschMittermeier, P Robles Gil, J. Pilgrim, G. Fonesca, T. Brooks & W.R. Konstant. 2002. Wilderness: Earth's Last Wild Places. Conservation International
[5] Mayaux P, Pekel J-F, Desclée, B, Donnay F, Lupi A, Achard F, Clerici M, Bodart, C, Brink A, Nasi R, Belward A. 2013. State and evolution of the African rainforests between 1990 and 2010. Phil Trans R Soc B 368: 20120300. http://dx.doi.org/10.1098/rstb.2012.0300.
[6] A. Hoare. 2007. Clouds on the Horizon: The Congo Basin's Forests and Climate Change. Rainforest Foundation report. 27pp.

were to decrease slightly through climate change or extensive forest clearance. With a shift to drier forests fire would start having a devastating impact on the remaining forests, hydrological regimes would be profoundly affected, and the impact on human livelihoods in the region would be catastrophic[7]. **The vastness and apparent intactness of the moist tropical forests of the Congo basin forests therefore belies the extreme precariousness of its existence.**

Specific features of the Central African moist forests to be highlighted include:

The Congolian Atlantic coastal forests have exceptionally high levels of species richness and endemism in all taxonomic groups, particularly birds, amphibians and reptiles. These forests contain a number of Pleistocene refuges – areas which remained forest covered during the periodic expansions and retractions of the forest block over geological times and where forest species probably survived the dry periods to colonize the new forests in succeeding wet periods. The Monts de Cristal-Monte Alén range, spanning eastern Equatorial Guinea and western Gabon, and Mont Doudou in southern Gabon, rise to altitudes in excess of 1,000m and are of particular importance for plant diversity and endemism. The Monts de Cristal has over 3,000 species of vascular plant, of which over 100 are strict endemics. Species richness of forest mammals is also exceptional. The highly restricted range of the sun tailed monkey, a species endemic to Gabon and only discovered in 1984, covers this eco-region. Globally important populations of gorillas, chimpanzee and forest elephant are also found within these forests. Other important larger mammals include the mandrill, black colobus, bongo and several forest duikers.

A vast area of inland and coastal wetlands, and pockets of Central African mangroves, is also located within this eco-region. The delta of the Ogooué River in Gabon is Africa's second largest delta after the Niger[8]. Covering over 5,000km² of flooded forests, swamps, lagoons, lakes and mangroves, this is one of 9 Ramsar sites in Gabon and of huge importance for wildlife, particularly fish (both freshwater and marine), birds and other aquatic vertebrates such as manatee, hippo and Africa's three species of crocodile. The area contains pockets of Central African mangroves. Another unique feature of this area is the fact that elephants, gorillas, chimpanzees, hippo, forest buffalo and Nile crocodile can often be observed on the beaches on the Gabon coast. These beaches are also among the world's most important for nesting of marine turtles, particularly leatherbacks.

The central portion of these forests, particularly the part in Gabon, has one of the lowest human population densities in Africa. Nevertheless human activities in the form of industrial logging are widespread. Essentially all forests outside of protected areas have been attributed as logging concessions. Commercial hunting for the bushmeat trade is also widespread and protected species are often openly on sale in urban markets. Onshore oil exploitation in the coastal area is also a threat to biodiversity.

There are 9 IUCN category I to IV PAs in these forests (2 in Equatorial Guinea, 6 in Gabon, 1 in Congo) covering more than 27,000 km² (18% of the eco-region).

Moist forests of the Gulf of Guinea islands. The Gulf of Guinea islands comprising Bioko, Príncipe, São Tomé and Annobon form an arc of volcanic islands reaching out 750 km into the Atlantic Ocean. Uninterrupted moist forest formations from sea level to over 3,000m are found on the islands. Because of their long separation from mainland continental Africa (Príncipe emerged from the ocean some 17 million years ago[9]) species have evolved that are unique to these islands. São Tomé and Príncipe have over 20 endemic bird species and Bioko has 2 Important Bird Areas - IBA (Luba crater and Basilé peak). Bioko also has 5 endemic subspecies of primate. The volcanic origin of these mountains gives them rich soils. The rugged landscapes of these volcanic islands are particularly spectacular. The beaches of the islands are important nesting areas for marine turtles, the remote southern shore of Bioko island being particularly important for leatherback, green and olive Ridley turtles.

There are 5 IUCN category I to IV PAs (Bioko 2, Príncipe 1, São Tomé 1 and Annobon 1) on the 4 islands covering approximately 1,260 km².

Montane forests of west Cameroon and the Albertine Rift. The montane forests and afro-alpine formations on Mount Cameroon and the Cameroon highlands in the west and the Albertine Rift in the east are areas of particularly high biodiversity and levels of endemism. For example 42 plant species, and 3 genera, are strictly endemic to Mt Cameroon (where annual rainfall attains >10,000mm locally). Exceptionally large numbers of endemic animal species occur in all taxonomic groups. For example along the Albertine Rift 30 bird and 25 mammal endemics are known. The Virunga National Park in eastern DRC encapsulates the unique biodiversity of the Albertine Rift with an uninterrupted gradient of biotopes from 700m asl to afro-alpine meadows and glaciers on the summit of the Ruwenzori range at just over 5,000m over a horizontal distance of little more than 25kms. No other area in Africa has such a wide altitudinal span of natural habitats. In an area representing only 0.3% of the total surface area of the DRC the Virunga NP is home to over half of the DRC's mammal species and two thirds of its bird species.

[7]The Forests of the Congo Basin. State of Forests, 2008.(Chapter 10)
[8] Vande weghe, 2007. Loango, Mayumba et le Bas Ogooué. Gabon Parks.
[9] Gulf of Guinea Biodiversity Project http://researcharchive.calacademy.org/research/guinea_islands/

However, throughout Central Africa, montane forests have been reduced to relicts by intense human activity since these areas are coveted for agriculture and livestock. The highest human densities of the Central African region are found in these regions (>400 inhabitants/km² locally along the Albertine Rift). In the Cameroon highlands there are a large number of very small forest reserves which are not well protected. Korup NP (1,295 km²) is the only category I-IV protected area in the Cameroon highlands. Along the Albertine Rift only parts of Virunga NP and Kahuzi-Biega NP (both World Heritage Sites in Danger) protect these important forests.

Congolian swamp forests. This is one of the largest areas of swamp forest on the planet[10] covering some 200,375km². The Congolian swamp forests are located in the heart of the Congo basin along the middle reaches of the Congo River and along its northern tributaries (Likouala, Sangha, Likouala-aux-herbes, Oubangui) and southern tributaries (Lomami, Tschuapa, Loile). While displaying relatively low species richness and diversity they are nevertheless of high importance in terms of endemism. They are very important for fish diversity and are vital breeding areas for many species. They also play a central role in the regulation of water flows across the Congo basin. Surveys in northern Congo[11] in the early 90s showed that the presence of *Raphia* palms in the Likouala-aux-Herbes swamps support high populations of gorillas year round, and attract forest elephant in the dry season. The swamp forests of Lac Tumba-Lediima Reserve also support populations of bonobo[12]. Contrary to what might be expected the swamp forests are not inaccessible to poachers. In some areas of the swamps in northern Congo a dense network of dugout canoe channels in the swamps is maintained by local hunters which enable them to penetrate far into the forest and silently approach the non-inundated patches of forest where mammals tend to concentrate. Furthermore that fact that they are in dugout canoes means that they can transport larger loads of bushmeat than if they were on foot.

With the exception of a very small area along the Loile River in Salonga NP, none of these important forests lie within IUCN category I to IV PAs. However the Lac Télé–Likouala aux Herbes Community Reserve in Congo (4,525 km²) lies wholly within this forest type, as does approximately half (3,500km²) of the Lac Tumba-Lediima Reserve in DRC.

Central Congolian lowland forests cover a vast area (c. 430,000 km²) to the south of the great arc of the Congo River and are entirely restricted to the DRC. They cover almost the entire range of the bonobo[13], a species of great ape that is endemic to the DRC. A network of large rivers functions as distribution barriers to many species, thereby isolating this lowland basin along its northern, eastern and western limits. Because of the relatively flat topography of the area, most of these rivers are slow flowing with heavy sediment loads, and numerous alluvial islands. Many of the soils are nutrient poor oxisols developed over ancient "dune fields".

The central Congolian lowland forests, dominated by species from the leguminous Caesalpiniaceae family, are less floristically diverse than other areas of the Congo basin but 10% of the species are thought to be endemic. Vertebrate species richness and endemism is also lower than in other parts of the Congo basin, perhaps because the river barriers have prevented interchange of species from other ecoregions. On the other hand these barriers have meant that several mammal species, including several small primates, are endemic to the areas of forest to which they are confined by the river network. Selected examples are the recently described lesula monkey (between the Tschuapa and Lomami Rivers), the Salonga guenon (between the Lua and Lopori rivers) and Thollon's red Colobus (between the Lomami and Congo rivers). In 2014 a probable new species of monkey, the Inoka, was discovered between the Lomami and Congo Rivers[14].

Only one category I-IV PA is located in these forests (Salonga NP, 36.000km² - a World Heritage Site in Danger) but several other protected areas (Tumba-Lediima, Lomako-Lokolala, Sankuru) are also located in this eco-region, as is the future Lomami NP.

Northwestern and Northeastern Congolian lowland forests have high levels of species richness and endemism and cover the core area of the lowland gorilla and western chimpanzee distribution. Mammalian richness is among the highest of any forest region in Africa and primate species richness is the highest in Africa. Cameroon has 29 species of primate and Gabon 19. The Okapi Wildlife Reserve (DRC) alone has 17 primate species. These forests contain the last strongholds of forest elephant, particularly in the transfrontier area of Gabon, Cameroon, Congo and CAR. A particularly important feature of these forests, particularly the northwestern forests, is the presence of hundreds of forest clearings or "*bais*" as they are known locally. These *bais* usually have mineral licks which attract large numbers of large mammals including forest elephant, buffalo,

[10]Vande weghe, 2004.Forests of Central Africa. Man and Nature. ECOFAC – Lanoo.
[11] Blake, S., Rogers, E., Fay, J.M., Ngangoue, M., Ebeke, G. 1995. Swamp gorillas in northern Congo. Afr. J. Ecol. **33**: 285-290
[12]IUCN & ICCN (2012).*Bonobo* (Pan paniscus): *Conservation Strategy 2012–2022.* Gland, Switzerland: IUCN/SSC Primate Specialist Group & Institut Congolais pour la Conservation de la Nature. 65 pp.
[13] The bonobo range also extends into the northern part of the southern Congolian forest savanna mosaic in the southern extremity of the future Lomami NP (IUCN & ICCN (2012). *Bonobo* (Pan paniscus): *Conservation Strategy 2012–2022.* Gland, Switzerland: IUCN/SSC Primate Specialist Group & Institut Congolais pour la Conservation de la Nature. 65 pp.
[14] Searching for Bonobos in Congo http://www.bonoboincongo.com/maps/

sitatunga, bongo, bush pig, giant forest hog, gorillas, chimpanzees. They often have water sources and the sedges and other aquatic vegetation provide an important food source for gorillas and ungulates.

The forest clearings are also important sites for social interactions for many of the species that visit them, particularly the forest elephant. In areas relatively undisturbed by human activities the *bais* are linked by a dense network of heavily used trails, known as elephant boulevards, which may cover many hundreds of kilometers.

These forests have, until recently, been relatively inaccessible and have therefore remained largely free of human activities. However the situation has changed very rapidly over the past 20 years. Almost all of the northwestern forests are covered by active, or soon to be active, industrial logging concessions. The dense network of logging roads has opened up the forest for immigrants in search of employment and forest resources, particularly bushmeat. Several very large industrial mining concessions (iron, cobalt, nickel) are also starting up and these will also attract thousands of people into these hitherto low populated areas. Gold deposits, some of which are of exceptionally high quality, are also found all over these forests. Most of the gold mining is artisanal and unregulated but attracts very large numbers of people. The majority of Central Africa's forest elephants are found in the northwestern forests but they are being heavily targeted by gangs of poachers with links to criminal networks operating from within, and outside, the Central African region.

There are 15 category I-IV protected areas in these forests covering a total of 74,100 km², approximately 11% of the Northeastern and Northwestern Congolian forests. The northern part of Virunga NP also covers some of this forest type. Three of Central Africa's six moist forest World Heritage sites occur within these forests (Dja Reserve, Tri National Sangha - TNS, Okapi Wildlife Reserve) although Dja and Okapi are on the World Heritage in Danger List.

Large numbers of forest elephant, forest buffalo, bongo and sitatunga share the mineral rich Dzanga bai in the CAR section of the Tri National Sangha World Heritage Site. *Photo © Tom Aveling*

1.2 MOIST FOREST-SAVANNA TRANSITION ZONES

These transition zones are almost as extensive as the moist tropical forests. To the north of the rainforest block the forests give way to the Northern Congolian forest savanna mosaic, a biologically interesting transition zone where plant and animals species characteristic of both the rainforests and savannas occur (chimpanzee, bongo, giant forest hog, hyena, lion, etc). With

their characteristically diverse habitat types, forest savanna mosaics support a high proportion of eco-tonal habitats, which have high species richness and have probably been important centers for differentiation and speciation. Gallery forests are the dominant forest type in this zone and this is where the typical rainforest species are mainly found. Further north the forest savanna mosaic gives way to relatively moist wooded grasslands with typically woodland/savanna species such as giant eland, northern white rhino (now extinct), black rhino (only a few individuals remain), giraffe, roan, hartebeest, lion. In Garamba NP the elephants show morphological characteristics of both the forest and savanna species.

A similar transition to forest savanna mosaic occurs all along the southern flank of the Congo basin rainforest block. The Batéké plateaus, comprising grasslands and lightly wooded savannas overlaying deep Kalahari sands, extend northwards into the south eastern part of the moist forest block (Figure 1).

Because of their relative accessibility the main threats to the forest-savanna transition zones come from subsistence agriculture, hunting and competition for grazing and water-point access by large domestic herds of livestock. Artisanal gold panning is widespread in these areas and causes locally high levels of habitat disturbance, especially in the biodiversity-rich gallery forests along water courses.
Category I-IV PAs in the northern forest savanna transition zone include Mbam and Djerem NP, Benoué NP and Faro NP (Cameroon), Garamba NP (DRC) and Zemongo WR (CAR). However the vast complex of the Bili-Uere hunting domains (category VI, 33,000km²) in northern DRC also covers this transition zone. Three category I-IV PAs occur in the transition zone to the south of the moist forest block: the southern tip of the future Lomami NP (DRC), and in the Batéké plateaus the Plateaux Batéké NP (Gabon) and Lefini WR (Congo).

1.3 EAST SUDANIAN SAVANNAS AND SAHELIAN ACACIA SAVANNAS

In the Central African region these habitat types are found in CAR, Cameroon and Chad. The climate is very hot and dry and during the dry season most of the trees lose their leaves and the grasslands dry up and burn extensively. There is low faunal endemism because the area is so vast and continuous but is quite important in terms of plant endemism. Roughly one third of the 2,700 plant species in the east Sudanian savannas are endemic. Animal species typical of the Sudanian savannas are elephant, lion, cheetah, wild dog, roan antelope and giant eland. Further north, in the drier Sahelian Acacia savannas, many mammal species have been hunted to extinction or near extinction. Species typical of this region include the scimitar-horned oryx (extinct in the wild[15]), dama gazelle, dorcas gazelle, and red-fronted gazelle. Endangered predators such as wild dog, cheetah and lion, were all also present and common, but have now been extirpated over most of the ecoregion. The elimination of wildlife over such a large area was facilitated by modern hunting methods – rifles and four-wheel drive vehicles – and exacerbated by civil disturbance, poor law enforcement and competition for grazing and water-point access with large herds of domestic livestock.

The original wooded savanna and Acacia bushland habitats have been greatly altered over thousands of years, through long-term climatic changes and, more recently, through anthropogenic effects (herding, subsistence agriculture, fuel wood, fire). Climatic desiccation is a further threat, exacerbating the impacts of human activities, as the ability of the ecosystem to recover from overuse is reduced when there is little rainfall. In the past there were substantial populations of large mammalian herbivores, which would have grazed and browsed the vegetation. The remaining blocks of intact habitat are found mainly in the protected areas. In other areas the habitat is often degraded, but is extensive and relatively continuous in sparsely populated areas.

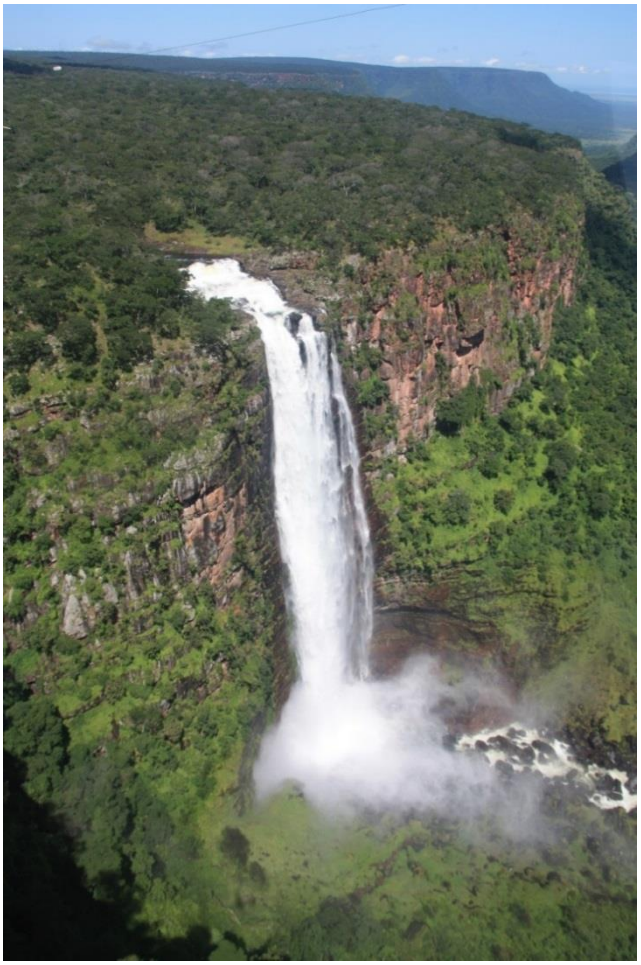
In the 60s and 70s the area of northern CAR was sometimes referred to as the "Serengeti of Central Africa" because of the vast numbers of large mammals that the habitat supported. However decades of poaching, and incursions by large herds of domestic livestock (in many cases owned by influential and wealthy individuals) from Sudan and Chad[16], have reduced wildlife numbers to very low levels. Long term conflict in southern Sudan, CAR and Chad has also prevented effective conservation in this area. Elephants have been particularly targeted in southern Sudan, northern CAR, northern Cameroon and southern Chad by Sudanese poachers and armed militia. For example the slaughter of elephants in Chad's Zakouma NP between 2006 and 2008 resulted in a catastrophic population decline from 4,500 to 450 individuals[17]. Similarly over a six week period in 2012 in Bouba-Ndjida NP in northern Cameroon at least half of the park's elephants were slaughtered by a highly organized band of Sudanese poachers[18].

[15] IUCN Red Data List http://www.iucnredlist.org
[16] The flood plains of the Gounda River in the Manovo-Gounda-St Floris World Heritage Site offer particularly rich grazing for pastoralists from Sudan and Chad who now occupy the zone year round. The cattle raised here are used to supply meat markets as far afield as Nigeria.
[17] It is important to underline that over 25 years of conservation investment in this park by the EC from the late 80s had resulted in a spectacular recovery of all wildlife in this park, and with the exception of the elephants, wildlife populations remain very healthy in Zakouma. This illustrates the fact that elephant poaching is a special issue requiring a series of highly specialized and targeted actions.
[18] http://www.ifaw.org/united-states/news/elephant-population-halved-cameroon-killing-spree-graphic-images

Chad has several large category I-IV PAs totaling 120,000km² although the only one that is managed adequately is Zakouma NP. In CAR the complex of Wildlife Reserves, Hunting Domains and National Parks centered around the Manovo-Gounda-Saint-Floris and Bamingui-Bangoran National Parks cover 80,000km² but most are not effectively managed because of recurring conflict in the region (Manovo-Gounda-St Floris is a World Heritage Site in Danger). In fact, until the recent conflict overwhelmed to country, the areas where the best populations of wildlife remain in the savanna areas of CAR were in areas managed for sport hunting. The Chinko-Mbari watershed adjacent to the Zemongo Wildlife Reserve, covering over 80,000km², in the east of CAR still contains a surprisingly complete representation of the wildlife characteristic of this ecosystem thanks to protection provided by professional safari hunters[19].

1.4 SOUTHERN MIOMBO WOODLANDS

Spread throughout Central and Southern Africa, the southern miombo woodlands extend over a vast area. In the Central African region they extend across the south of the DRC from the Zambian border to Angola. These woodlands are floristically rich, dominated by slow growing leguminous tree species with a canopy height of up to 15m. Grasses cover the ground under the trees and they burn in the dry season. Miombo is thus a fire-adapted habitat. Soils are generally poor which means that miombo woodland plants tend to be difficult to digest for mammals, thus favoring low densities of bulk feeding mega-herbivores such as elephant and black rhino (now extinct in Central Africa). Miombo woodlands are also typically rich in termite species and mushrooms, both of which provide important sources of food for local populations. Although vast in extent the Central African miombo woodlands are in fact threatened by agriculture and fuel wood cutting, particularly as they are so slow to regenerate. The high plateaus of the Katanga region of southern DRC, covered by miombo woodland and grasslands, give rise to several large rivers that feed into the Congo River. They therefore play a vital role in the provision of a regulated supply of clean water. The Katanga plateaus also provide spectacular landscapes with high tourist potential. The 380m high Kaloba falls on the Lofoi River in Kundelungu NP are the highest in Africa.



Only two national parks, Kundelungu and Upemba (DRC), totaling 21,400 km², protect the Central African miombo woodlands in Central Africa.

The 380 m high Kaloba falls on the Lofoi River in the miombo woodlands of Kundelungu NP, DRC, are the highest in Africa. Photo M. Bostroem.

[19] http://www.chinkoproject.com/

2 CONSERVATION ISSUES AND CHALLENGES

In this section the direct threats to biodiversity, and the key drivers of these threats, are presented.

2.1 DIRECT THREATS

2.1.1 Unsustainable commerce of wild animal protein[20]

The massive scale of the commercial bushmeat trade across Central Africa is leading to impoverishment of vast areas of rain forest, and local extinctions of many species, particularly the medium and large bodied species (the "empty forest syndrome"). Estimates of the scale of the Central African bushmeat trade indicate that up to 4.5 million tons of bushmeat are extracted annually from the Central African forests with an estimated value of up to 205 million $US annually. A very wide variety of taxa are hunted (mammals, birds, reptiles). Mammals make up the bulk of the catches in terms of number and biomass, with ungulates and rodents representing two thirds of the carcasses sold in urban markets. Large bodied species are hunted where they are present (ie in recently exploited forest) but these soon disappear after which catches are dominated by smaller species such as brush tailed porcupines, pouched rat, and blue duiker. Monkeys are hunted in large numbers in many areas but as shotguns are required to kill them, the cost of the cartridges often outweighs the financial return for the hunter. However cartridges and firearms are often supplied by corrupt officials and where this happens the financial returns make monkey hunting worthwhile. For terrestrial species the overwhelming method of hunting is with steel wire snares, a commodity that is widely and cheaply available in the form of brake cables for bicycles. This method is extremely wasteful since it is unselective in what it catches and also many carcasses decay before hunters return to check their traps. Typically hunters will lay up to several hundred traps on a hunting trip. Hunters do not distinguish between protected and non-protected species – they will take whatever they find in their traps. In heavily hunted areas protected species, which are often larger bodied ones, disappear first. Larger-bodied longer-lived species with low intrinsic rates of population increase such as elephants, apes, other large primates, carnivores and large antelopes are less resistant to intensive hunting than species with high intrinsic rates of population increase such as rodents and small to medium sized ungulates. Primates and carnivores are extremely vulnerable. However some species, such as the blue duiker, are particularly resistant to hunting pressure and can maintain their population levels even under quite high hunting intensity levels.

There is increasing evidence of overfishing in many of the inland waters of Central Africa. This is particularly evident in Lake Edouard (Virunga NP)[21] where "open access" to the resource, and the involvement of powerful middle men in the trade, is depriving local fishing communities of their livelihoods. Forest people in Central Africa often naturally alternate between bushmeat and fish as a function of seasons and availability, but as bushmeat supplies diminish there will be a tendency to increase consumption of fish, leading to overfishing. Evidence of this is already occurring in the town of Mambasa in DRC (in the moist forest region near the Okapi Wildlife Reserve) where increasing quantities of fish from the Great Lakes region to the east, (including Lake Edouard) are being consumed.

[20]Principal source of information concerning bushmeat for this section: R. Nasi, A. Taber and N. Van Vliet. 2011. Empty forest, empty stomachs ? Bushmeat and livelihoods in Congo and the Amazon basin. International Forestry Review, vol 13.
[21] Aveling, C. Debonnet, G, and Ouédraogo, P. 2014. Rapport de Mission. Mission de suivi réactif de l'Etat de Conservation du parc national des Virunga, République démocratique du Congo (RDC) de 07 au 14 mars 2014. UNESCO, IUCN, RAMSAR.

The loss of wildlife from forest ecosystems disrupts ecological processes and reduces biodiversity. Plant diversity and regeneration is often dependent on the presence of specific animal species or groups of species for pollination and seed dispersal. The disappearance of "keystone species" at the top of the food chain and/or important seed dispersers (elephants, apes, large carnivores, crocodiles, raptors, etc) is likely to have a disproportionate impact on the ecosystem. Central African hunting systems are biased towards heavy offtakes of seed-dispersing frugivorous mammals - over 70% of animals in an average village hunting offtake have a seed dispersal role[22].

Although per capita bushmeat consumption in urban areas is lower than in rural areas, the vast majority of the bushmeat is consumed in urban areas because that is where the majority of the people in forested Central Africa lives (levels of urbanization vary from 34% in DRC to 86% in Gabon[23]). Furthermore the contribution of urban areas to the overall bushmeat consumption is likely to continue increasing as the population of Central African countries continues to urbanize.

Bushmeat is a much needed source of protein in rural areas where there is generally very little availability of meat from domestic livestock. When wild fish is available it can outweigh the importance of bushmeat in the diet of forest dwellers, who will readily switch from one to the other according to availability. In urban areas there is greater availability of alternative meats sources but where meat alternatives are more expensive than bushmeat (eg Kisangani, Bangui) the poorer households will tend to opt for bushmeat. However in the larger cities of Equatorial Guinea, Gabon and Cameroon where there is more wealth, bushmeat is more of a luxury product rather than a protein necessity.

Although bushmeat is primarily used by rural populations for basic subsistence needs most families will also hunt to supplement their incomes. Bushmeat is often seen as a buffer to see families through hard times (crop failure, unemployment) or to gain income for special needs (funerals, school fees, weddings) and this safety net is particularly important for the more vulnerable members of the community. However the commercial trade is undoubtedly the primary driver of the increasing levels of bushmeat off take in Central Africa.

A large amount of bushmeat trade occurs across borders in Central Africa but there is also a significant international trade outside of the region.

Photos © S Livernet (left) & C Aveling (right)

Chimpanzee and crocodile, both protected species, on sale in Lambaréné bush meat market, Gabon. The increasingly widespread phenomenon of "open access" to natural resources is leading to impoverishment of wildlife populations through overhunting for the bushmeat trade.

2.1.2 Massive, criminal, organized, international trade in wildlife and ivory

Like almost all the other African elephant range states poaching for ivory has dramatically intensified over the past decade. Central African elephants are particularly sought after by poachers because the ivory from forest elephants is denser than that of savanna elephants and preferred by ivory carvers in Asia. The Central African forests are also prized hunting areas because it is difficult to detect and arrest poachers in the forest environment, and poor governance and lack of resources and political will result in very ineffective law enforcement.

Most of the ivory poached is smuggled out of Central Africa and finally ends up in Asia where the price is so high that well organized criminal networks are now involved in the entire chain from the African forest to the illegal and "legal" markets in China. Actors in the criminal networks are numerous and varied including corrupt law enforcement, customs and administrative officers in range states, armed militia and rebel groups and diverse African (often west African) and Asian middle men. Ivory is smuggled out of the Central African states in various directions – overland to Sudan (Khartoum), by air, land and sea to west African capitals acting as transit points (Togo, Nigeria, Guinea Bissau, Senegal) for the Far East, or overland to the east African ports of Mombasa and Dar es Salaam.

[22] Abernethy KA, Coad L, Taylor G, Lee ME, Maisels F. 2013. Extent and ecological consequences of hunting in Central African rainforests in the twenty-first century. Phil Trans R Soc B 368: 20130494. http://dx.doi.org/10.1098/rstb.2013.0494
[23] https://www.cia.gov/library/publications/the-world-factbook/fields/2212.html

The increasing involvement of armed militia and rebel groups in the organized poaching of elephants is a particular concern because of its implications for national security. Several such cases have been documented in Central Africa. The Lord's Resistance army is involved in elephant poaching in Garamba NP (DRC)[24] to fund its brutal campaign, and Sudanese militia were responsible for the slaughter of elephants in Bouba-Ndjida NP in northern Cameroon in 2013. The involvement of rogue elements of the national armed forces is widespread. Their involvement ranges from doing the poaching themselves, to supplying weapons and ammunition to poachers, to providing protection for the transport of the ivory. High tech resources are often deployed. For example the Ugandan Army is suspected of having used its helicopters to poach elephants in Garamba NP[25]. Also kidnapped children who have escaped from the LRA attest to the fact that helicopters (of undetermined origin) regularly landed at their camps to collect ivory.

Elephant populations have declined dramatically all over their range in Central Africa. A paper published in April 2013[26] analyzed all available survey data for Central African forest elephants between 2002 and 2012 and concluded that there had been a 62% decline. In the savannas and woodlands to the north and south of the rainforest block intense poaching over many years has reduced elephant populations to very low levels, and has extirpated them from large areas. Large scale slaughters of elephants have been recorded in Zakouma NP, Bouba Ndjida NP and the north of the CAR. As elephant populations have declined around the edges of the rainforest block poachers have moved deeper and deeper into the forested areas. Despite having 60% of Central Africa's rainforests the DRC now has only 19 % of its remaining forest elephants. WCS estimated DRC's forest elephant population at 19,000 individuals in 2011. The last remaining stronghold for forest elephants is now the trans-border area between northeastern Gabon, south west Cameroon, northern Congo and south western CAR (the TRIDOM and TNS landscapes) an area containing 12 national parks totaling some 250,000 km².
However even this area is now under intense pressure. For example a survey conducted by ANPN, WCS and WWF[27] showed that Minkébé NP in Gabon, regarded as the park with one of the highest elephant populations in Central Africa, lost between 16,000 and 20,000 elephants between 2004 and 2012, much of this ivory going out through Cameroon.

Gabon is the only remaining Central African country where elephants occur throughout the territory and is home to an estimated 40,000 to 64,000 elephants, about half the remaining forest elephants in Africa.

In the transition zone and in the savannas and woodlands to the north of the rainforest block, remaining elephant populations are isolated to scattered pockets, mainly in and around the following protected areas: Zakouma NP (Chad), Bouba Ndjida and Waza NPs (Cameroon), Garamba NP (DRC) and Zemongo WR (CAR). In the transition zone Garamba NP (DRC) has between 1,500 and 2,000 elephants[28], Mbam et Djerem NP (Cameroon) still contains an estimated 1,000 elephants, while in the Bili-Gangu sector of the vast Bili-Uere complex in north-central DRC numbers have declined dramatically and are currently estimated at 650 individuals[29].

Many other wildlife species and products are traded in Central Africa. There is a large and poorly regulated international trade in grey parrots throughout Central Africa and the trade is clearly unsustainable[30]. Illegal trading of pangolin scales, mainly for the Asian market, is widespread. There is also a local, but large scale, trade in fruit pigeons in DRC. In both cases *bais* are the preferred location for catching these species as they visit them in large numbers and can be caught quite easily with nets or natural glues smeared over lures.

2.1.3 Habitat loss

Forest degradation, deforestation and forest fragmentation are important direct threats to wildlife and biodiversity in Central Africa. Deforestation leads to total loss of biodiversity, while habitat fragmentation negatively affects gene flows and ecological processes both of which ultimately result in biodiversity impoverishment.

[24] K. Agger & J. Huston. 2013. Kony's Ivory : How Elephant Poaching in Congo Helps Support the Lord's Resistance Army. !Enough. www.enoughproject.org
[25] A Ugandan Army Antonov helicopter was photographed in Garamba NP in April 2012 in the vicinity of a site where 15 elephants had just been killed with a single bullet through the top of the skull, and the ivory taken. The registration number of the helicopter was recorded and the Ugandan Army has so far failed to provide an explanation as to what the helicopter was doing so far into Congolese territory.
[26] Maisels F, Strindberg S, Blake S, Wittemyer G, Hart J, et al. (2013) Devastating Decline of Forest Elephants in Central Africa. PLoS ONE 8(3): e59469. doi:10.1371/journal.pone.0059469
[27] ANPN, WCS & WWF (2013) Wildlife and poaching assessment in northeast Gabon. 23pp. Report.
[28] Bolanõs, N.C. 2012. Aerial animal census 2012. Garamba National Park, DRC. April and May 2012. ICCN/ANP report.
[29] Hart, J. 2014. Summary of elephant surveys in North Central DRC 2007-2013. Lukuru Wildlife Research Foundation. Draft report submitted to AfEDB, sept 2014.
[30] http://www.birdlife.org/datazone/sowb/casestudy/568

Annual net deforestation rates[31] across the Congo basin are lower than in Amazonia and South East Asia but are accelerating. Net deforestation for the period 1990-2000 was 0.09% and rose to 0.17% for the period 2000-2005[32]. Net annual deforestation was highest in DRC with 0.11% for 1990-2000 and 0.22%[33] for 2000-2005. Congo had the next highest net deforestation rate (0.07% for 2000-2005) while Gabon's net rate for this period was zero. An assessment of forest degradation between 2000 and 2010 in the DRC published in 2013[34] reports a loss of 1.02% of primary forest cover due to clearing and predicts that degradation of intact forests could increase up to two-fold over the next decade.

[31] Net deforestation is the difference between gross deforestation and gross reforestation. Under the current climatic conditions natural reforestation occurs in Central Africa when habitat is left undisturbed by humans.
[32] The Forests of the Congo Basin. State of the Forests 2010.Chapter 1.
[33]Gross annual deforestation in DRC from 2000-2005 was 0.32%.
[34] Zhuravleva, I., Turubanova, S., Potapov, P., Hansen, M., Tyukavina, A., Minnemeyer, S., Laporte, N., Goetz, S., Verbelen, F., and Thies, C. (2013). Satellite-based primary forest degradation assessment in the Democratic Republic of the Congo, 2000–2010. Environmental Research Letters, 8, 024034.

The key agents of habitat loss and impoverishment in Central Africa are shifting (slash and burn) agriculture, fuelwood collection and charcoal. Fragmentation is also caused by industrial logging and mining with their associated road and rail infrastructures, agro-industrial plantations (with oil palm plantations becoming an increasingly important threat) and hydro-electric dams. Competition for grazing and access to water points by domestic livestock herds also causes habitat impoverishment in the moist forest-savanna transition zones and is often associated with the killing of wildlife, particularly large carnivores.

Shifting agriculture
This type of agriculture has been part of the ecosystem for centuries but it becomes a problem when fallow periods are shortened as the human population grows and more land is required for production. Shorter fallow periods lead to a decline in tree regeneration, soil fertility and agricultural yield. In Central Africa shifting agriculture is most intense along main roads, near villages and on the outskirts of urban centers. The problem is exacerbated by the rapid expansion of the road network, particularly by industrial logging (see below).

Fuelwood and charcoal
Fuelwood and charcoal represent 90% of all wood removal from the forests of Africa[35]. Fuelwood is the main energy source for over 80% of people in Central Africa, and its consumption is expected to continue to grow in the coming decades[36] (indeed Africa is the only continent where fuelwood consumption will continue to rise). In the DRC 94% of total round wood production is for fuelwood, compared with 24% for Gabon. Peri-urban forests play a key role in providing fuelwood and charcoal, so deforestation and biodiversity loss are highest in these areas. In Kinshasa, a city of over 7 million inhabitants, the halo of deforestation from charcoal extraction extends for up to 200km from the city, but a significant proportion of its charcoal comes from even further afield - by river over distances of up to 1,000km.

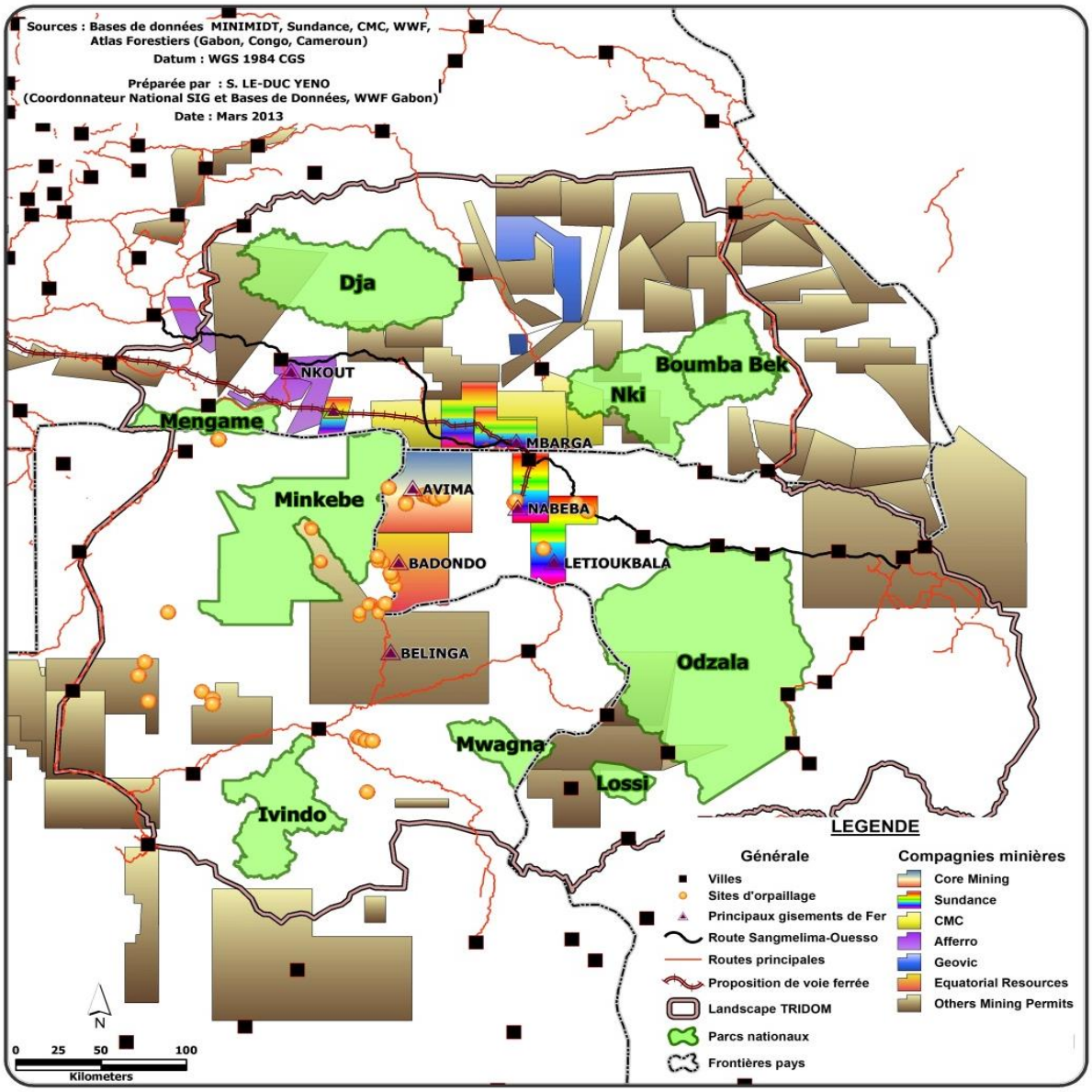
Industrial logging
Most of Central Africa's rainforests are being, or will be, selectively logged. Logging is generally selective for high value species with average extraction rates at between 2 and 6 trees per hectare. In addition to the direct forest loss caused by the extraction of trees (secondary damage from felling and extraction) forest is lost for the construction of roads, sawmills and logging camps. Soil erosion, water pollution and reduction of the regeneration capacity also occur. Logging also removes nutrients and escalates forest fragmentation. The extensive network of roads created by logging activities also allows people to move into the forest to settle, and opens up vast new areas for hunters.

Industrial mining and oil extraction
Africa contains one third of global mineral resources. The subsurface strata of the Congo basin contain very important oil and mineral resources. Several of the world's largest iron ore deposits are found in the TRIDOM landscape (Cameroon-Gabon-Congo transfrontier zone) (Figure 2). Other minerals present in the landscape include of cobalt, nickel, copper, manganese, platinum, silver, uranium, zinc, lead, gold and diamonds. Key iron-ore deposits that are being, or will soon be, exploited are Belinga (Gabon), Mbalam, Nkout (Cameroon), Nabeba, Letioukbala, Avima, Badondo (Congo).The Belinga and Mbalam deposits are estimated at 1 billion tons each. They are among the largest in the world, and the ore has exceptionally high iron content. To exploit the Mbalam deposit a 500 km railway line to Kribi on the Cameroon coast is planned. The capital cost of the Mbalam project over 25 years is currently estimated at 4.7 billion $US. To exploit Belinga an extension to the trans-gabonese railway is planned and the construction of a hydroelectric dam on the Ivindo river has also been considered. This would severely impact the Ivindo NP, a potential World Heritage Site, with its spectacular series of rapids and waterfalls at Koungou.

[35] The Forests of the Congo Basin. State of Forests. 2010. Chapter 4.
[36] The Forests of the Congo Basin. State of Forests, 2010. Page 39.

Figure 2. Mining permits in the TRIDOM landscape (source WWF)

Onshore oil has been exploited for decades along the coastal area of Gabon and Congo and onshore oil exploration permits are beginning to appear all over the Congo basin. As with mining permits many of these oil "blocks" overlap partially or wholly



with protected areas. The most worrying example is Virunga NP, a World Heritage Site and the oldest park in Africa, where an oil exploration permit has been granted inside the park in contravention of the World Heritage Convention to which the DRC is a signatory.

As with logging, industrial mining causes habitat loss through the mining activity itself, the construction of associated infrastructures (camps, roads, railways, hydro-electric dams). Pollution is also a major concern. Mining also attracts massive numbers of people into the forest in search of economic opportunities. This leads to permanent settlements, agriculture and commercial hunting. The very rich gold deposits also attract thousands of artisanal miners and associated hunters and traders. In 2011 the Gabonese army evacuated a mining camp of over 6,000 people from Minkébé NP.

Agro-industrial plantations

Oil palm originates from Central Africa. Because of the huge profits that can be made, there is currently a strong push, mainly from south east Asian companies, to greatly expand oil palm plantations, particularly in Cameroon, Gabon, Congo, CAR and

DRC. A Rainforest Foundation study[37] reveals that new industrial oil palm expansion projects currently underway in the Congo Basin cover 0.5 million ha, and that at least 1.6 million ha are planned, with companies seeking even larger areas. The terms of the agreements between palm oil companies and Congo Basin governments have mostly been conducted and concluded in complete secrecy.

Oil palm plantations have a devastating effect on biodiversity as they result in total forest loss. They also cause fragmentation of forests and, if badly planned, can block gene flows and disrupt ecological processes.

2.1.4 Emerging diseases

Over the past 2 decades research has highlighted the importance of emerging diseases as a serious threat not only to human populations but also to wildlife. Since the mid-90s there have been several outbreaks of Ebola in Gabon[38] and Congo[39] in human populations and all were traced back to hunters handling ape carcasses found in the forest[40]. The Ebola outbreaks in and around Odzala NP in Congo between 2000 and 2004, resulted in the probable loss of 80% of the gorilla population.

It is now known that HIV originated in chimpanzees and sooty mangabeys and made the jump to humans, and more than 40 different non-human primate species have been tested positive for Simian Immunodeficiency Virus (SIV)[41]. As the meat of many of those species is being consumed by humans, the risk of many new SIV strains jumping over to humans is believed to be significant. Observations made in Cameroon of people with HIV symptoms but without HIV or SIV positive test results are causing concerns over the ongoing creation of new HIV strains, which ultimately could make it even more difficult to find a cure against AIDS.

Other diseases that have been identified in primate bushmeat species include Marburg virus, Monkey pox, Simian foamy virus, Arbo viruses (dengue and yellow fever), Anthrax, Salmonellosis, Herpes B, Cutaneous leishmaniasis and loaloa. Given the scale of the bushmeat trade the presence of these pathogens constitute a very serious human health hazard.

Wild primate populations are also at risk from human diseases such as influenza and measles. This is particularly relevant in the case of ape-based tourism where humans come into close contact with habituated groups of gorillas and chimpanzees[42]. These apes are particularly vulnerable to certain human diseases and this is therefore a major concern in the case of endangered species such as the mountain gorilla where only a few hundred individuals remain in two discrete populations (Bwindi forest and Virunga mountains).

As deforestation continues, wildlife will be increasingly confined to patches of forest surrounded by human settlements. This enhances the chances of contact between virus-bearing animals and humans and thus increases the chances of new diseases emerging.

2.2 KEY DRIVERS OF THREATS

2.2.1 Human population growth and poverty

Human population growth, allied with continuing poverty, is the overridingly important driver of biodiversity loss. Some nations of the Congo basin rank among the lowest in the world on most human welfare indicators, and among the highest in population growth and fertility[43]. Average annual population growth in Central Africa is between 2 and 3%. The population of the DRC is predicted to increase from 67 million in 2013 to 155 million in 2050 (Volume 1, section 1.4, Table1).

Poverty, particularly in the rural areas, means that local populations remain heavily reliant on natural resources from the forest for their subsistence. However lack of economic opportunities in rural areas leads to communities engaging in commercial exploitation of forest resources for the burgeoning urban markets where roughly half of Central Africa's population lives. For

[37]Seeds of Destruction. Expansion of industrial oil palm in the Congo Basin: potential impacts on forests and people. Rainforest Foundation. February 2013. 38p.
[38]Huijbregts B, DeWachter P, Obiang L.S.N., Akou, M.E. (2003) Ebola and the decline of gorilla *Gorilla gorilla* and chimpanzee *Pan troglodytes* in populations in Minkébé Forest, north-eastern Gabon. Oryx 37:437–443.
[39] Bermejo M., Rodrıguez-Teijeiro J.D., Illera G., Barroso A., Vila C., Walsh P.D. (2006). Ebola outbreak killed 5000 gorillas. Science 314:1564
[40]Rouquet, P., Froment, J. M., Bermejo, M., Kilbourn, A., Karesh, W., Reed, P., et al. (2005) Wild animal mortality monitoring and human Ebola outbreaks, Gabon and Republic of Congo, 2001-2003.Emerging Infectious Diseases, 11, 283-290).
[41]Locatelli, S. & Peeters, M. (2012) Non-Human Primates, Retroviruses, and Zoonotic Infection Risks in the Human Population. Nature Education Knowledge 3(10):62
[42]Elizabeth J. Macfie and Elizabeth A. Williamson (2010). Best Practice Guidelines for Great Ape Tourism. Gland. Switzerland. IUCN/SSC Primate Specialist Group (PSG). 78pp.
[43]http://wwf.panda.org/what_we_do/where_we_work/congo_basin_forests/problems/population_growth/

most forest wildlife species, particularly the medium to large bodied species, commercial exploitation almost always leads to overexploitation of the resource[44].

In the absence of any kind of effective family planning programs population growth, particularly in agriculturally rich areas such as the Albertine Rift highlands, has led to overpopulation in the highlands and a tendency for people to migrate to the lower altitude forests to the west. Not only are these forests not able to support such high population densities (resulting in larger areas of forest being cleared for agriculture) but also migration leads to conflict for land with the local indigenous communities. Overlapping customary and modern land tenure systems make these conflicts particularly difficult to resolve and this has often led to violence (eg eastern DRC) as indigenous and migrant populations clash over land tenure and power structures.

Commercial hunting of wildlife for the urban bushmeat markets is a classic example of "open access" to resources leading to overexploitation. Immigrant hunters moving in to an area recently made accessible by new roads are often resented by indigenous communities who see these "outsiders" earning revenue from "their" resources. However levels of poverty in these forest communities are such that the indigenous populations will often collaborate with the immigrant hunters in order to obtain a share of the economic profits. For example the semi nomad indigenous people (pygmies) will willingly work for commercial hunters (for very little financial return) and as they are such proficient hunters they can rapidly deplete an area of its wildlife.

2.2.2 Poor governance

For the purposes of this section the term poor governance is used to cover not only corruption, but more broadly the problems of lack of political will and the multitude of a ways in which poorly designed and implemented government policies, laws and programs (covering all sectors: environment, education, justice, land tenure, health, infrastructures, mining, etc) lead to irreversible negative impacts on biodiversity.

The extractive industries (logging, mining and oil) are a major source of investment and revenue in Central Africa but the countries have generally not succeeded in translating revenues to sustainable economic development. In some cases large extractive industry revenues even appear to have retarded economic and social development through a number of phenomena known as the "resource curse"[45] (theft of revenue from resources by the ruling elite, conflict over access to resources). Despite being one of the richest countries on the planet in terms of natural resources the DRC is lowest ranked in the world in terms of per capita GDP (415 $US)[46]. Equatorial Guinea is an example where huge oil and gas revenues have placed it 30th in the world nations in terms of GDP of (29,742 $US), but 144th in the UNDP's ranking of Human Development Index trends[47].

The countries of Central Africa are ranked among the world's worst in terms of corruption[48]. It permeates all aspects of life, and undermines all development efforts. In Central Africa poor governance is the overarching driver compromising the sustainability of all conservation efforts. It impacts wildlife and biodiversity in many ways:

- Lack of political will to provide the necessary support for PAs. While the political discourse from Central African governments is firmly in favor of biodiversity conservation and PA management in reality most of the governments invest less than the bare minimum in their PAs. Almost without exception the only PAs in Central Africa that are being managed more of less adequately are those that are receiving support from foreign donors and conservation NGOs.

- Dysfunctional legal systems mean that law breakers are rarely prosecuted. Impunity from prosecution, particularly at the highest levels of government where corruption on a grand scale is openly tolerated, sets the standards for everyone else and breeds contempt for legal processes and a feeling that "anything goes". In the case of wildlife crime successful prosecutions are rare and penalties are anyway not dissuasive enough. There are also wide disparities between the wildlife laws of the different countries in terms of severity of penalties for wildlife crimes.

- Poor land use planning regularly results in competing and incompatible land use attributions. Inter-ministerial communication and collaboration is notoriously weak, resulting in development choices that often do not integrate

[44]Nasi, R., Brown, D., Wilkie, D., Bennett, E., Tutin, C., van Tol, G., and Christophersen, T. (2008). Conservation and use of wildlife-based resources: the bushmeat crisis. Secretariat of the Convention on Biological Diversity, Montreal, and Center for International Forestry Research (CIFOR), Bogor. Technical Series no. 33, 50 pages.
[45]Governance of extractive industries in Africa.Survey of donor-funded assistance. Report for Norad/World Bank/African Development Bank/African Development Fund. 2008. 46p.
[46]http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD/countries?display=default
[47] http://hdr.undp.org/en/content/table-2-human-development-index-trends-1980-2013
[48]http://www.transparency.org/cpi2013/results#myAnchor1 Out of the world's 175 nations Transparency International's 2013 Corruption Perception Index places Sao Tomé highest placed at 72, followed by Gabon (106), Cameroon and CAR (144), the two Congos (154) and Equatorial Guinea (163).

biodiversity conservation needs. Environmental Impact Assessments are generally of very poor quality and are often viewed as an administrative hurdle to enable companies to continue "business as usual". Examples are road infrastructures, hydroelectric dams, agro industrial plantations, mining permits, etc., in areas of high biodiversity value, including inside PAs. The attribution of an oil exploration permit inside the Virunga NP World Heritage Site is one of the most high profile examples. This example also highlights another aspect to the problem which is that even when it is known that a mining or oil permit overlaps a PA countries are often unwilling to forgo the potentially huge revenues that would be generated and are prepared to override, or change, existing laws in order to allow exploitation to go ahead.

- Insecurity of land tenure leads to unsustainable use of resources. In some countries customary and State systems of land tenure overlap and this can create conflicts in land use. When forest-living people feel that they do not have a real stake in the "ownership" of their forest resources there is little incentive to exploit them sustainably. This often results in a situation of "open access" to resources resulting in overexploitation for commercial purpose.

- Dysfunctional education systems mean that a large proportion of children, particularly in rural areas, do not attend school. The quality of higher education structures is highly variable across the region. The environment is generally very poorly covered in school curricula and concepts of conservation and sustainable use of natural resources are poorly understood by the young generation.

- Dysfunctional national armies where discipline is poor and soldiers are often badly paid (or in the case of DRC often not paid at all). Members of the armed forces at all levels are frequently involved in poaching and other illegal activities such as mining. In eastern DRC members of the armed forces even collaborate with rebel groups to exploit and commercialize the same resource (eg gold, diamonds, coltan, charcoal). The presence of a band of highly armed and well organized Sudanese poachers, apparently operating with complete impunity in CAR and northern Cameroon, went unchallenged by the national defense forces until international public opinion forced them to act (by which time it was too late).

2.2.3 National and regional conflict

Central Africa has been blighted by conflict (internal and external) over the past three decades. This has had a devastating impact on livelihoods, socio-economic development and natural resource protection. Many of these conflicts can in fact be described as natural resource conflicts (eastern DRC, northern CAR, Chad, Congo). The DRC is a particularly striking example where its immense riches have brought little more than conflict. At the time of the wars of liberation between 1997 and 2004 the armies of at least 7 neighboring countries were present on Congolese territory, the major motivation for most, if not all, of them being to exploit the country's natural resources. A legacy of armed conflict is that countries end up being flooded with automatic weapons and these often end up in the hands of hunters or their patrons. The two Congos, CAR, and Chad have been particularly affected by this problem, but the porosity of international borders in this region means that other countries are also affected. The recent evolution of the elephant poaching crisis highlights how the void created by the breakdown in law and order (either in the situation of bad governance or in periods of conflict) has allowed armed militias and terrorist groups to move in and operate with virtual impunity.

3 ONGOING CONSERVATION EFFORTS

3.1 COMIFAC, CBFP AND ECCAS – A REGIONAL FRAMEWORK FOR BIODIVERSITY CONSERVATION.

The *Commission des Forêts d'Afrique Centrale* (COMIFAC) emerged from a Heads of State Summit on sustainable forest management held in Yaoundé in 1999, and the *Congo Basin Forest Partnership* (CBFP) was launched at the World Summit on Sustainable Development in Johannesburg in 2004. Together these two structures provide the strategic framework for regional cooperation and donor collaboration in Central Africa. The CBFP (Appendix 1) coordinates programs and policies of the different partner organizations in order to improve the coherence and effectiveness of their programs for the sustainable development of the Congo Basin's forest ecosystems within the framework of the COMIFAC strategic plan (*Plan de Convergence*) which was revised in 2014. Technical support to COMIFAC is provided by a number of partner organizations, including RAPAC (the Central African Protected Area Network) and OFAC (Central African Forest Observatory).

Conservation of biological diversity (including PA management) is a key component of COMIFAC's nine point strategic plan (Box 1 below). The landscape approach is an integral part of the CBFP's support to COMIFAC. This approach aims to enhance the ecological integrity of PAs and their surroundings by addressing conservation management issues in the multiple-use zones that link them.

Key regional law enforcement and biodiversity conservation planning initiatives and agreements that have been developed recently include:

- Regional Action Plan for Strengthening National Wildlife Law Implementation for the period 2012–2017 (PAPECALF) developed by COMIFAC[49]. The plan aims to (i) strengthen cooperation and collaboration between supervisory bodies and the legal authorities concerned by wildlife law enforcement at the national and regional levels, (ii) intensify investigations and law enforcement operations at key transit points, borders, trans border zones and local markets, (iii) establish effective deterrents to poaching and the illegal commercial wildlife trade, and ensure that cases are properly prosecuted and the results widely publicised, and (iv) strengthen awareness about the illegal wildlife trade.
- Extreme Urgency Anti-Poaching Action Plan (PEXULAB)[50], a short term component of PAPECALF.
- Regional Action Plan for the conservation of gorillas and chimpanzees in Central Africa[51].
- Eastern DRC great apes conservation action plan 2012-2022[52].
- Bonobo Conservation Strategy 2012-2020[53].
- Central African Elephant Conservation Strategy (2005).
- Trinational Agreement – a ground breaking agreement signed in 2000 between the governments of Congo, CAR and Cameroon for the joint protection and management of the Tri National Sangha complex of protected areas. This agreement was a precursor to the area being listed as a World Heritage Site.

The Economic Community of Central African States (ECCAS, french acronym CEEAC**)** has become increasingly involved in addressing the issue of wildlife crime because of the damage it does to economies and security in the region. In collaboration with regional technical partners, the CEEAC is playing an important role in developing and implementing strategic responses through its anti-poaching cellule[54], in particular the above mentioned PEXULAB and PAPECALF. The CEEAC is also the regional structure through which the EU channels its support to ECOFAC/RAPAC.

Box 1. Key elements of the COMIFAC Convergence Plan 2015-2025

[49] Plan d'Action sous-régional des pays de l'espace COMIFAC pour le renforcement de l'application des législations nationales sur la faune sauvage (PAPECALF) 2012-2017. www.pfbc-cbfp.org/comifac.html

[50] Plan d'extrême urgence de lutte anti-braconnage (PEXULAB). www.pfbc-cbfp.org/comifac.htm

[51] Tutin, C., et. al. 2005. Plan d'action régional pour la conservation des chimpanzés et des gorilles en Afrique Centrale. Conservation International. Washington, DC.

[52] Maldonado, O., Aveling, C., Cox, D., Nixon, S., Nishuli, R., Merlo, D., Pintea, L. & Williamson, E.A. (2012).Grauer's Gorillas and Chimpanzees in Eastern Democratic Republic of Congo (Kahuzi-Biega, Maiko, Tayna and Itombwe Landscape): Conservation Action Plan 2012–2022. Gland, Switzerland: IUCN/SSC Primate Specialist Group, Ministry of Environment, Nature Conservation & Tourism, Institut Congolais pour la Conservation de la Nature & the Jane Goodall Institute.

[53] IUCN & ICCN (2012). Bonobo (Pan paniscus): Conservation Strategy 2012–2022. Gland, Switzerland: IUCN/SSC Primate Specialist Group & Institut Congolais pour la Conservation de la Nature. 65 pp.

[54] http://www.lab-ceeac.com/

Priority strategic themes

- Harmonization of forestry and fiscal policies
- Management and sustainable development of forest resources
- Conservation and sustainable use of biological diversity
- Combatting climate change and desertification
- Socio-economic development and multi-actor participation

Cross-cutting strategic themes

- Sustainable funding
- Training and capacity building
- Research and Development
- Communication, awareness building and education

3.2 KEY FUNDING AGENCIES AND CONSERVATION PARTNERS

Biodiversity conservation in Central Africa is delivered predominantly through international donor agencies, conservation NGOs and other technical partners working in partnership with the national forestry, wildlife and PA authorities. NGOs work with funds provided by donor agencies but also mobilise many sources of private funding. There are very many organisations working in Central Africa and it is not possible to provide a detailed description here of their different interventions.

Over the past two decades the EU and the USA have been, and continue to be, the most important donors in terms of funds mobilised for the region. Individual European nations are also making significant contributions, particularly Germany and France. Germany's focus is mainly on protected areas while France's has been mainly on the forest sector. Spain supports conservation initiatives in DRC, Congo, Cameroon and Equatorial Guinea. Norway has recently started contributing, through its International Climate and Forest Initiative. International institutions such as the World Bank (through GEF), African Development Bank, FAO, UNESCO and UNEP also support conservation efforts in the region. The paragraphs below summarise the interventions of the largest donors in Central Africa. Table 1 (section 5.1) provides a more complete overview of where the main donors and technical partners are active.

European Union
To date the EU has committed more than 500M€ for biodiversity conservation in Africa over the past 28 years. Support to PAs by the EU is either through grants to international or local NGO who are then responsible for the implementation of activities, or through bilateral cooperation (beneficiary state/EU). Through the regional ECOFAC project, launched in 1992 (and still operational) the EU pioneered a regional approach to conservation in Central Africa which promoted regional collaboration for PA management through coordinated support to specific PAs in each country. The Central African Protected Areas Network (RAPAC) emerged from ECOFAC and is one of the structures through which the EU mobilizes its funds for conservation. Other PAs are also supported within the framework of Public Private Partnerships (Zakouma NP, Odzala NP, Nouabalé-Ndoki NP (planned), Virunga NP, Garamba NP, Akagera NP (see Section 4). Over 203m€ are currently proposed for conservation activities, focusing on PAs, in Central Africa.

The EU also funds cross-cutting projects which include Central African components such as MIKES (Minimising the Illegal Killing of Elephants and other Endangered Species), BIOPAMA (Biodiversity and Protected Areas Management in African, Caribbean and Pacific countries) and OFAC (Central African Forest Observatory) and also disburses its funds through other international agencies (eg UNESCO's Central African World Heritage Forest Initiative (CAWHFI) targeting existing or potential Central African World Heritage Sites).

Through the FLEGT process the EU also contributes indirectly to biodiversity conservation by ensuring that timber imported into Europe has been exploited in conformity with national forestry laws.

The EU supports training and capacity building through its support to the Regional Post-graduate Training School of Integrated Management of Tropical Forests and Lands (French acronym ERAIFT) and the University of Kisangani (DRC).

USA
The US government delivers its conservation aid to Central Africa through USAID and USFWS.

USAID
USAID's CARPE program (Central African Regional Program for the Environment) was launched in 1997 and, like ECOFAC, promotes a regional approach to conservation. An accent is placed on the landscape approach with significant resources mobilised in the buffer zones of protected areas in 12 landscapes across Central Africa for land use planning, community based natural resource management activities and capacity building of local structures. CARPE partners with international conservation NGOs experienced in the region for the implementation of its activities. Over the past 2 decades it has mobilised between 10 and 15m$ / year.

From 2013 to 2018 CARPE III will be rolled out through two programmes, Central African Forest Ecosystem Conservation (CAFEC) and Strengthening Central African Environmental Management and Policy Support (SCAEMPS). For CAFEC a total of 92.3m$ is expected to be mobilised (21.6 m$ of which will come from Norway's International Climate and Forest Initiative (NICFI) over 5 years. Actions will be concentrated on 8 landscapes located in the two Congos. For SCAEMPS approximately 10 m$ will be allocated over 5 years to promote national and regional policy and regulatory advances and deliver monitoring tools that inform policy and support forest and biodiversity conservation.

USFWS

USFWS delivers its aid worldwide through their Wildlife Without Borders program funded through 7 Funds enacted by the US Congress[55]. The USFWS is funding projects in all the Central African states (currently over 30 initiatives funded). Funds are disbursed through cooperation agreements and grants. Grants may be made to individuals, national agencies, national and international NGOs through an annual system of calls for proposals.

Over the next five years 5.5m $/yr has been allocated for cooperation agreements with Gabon's National Park agency (ANPN), DRC's ICCN (for Virunga and Lomami NPs), and the TNS World Heritage Site. In addition grants (from 50,000 to 250,000 $US) will be available for a variety of other initiatives aimed at reducing the bushmeat trade, strengthening judicial processes for wildlife crime, identifying and managing new PAs, and training wildlife managers[56].

It is anticipated that around 5-6 m$US will be made available annually (subject to Congress approval each year).

Germany

Germany has been a long term supporter of conservation in Central Africa, most notably its uninterrupted support to DRC's Kahuzi-Biega NP (World Heritage Site) since 1983 and is currently one of the largest donors for conservation in Central Africa. German support for conservation is delivered through the BMZ and implemented by GIZ (technical cooperation) and KfW (financial cooperation). Over 125m€ is currently committed or in the pipeline for KfW-implemented initiatives.

German support targets various aspects of the conservation challenges in the region. Forest policy and governance are addressed through support for several processes including COMIFAC, FLEGT, certified forest exploitation and REDD+ preparation, and DRC institution building. Recognizing the shortcomings of national conservation institutions and the need for long term support for PAs and sustainable sources of funding to avoid the negative impacts of stop-start funding cycles, Germany makes significant investments in PA management (particularly in sites where experienced NGO partners are present) and sustainable funding mechanisms. At least 15 important PAs are receiving, or are about to receive, direct support for management[57] and Germany was one of the first European countries to capitalize Trust Funds in Central Africa. It was a key player in the development and capitalization of the TNS Trust Fund (Congo, CAR, and Cameroon) and is supporting the development of the Okapi Trust Fund for DRC's PA network[58]. Germany was also one of the first countries to use debt swap mechanisms to support conservation activities in Central Africa.

France

France's support to conservation and sustainable forest management is delivered through AFD (*Agence Française de Développement*) and the FFEM (French Global Environment Facility).

Over the past 20 years AFD has made a particularly strong contribution to achieving sustainable management practices in logging concessions. It has helped place 20 million ha of forest in the Congo basin under management, 5m of which are certified under international standards. AFD's biodiversity conservation strategy aims at protecting, restoring, managing and developing ecosystems and fairly sharing the benefits of their development, mainstreaming ecosystem conservation in industrial development policies and strengthening partnerships between French biodiversity players and other players where AFD operates. Achieving sustainable financing for biodiversity protection through Foundations (AFD contributes to the TNS Foundation), payments for ecosystem services and biodiversity offsets is also a key element of their strategy. AFD also finances conservation activities through debt conversion mechanisms. A 50m € debt conversion for Gabon is being used to fund conservation and sustainable management of Gabon's forest ecosystems including implementation of ANPN's anti-poaching activities. AFD's current commitments for biodiversity are around 160 m€/yr with about 75% going to Sub-Saharan Africa.

The FFEM mobilises about 200m€ annually, of which roughly 5m€ goes for biodiversity conservation in Africa. In Central Africa FFEM supports efforts to improve best practices in logging and to integrate sustainable forest management (supported by France for many years) into REDD strategies for Central African countries. Other areas of support include PA management, conservation and sustainable management of wildlife in buffer zones, sustainable village hunting, and communal forests. FFEM has also played a role in facilitating the creation of Trust Funds, including the TNS Fund.

World Bank/GEF

The World Bank supports biodiversity conservation in the DRC through its National Parks Rehabilitation Project (PREPAN) and its Forest and Nature Conservation Project for which around 75m$ are committed. The objectives of these interventions include support to high priority PAs (Virunga NP, Maiko NP), creation and capitalisation of the Okapi Trust Fund for the DRC

[55]African Elephant Conservation Fund 1989 ; Amphibians in Decline Fund 2010 ; Asian Elephant Conservation Fund 1997; Critically Endangered Animals Fund 2009; Great Apes Conservation Fund 2000; Marine Turtle Conservation Fund 2004; Rhinoceros and Tiger Conservation Fund 1994.

[56]Training is supported through grants to Garoua Wildlife College and an innovative new approach pioneered with Gabon's ANPN entitled MENTOR-FOREST (Mentoring for Environmental Training in Outreach and Resource conservation) to build the capacity of multidisciplinary teams of central African conservationists to improve forest stewardship and wildlife conservation. http://www.fws.gov/international/signature-initiatives/mentor-forest.html

[57]DRC: Okapi WR, Kahuzi-Biega NP, Kundelungu NP, Lomami NP, Salonga NP, Ngiri NR; Cameroon: Korup NP, Mt Cameroon NP, Takamanda NP, Banyang-Mbo NP, Lobeke NP, Waza NP, Benoué NP, Bouba-Ndjida NP; and the TNS transfrontier World Heritage Site (Congo, CAR, Cameroon).

[58]The Okapi Trust Fund is for DRC's protected areas and is initially targeting a capital of 120m€.

PA network and institution building of the national PA authority (ICCN) and its Ministry (MECNT). In southern Cameroon the World Bank/GEF will support an initiative for the conservation and sustainable use of the Ngoila-Mintom forest block located in the strategically important zone between the Dja World Heritage site and Boumba-Bek National Park.

United Nations
UNDP/GEF funding supports the TRIDOM project, a strategically important trans-border biodiversity conservation initiative in the Minkébé-Dja-Odzala interzone of Gabon, Cameroon and Congo containing 9 protected areas and logging and mining concessions (the zone includes the Ngoila-Mintom zone mentioned above). The initiative aims to officially establish governance structures for conservation and sustainable natural resource use in this tri-national trans-border complex. Activities focus on land use planning, monitoring of biodiversity and natural resource use, law enforcement and biodiversity conservation systems in logging concessions and community based natural resource management.

UNEP – UNEP coordinates the Great Apes Survival Partnership (GRASP), a partnership of great ape range states targeting the objectives of the Global Strategy for the Survival of Great Apes.

The **UNESCO** World Heritage Centre mobilizes funds from various sources (EU, France, Italy, Belgium) in support of 8 of the 9 existing World Heritage Sites as well as for the identification of new potential World Heritage sites through its two programmes: support to DRC's WHS in Danger and the Central African World Heritage Initiative (CAWHFI). The CAWHFI initiative places a particular focus on transfrontier protected area complexes and engagement with the private sector for biodiversity conservation in inter-zones connecting the protected areas. UNESCO also launched the ERAIFT regional post graduate training school in Kinshasa in 1999 and continues to coordinate it.

The **FAO/GEF** has recently launched a 10m$ regional initiative for the sustainable management of the wildlife and bushmeat sector in the DRC, Gabon, Congo and CAR. Through a series of pilot projects the initiative aims to overcome the barriers to effective participatory wildlife management. This will involve policy reforms to give communities legal rights to the use of wildlife on their lands, develop tools for the development of community level rules for wildlife management, and strengthen capacities of key stakeholders (community managers, supporting institutions and oversight bodies) for participatory wildlife management.

Non-governmental Organisations and Foundations

INGOs and NGOs play a central role in Central African conservation initiatives. For many of the funding agencies they are the preferred structures for delivering their support as they are experienced operators on the ground, often have long-term commitments in the areas where they work, have specialist skills and generally leverage several other sources of private funding (Foundations, private donors, etc) in addition to their own "core" funding.

An extensive list of these organisations is given in Appendix 2. Some of the biggest players (in terms either of geographical scope, numbers of projects, funds mobilised, impact or long term presence) include African Conservation Fund, African Parks Foundation, African Wildlife Foundation, Dian Fossey Gorilla Fund International, Fauna and Flora International, IUCN, Jane Goodall Institute, Lukuru Foundation, Wildlife Conservation Society, Gilman International Conservation, World Wide Fund for Nature, Zoological Society of London, Zoological Society of Milwaukee.

Important private foundations supporting biodiversity conservation activities include Arcus Foundation, Abraham Foundation, Aspinall Foundation, Berggorilla & Regenwald Direkthilfe, BirdLife International, Howard G. Buffet Foundation, International Fund for Animal Welfare, International Conservation and Education Fund, Liz Claybourne and Art Ortenberg Foundation, McArthur Foundation, Murray Foundation, Rufford Foundation.

Many universities, international research institutions or campaigning organisations are also active in Central Africa (see Appendix 2) including the Centre for International Forestry Research, Environmental Investigation Agency, French Agricultural Research Centre for International Development, Joint Research Centre, Kyoto University, Max Planck Institute for Evolutionary Anthropology, Rainforest Foundation, World Resources Institute, Royal Museum for Central Africa (Belgium).

4 LESSONS LEARNED AND PROMISING APPROACHES

4.1 THE BEST REMAINING ASSEMBLAGES OF BIODIVERSITY ARE IN PROTECTED AREAS.

Almost without exception in Central Africa the areas with the most intact assemblages of biodiversity are in protected areas (or areas under active management like sport hunting zones). Furthermore the PAs where biodiversity is being most effectively protected are those that are receiving support from donor agencies and their technical partners because most national PA agencies are so weak and under-resourced.

4.2 LONG-TERM FUNDING IS ESSENTIAL FOR SUCCESSFUL BIODIVERSITY CONSERVATION

Biodiversity conservation requires sustained long-term support. Stop-start funding cycles must be avoided because wildlife populations can be lost very quickly but take a long time to recover. The EU's sustained support to Zakouma NP is a particularly good example of what uninterrupted long term funding can do to bring an area back from the brink. In the late 80s, when the EU first intervened, very little wildlife could be seen. By the mid 90s Zakouma NP was teeming with wildlife and was attracting significant numbers of tourists, both local and international. Without Germany's 30 year support to Kahuzi-Biega NP (DRC) it is doubtful that that the park would have survived the prolonged period of war and anarchy. The same applies for the long term international support for Virunga and Garamba NPs. Long term conservation investment in PAs helps create conservation "hubs" which have a better chance of surviving periods of civil war because institutions and governance are stronger.

More streamlined and coordinated financial mechanisms to support high priority PAs (where several funding agencies/organizations) are present also lowers the administrative burden associated with managing multiple donors and/or relatively short term contracts and improves the chances of positive conservation outcomes.

4.3 A LANDSCAPE APPROACH, INCLUDING TRANSFRONTIER CONSERVATION AREAS, ENHANCES BIODIVERSITY CONSERVATION

While species diversity is high in the moist forests of Central Africa densities of species are relatively low and so for this reason most of the PAs, except for the very largest and best protected, are probably not large enough to ensure the long term conservation of the full range of species and biological processes. This has led to a shift in conservation strategies in recent years with an increasing emphasis on a landscape approach to conservation, the idea being to enhance the ecological integrity of PAs and their surroundings by addressing conservation management issues in the multiple-use zones that link them. The strategy is to manage the impact of human activities in such a way that gene flows and ecosystem processes are maintained across the landscape, so that PAs are prevented from becoming isolated islands of biodiversity. Since most ecological landscapes lie astride international boundaries a regional, transfrontier, approach goes hand in glove with the landscape approach[59].

In Central Africa there are several examples where contiguous complexes of PAs straddle international boundaries as transfrontier PAs. In addition to ensuring protection over a larger area (important for wide ranging species like elephant), the conservation costs are shared between the countries, and they provide refuges (reservoirs) for wildlife in the event of a breakdown of law and order in one of the countries. A good example is the complex of PAs in the Virunga landscape shared between DRC, Uganda and Rwanda. At the beginning of the 90s the hippo population of DRC's Virunga NP was over 25,000. Ten years later it was down to 500 individuals through poaching. However there is little danger of local extinction of this species because stability in Uganda ensures that the contiguous Queen Elizabeth NP serves as a reservoir for repopulation. The principle is the same for gorillas and elephants. Inter-state collaboration for the management of transfrontier protected areas also strengthens regional integration and security. Collaboration for the management of this transfrontier complex is achieved through the Greater Virunga Transboundary Collaboration agreement (Vol. 3, section 3.4.2, Box 16).

4.4 PARTNERSHIPS WITH THE PRIVATE SECTOR OFFER PROMISING MODELS FOR ENHANCING BIODIVERSITY CONSERVATION IN CENTRAL AFRICA

Two types of partnership with the private sector have been tested in Central Africa: partnerships for the management of PAs and partnerships with extractive industries in buffer zones of PAs. Both have produced promising results.

Public-private partnerships for PA management

[59] UNESCO. 2010. World Heritage in the Congo Basin. 63p.

One of the major constraints to effective PA management through classic donor-funded technical assistance projects for PAs is that the technical partners responsible for project implementation do not have a strong enough mandate to take the required actions and make the difficult decisions (such as replacing corrupt or incompetent staff). PPP agreements give the implementing partner a stronger and clearer mandate with greater decisional independence (including powers to hire and fire) and greater administrative and financial flexibility. In effect the private partner brings a more business-like approach to park management. The involvement of the private sector partner also acts as an important lever for raising other sources of funding[60]. PPP agreements are particularly pertinent in countries where national capacities for PA management are very weak, although there was initial resistance to this kind of approach[61]. PPP agreements in DRC (Virunga NP, Garamba NP), Congo (Odzala-Koukoua NP), Chad (Zakouma NP) and Rwanda (Akagera NP) are delivering positive conservation results, often in extremely difficult contexts, and others are planned in the region (Salonga NP, Nouabalé-Ndoki NP, Okapi WR). Box 2 below describes the African Parks PPP model for PA management. A summary of the range of legal mechanisms through which the private sector can assist with PA management is given in Volume 1, section 4.1.6, Table 3.

[60] J-P. d'Huart. 2013 Formulation d'un programme de partenariat public privé (PPP) dans le domaine de la conservation de la nature. Report to the EC.
[61]APN Annual Report 2012 http://www.african-parks.org/

Box 2. African Parks – a new model for protected area management

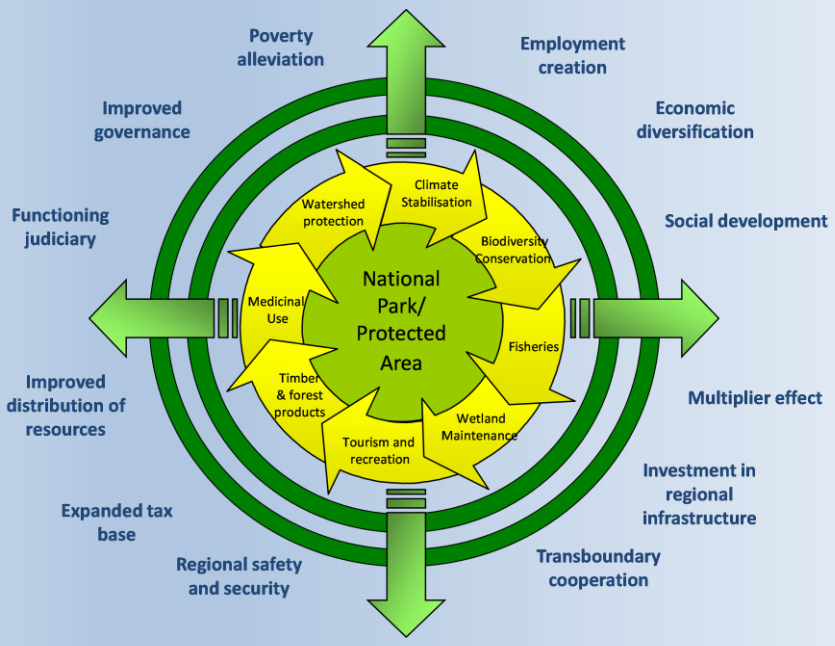
African Parks (AP) is a non-profit organisation that takes on direct responsibility for the rehabilitation and long-term management of national parks in partnership with governments and local communities. By adopting a business approach to conservation, supported by donor funding, African Parks aims to make each park sustainable in the long-term, thereby contributing to economic development of the region. Fundamental elements necessary for the success of their model are full **accountability** for their work, for which they require a secure long-term management mandate, and sound **governance** structures to ensure full transparency and avoid unwarranted interference. African Parks currently manages seven parks in six countries – Chad, Republic of Congo, DRC, Malawi, Rwanda and Zambia – with a combined area of 4.1m hectares.

The main **governing body**, African Parks Network (APN), based in Johannesburg, South Africa, is the strategic and decision-making entity which is responsible for the business plan for each park, determining capital investments, operating budgets, standard operating procedures and appointing skilled park management. Each park managed by AP is established as a **separate legal entity**, registered in the host country with its own board of directors. The board is represented by partner institutions, key stakeholders and AP representatives, and is directly accountable to government for the professional management of the park. AP aims to have majority representation at the park board level or to appoint the board chairman.

Four critical partnerships are necessary for an AP project. **Government** must support the AP approach and must be prepared to delegate management responsibilities to AP. **Community** considerations are built in to each project, often through a formal relationship with community structures represented on the park management board. **Donors** are required to support capital investment and annual operating costs until financial sustainability is achieved. **Commercial** investors are sought to develop tourism and other commercial enterprises in order to create a sustainable income base for a park.

A **secure long-term mandate** is a key to success, with a clear separation of functions between the State which retains responsibility for legislation, policy and regulatory control, and AP which is responsible for implementation. Having clear day-to-day management control of the park is crucial, as is ensuring that commercial income flows are used to contribute to the park's financial sustainability. In the short-term, donor funding is key, whilst long-term income streams are a combination of donor funding, commercial revenues from tourism and related enterprises, endowment income and payment for ecosystem services.

The long-term aim of AP is to create a conservation-led economy in each region where it operates with the park at its core (diagram below). The multiplier effects in the region in terms of socio-economic development, improved distribution of resources, better governance, and much else are what will build conservation constituencies and hopefully dispel the political indifference that undermines efforts to promote biodiversity conservation and effective protected area management.



Private sector partnerships in buffer zones of protected areas.

Logging concessions cover, or will soon cover, essentially all of the exploitable Congo basin forests. While this may seem at first view a disaster scenario, in reality a well-managed logging concession in the periphery of an **actively managed** PA offers better possibilities for conserving the forest and its wildlife than a forest with no form of management regime and no control over how the forest is used. The importance of ensuring "boots on the ground" within the PA while implementing collaborative agreements with adjacent logging concessions should be emphasized. For much of the 8 year period when Minkébé NP lost between 12,000 and 16,000 elephants (2.1.2), there were active collaborative agreements with adjacent logging concessions, but surveillance within the park was almost non-existent.

Central African forest laws are generally sound and if implemented correctly can have considerable positive impacts for conservation. Concessionaires control access to their concessions and are legally bound to integrate wildlife protection and other conservation measures in their forest management plans. FSC-certified companies are generally keen to collaborate with specialist conservation organizations (Box 3). In logging concessions in Gabon the way forward is seen as being to undertake EIEs and then to integrate the mitigation measures into the concessionaire's legally binding Environmental and Social Management Plan.

Box 3. PROGEPP – a public private partnership for managing the buffer zone of Nouabalé-Ndoki NP

The PROGEPP initiative in northern Congo, a collaboration between the Congolese forestry authorities, a logging company (CIB) and WCS in the buffer zone of Nouablé-Ndoki NP, was the first of its kind in central Africa and variants of this type of collaboration have since been established by WWF in Gabon and Cameroon. Using a five-pronged approach PROGEPP combined law enforcement, development of alternative activities, education and awareness-raising, and research and monitoring.

Given that the motivations of each partner for entering into this kind of partnership may be very different (logging companies want to improve their image and access to markets and financial resources, NGO's are motivated by gains in conservation, governments pursue socio-economic development), effective collaboration requires formal protocols that clearly define the roles and responsibilities of each partner. Partnerships based on a shared vision are more enduring than those of convenience, and all partners must be actively involved in the implementation of conservation actions on the ground. Trust, respect and transparency between partners help to overcome the inevitable challenges to the partnership. Finally the combined expertise and resources of the three partners allows conservation to be conducted at much bigger scales than is possible when working only in protected areas. Conservation actions in logging concessions are most successful when communities are integrated early into the land use planning process and when the access rights of indigenous people to land and resources are recognized and guaranteed.

Successful conservation actions that were developed by PROGEPP include:

- application of strict internal company regulations concerning hunting and the transport of bushmeat;
- mobilization of a law-enforcement guard force funded by the logging company but supervised by WCS and the government;
- management of hunting zones for local communities and logging company personnel;
- importation of domestic meat by the logging company for sale in the logging camps.

Small scale husbandry initiatives had less long-term success.

Source: J. Poulsen. 2009. Building private-sector partnerships for conservation: Lessons learned from the collaboration between WCS, CIB and the Republic of Congo in forestry concessions. USAID/WCS. 56p.

Partnerships with industrial mining companies are relatively new in Central Africa but given the potentially massive impacts on biodiversity that they will have on the vast pristine TRIDOM transfrontier forest landscape, conservation practitioners are increasingly engaging with them. With the financial resources at their disposal, the political leverage that this gives them, and their need to safeguard their international image, there are clear opportunities to influence what happens to wildlife in their concessions and leverage biodiversity offset arrangements.

Since almost all forest outside of PAs is (or will soon) be attributed to private operators, conservationists have to engage with them if we are to preserve connectivity between PAs and ecological functions across large tracts of forest.

Finally, as noted throughout this document, conservation NGOs play a very important role in the implementation of conservation activities in Central Africa. However it is important that their roles and mandates should be very clearly defined from the outset so that donors do not end up funding NGOs to implement activities for which they do not have the mandate from the host government.

4.5 POLITICAL WILL AT THE HIGHEST LEVEL IS ESSENTIAL FOR EFFECTIVE BIODIVERSITY CONSERVATION.

In most of the Central African countries there is a serious disconnect between the political discourse regarding natural resource conservation, and the resources that governments mobilise to conserve them. In most countries PAs remain one of the lowest priorities in terms of national budgets. Most PA authorities are seriously underfunded and personnel are expected to work for salaries (if and when they are paid) that are well below what could be considered a decent living wage. Furthermore little consideration is given to the fact that the work is arduous and can be particularly dangerous (Virunga NP has lost over 140 park guards in the past 20 years). National budgets often make no provision for capital investment, and corruption ensures that even the meagre budgets allocated are misappropriated. Finally there are no proper career advancement structures for biodiversity conservation personnel, very little provision is made for training and retraining and the high, and often arbitrary, turnover of key staff disrupts conservation initiatives. Too often biodiversity is considered to the "affair of westerners" and the donor community is expected to pay for it. As a result, in several important PAs that have received overseas support since the early 90s, conservation partners are still paying top-up salaries and/or bonuses to staff and covering almost all capital investment costs.

Box 4. The importance of high level political support for conservation

Gabon is setting the example of how strong political support in favour of biodiversity makes a significant difference to conservation outcomes. At the beginning of the 2000s Gabon did not have a single national park. In 2002 a network of 13 national parks, designed by a team of experienced conservation scientists and encompassing almost all of the important biomes in the country, was declared by the President and enacted in law in 2007. Where there was conflict between proposed national park boundaries and logging permits tough decisions were made and solutions found. For the creation of Lopé National Park a logging permit located inside the proposed national park boundary was cancelled and an equivalent area elsewhere was attributed to the concessionaire. A protected area agency, Agence National des Parcs Nationaux was established, and its government budget has increased significantly and steadily since it was created. The inevitable teething problems as the Agency develops the absorptive capacities to use these funds effectively are being addressed and progress is being made.

ANPN receives strong political support from the highest level for implementation of the government's flagship policies of "Green Gabon" and "Blue Gabon" which target the sustainable development of the terrestrial and marine environments. In just one year the EU fishing agreement were completely renegotiated, bogus fishing permits cancelled (involving the politically risky decision of closing down the fisheries industry for a month), no-fishing zones established and enforced and a large extension to the network of marine protected areas proposed encompassing 23% of Gabon's territorial waters. Illegally operating trawlers are being systematically seized and heavy fines imposed. Gabonese vessels are now equipped with tracking devices and followed by ANPN and the Fisheries Ministry, and fish catches are monitored and reliable statistics starting to be compiled for the first time ever.

At the regional level the President, together with his homologue from Chad, are showing strong leadership in the fight to stem the ivory poaching crisis. For example a deal was brokered at Presidential level to halt the killing of elephants in the famous Bayanga elephant bai in CAR by rebel forces loyal to the April 2013 putchists, and in 2012 Gabon publicly burned its entire 5 ton stock of seized ivory.

4.6 CREATING CONSERVATION CONSTITUENCIES IN FOREST ENVIRONMENTS HAS PROVED CHALLENGING

Creating a constituency for conservation in local communities around PAs is a key element of PA management but has proved one of the most challenging aspects for conservation projects in Central Africa. Various approaches are used: outreach programmes for agriculture, health centres, clean water sources, small hydroelectric turbines[62], community-run tourism enterprises, environmental education, etc, with varying levels of success.

In forested regions so called "community conservation" initiatives have had limited success for various reasons. Local populations living in these areas often do not have secure land tenure, and therefore, control over the use of the forest resources. Local traditional land tenure is superimposed with State land tenure, but the State is generally incapable of effectively controlling how forest resources are used and by whom. This frequently leads to a situation of "open access" to resources resulting in overexploitation, especially when people with economic power (eg salaried workers in extractive industries), or better organisational capacities[63], migrate to an area.

Forest communities are also generally very poor, often poorly educated and are characterised by an individualistic approach to the use of forest resources. Indeed the concept of "community" in forest-living peoples is misleading since the only really strong social unit is the family, and villages are simply stronger or weaker associations of families. Mobilising forest people to work together to adopt sustainable methods of natural resource use for the benefit of all is therefore complex, time consuming and costly and requires expertise from many different fields (biology, social science, agriculture, communications etc.). Furthermore community conservation models from southern Africa have little relevance in the moist forest milieu. Much effort has been spent by conservation projects trying to develop "alternative activities" to unsustainable resource use but there have been many more failures than successes. For example attempts to introduce animal husbandry or fish farming, as alternatives to bushmeat, have rarely had lasting success because (a) there is no cultural tradition for these activities and (b) hunting will

[62]http://gorillacd.org/2013/08/18/virungas-first-hydroelectric-plant-online/
[63]The well organised and economically savvy Banande highlanders from the Albertine Rift migrating westwards to the Ituri forest in search of land have been the cause of a rapid acceleration of natural resource depletion (forest clearance for agriculture, artisanal timber extraction, gold mining) over the past two decades (ref: RFO Management Plan).

remain the preferred source of meat protein as long as there remain populations, even very depleted ones, of wild animals in the forest. Essentially people will wait until there are no longer any animals before considering other meat sources, by which time it is almost too late.

4.7 CONSERVATION PROJECTS ARE TOO OFTEN DIVERTED FROM THEIR PRINCIPAL MISSION BY BEING EXPECTED TO RESOLVE ALL THE SOCIO-ECONOMIC PROBLEMS OF LOCAL COMMUNITIES.

Following on from the above point, the "conservation-linked-to-development" paradigm that dominates modern biodiversity conservation thinking has resulted too often in conservation projects having to address all the socio-economic problems of populations living around PAs, despite rarely having either the financial resources or the expertise to do this. Furthermore it still remains to be clearly demonstrated that improving livelihoods of local communities inevitably leads to less pressure on natural resources. On the contrary, as livelihoods improve local communities will often exert even greater pressures on biodiversity[64] (but see following point). While improving livelihoods and alleviating poverty will always be priority components of development aid it is essential that conservation projects should be designed in such a way that they are accompanied by properly funded and resourced socio-economic development initiatives, with objectives compatible with wildlife conservation.

4.8 CONSUMPTIVE AND NON-CONSUMPTIVE TOURISM HAVE PROVIDED SOME OF THE BEST COMMUNITY CONSERVATION SUCCESS STORIES IN CENTRAL AFRICA.

Community conservation success stories are relatively rare in forested Central Africa. Consumptive and non-consumptive tourism (sport hunting and eco-tourism) have so far provided the best examples as they generate tangible spin-offs for local communities (employment, revenue sharing, a stake in the management of the resource). Mountain gorilla tourism generates millions of dollars annually and as a result is well supported both at the community and national levels. Indeed mountain gorillas are a central element of Rwanda's international marketing image. Despite being located in an area of prolonged conflict the warring parties have always understood the economic importance of gorillas and have ensured their protection[65]. While not generating such spectacular revenues, lowland gorilla tourism in CAR and Congo has also proved successful particularly when it can be combined with wildlife viewing in forest clearings (bais) which provide unique opportunities for observing the large mammal fauna of the Central African forests. Constraints to lowland forest eco-tourism are the difficulties of access to these remote areas, the absence of an enabling environment for eco-tourism (serious local operators, adequate infrastructures, visas difficulties) and the challenging conditions of the lowland forest environment for tourists.

Safari sport hunting has been successful in preserving wildlife when safari operators collaborate with local communities to manage the resource and share the benefits. Surprisingly (given the history of conflict in the region) the best examples come from the savanna-woodland area of CAR. The EC funded *Zones Cynégétiques Villageoises* (village safari hunting zones) in northern CAR was very successful[66] until the zone was overwhelmed by pastoralists and armed militia from Sudan and Chad. The key factors in its success were the presence of healthy populations of flagship trophy species for hunters (notably giant eland and bongo), the active participation of local communities in the protection and exploitation of the zone through collaboration agreements with the safari hunting operators, sharing of revenues and other spin-offs (eg meat), and a low human population density enabling benefits to be felt by everyone. In 2010 an aerial survey of the PAs and surrounding hunting zones showed that all the remaining wildlife was concentrated in the hunting zones[67]. A similar situation is currently being played out in Chinko[68] (eastern CAR) where a dedicated group of safari operators are successfully protecting a large area of Sudanian savanna woodlands containing surprisingly intact assemblages (though low densities) of wildlife, despite the chaos and conflict that has characterised CAR for the past two decades.

A promising model of community conservation is being tested by AWF in the Maringa-Lopori-Wamba landscape in the bonobo range. Here the conservation project intervenes to improve farmers' access to markets for their agricultural products, as a livelihood alternative to unsustainable farming practices and commercial bushmeat hunting. The intervention involved providing local communities with a boat to transport crops from the forest landscape to DRC's main markets in Kinshasa and Mbandaka, as well as new methods of sustainable farming. The barge's round-trip journey takes approximately two months. It transports up to 400 tons of product — crops travelling one way, humanitarian aid the other. The Congo Shipping Project has allowed farmers to sell produce for profit, increasing the overall income of their community. It is anticipated that farmers will have less

[64]As forest people move into a monetary economy their increased purchasing power enables them to acquire cartridges and wire for snares. There are many examples where salaried activities in the forest environment (logging concessions, infrastructure projects, even conservation projects) has led to increased hunting pressure.
[65]Rebel forces occupying the gorilla habitat have even financed their activities by organising gorilla tourism.
[66]http://www.rapac.org/index.php?option=com_docman&task=cat_view&gid=85&Itemid=100206
[67]P. Bouché. 2010. Inventaire aérien 2010 des grands mammifères dans le nord de la République Centrafricaine. ECOFAC.
[68]http://www.chinkoproject.com/#page-introduction

incentive to engage in the commercial bushmeat trade and that farming practices will enable fallow periods to be lengthened, thus reducing the rate of forest degradation[69].

4.9 WILDLIFELAW ENFORCEMENT OUTCOMES IMPROVE SIGNIFICANTLY IF THE ENTIRE JUDICIAL PROCESS FROM ARREST TO PROSECUTION IS CLOSELY MONITORED.

The EAGLE (Eco Activists for Governance and Law Enforcement) network of wildlife law enforcement NGO's[70] are achieving remarkable success with their approach of investigations, law enforcement operations, legal assistance for prosecution of cases and media coverage of the results. These organizations work closely with all the national law enforcement organizations (forest and wildlife, police, gendarmerie, customs, justice department, national representatives of INTERPOL) to detect and prosecute wildlife crime. A network of informers provides evidence, and when arrests are made lawyers are on hand to make sure that the correct legal procedures are strictly adhered to (arrest protocol, witness statements, trial, etc.) in order to ensure successful prosecution. Cases are given wide publicity in the local and international media. High level political support is important particularly when high level figures are prosecuted for wildlife crimes[71]. The wide publicity contributes to improving wildlife governance, by improving understanding of the laws and serving as a warning to potential offenders.

4.10 LAW ENFORCEMENT ALONE IS NOT A LONG TERM SOLUTION TO THE BUSHMEAT CRISIS.

There are no examples in Central Africa where a comprehensive solution for tackling the bushmeat trade has been developed and tested. A review of experiences of livelihood alternatives for the unsustainable use of bushmeat commissioned by the CBD Bushmeat Liaison Group highlights the paucity of successful examples from Central Africa[72]. While interdiction and enforcement only policies have been widely used, they are not the complete answer in the short and medium term. However satisfactorily regulating and managing the entire supply chain, from sustainable hunting in the forest, to sale of disease-free meat in the urban markets, is also highly problematic given the problems of governance in Central Africa. Bushmeat is a food security issue as much as a biodiversity issue[73] in rural environments and needs to be tackled from this perspective. By contrast in urban areas bushmeat is more of a "luxury" item so actions should focus on reducing the supply to urban markets by exerting pressure on the supply routes (roads, rivers, railways, airlines) and encouraging a shift in feeding habits away from bushmeat consumption.

[69]http://www.awf.org/projects/congo-shipping-project
[70]The EAGLE network comprises: LAGA (Cameroon); CJ (Gabon); PALF (Congo Brazzaville); RALF (CAR); GALF (Guinea Conakry); TALF (Togo).
[71]In Gabon the Prefect (Senior Divisional Officer) of Mitzig, was successfully imprisoned for 12 months for wildlife crime and abuse of power. http://www.conservation-justice.org/wordpress/?p=726&lang=en
[72] Secretariat of the Convention on Biological Diversity (2011) Livelihood alternatives for the unsustainable use of bushmeat. Report prepared for the CBD Bushmeat Liaison Group. Technical Series No. 60, Montreal, SCBD, 46 pages.
[73] R. Nasi, A. Taber and N. Van Vliet. 2011. Empty forest, empty stomachs ? Bushmeat and livelihoods in Congo and the Amazon basin. International Forestry Review, vol 13.

5 INDICATIVE CONSERVATION ACTIONS / PRIORITY CONSERVATION NEEDS

5.1 *IN SITU* LONG-TERM SUPPORT TO PROTECTED AREAS IN KEY LANDSCAPES FOR CONSERVATION

Key Landscapes for Conservation (KLC) are areas recognized to be of global wildlife importance with intact ecosystems capable of sustaining wildlife populations in the face of increasing isolation from other similar areas. The strategic approach must be first and foremost to concentrate efforts on helping the national PA agencies to secure the protection of priority PAs and their immediate buffer zones in KLCs. If wildlife cannot be protected here there is little chance that it can be preserved elsewhere given the pressures on wildlife and the speed with which wildlife populations are being impoverished across the Central African region. A pragmatic and realistic approach is required that recognises that we cannot protect wildlife everywhere. Where it is feasible efforts should be made to ensure connectivity between PAs but it should be understood that this will not be possible everywhere. As a general principle the areas where conservation efforts are likely to have the most success are those that are large and intact; in other words they have the full complement of species, in the "right" proportions, and where the population structure of the longest-lived components (the trees) has not been too badly compromised by human activities such as farming and logging. Areas where there are clear opportunities for developing effective collaboration with communities and private sector operators in the buffer zones linking the PAs (FSC certified logging concessions, mining companies) are also considered to be of particular importance. However some PAs containing exceptional species richness and/or endemism, particularly in the highly threatened Afromontane habitats, are already so isolated that efforts will inevitably be focused almost entirely on protecting the PA.

The priority KLCs are those that meet as many of the following criteria as possible:

- Recognised as a World Heritage Site for its global (scientific) importance;
- Protects a functioning ecosystem with viable wildlife populations in the face of increasing isolation caused by an expanding rural population;
- Established as a Transfrontier Conservation Area or in the process of formal development as a TFCA;
- Protects the most important populations of free-ranging elephants in the region;
- Protects a key population (as rated by the appropriate IUCN SSC Specialist Group) of one or more of the other iconic Central African wildlife species (gorillas, chimpanzees, bonobo, okapi, forest elephant, endemic small primates, endemic ungulates, etc.) which are categorised as endangered or vulnerable according to IUCN Red List Criteria;
- Protects a globally important dry-season concentration area for wildlife populations together with their wet-season dispersal zones;
- Plays an important role in protecting important wintering grounds for Palearctic bird migrants (eg wetlands recognised as Important Bird Areas – IBA);
- Protects a regionally important hotspot of endemism and diversity;
- Contains wildlife landscapes of exceptional scenic interest;
- Protects a watershed that human populations are highly dependent on;
- Plays a vital role in sustaining a key natural resource, such as a fishery or source of freshwater, that has critical national importance through public, commercial, recreational, artisanal or subsistence use.

In the moist forest zone certain KLCs span international boundaries. These Transfrontier Conservation Areas (TFCA) provide good opportunities for economies of scale, sharing of conservation costs, regional cooperation for conservation and "buffering" in time of civil unrest in one or other of the national components of the ecosystem (see also 4.3). Three such TFCAs stand out in the Central African moist forest zone: the **Greater Virunga TFCA** (DRC, Uganda, Rwanda), the **TRIDOM-TNS TFCA** (Cameroon, Gabon, Congo, CAR), and the **Gamba/Conkouati TFCA** (Gabon, Congo) (see 5.1.1. below for more detailed information). Between them they account for roughly a third of the Central Africa region's category I-IV protected areas and almost certainly protect the majority of Central Africa's floral and faunal diversity. They also include most of the priority areas identified in the Central African Chimpanzee and Gorilla Action Plan and the Eastern DRC Great Apes Action Plan, and cover the majority of Africa's remaining forest elephants, of which Gabon alone probably holds 50%[74].

[74] Maisels F, Strindberg S, Blake S, Wittemyer G, Hart J, et al. (2013) Devastating Decline of Forest Elephants in Central Africa. PLoS ONE 8(3): e59469. doi:10.1371/journal.pone.0059469

In the drier ecosystems to the north of the moist forest block, spanning the forest-savanna transition zone and the east Sudanian savannas of CAR, northern DRC, southern South Sudan and southern Chad, there are a number of important sites harbouring wildlife characteristic of these zones. These include Zemongo/Chinko complex in eastern CAR, the Garamba NP/Bili-Uere complex in northern DRC and the Southern NP in South Sudan. However much of this area suffers from high levels of insecurity and conflict and is intensively used for wildlife trafficking. In these areas it is not only very difficult to work effectively within the existing PAs but opportunities for developing concrete conservation activities in the areas linking them are currently limited. However although wildlife populations have been seriously depleted over much of this area it is considered important not to abandon it since, given the very low human density and the vastness of the area, there is potential for recovery if security and law and order can be restored. WCS working in this area has had success developing what they refer to as Conservation Security Partnerships through which wildlife law enforcement is linked with efforts to address security threats to local people (Box 5).

Box 5. Conservation Security Partnerships - a concept for linking wildlife conservation efforts with efforts to address security threats to local people

WCS working in the South Sudan/CAR/north DRC transfrontier area have developed the concept of Conservation Security Partnerships (CSP) for operating in zones of high wildlife value where insecurity and lawlessness is an issue. It is based on a similar approach developed by the Northern Rangelands Trust of Northern Kenya and aims to embrace explicit conflict mitigation and security enhancement objectives together with wildlife protection and protected area management.

At the regional level the CSP involves partnerships between wildlife law enforcement forces, police, military, international security organizations (eg AFRICOM) and local community leaders which link wildlife law enforcement efforts to protect and secure wildlife with efforts to address security threats to local people (cattle raiding, local militia/rebels) as well as broader security threats to state and regional stability. For example in Southern NP in South Sudan park rangers are linked in with AFRICOM, SPLA and UPDF, as well as local community scouts, to eliminate LRA threats and contribute to elephant protection and anti-trafficking.

At the local level Community Based Conservation Security Partnerships (CBCSP) involve local communities directly in monitoring of illegal activities, intelligence gathering, first alert systems, joint patrolling with wildlife forces and inter-tribal peace processes using common security and wildlife conservation concerns as a neutral common ground.

In addition to these very large KLCs, a number of individual sites containing a single PA and its buffer zone should be targeted for support. Priority should be given to existing **World Heritage Sites** which, by virtue of their WHS status are internationally recognised as being of global importance for nature conservation, and to sites which are on the counties' Tentative Lists for WHS status or which protect specific globally important features not found elsewhere.

In countries open to PPPs for the management of their PAs this approach should be promoted (DRC, Chad, Congo). Elsewhere, where the institutional context is favourable (such as in Gabon) support to the PA agency through collaborative agreements should be considered. This could include the secondment of qualified staff (expatriate or otherwise) to the national organisations with a dual management and training role.

The support for PA management should place particular emphasis on:

***Strengthening anti-poaching and general law enforcement activities*.**

- Equipment (and, importantly, mechanisms for proper management of the equipment) and law enforcement training, including paramilitary training, will be major components in many sites. Where feasible and appropriate specialist anti-poaching/surveillance organizations should be involved[75].
- Establishing Law Enforcement Monitoring tools (SMART, CyberTracker[76] or others, Box 6 below) and Protected Area Management Effectiveness monitoring tools as standard features of park management procedures.
- Mainstreaming the LAGA approach (investigations, operations, legal assistance, media coverage) into the PA management operations (see 4.9 above).

Box 6. Spatial Monitoring and Reporting Tool – SMART

In order to strengthen the effectiveness of monitoring and patrolling, a global consortium of NGOs and conservation agencies (WCS, WWF, ZSL, Frankfurt Zoological Society, CITES-MIKE and North Carolina Zoo) have developed the Spatial Monitoring and Reporting Tool (SMART; www.smartconservationtools.org). SMART harnesses ranger-collected data on threats and performance by applying new technologies to local needs and capacities through an easy-to-use software tool and a suite of best practices for patrol monitoring and management. At the local level, SMART can support anti-poaching by enabling identification of poaching hotspots, evaluation of ranger performance, and more efficient targeting of enforcement efforts; at the national level, the information can strengthen institutional communication channels to better allocate financial and human resources to improve anti-poaching efforts; and globally, the information provides standardized, reliable, and accountable measures of poaching and performance to prioritize funding streams and encourage better governance.

SMART is being implemented in more than 100 protected areas worldwide through technical support provided by SMART partners in collaboration with host government agencies. In Africa SMART is being used in protected areas in 14 countries, with national-level adoption of the system already secured in Gabon and underway in Uganda, Kenya, and Democratic Republic of Congo. The SMART Partnership is also engaged with several global institutions and conventions in joint efforts, such as CITES-MIKE and the World Heritage Centre. Through these and other multi-lateral and international mechanisms, SMART has the potential to become the global standard for improved law enforcement monitoring (LEM) across protected areas.

Ensuring that there are sufficient resources for regular monitoring of key conservation targets, particularly great apes (see the different great ape Conservation Action Plans) and forest elephants. In addition to data on the target species it should be remembered that these surveys generate a great deal of other essential information for managers, notably human activities. Over the past 20 years much work has been done to refine methodologies for large mammal survey methods in the moist forest environment and standard methodologies are now being used widely across the region enabling more reliable comparisons to be made. However these surveys require considerable resources and until now have not been conducted with sufficient frequency. For forest elephants for example, in addition to the official Central African MIKE sites, a number of other important sites require urgent surveys. These are Lobéké, Nki, Mbam et Djerem National Parks and Ngoila-Mintom zone

[75] http://maisha-consulting.com/
[76] http://www.cybertracker.org

(Cameroon); Conkouati and Ntokou-Pikounda National Parks (Congo), Moukalaba-Doudou, Wonga-Wongue, Loango, Birougou, Mwagne, Ivindo, Waka and Mts de Cristal National Parks (Gabon).

Aerial monitoring and surveys is a very cost effective tool for which sufficient resources should be made available. While its usefulness over the open savanna ecosystems are self-evident aerial monitoring over the moist forest ecosystem has also proved highly effective particularly for monitoring use of the ecologically important forest clearings (by humans and animals), and also for monitoring mining and logging activities (new roads and tracks, etc..). This should be an integral part of monitoring activities.

Training of field staff (wardens, assistant wardens, monitoring officers, community outreach officers). This is in addition to the specific anti-poaching training referred to above. This should include on-the-job training as well as formal training in specialised regional or international institutes (see also 5.3).

Community outreach activities to build conservation constituencies for the parks that are relevant to the particular contexts of the sites and are practical and achievable. Outreach programs developed by the park must not attempt to resolve all the socio-economic ills of the neighbouring populations. That task should be assigned to specialist organisations with appropriate budgets, and the objectives of the interventions must be compatible with the conservation objectives of the park, and preferably run in parallel with the support to the PA. Awareness building and effective communication between stakeholders will be an integral part of outreach activities. The INCEF[77] approach is considered particularly effective for awareness raising and dissemination of information in local communities. INCEF focuses on locally produced and disseminated videos as an educational tool to foster improvement of the health and well-being of human and wildlife populations. It does this by building capacities of local media professionals to produce quality films in local languages and building capacities among local education teams to disseminate the videos and measure their impacts.

5.1.1 Transfrontier conservation areas (TFCA)

Brief descriptions of important KLCs spanning international boundaries as TFCAs are given below.

Greater Virunga TFCA
This complex encompasses 11 protected areas in DRC (Virunga NP), Rwanda (Volcans NP) and Uganda (Queen Elizabeth NP, Mgahinga Gorilla NP; Bwindi NP, Semiliki NP, Ruwenzori NP, Kibale NP, Kasyoha-Kitomi FR, Kalinzu-Maramagambo FR, Kyumbura WR). Covering about 12,860 km², and with an altitudinal range of 600 to 5,100 m, this area protects the world's remaining 800 mountain gorillas as well as a significant proportion of the Albertine Rift endemics. It is considered one of the most species rich regions on earth[78] and is undoubtedly one of the most spectacular landscapes in Central Africa. It is also the only area in Central Africa where very substantial tourism revenue is guaranteed (gorillas, chimpanzees, active volcanoes, Ruwenzoris, savanna fauna). Mountain gorilla tourism generates millions of Euros annually for the national economies of the countries involved and enhances their international standing. Indeed the safeguarding of the mountain gorilla population was one of the few issues over which the three countries, variously in conflict with each other over the past 20 years, were able to agree. The Greater Virunga Transboundary Collaboration, with its Executive Secretariat based in Kigali, Rwanda is a mechanism established by the three countries for strategic, collaborative management of the Greater Virunga landscape. The gorilla population has increased steadily since the late 70s. Tourism revenue is guaranteed to increase as long as the mountain gorilla population remains protected. Gorilla tourism is also one of the few examples from Central Africa where local communities benefit clearly from the presence of the park (and mostly recognise the fact that they do – an important nuance).

[77] http://www.incef.org/
[78] Plumptre, A.J., Behangana, M., Davenport, T., Kahindo, C., Kityo, R., Ndomba, E., Ssegawa, R., Eilu, P., Nkuutu, G., and Owiunji, I. (2003).The Biodiversity of the Albertine Rift. Albertine Rift Technical Reports N°3.

Figure 3. Map of the Greater Virunga TFCA

Greater TRIDOM-TNS TFCA

This TFCA covers a very large area of essentially contiguous moist forest spanning the borders of three countries (Cameroon, Gabon and Congo). It includes two Central African landscapes known as TRIDOM (Tri national Dja-Odzala-Minkebe) and TNS (Trinational Sangha) but is also extended to include Lopé NP WHS and Lac Tele Community Reserve since the habitat linking all these PAs is almost contiguous and much of it is under concession to the logging and mining industries.

It covers 15 protected areas in Gabon (Ivindo NP, Mwagne NP, Minkebe NP, Lopé-Okanda WHS), Cameroon (Dja WR WHS, Nki NP, Boumba Bek NP, Lac Lobeke NP, Kom NP), Congo (Odzala NP, Nouabalé-Ndoki NP, Ntokou-Pikounda NP, Lac Tele CR), CAR (Dzanga-Ndoki NP, Dzanga RS). The TNS part of this KLC differs from the other PAs in this landscape in that it is a transfrontier World Heritage Site (the first in the world) composed of 4 contiguous protected areas, managed within the framework of a tri-national agreement[79] between the governments of CAR, Cameroon and Congo and funded through its own Trust Fund (see below). Lopé-Okanda is both a natural and cultural World Heritage Site

This vast area of over 250,000km² contains the majority of Central Africa's forest elephants, lowland gorillas and chimpanzees as well a wide cross-section of the Congo basin fauna. Floristically the PAs together protect a substantial proportion of the Congo basin flora[80]. Almost all the forest in between the PAs is, or soon will be, under the management control of extractive industries (logging and mining). This offers many possibilities of PPP to enhance wildlife conservation in the concessions and thus preserve forest connectivity between the network of PAs (see section 5.2). Some of the PAs have extraordinary tourist

[79] A tri-national cooperation agreement between Gabon, Cameroon and Congo also exists for TRIDOM

[80] J.J. Wieringa and M.S.M. Sosef. 2011. The applicability of relative floristic resemblance to evaluate the conservation value of protected areas. Plant Ecology and Evolution Fast Track:1-7

potential (TNS, Odzala, Ivindo) because of the presence of many forest clearings with guaranteed viewing of forest elephant and gorillas and a wide spectrum of other forest animal species. In TNS, Odzala and Ivindo tourist infrastructures have already started attracting international tourism although it is still a long way from being a profit making operation. The private sector partner in Odzala has invested in particularly impressive high-end infrastructures[81] which is a clear indication of the conservation importance and tourism potential of this site.

Over the past 15 years conservation partners and logging companies have developed collaborative partnerships and tested methodologies for wildlife management, anti-poaching and sustainable hunting in the logging concessions adjacent to this complex of protected areas. Lessons learned from these partnerships should be used to guide evolving partnerships with the mining sector, a more recent arrival in the landscape with an enormous capacity to influence, both negatively and positively, what happens here. PPP management agreements exist for the management of Odzala NP and Nouabalé-Ndoki NP.

In 2007 the TNS Trust Fund (FTNS) was established with support from the World Bank/WWF Alliance for Forest Conservation and Sustainable Use, GTZ, WCS, AFD and USAID-CARPE. Currently the FTNS has a capital of approximately 25m€ provided by KfW, AFD, and Regenwalt Striftung through the "Krombacher Regenwald Kampagne". These funds are invested in international markets and are expected to produce a stable revenue stream to cover targeted activities for conservation and sustainable development.

[81]Odzala Wilderness camps: http://www.odzala-kokoua.com/

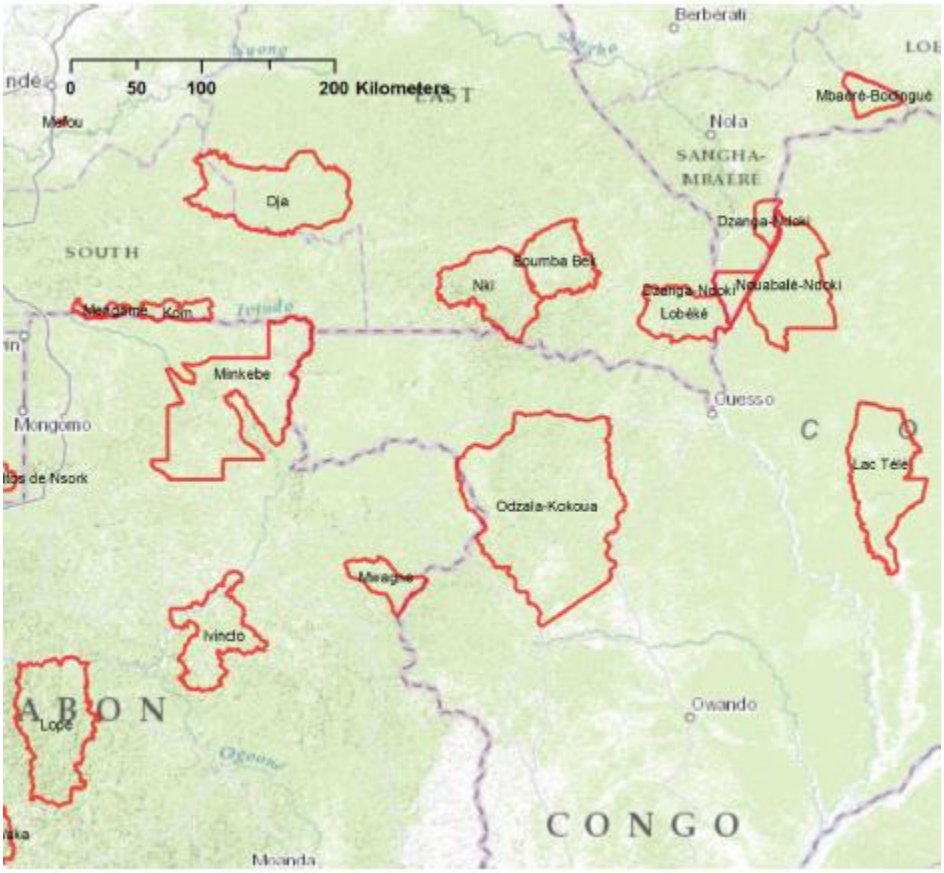


Figure 4. Map of Greater TRIDOM/TNS Transfrontier Conservation Area

Gamba/Mayumba/Conkouati TFCA

This complex includes 4 PAs in Gabon (Mayumba NP, Loango NP, Moukalaba-Doudou NP) and Congo (Conkouati NP) and is important because it encompasses some of the best examples of coastal forests and wetlands in Central Africa. The landscape is also globally important for 4 species of marine turtle that nest on the beaches, and 17 Cetaceans, including an important population of humpback whales which are easily observed during the breeding season from June to September. The extensive areas of inland lagoons harbor populations of the endangered West African Manatee, as well as terrestrial large mammal assemblages including gorillas, chimpanzees, forest elephants, forest buffalo and hippos, all of which can sometimes be observed on the beaches. The area therefore has major tourist potential, in addition to its global importance for wildlife conservation.

Over the past 15 years conservation and research partners, notably WWF and the Smithsonian Institution, have developed innovative and successful partnerships with private sector logging and oil companies[82] active in the area to enhance biodiversity conservation and these types of partnership should be continued and developed.

[82]Smithsonian Institution collaborates with Shell: Oil http://nationalzoo.si.edu/SCBI/Collaborative-Research-Initiatives/Gabon-Biodiversity-Program.cfm
WWF collaborates with oil and logging companies on land use planning, wildlife management and anti-poaching, and alternative livelihoods, http://awsassets.panda.org/downloads/wwf_gamba_fact_sheet_en_300410.pdf

Figure 5. Map of the Gamba/Mayumba/Conkouati Transfrontier Conservation Area

Garamba / Bili-Uele / Southern / Zemongo-Chinko TFCA

It is recognised that this TFCA is significantly different from the others described above in that the area is characterised by extreme insecurity and lawlessness which has led to depletion of wildlife populations over the past 25 years. However it is considered important to maintain a presence in the zone to (i) secure the PAs, one of which is a WHS in Danger and (ii) contribute to conservation security in the intervening zones. Trafficking of wildlife to northern Sudan from this area, as well as from further south in the Congo basin, occurs across this vast largely uncontrolled area. There is therefore a need, and good potential, for a broad Northern DRC-Eastern CAR-Southwestern South Sudan conservation-security partnership (Box 5 above) including wildlife services of the three countries, NGOs operational in the areas (WCS, APN, Chinko Project) and AFRICOM, US Departments of State and Defense, and local military operators (SPLA, UPDF, UN armed missions). Gabon's ANPN has also recently become involved helping the CAR government with wildlife security issues, including in Chinko.

Biologically the area contains vast intact areas of biodiversity-rich forest-savanna mosaic as well as the drier Sudanian savanna and woodland wilderness areas. As recently as the early 1980s this area supported the highest density of elephants in Africa and there is potential for recovery given the low human densities and the intactness of vast areas of natural habitat. The area contains three national parks: Garamba NP in DRC, and Lantoto NP (contiguous with Garamba) and Southern NP in South Sudan. Other PAs are the vast Bili-Uere complex of Wildlife and Hunting Reserves in DRC and the Zemongo Wildlife Reserve and Chinko Hunting Reserve in the CAR. Garamba NP has the most important elephant population remaining in the region (although currently suffering intense poaching pressure from the LRA and Sudanese gangs[83]). Southern NP remains a stronghold for giant eland and also contains roan, hartebeest and wild dog[84]. The Chinko-Zemongo complex has a remarkably intact (though low density) array of wildlife species typical of the forest-savanna ecotone including giant eland, buffalo, bongo, lion, elephant, chimpanzees and giant forest hog. Similarly recent surveys in the long abandoned Bili-Uere complex have confirmed important pockets of wildlife particularly in the forest sections of the forest-savanna mosaic[85],[86].

The Monts de Cristal - Altos Nsork TFCA

This mid altitude mountain range spanning Gabon and Equatorial Guinea represents a Pleistocene refuge with the highest species richness and diversity of any site in western Central Africa, including perhaps the greatest plant diversity in Africa. With a unique combination of primary rainforest and cloud forest, it has one of the highest numbers of butterfly species in Africa

[83] http://www.african-parks.org/Blog_150_Update%3A+Garamba+National+Parks+Poaching+Crisis.html
[84] Grossmann, F., Elkan, P., Tiba,C., Moi, J., Awol P. P., Lita, J., Demetry, P. and S. Kenyi. 2011. Aerial Surveys of Wildlife, Livestock, and Human Activity in and around Existing and Proposed Protected Areas of the Republic of South Sudan 2009 - 2010. WCS Report No. 4 to USAID and Government of South Sudan.
[85] Elkan, P., et al. (in prep.) Aerial surveys of Wildlife, Livestock, and Human activity in the Bili-Uere landscape, Democratic Republic of Congo. WCS and ICCN technical report on survey conducted in 2013.
[86] Hart, J. 2014. Summary of elephant surveys in North Central DRC 2007-2013. Lukuru Wildlife Research Foundation. Draft report submitted to AfEDB, sept 2014.

(many species are found only here and Equatorial Guinea). It has a significant population of elephants and mandrills, and is a key water source for the region.

The Korup-Takamanda-Mount Cameroon TFCA is covered in Volume 5 (Western Africa).

5.1.2 Other priority KLC's

While the TFCAs described in 5.1.1 above provide a reasonably comprehensive coverage of Central Africa's biodiversity and key flagship species populations, the following KLCs, some of which contain only a single PA, are also considered as highest priority for support, either because they are already on the World Heritage Tentative List (and therefore have the potential to meet the Outstanding Universal Value criteria of the World Heritage Convention) or because they protect unique or highly endangered species or ecosystems.

Democratic Republic of Congo:

- **The remaining three DRC World Heritage Sites: Okapi WR, Kahuzi-Biega NP, Salonga NP.** (Virunga NP is covered in the Greater Virunga TFCA, and Garamba NP in the Garamba-Bili Uere-Southern-Chinko TFCA). Their status as WHS confirms their global importance. Globally important DRC endemics are protected by these sites (Okapi, Grauer's gorilla, Bonobo, Congo peacock, aquatic genet, numerous small primate endemics). The Okapi Wildlife Reserve is the most important protected area for the Eastern Chimpanzee (about 6,000 individuals) and contains the DRC's largest forest elephant population (estimated at 1,200 in 2011[87]).
- **Lomami NP** (in the process of being gazetted). This area contains several DRC endemics including the iconic bonobo and okapi. Scientists have also recently described a new endemic monkey species, the *lesula* monkey (*Cercopithecus lomamiensis*)[88] and a second new species is currently being described. This is a very remote area of moist forest with relatively limited human and development pressures on its boundaries.
- **Lomako-Yokokala NR** : A priority area for bonobos in the northern part of its range (IUCN Bonobo conservation Strategy) and an area where long term research has been conducted.
- **Tumba-Lediima NR:** A priority area for bonobos in the western part of its range (IUCN Bonobo Conservation Strategy). In addition the swamp forests of Lac Tumba (together with those of Lac Tele CR in the Congo Republic – see below) constitute the largest area under protection of the vast and unique Congolian Swamp forests.
- **Itombwe-Kabobo**: The Itombwe Massif and the adjacent Kabobo-Luama landscape on the Albertine Rift are both in the process of becoming protected areas: the **Itombwe Natural Reserve** and the **Ngamikka National Park** respectively. These contain the highest number of Albertine Rift endemics of any site on the Albertine Rift with many species that are unique to the two sites. Recent discoveries include 3 mammal and 5 plant species, and a possible 10 new amphibian species. Kabobo-Luama landscape may have as many as 2,000 chimpanzees while the Itombwe Massif has both chimpanzees and Grauer's gorilla populations.
- **Maiko NP**. Given the highly heterogeneous distribution of the Grauer's gorilla (making it vulnerable to local extinctions outside of PAs) this park is important for the protection of this DRC endemic. Several other Congo endemics occur there (Congo peacock, okapi, aquatic genet). This park is currently very difficult to operate in because of problems of access and the presence of Simba rebels who have been living in the park since the late 60s.
- The two Katanga national parks **Kundelungu NP and Upemba NP** and the ***Zone Annexe*** connecting them. These are the only national parks in the Central African region that protect the miombo woodland ecosystem. The endemic Congo Zebra survives in Upemba NP and there is strong potential for recovery of wildlife populations given proper protection. The area also has significant tourist potential (spectacular landscapes).

Central African Republic

- **Gounda-St Floris World Heritage Site and the surrounding Village Safari Hunting Zones (*Zones Cynégétiques Villagoises) ZCV*** – although this area is currently overwhelmed by conflict, the past history of community conservation successes based on consumptive tourism in the ZCV justifies keeping this area on the list

[87] Vosper, A., Masselink, J. & Maisels, F. (2012) WCS RFO Program: Great ape and human impact monitoring in Okapi Faunal Reserve, Democratic Republic of Congo. Final report to USFWS - GACF Agreement 96200-0-G100. WCS]

[88] Hart JA, Detwiler KM, Gilbert CC, Burrell AS, Fuller JL, et al. (2012) Lesula: A New Species of Cercopithecus Monkey Endemic to the Democratic Republic of Congo and Implications for Conservation of Congo's Central Basin. PLoS ONE 7(9): e44271. oi:10.1371/journal.pone.0044271

of priority zones where interventions could restart if and when security returns to this area. A key feature of this zone is the large population of giant eland.

Cameroon

- **Bouba-Ndjida-Benoué**: Sudanian savanna. Bouba-Njida previously contained >500 savanna elephants, but has potential for recovery. Both have giant eland populations.
- **Mbam et Djerem NP**. Large, mostly intact, area of the biodiversity rich savanna-forest transition ecotone. One of the largest remaining populations of savanna elephants in Central Africa (estimate 800).
- **Mount Oku and Ijim Ridge**. Although not category I-IV PAs the area contains the Oku Floral Sanctuary (*Sanctuaire à flore d'Oku*) and contains the largest extent of, and highest, afromontane forest in West Africa, the only Alpine bamboo forest and the only Podocarpus forest in West Africa. It also has exceptional floral, herpetological, and bird endemicity.

Chad

- **Zakouma NP**. This is Chad's emblematic protected area which was brought back from the brink by >30 yrs of sustained support for protection. Zakouma is the flagship protected area of the Sudanian savanna ecosystem. Conservation efforts in the park (managed by APN under a PPP) receive political support at the highest level. It also has very significant tourist potential.

Equatorial Guinea

- **Pico Grande NP (HP) and Pico Basile NP**. Spectacular forest-covered volcanic landscapes with a large altitudinal range (0 – 3000m) and harbouring important Gulf of Guinea primate endemics. Also globally important beaches for marine turtles. On the WHS Tentative List.

São Tome e Príncipe

- **Obo NP São Tomé and Zona Ecologica Príncipe.** They protect important plant and bird endemics and are vital for watershed protection. They are also landscapes of outstanding scenic interest with good tourist potential. On the WHS Tentative List.

The complete list of KLCs, their special features and current partners, is presented in Table 1 below.

Table 1. Summary of key features of the Central African KLCs

KLCA (countries)	Protected areas	Size (km²)	Special features of site justifying selection	Multi and bilateral donors and other funders present	Principal international technical partners supporting national PA institutions**
Greater Virunga* (DRC, Ug, Rw)	• Virunga NP (DRC) WHS in Danger • Volcans NP (Rw) • Mhahinga NP (Ug) • Queen Elizabeth NP (Ug) • Bwindi NP (Ug) WHS • Semiliki NP (Ug) • Ruwenzori NP (Ug) WHS • Kibale NP (Ug) • Kasyoha-Kitomi FR(Ug) • Kalinzu-Maramagambo FR (Ug) • Kyumbura WR (Ug)	c. 13,000	• Albertine Rift Montane and mid altitude forest, East Sudanese savanna, Wetlands • WHS x 3; • Entire mountain gorilla population and important chimpanzee populations; • Majority of Albertine endemics; • Exceptional tourism potential; • Protection of vital freshwater fish stocks; • Watershed protection;	• EU • UNESCO • Belgium • WB/GEF • HGBF • MF • USAID • USFWS	• ACF • WCS • WWF • AWF • ZSL • FZS • DFGF
TRIDOM/TNS* (Cam, Gab, Co, CAR)	• Minkébé NP (Gab) • Ivindo NP (Gab) • Mwagne NP (Gab) • Dja WR (Cam) WHS in Danger • Nki NP (Cam) • BoumbaBek NP (Cam) • Lac Lobeke NP (Cam) part of TNS WHS • Odzala NP (Co) • Nouabalé-Ndoki NP (Co) part of TNS WHS • Ntoukou-Pikounda NP (Co) • Lac Tele CR • Dzanga-Ndoki NP (CAR) part of TNS WHS • Dzanga SR (CAR) • Lopé NP (Gab) WHS (natural and cultural)	c. 250,000	• Northwest Congolian Forest, Northeast Congolian Forest, Sangha Aquatic ecoregion, Atlantic Equatorial Coastal Forest • WHS X 4; • Majority of Central Africa's remaining forest elephants; • Majority of Central Africa's lowland gorillas and chimpanzees; • Major portion of Congo basin flora; including several endemic plants (eg in Lopé) • Important area of Congolian swamp forest (Lac Tele) • Endemic sun tailed monkey (Lopé) • Hundreds of mineral rich forest clearings (bais) • Ancient rock art (Lopé) • High tourist potential in several of the PAs – Odzala, TNS, Lopé, Ivindo) • Good potential for PPPs with logging and mining sector and with protected area management specialists;	• EU • USFWS • USAID • KfW • GIZ • GEF/PNUD • ADB • Netherlands	• WWF Netherlands • WCS • AP • FTNS
Gamba/Mayumba/ Conkouati* (Gab, Co)	• Loango NP (Gab) • Moukalaba-Doudou NP (Gab) • Mayumba NP (Gab) • Conkouati NP (Co)	c. 12,600	• Atlantic Equatorial Forest, Southern Congolian Savannah Forest mosaic, Equatorial coastal aquatic ecoregion • Extensive inland wetlands; • Endangered manatee population; • Forest elephant and apes;	• USFWS	• WWF • WCS • SI

KLCA (countries)	Protected areas	Size (km²)	Special features of site justifying selection	Multi and bilateral donors and other funders present	Principal international technical partners supporting national PA institutions**
			• Globally important for marine turtles, whales and dolphins; • High tourist potential; • Protects regionally important marine fish stocks; • Potential for PPP with logging and oil sectors.		
Garamba/Bili-Uere/Southern/ Chinko* (CAR, DRC, SS)	• Garamba NP (DRC) WHS in Danger • Bili-Uere complex of Hunting Domains (DRC) • Southern NP (South Sudan) • Lantoto NP (South Sudan) • Zemongo-Chinko (CAR)	C. 250,000	• Northern Congolian forest –savanna mosaic, Sudanian savanna • WHS x 1 (Garamba -on list of WHS in Danger) • Biodiversity rich forest-savanna mosaic in transition zone linking with vast intact areas of Sudanian savanna. Wildlife reflects this mix of habitats: Chimpanzees, bongo, giant forest hog, forest and savanna elephant, giant eland, roan, hartebeest, wild dog.	• USFWS • EU • World Bank • GEF • Spain (AECID, MAAMA) • Fundacion Biodiversidad • Life Web	• WCS • APN • Chinko Project • Lukuru Foundation • AWF
Gounda-St Floris -Bamingui-Bangoran and surrounding hunting blocks (CAR)	• Gounda-St Floris NP (WHS in danger) • Bamingui-Bangoran NP • Zone Pilote de Sangba	c. 50,000	• Sudanian savanna • WHS in Danger • Until recent conflict good CBNRM results from safari hunting in Zone Pilote de Sangba buffer zone	• EU	• AGRECO
Salonga (DRC)	• Salonga NP. WHS in Danger	33,350	• Eastern Congolian swamp forests, Central Congolian lowland forest • WHS in Danger • Bonobos, endemic small primates,	• EU	• WWF
Okapi (DRC)	• Okapi WR. WHS in Danger	13,750	• Northeastern Congolian lowland forest • Okapi, forest elephant, chimpanzee, bongo, Congo peacock, Aquatic genet • 17 spp of diurnal and nocturnal primates	• KfW • GIZ • UNESCO	• WCS • GIC
Kahuzi-Biega (DRC)	• Kahuzi-Biega NP. WHS in Danger	6,000	• Northeastern Congolian lowland forest, • Albertine Rift Afro montane forests	• GIZ/KfW • UNESCO	• WCS
Maiko-Tayna (DRC)	• Maiko NP • Tayna Community Reserves	c. 11,000	• Northeastern Congolian lowland forest • Grauer's gorilla (important site for this species given its very heterogeneous distribution in eastern DRC) • other endemics including Okapi, Aquatic genet, Congo peacock	•	• FZS

KLCA (countries)	Protected areas	Size (km²)	Special features of site justifying selection	Multi and bilateral donors and other funders present	Principal international technical partners supporting national PA institutions**
Upemba-Kundelungu (DRC)	• Upemba NP (DRC) • Kundelungu NP • Zone Annexe (buffer zone)	17,000	• Miombo woodland (only protected example in Central African region • Last remaining population of Congo zebra	• KfW • EU	• GFA • BAK
Lomako-Yokokala (DRC)	• Lomako-Yokokala WR	3,625	• Central Congolian lowland forests; Eastern Congolian swamp forests • Bonobo, elephant, sitatunga etc.	• USAID	• AWF
Tumba-Lediima (DRC)	• Tumba-Lediima NR	7,500	• Central Congolian lowland forest; Congolian swamp forest • Bonobo • Together with Lac Tele in Congo this is the largest area of protected Congolian swamp forest • Protection of vital freshwater fish stocks	•	• WWF
Itombwe-Kabobo (DRC)	• Itombwe proposed PA • Mitsotshi-Kabobo proposed PA • Luama Hunting Domain	c. 10,000	• Albertine Rift mid altitude forest; Forest savanna transition • Chimpanzees – one of the few viable chimp populations in the Albertine Rift • Endemic subspecies of Angolan Colobus and red Colobus • Albertine bird endemics	• USFWS • USAID • Rainforest Trust • Critical Ecosystems Partnership Fund	• WWF • WCS
Lomami (DRC)	• Lomami NP (in process of gazettment)	c. 10,000	• Central Congolian lowland forests • Bonobo, Okapi, Congo peacock, two newly described species of small primate	• KfW • Abraham Foundation • ARCUS	• Lukuru Foundation
Boubanjida-Benoué (Cam)	• Buba Ndjida NP • Benoue NP	4,000	• Northern Congolian forest savanna mosaic; East Sudanian savanna • Savannah elephants, savanna ungulates (23 antelope species) including giant eland	• France • Germany • EU	• GIZ
Mbam and Djerem (Cam)	• Mbam and Djerem NP	4,500	• Forest savanna transition • One of largest remaining savanna elephant populations in Central Africa; • Gorillas, chimps, forest savanna ecotone species,	• USFWS	• WCS
Mt Oku –Ijim Ridge (Cam)	• Mt Oku –Ijim Ridge	200	• Afromontane forest • Largest extent of, and highest, afromontane forest in Western Africa, the only Alpine bamboo forest and the only Podocarpus forest in Western Africa. • Exceptional floral, herpetological, and bird endemicity		
Zakouma (Chad)	• Zakouma NP	23,600	• A rare example of intact Sudanian savanna ecosystem with viable wildlife populations.	• EU	• APF

KLCA (countries)	Protected areas	Size (km²)	Special features of site justifying selection	Multi and bilateral donors and other funders present	Principal international technical partners supporting national PA institutions**
			• Good tourism potential		
Monts de Cristal-Altos Nsork* (Gab, GE)	• Monts de Cristal NP • Altos-Nsork NP	c. 2,500	• Atlantic Forests • Pleistocene refuge, with the highest species richness and diversity of any site in western Central Africa • Mandrills, • Vital water catchment area • On WHS tentative list		
Pico Grande and Pico Basile (EG)	• Pico Grande NP • Pico Basile NP	850	• Gulf of Guinea lowland and montane forest • Spectacular forest covered volcanic landscapes with a large altitudinal range (0 – 3000m); • 5 endemic sub species of primate; • Globally important beaches for marine turtles. • On the WHS Tentative List.		
Obo-Zona Ecologica Principe (STP)	• Obo NP (Sao Tome) • Zona Ecologica (Principe)	300	• Gulf of Guinea lowland and montane moist forest • Plant and bird endemics; • Vital for watershed protection. • Landscapes of outstanding scenic interest with high tourist potential; • On the WHS Tentative List.	• EU	
TOTAL	**61**	**c. 723,775**			

** Denotes that the area is also a TFCA*
*** Many of these technical partners also mobilise their own sources of core funding.*
Country abbreviations: CAR – Central African Republic; Cam – Cameroon; Co – Congo Republic; DRC – Democratic Republic of Congo; EG – Equatorial Guinea; Gab - Gabon ; Rw – Rwanda; STP –Sao Tome e Principe; Ug –Uganda.

NB The surface areas quoted are approximate because, unlike PAs, the boundaries of landscapes around and between the PAs are not officially defined.

5.2 ENGAGE WITH THE PRIVATE SECTOR EXTRACTIVE INDUSTRY TO ENHANCE BIODIVERSITY CONSERVATION OUTSIDE PROTECTED AREAS

Since almost all forest outside of protected areas is (or will soon) be attributed to private extractive industry operators, conservationists have to engage with them if we are to preserve connectivity between protected areas and ecological functions across large tracts of forest. Currently the most promising opportunities for this type of collaboration are in the forests of Gabon, northern Congo, and southern Cameroon in the Greater TRIDOM/TNS landscape. Since protected areas cover only 20% of the forest in this zone, the areas attributed as concessions cover the overwhelming majority of the forest, and therefore probably still contain much of the zone's wildlife.

Ideally collaborative agreements should be established between the government forestry/wildlife institutions, the extractive industry concessionaires and conservation organizations with the objective of developing and implementing best practices to avoid wildlife loss as a result of the extractive activities. The exact nature of measures will depend on the particular circumstances of each case but it will be necessary to work on several fronts including wildlife and socio-economic surveys to establish baselines, establishing strong company internal regulations concerning wildlife issues, implementing wildlife surveillance strategies, biodiversity offset mechanisms for "no net loss" of biodiversity, and monitoring conservation outcomes. Working with local communities in the concessions to clarify owner and use rights of forest resources, particularly wildlife, will be a crucial step in the process of managing sustainable hunting of bushmeat species. These measures should be an integral part of a company's management plan which is a legally binding document (see further discussion in following section on tackling the bushmeat issue). The inclusion of adherence to wildlife laws in the matrix of FLEGT legality criteria would further enhance the conservation outcomes in non-FSC forest concessions.

Priority should be given to working with mining and logging companies that are located within the Greater TRIDOM/TNS and Gamba/Mayumba/Conkouati TFCAs (5.1.1).

5.3 TRAINING AND INSTITUTION BUILDING

In Central Africa much important training of wildlife managers (wardens, monitoring officers, community conservation officers, rangers, etc) takes place on site in the form of on-the-job training within the framework of externally funded projects. While the value of this kind of training is undeniable, and has led to the emergence of many highly competent national conservation practitioners, the weakness of the protected area agencies to which they belong (absence of career opportunities, poor management of staff, governance issues) means that many of these individuals end up leaving their institutions for better paid, and more stable and fulfilling jobs with INGOs or international agencies where they have real career opportunities. The other common scenario is that, because of the lack of competent PA authority staff, individuals from outside of the management authorities are brought in to a site and trained, but once trained very few of them are integrated into the national authority (nor do many of them even wish to be integrated).

There is therefore an urgent need for fundamental institutional reform in almost all of the Central African PA authorities. PA management needs to be professionalised and proper career prospects offered for people entering the service. This is such a fundamental change which has to occur that many years of institution building will be required before tangible results will be seen in terms of improved management of PAs. It will also require genuine political will for change (and improved governance) in order to overcome the resistance to change that undoubtedly exists within certain countries of the region. However, as noted in Vol. 3 (5.4.2), institutional reform of PA management authorities is a cost effective conservation investment because all PAs and wildlife stand to benefit.
Three simultaneous lines of action are therefore required:

- Continue with on-the-job training in sites within the framework of externally supported interventions (see 5.1 for more detail). Training should be a standard component of all interventions in support of the sites identified in this report.
- Support the main regional training centers, (EFG, ERAIFT, ENF) in Cameroon, DRC and Gabon respectively in collaboration with their other international partners. This would involve capacity building of the institutions themselves, as well as provision of scholarships for students. Other training centers located in the heart of the moist forest zone, such as the Alphonse Makanga Training Centre in Lopé, could be supported and links strengthened with the above-mentioned regional training centers.
- Support national-level institutional support/reform for national PA authorities in countries demonstrating genuine political commitment to see the reforms through.

5.4 TACKLING THE BUSHMEAT ISSUE

Over-exploitation of wildlife threatens food security and wildlife. It is recognized as a global concern by the Convention on Biological Diversity[89] which has established a Liaison Group on Bushmeat to work with the CITES Central Africa Bushmeat Working Group. In Central Africa demand for bushmeat is higher than the sustainable level of production. One of the most important root causes of overhunting is the breakdown in traditional controls over access to land and hunting areas, and the fact that legal frameworks of the Central African nations do not recognize local control over traditional lands and the rights of local populations to manage or regulate hunting on these lands[90]. As a result traditional rules over hunting have broken down and in many areas there is now a situation of open access with little or no control by local communities over hunting by outsiders. Faced with the scale of bushmeat hunting and the evident impoverishment of large areas of forest in Central Africa conservationists have tended to favor a law enforcement approach to prevent irreversible impoverishment of the forests. Development-orientated actors suggest that a regulated bushmeat trade, which maintains the supplies of appropriate species from forests, can contribute to economic growth in areas where there are few other options, but conservationists argue strongly that sustainable offtake can only be achieved where human populations do not exceed about 1 inhabitant/km²and where the meat is consumed at home (ie not sold outside the area)[91]. This is an increasingly rare situation in Central Africa and as long as rural populations remain poor and the demand for bushmeat in urban markets remains high an unsustainable trade in bushmeat will continue to exist. Establishing a regulated and sustainable system of harvesting bushmeat will therefore be extremely complex and time consuming to achieve given the fundamental changes to legal frameworks that must occur across Central Africa and the scale of capacity building of local communities for wildlife management that will be necessary. **The legitimate fear of conservationists is that by the time the regulatory frameworks are in place and capacities of local communities for sustainable wildlife management have been built, most of the wildlife will already have disappeared from the forests outside of protected areas**. Law enforcement will therefore remain a necessary activity running in parallel with pilot schemes to test and develop models for the regulated participatory management of bushmeat harvesting.

[89] CBD Decision XI/25 on "Sustainable use of biodiversity: bushmeat and sustainable wildlife management" https://www.cbd.int/decision/cop/default.shtml?id=13186.
[90] Sustainable Management of the Wildlife and Bushmeat Sector in Central Africa.FAO/GEF project document 2010. 99pp.
[91] Robinson JG, and Bennett EL. 2000. Hunting for sustainability. New York: Columbia University Press

Bushmeat is a food security issue in rural environments whereas in urban areas this is not necessarily the case. The protein gap therefore needs to be tackled in rural areas by combinations of various actions at different points of the value chain and of the enabling environment. Three strategic approaches are therefore necessary: (i) reducing the demand for bushmeat; (ii) improving the sustainability of the supply by better management of the resource and (iii) creating a conducive and enabling institutional and policy environment. **The ultimate goal should be to achieve sustainable harvesting of bushmeat for local consumption in rural areas, and eliminate bushmeat consumption in urban areas.**

5.4.1 Reduce the demand for bushmeat

Hunters and rural consumers:

- Develop alternative sources of protein at a cost similar to bushmeat. With an estimated yearly extraction rate in the Congo basin of 4.5 million tons of bushmeat cattle ranching is never going to be an ecologically sustainable solution since an estimated 25 million hectares of forest would have to be converted to pastures[92]. Pigs and chickens have much higher conversion rates than do cattle and both can thrive on kitchen scraps and crop residues. Near Ouesso, one of the region's biggest bushmeat markets, opportunities exist for producing chicken feed locally (from soya and maïs) at a price below bushmeat[93]. Developing sustainable fisheries in the rivers and lakes should also be investigated as fish are so important in local diets and can be a substitute for bushmeat. However, as noted in 4.10, attempts to develop alternatives for bushmeat have so far had limited success in Central Africa. Requiring extractive industry concessionaires to import domestically produced meat for their workers should also be a standard requirement.
- Improve economic opportunities in productive sectors. This will cover a wide range of possibilities depending on the local context.
- Raise awareness through environmental education and awareness building through local media using the INCEF-type approach.

Retailers and urban consumers:

- Strictly enforce the ban on the sale and consumption of protected and endangered species. Protected species found on sale should be publicly destroyed.

International consumers:

- The international trade must be completely stopped. Heavy fines should be levied for possession or trade of bushmeat regardless of the status of and provenance of the species.
- A concerted effort is needed to raise awareness among personnel stationed at exit points (ports, airports, border posts)
- Airline and shipping companies should commit to banning the transport of all bushmeat (regardless of its status) and should be made accountable for enforcing this. Regardless of the issue of sustainability, the international trade in bushmeat constitutes a serious public health risk.

[92] R. Nasi, A. Taber and N. Van Vliet. 2011. Empty forest, empty stomachs ? Bushmeat and livelihoods in Congo and the Amazon basin. International Forestry Review, vol 13.
[93] Pers. Comm. with WCS representatives

5.4.2 Improve the sustainability of the supply by better management of the resource

This will require developing models of wildlife management with local communities, research and extension, and engagement with the extractive industries.

Hunters and rural consumers:

- Work with hunters and rural communities to establish hunting rules which allow harvesting of resilient species but ban hunting of vulnerable species. This process will involve participatory land-use planning at the local community level and should lead to the definition of hunting rules (period, location, hunting tools, quotas, etc.), and simple methods to self-monitor their activities. This will be a highly complex undertaking requiring adequate financial and technical resources. Lessons learned from past experiences in the region (e.g. PROGEPP) should be drawn on rather than trying to "reinvent the wheel".

Research and extension services:

- Understanding the dynamics of hunting and its impact on the dynamics of heavily hunted resilient species and their more vulnerable competitors is highly complex and will require a concerted effort in terms of research and monitoring by appropriate research bodies. The SYVBAC program[94], established by TRAFFIC, is one such monitoring initiative.
- Analyzing the relationships and trade-offs between bushmeat and other protein sources is also a key component of improving the sustainability of the supply. Rural communities will usually switch from bushmeat to fish as the price or availability fluctuates with the seasons. However a decline in one resource can lead to overharvesting of the other so understanding the feedback loop between fish and meat catches is essential. Understanding the factors determining when and under what circumstances consumers will transition to domestic meat is also key to achieving sustainability of bushmeat supply.

Extractive industries

The extractive industries dominate the forest landscape and have considerable potential to influence how the bushmeat "crisis" will evolve. Current legislation in most of the Central African countries requires conservation to be integrated into their sustainable forest management plans, for example the setting aside of no logging "conservation series", and they have the responsibility to ensure that their personnel respect wildlife legislation. However companies should go further in a number of ways:

- Internal regulations and codes of conduct concerning wildlife in the concessions should become part of the companies' standard operating procedures. Transportation of bushmeat should be strictly forbidden on company vehicles and manned check-point with trained personnel should be established on the main logging roads in the concessions.
- Companies should be required to provide alternative sources of protein for their workers at cost.
- Companies, in collaboration with experienced technical partners, should organize and support community hunting schemes for communities living within their concessions.
- Companies should subscribe to certification schemes which will give them preferential access to environmentally sensitive international markets prepared to pay a premium for sustainably sourced timber from concessions where wildlife regulations are respected. The same principle applies for the mining concessions.

5.4.3 Create a conducive and enabling institutional and policy environment.

For participatory wildlife management to become a reality national polices, laws and regulations must be able to grant to communities the rights to the land and wildlife that they will manage, and allow community members to market locally the bushmeat and other wildlife products (from permitted species) that are harvested. These provisions are not yet firmly integrated in the policy and legal frameworks of the Central African countries. Several countries are however developing policies or strategies for wildlife management (CAR, DRC, Gabon, Congo) and only one country (Congo) makes very general provisions in its wildlife law for participatory wildlife management (but which cannot be rendered operational until the ministerial regulations are passed). None of the legal frameworks clearly allow the marketing of bushmeat from community-managed lands and the general perception is that the bushmeat market chain is illegal. The distinction between sale for local consumption and trade further afield remains very blurred and is a source of recurring conflict.

Action will be required at several levels:

[94] SYVBAC: SYstème de suivi de la filière Viande de brousse en Afrique Centrale.

National policy making

- Policies, laws and regulations will need to be revised in order to provide an adequate legal framework for enhancing ownership and tenure rights and allowing participatory wildlife management.
- At the same time it will be necessary to legitimize the bushmeat debate in order to properly address the fraught question of the legality of the bushmeat market chain, and acknowledge the contribution of bushmeat to food security in national strategies.

International policies

- Companies or individuals not complying with CITES regulations must be firmly punished and denounced ("name and shame").
- Wildlife issues must be systematically covered within internationally-supported policy processes.
- A clear link must be made between the international bushmeat trade and emerging disease risks.

Local institutions

- Once the policy and regulatory frameworks are in place, local institutions that have a vested interest in protecting their wildlife resource should be supported and capacities strengthened for managing and monitoring a sustainable local trade in bushmeat.

Finally it should be reiterated that in urban areas, where the great majority of bushmeat is consumed, bushmeat is generally not a food security issue. A bushmeat strategy for the region should therefore concentrate on achieving sustainable off take in rural areas but should not try to "develop" or manage the bushmeat chain in urban areas. **Ultimately the aim should be to see the bushmeat trade in urban areas disappear** by squeezing the transport lines to the urban markets by controlling the major accesses (roads, rivers, railways, and airlines). Dissuasive penalties for transporting bushmeat on trains, internal airlines, public and private transport (logging trucks, buses, boats) would require strong political will but could significantly reduce the volume of trade to the cities.

Since there are no "silver bullet" solutions to the bushmeat problem it is recommended that a series of pilot projects be established in the countries in order to test different approaches in the range of contexts across the region. These pilot projects should build on lessons learned from other ongoing initiatives of this type and should be replicated as and where feasible.

Ideally pilot projects should comprise as many of the following components as possible:

- Be conducted in an area contiguous with a PA that is receiving long term support from the EU (or other agency). This would be part of the PAs community conservation/livelihoods programme;
- Be conducted in collaboration with a private sector partner (e.g. in Central Africa with an FSC certified logging company) as part of its community development obligations;
- Include, or be associated with, a component for developing alternative domestic animal protein at a competitive price (e.g. intensive chicken production where chicken feed can be produced locally without involving habitat loss);
- Include, or be associated with, a scheme to develop sustainable harvesting of freshwater fish (either wild caught or fish farming);
- A strong research and monitoring component, ideally in association with an experienced research organisation – sustainable harvesting of wildlife, particularly in the forest ecosystem, is still a very inexact science.
- A strong community relations component for awareness building and local governance structures.

Associating private sector, PA management and research partners in the work with the local communities would bring important added value in terms of scientific method, local governance building, law enforcement and awareness building.

5.5 DISMANTLING WILDLIFE CRIME NETWORKS AND CURBING THE DEMAND

This aspect is treated fully in the supplementary report on the Wildlife Trade. The recommendations of that report are entirely relevant to the Central African context.

There has been a concerted effort over the past year to translate the 10 point Action Plan of the Marrakech declaration into concrete actions in the Central African region. The Marrakech plan proposes a series of actions around three key themes: (i) building collaboration between organizations and agencies; (ii) strengthening law enforcement; (iii) properly penalizing wildlife crime. Central Africa's response has been to adopt a regional action plan entitled PAPECALF (Action Plan for the COMIFAC

sub region for strengthening the enforcement of national wildlife laws) and to initiate a process leading towards the establishment of National Coordinating Units for fighting wildlife crime. These NCUs will bring together all the arms of government concerned by wildlife crime (Justice, Interior, Defense (Police, Criminal Police, INTERPOL), Finance (Customs), Wildlife), as well as the NGOs involved in wildlife enforcement, such as the EAGLE network and WWF. The presence of NGO WENs (Wildlife Enforcement Networks) is essential in order to guarantee full transparency. Representatives of Diplomatic missions should also be involved in the NCU.

Because the NCUs will bring together so many government departments it is proposed that they should work directly under the Office of the Prime Minister. The mission of the NCUs will be to:

- Establish a mechanism for collecting, storing and sharing information on wildlife crime;
- Build awareness about wildlife criminality among stakeholders and disseminate information on wildlife laws;
- Strengthen capacities of actors involved in combating wildlife crime;

In addition to supporting the process of establishment of effective wildlife crime NCUs, support from the EU should also include:

- **Continued support for international trade regulation** through support for the CITES core functions and expansion of the International Consortium on Combatting Wildlife Crime (ICCWC). The ICCWC is a collaborative effort of five inter-governmental organizations: CITES, INTERPOL United Nations Office on Drugs and Crime, World Bank and the World Customs Organisation which works to bring coordinated support to the national wildlife law enforcement agencies, as well as to the sub-regional and regional networks, that are fighting wildlife crime on a daily basis. The aim is to ensure better coordinated responses to wildlife crime to increase the risk of detection and punishment for wildlife criminals. UNDOC is currently aiding Gabon to develop a plan for improving criminal investigations for wildlife crime and establishing forensic investigation capacities. This kind of initiative should be supported and expanded.

- **Support for the EAGLE network of NGO wildlife law enforcement organizations**. Given the problems of governance and capacities in the sub region the EU should support the EAGLE network. These NGOs, run by highly motivated national and international staff, have demonstrated over the past 5 years their effectiveness and efficiency (they work with very modest budgets). They work well with national law enforcement agencies and make an important contribution to strengthening their capacities. They also help to ensure greater transparency, and wide media coverage of wildlife crime operations.

- The mobilization of specialist international **Wildlife Security Advisors** (Vol. 6, 3.9.3.3) in support of the NCUs. Dismantling wildlife crime networks requires specialist skills that are rarely available in the region.

APPENDICES

APPENDIX 1. THE CONGO BASIN FOREST PARTNERSHIP (CBFP)

The partnership brings together the 10 member states of the COMIFAC, donor agencies, NGOs, scientific institutions and private sector representatives. It currently has 48 members who share the commitment to enhance communication and coordination among the members and to create synergies between their respective projects, programs and policies, in support of the COMIFAC Convergence Plan.

Governments
Belgium, Burundi, Cameroon, Canada, Central African Republic, Chad, Democratic Republic of Congo, Equatorial Guinea, European Commission, France, Gabon, Germany, Japan, Netherlands, Republic of Rwanda, São Tomé and Príncipe, South Africa, Spain, United Kingdom, United States of America.

International Organizations:
African Development Bank, COMIFAC, FAO, Global Mechanism of the United Nations Convention to Combat Desertification, GRASP (Great Apes Survival Partnership), International Tropical Timber Organisation, Secretariat of the Convention on Biological Diversity, Secretariat of the Convention on Migratory Species, UNDP, UNEP, UNESCO, World Bank.

NGOs and research groups:
African Wildlife Foundation, Centre for International Forestry Research (CIFOR), CUSCO International, Conservation International, Forest Trends, IUCN, Jane Goodall Institute, Last Great Ape Organisation, *Réseau Africain de Forêts Modèles* (RAFAM), The Nature Conservancy, Wildlife Conservation Society (WCS), World Resources Institute (WRI), WWF International.

Private sector:
American Forest and Paper Organisation, Inter-African Association of Forest Industries (IFIA), International Technical Association for Tropical Timber (ATIBT), Society of American Foresters

source: http://www.cbfp.org

APPENDIX 2. LIST OF NONGOVERNMENTAL FUNDERS AND TECHNICAL PARTNERS ACTIVE IN CENTRAL AFRICA

The major NGOs implementing conservation activities in Central Africa are (in alphabetical order):

- **African Parks Foundation** http://www.african-parks.org/ - promotes a business approach to conservation through PPP agreements. Manages Zakouma NP (Chad), Odzala NP (Congo), Garamba NP (DRC).
- **African Wildlife Foundation** :http://www.awf.org/where-we-work - active in DRC and Cameroon. Focuses on areas of great ape importance, including Maringa-Lopori-Wamba landscape in DRC, a key area for bonobos, where they support conservation, research and livelihood initiatives. Their innovative Congo shipping project enables farmers in this remote bonobo area to access markets for their produce.
- **Conservation International:** http://www.conservation.org. Supports community based natural resource management initiatives in the Maiko-Tayna-Kahuzi-Biega landscape which encompasses the Grauer gorilla range. Also active in Equatorial Guinea. Part of the Critical Ecosystem Partnership Fund http://www.cepf.net/Pages/default.aspx
- **Frankfurt Zoological Society:** https://www.fzs.org/en/projects-2/current-projects/ Currently supports park management activities in Virunga NP and Maiko NP. Until end 2013 also active in Upemba NP.
- **Fauna and Flora International:** http://www.fauna-flora.org/ A founding member of the International Gorilla conservation Programme. Supports conservation of two subspecies of lowland gorilla in Cameroon, and various conservation activities in World Heritage Sites in DRC. Helped ICCN develop its community conservation strategy.
- **International Gorilla Conservation Programme:** http://www.igcp.org A consortium of AWF, FFI and WWF in partnership with the protected area authorities of DRC, Rwanda and Uganda for the protection of the mountain gorilla population and sustainable livelihood development. Active since 1991,
- **IUCN West and Central Africa:** http://www.iucn.org Involved in developing and implementing protected area management tools, World Heritage and Ramsar site evaluations, capacity building of civil society.
- **Jane Goodall Institute:** http://www.janegoodall.org/ Active in eastern DRC and south west Congo (Tchimpounga Chimpanzee rehabilitation centre). Developed a great ape action plan for eastern DRC.
- **Lukuru Foundation:** http://www.lukuru.org Operates in DRC focusing on research and conservation of bonobos in Lukuru and Lomami. Also conducts research in the Bili-Uere forest-savanna transition zone of north DRC.
- **Les Amis du Bonobo du Congo:** http://www.lolayabonobo.org/ Manages a sanctuary for confiscated bonobos in Kinshasa and releases them back to the wild. Has a highly effective public awareness and education program.
- **TRAFFIC:** http://www.traffic.org/overview/ The wildlife trade monitoring network, known as TRAFFIC, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development. It investigates and analyses wildlife trade and trends, informs and supports government and inter-government cooperation to adopt, implement and enforce effective wildlife policies and laws, and provides information and advice to the private sector to ensure that sourcing of wildlife uses sustainability standards and best practice.
- **Virunga Foundation:** http://acfvirunga.org/ Manages Virunga NP under a PPP agreement with ICCN. Although the conflict in this region makes law enforcement a dominating theme, tourism development (particularly mountain gorillas and volcanos) remains highly relevant and innovative livelihood initiatives to address the domestic energy requirements have also been developed (micro-hydroelectric plants, energy efficient stoves and fuel). Education and health are also important sectors supported by the park. See also http://www.virunga.org
- **White Oak Conservation Centre (Gilman Conservation International):** http://wildlifeconservationglobal.org/ Active in the Okapi Wildlife Reserve (DRC) through its Okapî Conservation Project since 1987 where it has provided substantial and uninterrupted support for okapi conservation, general reserve management and livelihoods and education initiatives.
- **Wildlife Conservation Society:** http://www.wcs.org/where-we-work/africa.aspx - active in all countries of the forested Central African region at the landscape and species levels (great apes, forest elephant, marine mammals, etc). Deeply involved in park management, capacity building, and conservation oriented research and monitoring. Has been one of the leading organisation developing and promoting methodologies for monitoring and research in forested environments. A major player in the Central African conservation landscape.
- **World Wide Fund for Nature:** http://wwf.panda.org/who_we_are/wwf_offices/cameroon/

Active at the landscape and species levels (great apes, elephant). WWF is involved in protected area management, policy development, capacity building, community forests, and fighting wildlife criminality. It is a major player in the Central African conservation landscape.

- **Zoological Society of London:** http://www.zsl.org/about-us/ - Active in DRC, Cameroon, Gabon and Equatorial Guinea. Undertakes research on the bushmeat issue and tests livelihood alternatives. Also works on single species conservation initiatives (Okapi, mountain and lowland gorillas).
- **Zoological Society of Milwaukee:** Active in Salonga NP, DRC for the past 30 years. Focuses on bonobo research, monitoring, training and support for anti-poaching, and education and adult literacy.

Other private Organisations supporting conservation activities include:

- **ARCUS Foundation**: www.arcusfoundation.orgAn important funder for projects targeting Central Africa's 3 great apes through numerous grants to conservation NGOs.
- **Abraham Foundation:** http://abrahamfoundation.org/. Supports conservation NGOs implementing conservation activities in DRC and Cameroon focusing on elephants, and great apes. The annual Abraham Awards are given to Congolese field conservationists who have made an outstanding contribution to conservation. In recent years many of the awards have had to be made posthumously to the families of guards who have lost their lives in the line of duty.
- **Aspinall Foundation:** http://www.aspinallfoundation.org/ Rehabilitation of gorillas in gallery forests of two protected areas on the Batéké plateau in Gabon and Congo, and support for management of the two parks.
- **Ape Alliance:** http://www.4apes.com/ Supports initiatives for Grauer gorillas (Kahuzi-Biega), Bonobos (Lukuru) and Chimpanzees (Tchimpounga Rehabilitation centre).
- **Berggorilla & Regenwald Direkthilfe:** http://www.berggorilla.de/ A German-based NGO focusing on fundraising and lobbying for gorilla conservation.
- **Biodiversité au Katanga:** http://www.bakasbl.org/ A Congolese NGO dedicated to biodiversity conservation in the Province of Katanga, southern DRC, through research and education.
- **BirdLife International**: http://www.birdlife.org/The world's largest nature conservation partnership with 13 million members and 120 partner organizations worldwide. Gathers information and monitors Important Bird Areas (IBA) and supports conservation initiatives throughout Central Africa through its network of partners and volunteers.
- **Bonobo Conservation Initiative:** – http://www.bonobo.org/ Works in several protected areas of the bonobo range in DRC and implements education and sustainable development initiatives.
- **Born Free Foundation:** http://www.bornfree.org.uk/ Supports chimpanzee sanctuaries in DRC and Cameroon, and supports Kahuzi-Biega NP in DRC, and LAGA's activities in Cameroon.
- **Dian Fossey Gorilla Fund International:** http://gorillafund.org/page.aspx?pid=407. Dedicated to the conservation and protection of gorillas and their habitats through research, support for protection, and community conservation activities.
- **Howard G. Buffet Foundation**: http://www.thehowardgbuffettfoundation.org/. Through its Africa Great Lakes Peace Initiative it supports conservation, agriculture and economic development (100m$ mobilised from 1999-2014). Currently supports livelihood initiatives in buffer zone of Virunga NP.
- **International Fund for Animal Welfare:** http://www.ifaw.org/ A highly effective pressure group combating international wildlife crime through political advocacy and support to conservation and law enforcement activities on the ground, with a particular focus on elephants.
- **International Conservation and Education Fund**: http://www.incef.org/ Focuses on locally produced and disseminated videos as an educational tool to foster improvement of the health and well-being of human and wildlife populations. It does this by building capacities of local media professionals to produce quality films in local languages and building capacities among local education teams to disseminate the videos and measure their impacts.
- **International Primate Protection League**: http://www.ippl.org/gibbon/ Supports primate initiatives in Bioko (Equatorial guinea), Cameroon (LAGA) and Congo (chimpanzee rehabilitation)
- **Liz Claybourne and Art Ortenberg Foundation:** – http://www.lcaof.org/ Focuses on elephant conservation and support for park and buffer zone management. Has been a major donor to WCS in Central Africa.
- **Margot Marsh Biodiversity Foundation:** Provides small grants to a variety of primate conservation activities in Central Africa

- **McArthur Foundation:** http://www.macfound.org/ Supports a wide variety of conservation actions (surveys, capacity building, park management, education) through small grants to individuals and NGOs. Part of the Critical Ecosystem Partnership Fund.
- **Mohammed bin Zayed Species Conservation Fund**: http://www.speciesconservation.org/ Support for bonobo conservation in Tchuapa-Lomami-Lualaba
- **Murray Foundation**: http://www.themurryfoundation.com The foundation's activities include: constructing and maintaining schools for orphaned children, ensuring animal welfare, rehabilitation and release sanctuaries for endangered animals, supporting AIDS/HIV projects, and land acquisition for projects
- **Prince Bernhard Nature Fund**: http://www.pbnf.nl/ Supports small local initiatives towards the conservation and wise use of natural resources. The Fund aims to help save critically endangered flora and fauna.
- **Rufford Foundation**: http://www.rufford.org A UK based charity making numerous small grants for a wide range of nature conservation and sustainable livelihood projects. Funds projects throughout Central Africa.
- **The Thin Green Line Foundation:** http://www.thingreenline.org.au/ Focuses on supporting rangers with training, equipment and other resources in high biodiversity value conflict zones. Provides support for the widows and children of fallen rangers.

Universities, international research organisations active in Central Africa include:

- **Centre for International Forestry Research (CIFOR)**: http://www.cifor.org/ Research themes cover climate change, smallholder and community forests, conservation and development trade-offs, globalised trade and investment, and production forests.
- **Environmental Investigation Agency (EIA):** http://www.eia-international.org/ An independent campaigning organisation committed to protecting the natural world from environmental crime and abuse. Areas of expertise are ecosystems and biodiversity, environmental crime and governance, climate change.
- **French Agricultural Research Centre for International Development** (**CIRAD):** http://www.cirad.fr/en Research themes include biodiversity and development, alleviating food insecurity, sustainable management of forest ecosystems, monitoring the emergence of agro-industrial plantations, animal disease epidemiology.
- **International Tropical Timber Organization (ITTO):** http://www.itto.int/ An intergovernmental organization promoting the conservation and sustainable management of tropical forests.
- **Joint Research Centre (JRC)**: http://ec.europa.eu/dgs/jrc/ The EU's JRC oversees the implementation of the BIOPAMA and OFAC projects and supports local organisations through capacity building, provision of mapping and other data.
- **Kyoto University**: http://www.kyoto-u.ac.jp/en Undertakes research on great apes in DRC and Gabon
- **Max Planck Institute for Evolutionary Anthropology**: http://www.eva.mpg.de/ Focuses on gorilla and bonobo research and conservation in CAR, Gabon, DRC, Rwanda and Uganda. Developed and houses the IUCN/A.P.E.S. great apes data base and mapper.
- **Rainforest Foundation UK**: http://www.rainforestfoundationuk.org/index Supports indigenous forest peoples in their efforts to protect their environment and fulfil their rights to land and sustainable livelihoods. Has produced many excellent analyses on forest related issues (climate change, indigenous peoples, conservation, law and policy, rights and livelihoods).
- **South Dakota State University (SDSU):** Monitoring of forest cover change in the Congo Basin, particularly in and around protected areas, and training. A partner in the Central African Forest Observatory (OFAC).
- **University of Stirling,:** Involved in primate research for many years.
- **University of Maryland:** A partner of OFAC doing forest cover mapping and analyses, and training.
- **Université Catholique de Louvain, Belgium**: A partner of OFAC doing forest cover changes and analyses, and training.
- **World Resources Institute:** http://www.wri.org/ Forest Mapping of the Congo Basin. Has produced Forest Atlases of each of the rainforest countries of Central Africa.**World Agroforestry Centre (ICRAF**): http://www.cgiar.org/ A consortium of 15 research organisations working on a wide range of agroforestry and sustainable agriculture issues.
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