



## The endemic mammals of the Democratic Republic of the Congo-Bonobo, Gorilla and Okapi—in *ex situ* situation in the Zoos of Europe: Inventory, Access and Benefit Sharing

Henri Kunzi Mbale<sup>1,2,3,4</sup>, Michael Mukendi<sup>2</sup>, Gédéon Ngiala Bongo<sup>2\*</sup>

<sup>1</sup>Environmental Assessment, Building capacity and Consulting, 03, Bld de l'Est, Université de Kinshasa, C/ Lemba, P.O. Box 757, Kinshasa, Democratic Republic of the Congo

<sup>2</sup>University of Kinshasa, Faculty of Sciences, Department of Biology, P.O. Box 190, Kinshasa, Democratic Republic of the Congo

<sup>3</sup>Institut Congolais pour la Conservation de la Nature, P.O. Box. 868, Kinshasa I, Democratic Republic of the Congo ;

<sup>4</sup>Centre MBALE KUNZI d'Ecologie et de surveillance de la biodiversité dans le bassin du Congo ; University of Kinshasa, Lemba, P.O. Box, 757, Kinshasa, Democratic Republic of the Congo

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### Abstrak

Sesuai dengan implementasi Shutter Access and Benefit Sharing (ABS) dan program Bioprospection of Convention on the Biological Diversity (CBD) dan sub-program 3 dari program 9 Biodiversity National Conservation Strategy (BNCS) Kongo Institute for the Nature Conservation (CINC), pencarian online dan dokumenter memungkinkan dengan mengidentifikasi 9 dari 92 kebun binatang Eropa yang menampung 248 spesimen hewan endemik DRC -139 Bonobo (62,6%) CITES, 68 Gorila (30,6%) dan 15 Okapi (6,8%) dalam situasi *ex situ* - disusun lagi dalam urutan yang bermanfaat antara 4 negara: Belgia, metropolis lama Republik Demokratik Kongo, DRC dalam inisial, (95 spesimen termasuk 87 bonobo dan 8 Okapi); Perancis (59 spesimen termasuk 42 gorila dan 17 bonobo), Jerman (47 spesimen termasuk 23 bonobo, 17 gorila dan 7 Okapi) dan Belanda (21 spesimen termasuk 12 bonobo dan 9 gorila). Dari 3 spesies ini, Bonobo terbukti menjadi yang paling didambakan (62,6%) oleh 9 kebun binatang karena adaptasinya yang hebat terhadap kehidupan *ex situ*, pewarisan genetiknya mirip dengan manusia hingga 98,7% dan penggunaannya sebagai biologi eksperimental. bahan untuk imunologi, vaksin, tes obat dan lain-lain. Sepengetahuan kami, Taman Apenheul (Belanda), memiliki 12 bonobo, terbukti menjadi satu-satunya kebun binatang yang membayar royalti secara teratur kepada CINC untuk mendukung konservasi *in situ* spesies ini di DRC, yang terancam *in situ*. Adapun negara-negara lain yang belum tentu, diharapkan ada upaya koreksi dari andil mereka untuk mendukung pelestarian spesies *in situ* sebelumnya.

### Abstract

In accordance with the implementation of the shutter Access and Benefit Sharing (ABS) and the program on Bioprospection of Convention on the Biological diversity (CBD) and of sub-program 3 of program 9 of the Biodiversity National Conservation strategy (BNCS) of the Congolese Institute for the Nature Conservation (CINC), an online and documentary search made it possible to as by identifying 9 out of 92 European zoos which shelter 248 specimens of CITES endemic animals of DRC -139 Bonobos (62.6%), 68 Gorillas (30.6%) and 15 Okapis (6.8%) in *ex situ* situation - set out again in useful order between 4 countries: Belgium, old metropolis of the Democratic Republic of Congo, DRC in initials, (95 specimens including 87 bonobos and 8 Okapis) ; France (59 specimens including 42 gorillas and 17 bonobos), Germany (47 specimens including 23 bonobos, 17 Gorillas and 7 Okapis) and the Netherlands (21 specimens including 12 bonobos and 9 gorillas). From these 3 species, Bonobo proves to be the most coveted (62.6%) by the 9 zoos due to its great adaptation to the *ex situ* life, of its genetic inheritance similar to that of the man to 98.7% and its use as experimental biological material for the immunology, vaccines, drugs tests and others. To our knowledge, Apenheul Park (the Netherlands), having 12 bonobos, proved to be the single zoo which paid regularly royalties to CINC in order to support *in situ* conservation of this species in DRC, which is threatened *in situ*. As for other countries not in rule, an effort of correction is awaited from their share to support the conservation of the afore *in situ* species.

\* E-mail: [gedeonbongo@gmail.com](mailto:gedeonbongo@gmail.com)

## INTRODUCTION

The Democratic Republic of Congo (DRC) is one of the 17 countries of the mega-biodiversity in the world. This high biodiversity is justified, among others, by its geographical location, the diversity of natural habitats and phytochoria as well as the large number of ecoregions contained in the country, so let it be 15 ecoregions with 3 ecoregions called global. (3 <http://www.worldwildlif.org/ecoregions>, 13/05/2014).

All around the world, the zoos are the urban window to exhibit and sell locally and internationally the inheritance of the wild fauna of a country, like DRC and to arouse the taste of tourists to stay for the ecotourism in protected areas, the biodiversity stocks in the wildlife. In addition, these zoos could play another important role in the conservation of material and a genetic pool of wild fauna for the restocking or the reintroduction of threatened biodiversity or their depletion in their natural habitats.

DRC has, 8 zoological and botanical gardens, on the one hand, and on the other hand, protected areas (PAs) of which nine national parks (8 Parks already created and 1 Park on the process of creation) and sixty of hunting areas and reserves, managed by the Congolese Institute for Nature Conservation, CINC, in initials, in order to preserve and maintain its biodiversity.

By the law, precisely the Decree No. 10/15 of 10 April 2010 which defines its social purpose and fixes its statuses, the missions of CINC are broken down as follows:

1. To ensure the protection of the fauna and the flora in an extensive network of protected areas covering now more or less 245,000 km<sup>2</sup>, or 10.47% of the national territory, with an extension program of protected area network for the aim of bringing it to 17% in accordance with the commitment made by DRC during the Conference of Parties to the Convention on the Biological Diversity in Nagoya in 2010.
2. To enhance the biodiversity by promoting the scientific research and facilitating the ecotourism activities in accordance with the current legislation and in the respect of the fundamental principles of conservation;
3. To carry out or to get carried studies out and to ensure the vulgarization to scientific and educational purposes in the field of conservation.

Despite efforts made by the CINC since its inception in 1925, this biodiversity is experiencing a series of threats and progressive pressures that impact on the numbers particularly of the large mammal fauna.

The fauna under review presents a geographic distribution intimately related to the geographic location (latitude and altitude), the diversity of natural habitats, to phytochoria as well as the topography and the large number of ecoregions that contains the country, so 15 ecoregions of which 3 are called global. These three species have different geographical areas of distribution: large for the one (Bonobo and Okapi) and restricted for others (Eastern plain and mountains Gorilla). The Bonobo lives in the Salonga National Park (PNS) at the borders of four provinces: Equateur, Kasai Occidental, Kasai Oriental and Bandundu as well in the conservation mundane areas such as Wamba, Ikela, Bikoro, Lomako; and in the future Lomani National Park. As for the Gorilla, it lives in the Virunga National Park as well at Sabirimo in the province of Nord Kivu; in the Kahuzi-Biega national park (PNKB) in the province of Sud Kivu and the Okapi Wild fauna Reserve in the Province Orientale.

Out of the aforementioned protected areas the eastern plain gorilla is still found in a mundane area as in the forest of Walikale, large of 70,000 hectares, now ranked as Community Reserve where would live up to these days an isolated population but crucial of 700 gorillas (Gorilla organization, 2013). Finally, the Okapi has been observed and recorded as well as in the protected areas than in priority areas of conservation and in the mundane areas. It is found in four protected areas in DRC, namely Okapi fauna Reserve, Rubi-Tele Reserve and Maiko as well Virunga national parks, Lomani future national park, between Province Orientale and Maniema, and to Usala. It is not uncommon to also meet the Okapi in unprotected areas, particularly in the districts of Haut and Bas Uele (Buta and Aketi) as well the Tshopo in the districts of Nord and Sud Ubangi in the province of Equateur.

### Population dynamics *in* and *ex situ* animals under consideration

The available statistics to our disposal show that the numbers of these three animal species indict a very significant decline of its populations in their areas of distribution in DRC. For the Bonobo, its numbers estimated at 100,000 individuals in 1980, would have been around 10,000 individuals in 1990 and to less than 5,000 individuals in 2013 (AAFC, 2000). As for the mountain gorilla, its numbers would have been now less than 800 individuals for all these three countries-DRC, Rwanda and Uganda-(Mapilanga J, 2014) while those of the eastern plains, would have been decreased from 5,000 to 700 individuals in the Walikale community reserve in the province of Sud Kivu, as also said by the Gorilla organization of DRC

(Digit News, 2013). At last, as to the Okapi, the investigations carried out between 1996 and 2006 have documented a decline of 44% of advanced statistics put forward by the IUCN (10,000 to 35,000 individuals) to less than 13,800 individuals (John Hart and Thérèse Hart, 2012). The biodiversity of DRC is then facing a series of threats and pressures as being more secular and recurring threats (poaching with the installation of an increasing number of traps of all kinds), particularly for the gorillas (Digit news, 2013), to that were added the armed conflict from 1995 to 2014 and its consequences. Another extra threat that weighs up to this mega-biodiversity in DRC, namely is the traffic of living specimens of the wild fauna, precisely on the large mammals such as the Elephant, the Hippo, the Gorilla, the Bonobo, the Okapi, etc.

In fact, the trafficking of the CITES animals of DRC to Europe and elsewhere in the world constitute a threat especially on the endemic wild fauna of DRC and is particularly oriented to the iconic, endemic and rare species of the country. It is in this case, the great apes, like *Pan paniscus* (Bonobo) and *Gorilla beringei beringei* (Gorilla of the eastern plains) and *Gorilla beringei graueri* (Mountain Gorilla), on the one hand, and, on the other hand, the *Okapia johnstini* (Okapi). This trade, more and more lucrative, exceeds even the interest formerly granted to trophy (skin, etc.) in order to broach the culinary aspect, especially in China, where the fresh meat of brown chimpanzee even the rare bonobo would have been served in some restaurants (Tshela, shopping woman. 2014. Guang Zou / China. personal Info.). Claudine André of the Sanctuary - Lola ya Bonobo in Kinshasa - affirms that a bonobo bought at \$ 50 in Equateur province, could have been sold fraudulently in China and other countries of the Middle East and to the Internet to at least \$ 15,000.

The trafficking of these mammals doesn't spare at all young individuals, which, however, are easy to be captured, tamed and traded by the professionals. These latter ignore the dietetics and basic cares given to these animals at a young age, which often, end up by dying, as was the case with the Okapi baby (Figure 1) caught at the edge of the Maiko National Park, in Province Orientale.



Fig1. Bébé okapi recovered around of Maïko / DRC

The trade of the wild fauna, having taken alarming dimensions, causes a severe erosion of the wild fauna across the world, including DRC, to such an extent that an international agreement of control, of management and of regulation of such traffic was, first, established in 1973, on the occasion of the Washington Convention by the United Nations Program for Environment (UNEP) and on the other hand, entered into force in 1975. This agreement brings together hundreds of countries worldwide including DRC that has ratified it.

To believe to it Microsoft Encarta (2009), the international agreement concerning a list of more than 30,000 threatened species (of which 5,000 animal species and 25,000 plant species) and products that we draw from that in order to ensure the safeguarding, is also called the "International Convention on the Trade of the wild fauna and flora Species threatened to extinction, CITES, in initials." In DRC, the Ministry of Environment is the Management Authority of this convention, whereas the CINC is the Scientific Authority responsible for issuing advices on the management and the quota to deliver for the transaction of this rare and endemic biodiversity. The Okapi has just been registered, so in 2014. Considering various collateral threats that particularly affect the Bonobo, the Gorilla and the Okapi, some strategies for their conservation have been adopted, validated and diffused at the end of the workshops organized in DRC by CINC and its partners (London Zoological Society, Lukuru Foundation, WWF, WCS, etc.).

With the craze around the endemic animals of DRC of which the great apes and the aforementioned animals, we hypothesize that: Nowadays, it is plausible that a significant core of specimens of endemic animals in DRC - Bonobo, Gorilla and Okapi - either in captivity in several zoos in the world. The data for the analysis of the viability of populations of these animals could guide us to the ski management of these species in *ex situ* situation.

Several hypotheses relating to the four questions were issued, namely:

1. The first is that, as indicated by the Management Board of CITES / DRC, several totally protected animals have left and are leaving DRC by waiver or by fraud from certain border crossings, before, during and after armed conflicts in DRC (ACP, 2013).
2. The illicit trade of the endemic fauna of DRC might have some socio-economic consequences on the revenues of the public treasury, like the Tourism Satellite Account.
3. Some species had arrived in Europe before the ratification of CITES.

4. While providing various benefits to the zoos of Europe, the royalties to be paid to DRC, could help to support their conservation *in* and *ex situ* in DRC.

Sixty specimens of Bonobo in *ex situ* situation in DRC, lives in semi-freedom in a relict forest of *Pentaclethra eetveldeana*, located in the commune of Mont-Ngafula in Kinshasa, and it is named **Lola ya Bonobo** (Bonobos Paradise), the unique private sanctuary, established in 1995 and opened to the public.

The statistics of the population dynamics of Lola ya Bonobo sanctuary report births, scarcely deaths and most recently, the reintroduction of some specimens in the wildlife. As to the test of reintroduction of bonobos organized in the community forest of Basankusu by Lola ya Bonobo with a core of 10 bonobos, the results were hardly satisfactory.

As for the Okapi, it exists at Epulu, in the Okapi Fauna Reserve (RFO, in initials) in Province Orientale, a station of capture and domestication of Okapis, whose the unique core of Okapi domesticated and accustomed to humans, has been severely decimated on June 24, 2012, by an uncivil, named "Paul Sadala alias Morgan" native of Mambasa, today deceased. This station is now in rehabilitation thanks to the efforts of conservation of international organizations, nature conservation, particularly the London Zoological Society, SSL in initials.

The overall objective of this study is to document the zoogeography of endemic mammals of DRC in *ex situ* situation in the zoos of Europe. The specific objectives of this study are described as follows: (i) to present the inventory of CITES animals of DRC - Bonobo, Gorilla and Okapi - in *ex situ* situation in the European Zoo: location and number per species and per zoo as well as ongoing studies; (ii) to propose the formalization of the detention of these species between DRC (CINC) and their host countries; (iii) to consider the modalities how to support the conservation of DRC protected areas by the zoos holding specimens of these species.

## MATERIAL AND METHODS

To achieve the aforementioned objectives, the documentary research as well as the online information method were applied. They consisted of the respective consultation of the information on 3 species of CITES-*Pan paniscus* (bonobo), *Gorilla beringei* (Gorilla) and *Okapia johnstoni* (Okapi) - from different books, CITES documents, of IUCN, of

ICCN as well and especially from websites of 92 zoos and animal parks of Europe of which 52 zoos in France, 23 zoos in Germany, nine zoos in Belgium and eight zoos in the Netherlands.

## RESULTS AND DISCUSSION

### Result

#### International and national conservation status of Bonobo, Gorilla and Okapi

Table 1 below shows the conservation status of the species involved in this study as defined by the IUCN (Red List), CITES and the MECN-EF (2006).

**Table 1: International and national conservation status of *ex situ* species**

Species	Status		
	IUCN	CITES	National
<i>Pan paniscus</i> (Bonobo)	In danger (EN)	Appendix I	Protected Integrally
<i>Gorilla beringei</i> (Gorille)	In danger (EN)	Appendix I	Protected Integrally
<i>Okapia johnstoni</i> (Okapi)	In danger (EN)	No classified	Protected Integrally

It emerges from Table 1 that the iconic species are all endangered of extinction and listed on Appendix I of CITES for primates. As indicated in the above table, the Okapi was inserted on the IUCN Red List that on June 13, 2014 (IUCN 2014. IUCN Red List of Threatened species. Version 2014), is not classified on CITES appendixes so that the species is not in any way affected by this international trade.

#### Inventories and movement of animals in *ex situ* situations in the Zoos

The numbers of animals in *ex situ* situation - Bonobo, Gorilla and Okapi - in the zoos and animal parks of 4 European countries per species and per zoo are known and fixed at least to 248 specimens in nine zoos of 4 countries, particularly: France, Germany, Holland and Belgium.

The sex ratio of these animals indicates a large numerical superiority of females over males as the details are shown in Table 2, which tells us, about the location and number of animals per species and per accommodation sites in the Zoos of Europe has constituted our sample study.

**Table 2: Inventory of CITES animals of DRC in *ex situ* situation and their zoogeography per species and per zoo in Europe**

Accommodation Sites (Zoos)	Numbers of animals in <i>ex situ</i> situation in the zoos of Europe and the sex ratio (M/F) as well as the arrival date									
	Bonobo	S.R	A.Y.	Gorilla	S.R	A.Y.	Okapi	A.Y.	S.R	Total
Stuttgart Zoo	11	2/9	1973	10	1/9	1965	7	-	2/5	28
Primates Zoo Frankfurt	12	1/11	-	7	1/6	-	≥2	-	1/1	21
Apenheul animal Park	12	1/11	1999	9	2/7	-	≥2	-	1/1	23
La Boissière du Doré	≥2	1/1	-	4	1/3	-	≥2	-	1/1	8
Saint Martin-la-Plaine	≥2	1/1	-	14	3/11	1972	≥2	-	1/11	18
Amneville Zoo	≥2	1/11	-	8	2/6	2012	≥2	-	1/11	12
Vallée des singes (Monkey valley)	17	4/13	-	16	3/13	-	≥2	-	1/1	35
Planckendael	87	-	-	≥2	1/1	-	≥2	-	1/1	91
Antwerp zoo	≥2	1/1	-	≥2	1/1	-	8	1918	2/6	12
Total	147	-	-	72	-	-	29	-	-	248
%	59,3	-	-	29,0	-	-	11,7	-	-	100

Legend: M : male ; F : female ; S.R : Sex Ratio ; A.Y: Arrival year; - : unknown

The analysis focused on the years of introduction of CITES species of DRC in the Zoos of Europe indicates that it would have been dated back to the year 1918, date of introduction of the Okapi at the Zoo of Antwerp (Belgium) and has been registered as the first CITES beast coming from DRC.

Compared to 1975, when CITES came into force, the arrival of the great apes in the zoos of Europe would have been anterior and posterior to the independence of DRC:

1. in 1918 for the Okapi (*Okapia johnstoni*) in Antwerp Zoo/Belgium;
2. in 1965 for the Gorilla (*Gorilla beringei*) in Stuttgart zoo / Germany;
3. in 1973 for the Bonobo (*Pan paniscus*) in Stuttgart zoo / Germany.

The fact of believing in the hypothesis that the movement and transfer of first animal species "CITES" of DRC to European countries and elsewhere are fraudulently performed from certain border crossings, it could be true for the case of the Okapi, reached Europe, without a legal act beforehand negotiated at the epoch of the colonization and probably after the first World War (1914-1918), a period comparable to the years 1995 to 2004 in DRC, marked by armed conflicts. As for the gorilla (1965) and for the Bonobo (1973), the hypothesis could have also been confirmed in the sense that these species would have been exported in Europe, without a legal act, before the entry into effectiveness of CITES in 1975.

Other specimens in circulation are the result of exchanges and transfers that have been motivated by an inter-zoo trade (sic) in Europe

without the involvement of DRC and other specimens yet (too little), like the 12 bonobos which reached the Netherlands, following a concluding legal Agreement, in good and due form, between ICCN and Apenheul Primate Park.

**Access and Benefit Sharing of animals of DRC in *ex situ* situation DRC in some zoos of Europe**

About the benefits of CITES animals of DRC in *ex situ* situation in some zoos of Europe, a European zoo holder of 12 Bonobos, shares the benefits from entry fees rights and taxes for the visit of these bonobos, in terms of royalties by paying annually to the ICCN, inheriting the agreement between the former Institute of Zoological and Botanical Gardens of Congo, IJZBC and the Zoo Primates, better known as Apenheul Primate Park in the Netherlands of 12 bonobos. Royalties are actually paid to support Bonobo conservation *in* and *ex situ* of ICCN.

As for the other holder countries of these species, negotiations between ICCN and their host countries must be made for the formalization of the detention of such animals. Finally, the support modalities for conservation of protected areas in DRC by the zoos holding specimens of these species must be considered and decided upon the basis of ad hoc conservation projects, particularly the creation and the promotion of sanctuaries.

**Discussion**

**Numbers of CITES animals in *ex situ* situation in Europe**

Upon a documented total of at least 248 specimens of CITES-listed animals from DRC in *ex*



*situ* conditions in the European zoos, it is obviously recognized that Bonobos interest the European zoos: it represents 147 specimens, so let it be 59.3 % of cases. The number of females are much higher than those of males probably for avoiding descendant consanguinity.

As the matter of fact, the predilection choice of the bonobo could have been justified among others by the easy adaptation of *Pan paniscus* in the *ex-situ* life and, more importantly, following the interest that several pharmaceutical firms give to bonobo as biological material for Immunology experiments (Max Planck Institute, 2012), vaccines experiments, medicines against tropical and other diseases (tuberculosis, Ebola, etc.) as well for pharmaceutical products and various tests due to its genetic inheritance resembling to the one of a human at 98.7%.

Gorilla ranks second with a staff of 72 specimens, so 29%. This is a very vulnerable animal from the birth and requires more monitoring and surveillance. To this would be added the extent of its life and its capacity field. Which would lead to a less efficient outcome in zoos compared to the Bonobo. Like its cousin, the bonobo, it would be an experimental material of similar experiments to those of Bonobo experiments.

The Zoos that breed such species therefore would seek then an adaptation coping mechanism to deal with this problematic in order to maintain their medicinal, pharmaceuticals benefits, etc.

This is one of the reasons that DRC, through the ICCN, would make this inventory of DRC primates and other headlight endemic animals, in order to claim royalties on actual reported numbers from 1975 up to these days. Because of the globalization, DRC is expecting to benefit from these royalties in order to support the *in situ* conservation of these animals now highly threatened in their natural habitats that are PNVI, PNKB, RFO, all recognized as world inheritance sites of UNESCO as well in the mundane and priority zones for conservation. As for the Okapi, it ranks the third and the last with a staff of 29 specimens, so 11.7%. This place could be justified a by very selective diet that discourages many managers zoos as well as its smaller importance as biological material in the immunology experiments, vaccines and medicines.

### **Movement of CITES animals of DRC in *ex situ* situation in Europe**

Since 1918, date marking the 1st animal transfers from DRC to Antwerp Zoo in Belgium or in other European countries up to these days, some specimens have been introduced in some zoos of Europe and could reproduce in these artificial

habitats. In Belgium, for example, in the Antwerp Zoo, the Okapi managed to reproduce: on 15/09/2012, there had been recorded the 49<sup>th</sup> birth since the arrival of the species in 1918. The reproduction of great apes is also observed in most zoos in Europe or in other continents. It is the case in France, births observed in the Garden of Monkeys Valley where the first birth of a Bonobo was observed in 1985.

As for the Gorilla, the first birth in the valley of the monkeys, of a baby named Bandogo, was on 27/09/1999, and it would be transferred to Oceania. As for the mechanisms of movement of such animals in the zoos of Europe, two hypotheses are plausible:

1. the legal export from the operators of wildlife that have a quota of CITES animals MECNT;
2. the fraudulent export by illegal operators and also legal operators because of the benefits that could provide to the quota holders. An issued quota for a species and a precise village could be used for multiple villages and cause the excess of the authorized numbers. In these cases, the quota is no longer defined, and would directly result in the depletion or extinction of iconic species of DRC, as the gray parrot (*Psittachus eritacus*), the quota would have reached 50,000 parrots 2012 (Eulalie Bashige. FFI 2013. Environews. personal information. DRC), exceeding 1000% the quota of CITES / DRC. These numbers confirm that these animals fraudulently exit through several border crossings in the country.
3. The mobility of these animal species could have also been justified by the transfer mechanism and repeated exchanges of animals born in captivity, from a zoo to another zoo in Europe or in other continents (America, Oceania, etc.) without the involvement of DRC (ICCN) and without removing substantial dividends. Could this be the case of the young gorilla aforementioned, transferred to the Jersey Zoo in Australia, at the age of 12 years old, so in 2013.

In addition, the 9<sup>th</sup> birth happened on 6/06/20011 and the baby was later transferred to Belfast Zoo. It emerges from the foregoing that, in principle the great apes born in the Valley of monkeys in France are transferred in other Zoos of Europe at the old age.

These transfers would be an adaptive mechanism of enterprises to solve, the problem with the field capacity of these species, on the one hand and, on the other hand, the high cost of guarding as well as a provision of financial benefits supplementary to Zoos that transfer. It would be in this way that we could now explain the presence of

ever increasing of CITES species in DRC in a large number of European countries and other continents. Repeated transfers of animals under examination could be justified among others by:

1. contracts for commercial transactions of some individuals to the demanding zoos;
2. their carrying capacities become greater for holders zoos or small home ranges become effective for such animal.

### **The formalization of the detention of DRC animals in *ex situ* situation and of the access and Benefit Sharing.**

International legal instruments exist and could have been enabled to DRC in order to take its rights. It is about among others the World Charter for Nature, the Convention on the Biological Diversity (Bioprospecting), UNESCO, the rogatory commission of the Interpol, CITES, etc. There are legal and operational agreements, like the bilateral agreement between ICCN and Apenheul Primate Park in the Netherlands on 12 bonobos of which twenty thousand Euros as royalties are collected by DRC up these days. If this legal and operational agreement is in good and due form, it means that others might also be negotiated and formalized by all the other countries in order to allow the ICCN, the Access and the Benefit Sharing (CBD, 2011) from the conservation of its endemic wildlife fauna in *ex situ* situation in the zoos of Europe. Nowadays, the Convention on the Biological Diversity, CBD acronym, in its section upon the Access and the Benefit Sharing (ABS, acronym), recognize the sovereignty of the biological inheritance and other related benefits to member countries.

The CITES animals may therefore constitute a potential source of royalties to be paid into the accounts of their country of origin (DRC through ICCN or national NGOs) to support *in situ* conservation of these species, as well as to promote as well as the creation of national sanctuaries of ecotourism for the protection of these CITES animals than to use them as experimental specimens in the research and motivate the national researchers involved in their monitoring in the AP, the rehabilitation center for primates of other and Lwiro.

Some examples of royalties already collected exist and are listed below as case of jurisprudence. After its fusion with ICCN, the contract continues to run and can even be improved and used to project the construction of a national sanctuary of ecotourism of Bonobo in the Zoological Garden of Kisangani in Province Orientale. The case of the Netherlands constitutes already a jurisprudence case to be followed by other host

countries of bonobos and other animals CITES of DRC, like *Gorilla beringei* and *Okapia johnstoni*, to mention only three species at the first time. Rwanda, the neighbor of DRC, the families of mountain gorillas of DRC being migrated beyond our crossing borders, which are observed by tourists would have generated \$ 400 per hour and per tourist to ICCN: a good jacketpot of currency for the support of the conservation *in situ* even *ex situ* conservation DRC.

Another example is the one of Panda, endemic animal of China, exhibited in the zoos of France, brings to China of millions of US dollars annually from the fees paid by visitors to observe this animal, the China pride symbol and it is the emblem of WWF (Cosma Wilungula.ICCN.2014. personal info). Panda being to Chinese what the Bonobo, the Eastern plain and mountain Gorillas as well as the Okapi, are for Congolese, the diplomatic justice must be done in order to restore DRC in its rights with as the plinth the sacred principle of reciprocity. Moreover, the host countries of CITES animals of DRC should have had a taxidermy museum in the purpose of stuffing the dead animals in captivity due to the old age or accidents *in situ* and *ex situ* in DRC, to preserve them and to exhibit them to us in order to ensure their traceability and population dynamics.

A socio-economic analysis of the presence of these animals in *ex situ* situation in the zoos of Europe and other continents, might have two effects, precisely an incentive effect and an inhibitory effect on tourism. As for the incentive effect of tourism, the zoos, being the windows and mirrors of the biodiversity of the countries of origin and as a marketing tool, in favor for the ecotourism in DRC which can motivate the tourists to visit AP (Case of the eastern plain and mountain gorillas to PNVi, PNKB and the TER). On the contrary, the inhibitory effect of the *ex situ* situation of DRC animals in Europe would negatively impact the flow of curious tourists wishing to visit and contemplate these endemic species in their natural habitats: AP and mundane areas of conservation. In this case, our hypothesis that the illicit trade and dispersion of CITES DRC through the zoos in Europe would have some socio-economic consequences on the satellite account of tourism as well as the public treasury of revenues would be more consolidated.

### **CONCLUSION**

In the frame of the implementation of the component "Access and Benefit Sharing" of the Convention on the Biological Diversity, advantages from the endemic fauna of DRC in *ex situ* situation in the zoos of Europe, ICCN, launches a plea to the international organizations of the conservation of

Nature and countries (zoos) holders and hosts of the CITES animals - Bonobo, Gorilla and Okapi, etc. in order to contribute to the support of their *in situ* conservation (in the protected areas and the conservation priority areas) and to support also the creation of national sanctuaries in the era of globalization. In Europe, four host countries of endemic animals of DRC, without legal proceedings, have now been identified (Belgium, France, Germany) next to the Netherlands, the only holder country that has an agreement to amend, and pays royalties to ICCN.

In Africa, a formal agreement exists between DRC and Rwanda concerning the Mountain Gorilla, who migrated there due to the stress of armed conflicts. The unidentified countries are called upon to harmonize and make the regular payment of royalties negotiated since 1975 in the accounts of the ICCN, which royalties should be seen as financial benefits of this biodiversity of DRC in *ex situ* in the zoos of Europe to support the *in situ* conservation and promote the scientific ecotourism in national sanctuaries to be created and protected areas.

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