CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Eighteenth meeting of the Conference of the Parties
Colombo (Sri Lanka), 23 May – 3 June 2019

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Transfer from Appendix II to Appendix I of *Balearica pavonina* in accordance with Resolution Conf. 9.24 (Rev. CoP16), Annex 1.

Paragraph C) i): A marked decline in the population size in the wild has been observed as ongoing.

Paragraph C) ii): A marked decline in the population size in the wild which has been inferred or projected on the basis of levels or patterns of exploitation and a decrease in area of habitat.

B. Proponent

Burkina Faso, Côte d'Ivoire and Senegal[*]:

C. Supporting statement

1. Taxonomy

1.1 Class: Aves

1.2 Order: Gruiformes

1.3 Family: Gruidae

1.4 Genus, species or subspecies, including author and year: *Balearica pavonina* (Linnaeus, 1758)

1.5 Scientific synonyms: Subspecies *B. p. pavonina* and *B. p. ceciliae*.

1.6 Common names:
English: Black-crowned Crane, West African Crowned Crane
French: Grue couronnée de l'Afrique de l'ouest et du Soudan, Grue couronnée
Spanish: Grulla coronada del África occidental, Grulla coronada cuellinegra, Grulla coronada

1.7 Code numbers:

2. Overview

In 2010, *Balearica pavonina* was reclassified as vulnerable on the IUCN Red-list of Threatened Species. This classification was reaffirmed in 2012 and 2016 on the basis that "recent surveys have shown a rapid

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[*] *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

population decline which is predicted to continue into the future, primarily due to habitat loss and trapping for domestication or illegal international trade" (Birdlife International 2016). Trend data for the eastern sub-population *B. p. ceciliae* is poorly known but may warrant transferring the species from Appendix II to Appendix I if projections depicting a worst case scenario are realized (Birdlife 2016). This species has shown rapid population declines in recent surveys which are predicted to continue into the future (Birdlife International 2018). Transferring this species to Appendix I has been identified as a priority conservation need (Meine and Archibald 1996, Morrison *et al.* 2007).

This species was included in Appendix II as a part of a higher taxon listing at the Family level (Gruidae spp.) in 1995. Concerns for the trade and conservation of this crane were first raised in 1989 at CITES Animals Committee (AC2) when it was reported that most of the trade in *Balearica pavonina* was coming from wild-sourced birds from Tanzania, a country where black crowned cranes did not occur. By April of 2009 at AC24, *Balearica pavonina* was included in the Review of Significant Trade (RST) as an urgent case (CITES 2009). Range states included in the RST were Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Côte d'Ivoire, the Democratic Republic of the Congo, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leon, Sudan, Togo and Uganda (CITES 2011a). The Animals Committee retained all of the range States in the RST in 2011 as no response from the range States had been received (CITES 2011b). At AC26, in March of 2012, the majority of range countries received a provisional category of *least concern* and were removed from the RST. However, the AC found that there was *urgent concern* for Guinea and *possible concern* for Nigeria, Sudan and South Sudan (CITES 2012a). In March of 2013 at the CITES Standing Committee (SC63), it was noted that Nigeria had complied with all recommendations concerning *Balearica pavonina* and was removed from the RST process. It was also agreed that all Parties should suspend trade in this species from Guinea, the Sudan and South Sudan (CITES 2013). This trade suspension is still ongoing.

Black crowned cranes face significant threats across their range. Habitat loss is a key threat that includes the use of wetlands for agriculture, or extraction of water for irrigation (Meine and Archibald, 1996; Williams *et al.,* 2003). Natural forces and the intensification of human land use have negatively impacted the wetlands and grasslands across the Sahel and Sudan Savannah regions (Tréca 1996). Drought, resulting in the loss of seasonal and permanent wetlands, has contributed to desertification (Williams 2003). Drought has also forced people to migrate to more moist and less populated areas resulting in wetland degradation from overgrazing, tree removal, pollution and the heavy use of agricultural chemicals (Scholte 1996, Williams *et al.* 2003). Tree removal for fuel and building material has reduced roosting sites in many areas of the western range such as the Senegal Delta, the Niger Delta, the lower Bafing, the Gambia River, and northern Côte d'Ivoire (Williams *et al.* 2003).

Another important threat to the species is the removal of *B. pavonina* from the wild for domestication and trade, including illegal trade (Beilfuss *et al.*, 2007, Kone *et al.,* 2007, International Crane Foundation, 2009). Black crowned cranes are either trapped or eggs and chicks are removed from the nests and the individuals are raised in captivity and sold on the local, regional, or international market (Meine and Archibald 1996, CITES 2012b). It is believed that illegal trade and the continued capture of *B. pavonina* could lead to its extinction in Mali (Kone *et al.*, 2007). Breeding success of cranes in captivity is considered to be very low and birds are known to generally be short-lived and prone to diseases and injury (International Crane Foundation did not breed successfully (Kone *et al.*, 2007)). It has also been reported that this species is highly prized in private collections (K. Morrison, *in litt.* to UNEP- WCMC, 2011) and, in some areas, cranes were reported to be hunted for meat (Meine and Archibald 1996).

International trade over the period between 1986 and 2017 consisted principally of live birds, with small quantities of bodies, skins, feathers, trophies and scientific specimens also reported in trade. The majority of trade involved wild-sourced birds, with trade in captive-bred specimens also reported (CITES 2012b). Trade was primarily for commercial purposes, with live animals also traded for breeding in captivity, as personal possessions and, to a lesser extent, for zoos, circuses or travelling exhibitions, education, and scientific purposes (CITES 2012b). With declining population levels, the current trade in wild sourced birds is not sustainable.

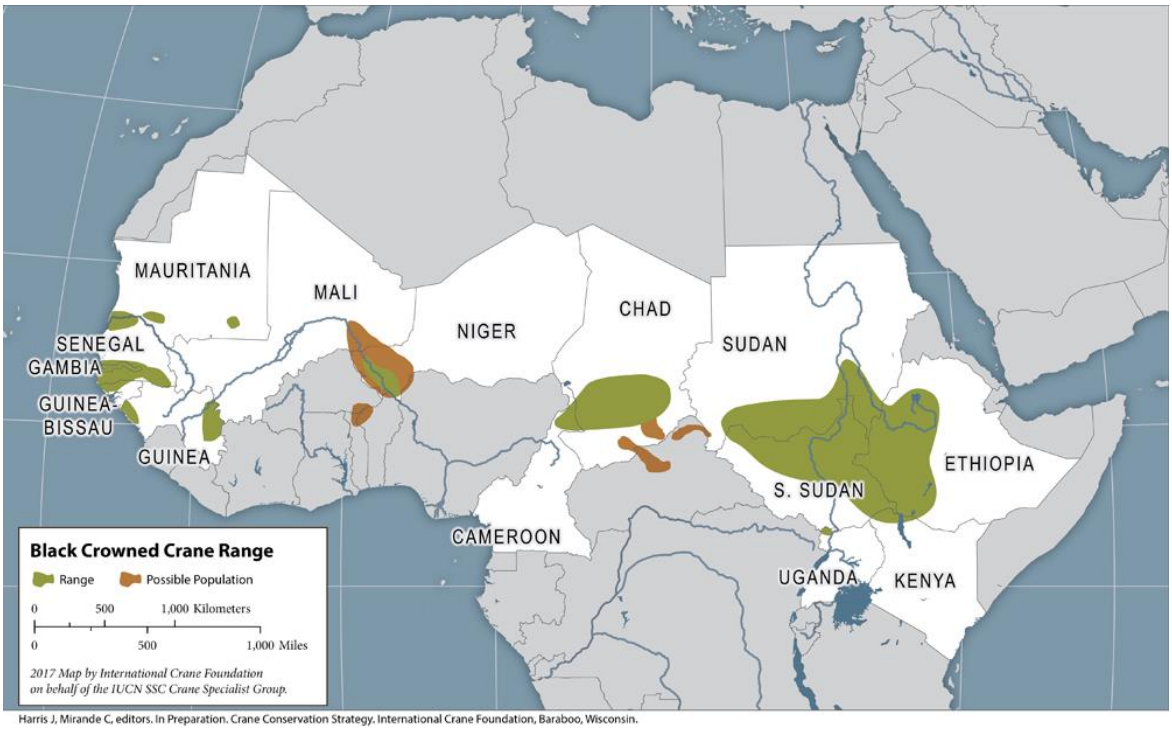
The black crowned crane is legally protected in most countries where they are found but this protection is thought to be inadequate (Meine *et al.* 1996). Hunting legislation in most countries does not allow crane shooting but a number of countries do not have the financial resources to control illegal hunters (Tréca 1992). In many cases, wildlife laws are outdated or weak, there is low awareness of the laws among the public and there is insufficient resources to implement the laws (Morrison *et al.* 2007).

3. Species characteristics

3.1 Distribution

Balearica pavonina occurs from Senegambia to central Ethiopia, N. Uganda and NW Kenya and is known to occur as far south as Difule on Uganda-Sudan border, the northwest corner of Murchison Falls National Park and the northern portion of Lake Turkana (Keith 1968, Soothill 1982, Urban *et al.* 1986). See Figure 1. It is native to Cameroon, Chad, Ethiopia, Gambia, Guinea, Guinea-Bissau, Kenya, Mali, Mauritania, Niger, Senegal, South Sudan and Sudan (Birdlife 2016). The black-crowned crane occupies the western part of this range and scattered populations occur throughout sub-Saharan West Africa from Senegambia to Chad while *B. p. ceciliae* occurs in eastern sub-Saharan Africa from Chad to Sudan, South Sudan, Ethiopia, Eritrea, and North Kenya, especially in the upper Nile River basin (Urban *et al.* 1986, Tréca 1992, Meine *et al*. 1996, Borrow *et al*. 2001). In West Africa there are two centers of concentration for the crane that serve as breeding areas, Senegambia and the Chad basin, with limited populations in between (Urban *et al.* 1986, Borrow *et al*. 2001). The crane is possibly extinct in Nigeria (Urban *et al.* 1986, Borrow *et al*. 2001, Birdlife 2016), considered a vagrant in Eritrea and its status is uncertain in the Central African Republic (Urban *et al.* 2007).

Figure 1. Range of *Balearica pavonina*



Harris J, Mirande C, editors. In Preparation. Crane Conservation Strategy. International Crane Foundation, Baraboo, Wisconsin.

3.2 Habitat

Black crowned cranes inhabit dry and wet open habitats, preferring marshes, damp fields or wet grasslands and open edges of waterbodies (Urban *et al.* 1986,). It is rarely associated with open crop lands, but is sometimes found on dry lands and abandoned fields (Johnsgard 1983, Meine *et al*. 1996). They can also be found in areas with water up to 1 meter deep and knee to hip-high vegetation composed of leguminous and rosaceous plants and dominated by *Cyperus, Scirpus, Cyonodon, Setaria and Eleocharis* species (Johnsgard 1983). They are rarely associated with open water (Tréca 1992). They roost in large trees, having a preference for open trees such as mvule (*Chlorphora*) but will also use smaller trees or even roost in shallow water when necessary (Johnsgard 1983, Urban *et al.* 1986, Meine *et al*. 1996, Birdlife 2016). In the eastern portion of their range, they typically inhabit wet meadows and fields, larger freshwater marshes and margins of ponds, lakes and rivers that have open areas of emergent vegetation (Meine *et al*. 1996). Black crowned cranes are both year-round residents and local migrants (Meine *et al*. 1996). During the non-breeding or dry season they often flock in large groups in large permanent wetlands and move to smaller temporary wetlands to breed during the rainy season (Urban *et al.* 1986, Meine *et al*. 1996, Birdlife 2016).

3.3 Biological characteristics

Of all the crane species, black crowned cranes are the least understood (International Crane Foundation (2016). They are considered monogamous and probably pair for life (Urban *et al.* 1986). *Balearica pavonina* does not breed until four years of age (Edet *et al.* 2018). Cranes normally only nest once each year and are considered seasonal breeders nesting in West Africa from May to December and in East Africa from July to January (Williams *et al.* 2003). This crane species has a low reproductive capacity. Average clutch size is 2 to 5 eggs per nest with an incubation period of 28-31 days and a fledging period of 60 to 100 days (Meine *et al*. 1996, Birdlife 2016, Edet *et al.* 2018). During drought conditions or if nests are negatively affected, the crane pairs will remain in flocks throughout the year (Williams *et al.* 2013). In Nigeria, eggs have been known to be destroyed by Pied Crows (*Corvus albus*) (Urban *et al.* 1986) and chicks are highly susceptible to predators including snakes, carnivorous birds and foxes (Edet *et al.* 2018). No records exist on the life span of the cranes in the wild (Edet *et al.* 2018) but it is thought that wild cranes may survive for 15-20 years (Olupot 2006). Birds in captivity can live for 25 to 40 years (Edet *et al.* 2018).

3.4 Morphological characteristics

Black-crowned Cranes have a distinctive yellow crown, white upper and under wing coverts, and flight feathers that black or darker brown (Johnsgard 1983). Body and neck plumage is long and dark slate or blackish in color. The iris is pale grey to pale blue in color and the birds have a small wattle (Archibald *et al.* 2018) The lower part of the cheek patch is red and extends halfway in *B. p. pavonina* and slightly further in *B. p. ceciliae* (Johnsgard 1983, Archibald *et al.* 2018). The wingspan measures approximately 180 – 200 cm; weight is 3000 – 4000 g, and the crane measures 100 – 15 cm (Archibald *et al.* 2018).

3.5 Role of the species in its ecosystem

Cranes are important to humans because they eat insects or rodents that might damage crops. Black crowned cranes are not viewed as a pest species by 93.3% of the community, based on surveys conducted in the Chora Boter district of Jimma Zone in Ethiopia (Gemeda 2016).

4. Status and trends

4.1 Habitat trends

Estimates of change in the habitat available for *Balearica pavonina* have not been made. However, habitat loss poses a significant threat and has had impacts on population numbers for the species. Across the Sahel and Sudan Savanna regions and especially in West Africa, wetlands and grasslands have been impacted by natural forces and increases in human land use (Meine and Archibald 1996, Oluput *et al.* 2009). In West Africa, increases in the human population are resulting in expanding cultivated areas, increases in livestock numbers and saturated pastoral space (Tréca 1992). People have migrated into prime crane habitat that is relatively moist and less populated because of drought and population growth (Meine and Archibald 1996), reducing available habitat. In addition, trees used for roosting by the cranes have suffered from both droughts and human utilization for building material, charcoal and firewood (Tréca 1992).

In many parts of the range, wetlands have been drained and groundwater extraction has occurred to provide water for irrigation projects and expand agricultural production such as rice in Senegal (Meine and Archibald 1996). In areas where wetlands are small, this has lowered the water table (Oluput *et al.* 2009). This has had a significant impact on crane habitat in Nigeria (the Hadejia floodplain and Chad basin) as well as other parts of West Africa (Fry 1987).

Wetlands have also deteriorated as a result of overgrazing and erosion in adjacent lands (Meine and Archibald 1996). Farming practices can have detrimental impacts on habitat suitability for the cranes. Oluput *et al.* (2009) found that moderate grazing and sound pasture management affect the supply of grass seed available to the cranes. Increasing livestock populations has resulted in overgrazing of wetlands and a reduction of emergent vegetation resulting in a reduction of nesting by cranes. Heavy livestock grazing also disrupts foraging behaviour forcing cranes to use more marginal habitats, especially for nesting.

4.2 Population size

In 2004, it was estimated that the number of *B. p. pavonina* was approximately 15,000 individuals and the lesser known *B. p. ceciliae* had approximately 28,000 to 55,000 individuals in the wild (Birdlife International 2016). This would bring the total population estimate to 43,000 to 70,000 individuals or roughly 28,000 to 47,000 mature individuals (Birdlife International 2016).

4.3 Population structure

Poorly known.

4.4 Population trends

Balearica pavonina was re-categorized from Near Threatened to Vulnerable in 2010. The Vulnerable designation has remained in effect after subsequent assessments were conducted in 2012 and 2016 (Birdlife 2016). The justification for the classification is "primarily due to habitat loss and trapping for domestication or illegal international trade" (Birdlife 2016). Population trends by country are shown in Table 1. It is estimated that *B. p. pavonina* declined from 15,000 – 20,0000 individuals in 1985 to 15,000 individuals in 2004 (Beilfuss *et al.* 2007, Birdlife International 2016). Trend data for *B. p. ceciliae* is poorly known but may have undergone a more substantial decline from 50,000 – 70,000 individuals in 1985 to 28,000 – 55,000 individuals in 2004 (Beilfuss *et al.* 2007, Birdlife 2016). The accuracy of counts for *B. p. ceciliae* is questionable and basing trends on this data is not advisable (Beilfuss *et al.* 2007). Based on data from *B. p. pavonina*, from 1985 – 2004, the population is estimated to have declined between 0 – 25% with a provisional estimate of a worse-case decline over 3 generations or 45 years of 30 – 49% (Birdlife 2016). True figures may indicate a higher rate of decline depending on the status of *B. p. ceciliae* and this species may warrant transferring the species from Appendix II to Appendix I in the future if the worst case scenario for this subspecies proves accurate (Birdlife 2016).

Survey results indicate that the range of *B.p. pavonina*, that was nearly contiguous across West Africa, has been severely fragmented with large gaps between many of the sub-populations, clustering black Crowned Cranes in only a few regions (Wiliiams 2003). Human induced factors such as habitat modification, disturbance and conflict with cranes affect the distribution, population and reproductive success of cranes (Maxson *et al.* 2008). Cranes have a low reproductive capacity. Most often, initial attempts at breeding fail and individuals usually do not successfully reproduce until they are four to eight years old (Meine *et al.* 1996). There is usually one dominant crowned crane chick and if food is scarce the subordinate chick will die (Ellis *et al.* 1996). Loss and fragmentation of habitat, a decrease in food supplies and optimal breeding sites, a decreasing population trends and continued human disturbance significantly affect breeding success of the cranes.

Table 1. Population Trends by Country

B. p. Pavonina

Country	1985	1994	1996	2000-2001	2004
Benin	50?	50?	<1000	>20	50
Burkina Faso	100?	100?	<1000	>10	50
Cameroon	2000	2000-3500	>1000	>3000	3000
Central African Republic	several 100s	several 100s	<1000	~500	500
Chad	few 1000s	3500-5000	>1000	>5500	5500
Congo	600-700	0?	0?	0?	0
Cote d'Ivoire	-	Vagrant	<1000	0?	<30
D. R. Congo	-	-	-	-	
Equatorial Guinea	-	-	?	0?	
Gabon	-	-	<1000	0?	
Gambia	?	100	<1000	>100	100
Ghana	50	50	<1000	>20	100
Guinea	-	-	?	<25	200
Guinea-Bissau	0?	?	?	>1500	1500
Liberia	-	-	?	0?	
Mali	7000-8000	3000-5000	>1000	>600	100
Mauritania	200	200	<1000	>300	500

Niger	several 100s	<1000	<1000	>300	1300
Nigeria	several 100s	<100	<1000	>20	20
Senegal	1000	1000-2000	>1000	>1900	1900
Sierra Leone	-	-	Extirpated	0?	
Togo	50	50	<1000	>110	50

B. p. ceciliae

Country	1985	1994	1996	2000-2001	2004
Chad	?	?	-	?	
D. R. Congo	-	-	-	?	Visitor
Egypt	-	vagrant?	<1000	0?	0
Eritrea	-	-	<1000	?	
Ethiopia	few 1000s	few 1000s	>1000	>2500	2500
Kenya	few 100s	100s	<1000	<10	250
Sudan	50000	50000	>1000	>25000	25000-52000
Uganda	500	500	<1000	<50	50
Source:	Urban 1988	Urban 1996	Meine, 1996	Williams, 2003	Beilfuss, 2007

4.5 Geographic trends

The black crowned crane was once found across West Africa but its range has become severely fragmented and large gaps exist between subpopulations. Williams *et al.* (2003) reported that the majority of the population is now clustered in only a few regions "*most notably the Senegal River Delta of Senegal and Mauritania, the coastal region from southern Senegal to Guinea-Bissau River, the Inner Niger Delta of Mali. The Sahelian zone of southwestern Niger, southeastern Mali, eastern Burkina Faso, and far northern Togo and Benin, the Chad River Basin of Chad and Cameroon, and Lac Fitri and the Bahr-Aouk Salamat floodplains of Chad."* These cranes are possibly extinct in Nigeria (where it is the country's national bird) and Mali, and has not been recorded in Sierra Leon since the mid-1930s (Archibald *et al.* 2018).

5. Threats

Black crowned cranes face serious threats throughout their range. Habitat loss and live trapping are the most serious threats (Williams *et al.* 2003, International Crane Foundation 2009). Habitat loss and degradation occur through conversion of wetlands to agriculture, over-exploitation of wetlands, overgrazing, wetland drainage, dam construction (floods upstream wetlands and dries out wetlands downstream), cutting of roost trees, agricultural and industrial pollution, and industrial construction (Meine and Archibald 1996, Williams *et al.* 2003, Beilfus *et al.* 2007, Birdlife International 2016). Direct threats include fire, egg removal, nest disturbance, poisoning, subsistence hunting, live trapping for commercial trade and domestication, poaching for food and feathers (for fans) and the use of heads and wings in traditional medicine (Williams *et al.* 2003, Meine and Archibald 1996, Williams *et al.* 2013, Williams *et al.* 2014). In Chad, threats to black crowned cranes are thought to include: cattle ranching, intensive agriculture and disturbances to the country's protected area network as a result of the civil war (Tréca (1996).

In addition to habitat loss, live trapping may be the most significant threat to black crowned cranes (Williams *et al.* 2003, Kone *et al.* 2007, Beilfuss *et al.* 2007). A major cause of population decline is considered to be the trade in live birds (Tursha and Boyi 2011). The cranes are trapped and sold to local, regional and international markets for considerable profit (Williams *et al.* 2003, Beilfuss *et al.* 2007). In Mali, between 1998 and 2000, 165 birds were bought and sold and 70 were exported to other countries (Kone *et al.* 2007). In the inner Niger Delta, the selling price was on average 36 278 FCFA (francs of the African Financial Community) and 104 778 FCFA (US$182) in the towns (Kone *et al.* 2007). In Nigeria in the Kano market, a profit of around 15,000 naira (US$150) could be made in the trade of one bird (Boyi 2001). The domestication of cranes within West Africa is encouraged, however the breeding of cranes in captivity is difficult and, in Mali, breeding attempts have been unsuccessful (Kone *et al.* 2007, Beilfuss *et al.* 2007). In Mali, where the species is close to being extirpated, there are more cranes in captivity than there are in the

wild (Williams 2003). In the Kantchari-Macalondi area of Burkina Faso, it has been reported that young birds were captured by villagers before they were able to fly (Fry, 1983). The hunting and trapping of *B. pavonina* has severely affected the population in Nigeria and has resulted in the virtual elimination of the species (Elgood *et al.* 1994).

6. Utilization and trade

6.1 National utilization

There is considerable hunting pressures placed on cranes in African countries (Ilyashenko *et al.* 2017). Hunting of Black Crowned cranes occurs for both food and traditional purposes (Williams *et al.* 2013). Traditions regarding hunting practices vary widely within the range of the species (Williams *et al.* 2003). In the Casamance region of Senegal and in parts of Burkina Faso, the eating of cranes is taboo (Williams *et al.* 2003). Cranes are not considered edible and not normally hunted in the Sudan (Eljack 1996) but have been hunted during wartime when famine occurs and local populations in rural areas are unable to grow crops and must rely on bushmeat (Williams *et al.* 2003, Oglethorpe *et al.* 2004).

Traditional use of wildlife parts for traditional medicine is widespread in nearly every country in West Africa (Nikolaus 2011). This practice has become uncommon in a few countries such as Ghana and Guinea but still remains a strong cultural tradition in countries such as Benin, where it is a practice supported by the government, and Nigeria (Nikolaus 2011). In Nigeria, black crowned cranes are believed to guarantee a lucky wedding and a successful family future (Nikolaus 2001). Black crowned cranes were found to be used or traded for traditional medicine in Côte d'Ivoire, Djibouti and Nigeria (Williams *et al.* 2003). The trade of black crowned crane heads in countries such as Côte d'Ivoire is a cause for concern (Williams 2014). Around the area of Niokolo-koba National Park in southeastern Senegal, near the Guinea-Bissau border, black crowned crane feathers are used in ritualised traditional dance and this has seriously affected the species (Williams *et al.* 2003). The heads and feathers are also used in traditional healing practices (Williams 2003).

6.2 Legal trade

Trade in black crowned cranes has been recorded in the CITES trade database since 1983 and includes live specimens, along with bodies, skulls, skins, specimens and feathers that were traded as derivatives. Since *B. p. parvonina,* along with the other crane species, were included in CITES Appendix II in August 1985, only data beginning in 1986 is included from the CITES trade database. Additionally, 2017 was excluded as the data are incomplete. The following analysis is based on data obtained from the UNEP-WCMC Trade Database.

During the period of 1986 to 2016, 8,916 live birds were exported by 47 countries, twelve of which were range countries. Nine countries exported more than 50 cranes during this time period (Table 2). Of the total exports of 8,916 live birds, these 9 countries alone exported 8,426 birds.

Table 2. Countries that exported more than 50 black crowned cranes between 1986 and 2016.

	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2017	Totals 1986-2017
Germany	50	6	0	6	4	2	0	68
France	2	70	16	12	0	0	0	100
Belgium	65	1	11	28	14	17	0	136
Netherlands	83	18	43	14	2	100	8	268
Mali	20	15	561	15	0	237	30	878
Sudan	0	0	60	600	70	74	0	860
Guinea	22	750	269	128	42	20	0	1231

Tanzania	2191	2692	0	4	0	0	0	4887

Source: UNEP-WCMC Gross Exports database

Tanzania was the biggest exporter of black crowned cranes between 1986 and 1995 even though the black crowned crane is not found in this country. It is unclear whether the trade was misidentified and the birds exported were actually grey crowned cranes (*Balearica regulorum*) which Tanzania is a range country, or the birds were brought in from other countries where it is indigenous and sold by Tanzania (Birdlife 2007). Guinea also exported a large number of cranes, having its largest export between 1991 and 1995, but this number has been reduced in subsequent years. Between 1996 and 2000 Mali was a significant exporter with a decrease in exports between 2001 and 2010 but rising again between 2011 and 2015. Sudan had was the highest exporter between 2001 and 2005. Of note is that Nigeria reported 8 exports of black crowned cranes in 2014 which is of concern since recent surveys indicate this species is extinct in the wild.

In total, in the period between 1986 and 1999, trade in 6,299 live birds was reported by exporters of which 3,413 were wild sourced, 51 were reported as captive bred, 3 were reported as having a unknown source and 2,832 had no source identified. The corresponding trade reported by importers involved 2,856 live birds of which 893 were reported as wild sourced, 64 were reported as captive bred, 17 were reported as confiscated and 1,882 had no source identified. Tanzania was the main exporter during this time period even though black crowned cranes do not occur there. In the period between 2000 and 2010, trade in 600 live birds was reported by exporters of which 505 were wild-sourced. The corresponding trade reported by importers involved 791 live birds of which 529 were wild-sourced. The main range State exporting the species was Sudan. Between 2011 and 2017, trade in 476 live birds was reported by exporters of which 262 were reported as wild sourced and 214 were reported as captive bred. The corresponding trade reported by importers involved 263 live birds of which 161 were wild sourced and 102 were captive bred. Mali was the major exporting country.

Currently, there are no CITES export quotas in place for black crowned cranes. Guinea is the only country that received a quota for wild caught cranes that occurred from 2001 through 2003. In 2001, the quota of 50 birds was exceeded with Guinea exporting 80 black crowned cranes. Exports were below the quota in 2002 and 2003.

A trade suspension was issued to Guinea, Sudan and South Sudan in May 2013 that is still in effect. South Sudan seceded from Sudan in July 2011 and is not a Party to CITES. The status of the species in South Sudan is unknown and the country does not appear to have the scientific capacity to advise that any exports are not detrimental to the survival of the species (CITES 2016). Therefore, no trade data exists for this country in the UNEP-WCMC Trade Database. No trade has been reported from Guinea since 2012 presumably due to the trade suspension. However, exports of black crowned cranes from Sudan may have occurred following the trade suspension but no annual reports have been submitted since 2010 (CITES 2016). Unreported trade from Sudan has been previously noted as a concern (CITES 2016).

6.3 Parts and derivatives in trade

Between 1986 to 2016, 29 bodies (plus 5.6 kg), 2,433 feathers, 27 skins, 2 skulls, 6 specimens and 3 trophies were exported. There has been no trade in feathers reported since 2001. The largest numbers of feathers exported was 2,400 by the Netherlands in 1992. Netherlands also exported the largest number of skins (20) in 1992.

6.4 Illegal trade

Three seizures have been reported for black crowned cranes in the UNEP-WCMC database. One body was seized in the United States that was exported from the Netherlands that originated from Belgium. Four live birds were seized in the United Arab Emirates that were exported from Russia and 13 live birds were seized in the Netherlands, exporting country unknown (UNEP-WCMC 2018).

Illegal trade remains a threat in Guinea and the Sudan (CITES 2016). In Guinea, black crowned cranes are commonly traded on the black market (Clemmons 2003). Market trading of black crowned cranes is having a tremendous impact on this species in the Inner Niger Delta of Mali (Kone *et al.* 2007). It

has been noted that captured chicks and eggs, when hatched, are raised in captivity and sold illegally (Walkinshaw 1973). Illegal trade was reported to be a concern in Cameroon, Chad, Guinea, Mali, Nigeria and Sudan (CITES 2012b). Tursha and Boyi (2011) reported evidence of cross border illegal trade between Chad, Cameroon and Nigeria and consider this a main threat to the species.

6.5 Actual or potential trade impacts

There is strong evidence that both the legal and illegal trade in black crowned cranes is having significant effects on the black crowned crane population and depleting the species in the wild (Beilfuss *et al.* 2005). A key factor in the population decline of black crowned cranes has been the removal of cranes from the wild for domestication and trade (CITES 2009). Birds were either wild caught or of unknown origin in Tanzania, which was one of the major exporting countries in the mid-90s. There is strong evidence that the international trade of black crowned cranes is depleting the wild population (Williams *et al.* 2003). For example, trade in cranes was extremely common in Mali and between 1998 and 2000, 524 individuals were captured in the Mopti, Tenenkou and Youwarou areas (Kone *et al.,* 2007). This is a region where only about 1500 wild individuals were thought to live, most individuals were reportedly obtained as chicks and they reached the highest value per bird of any waterbird on the market (Kone *et al.,* 2007).

7. Legal instruments

7.1 National

National Protections of Black crowned cranes.

Extracted from AC26 Doc 12.2 Annex. Review of significant trade: species selected by the CITES Animal Committee following CoP 14 and retained in the review following AC25.

Benin	*B. pavonina* was listed as a fully protected species under Annex I of the law No 87-014 (1987) regulating nature protection and hunting in Benin (République Populaire du Benin, 1987). The law banned hunting or capture of the species, with the exception of self defense or permits given for scientific purposes (République Populaire du Benin, 1987).
Burkina Faso	*B. pavonina* was listed as a fully protected species under Annex I of the Decree No 96-061 (1996) on the exploitation of wildlife (Burkina Faso, 1996).
Burundi	The Burundi regulations for Hunting and the Protection of Animals (1971) specified the need for valid hunting licences (Burundi, 1971). *B. pavonina* was not listed as a protected species in the country (Burundi, 1971).
Cameroon	*B. pavonina* was listed as a Class A protected species under Law No. 94/01 on forestry, wildlife and fisheries regulations (Republic of Cameroon and Ministry of Forestry and Wildlife, 1994; Djeukam, 2007). The killing of these species was banned, except as self defence or when protecting property, such as livestock or crops (Republic of Cameroon and Ministry of Forestry and Wildlife, 1994). It was reported that permits were needed for the capture of *B. pavonina* and for keeping it in captivity (Djeukam, 2007).
Central African Republic	*B. pavonina* was listed as a fully protected species under Annex II of the Ordinance no 84/045 on wildlife protection and hunting regulations (Direction de la Faune et des Aires protégées, 2009). The Ordinance banned all hunting and capture of the species (Direction de la Faune et des Aires protégées, 2009).
Chad	The Ordinance No. 14-63 (1963) on hunting and nature protection, which applies to all animals, prohibits hunting without a permit and lists the requirements for permits depending on the purpose of hunting (Chad Ministere de l'Information et du Tourisme, 1963). *B. pavonina* was not included in the list of protected species in the country (Chad Ministere de l'Information et du Tourisme, 1963).
Côte d'Ivoire	*B. pavonina* was listed as a fully protected species under Annex I of the Law 94-442 (1994), which was an amendment to Law No. 65-255 on wildlife protection and hunting (Republique de Côte d'Ivoire, 1994). The Law prohibited hunting and capture of the species, including chicks and eggs, but specified that permits may be acquired for capture for scientific purposes (Republique de Côte d'Ivoire, 1994)
Democratic Republic of Congo	*B. pavonina* was listed as a partially protected species (Republique Democratique du Congo, 2006), and may be hunted with authorization (Journal Officiel de la République Démocratique du Congo, 2005). The Hunting Law of 1982 specified the need for permits depending on the purpose of hunting (Journal Officiel de la Republique du Zaire, 1982).

Eritrea	According to the Eritrean Regulations for the issuance of wildlife permits (2006), the hunting, capture and export of wildlife were only allowed with permits or licences issued by the relevant authorities (Eritrea, 2006b). *B. pavonina* was not listed as a threatened species requiring special attention under the Annexes of proclamation No. 155/2006 on forestry and wildlife conservation and development (Eritrea, 2006a).
Ethiopia	According to the CITES MA of Ethiopia, *B. pavonina* is fully protected in the country, "although this protection is often ineffective" *(*F. Debushe, *in litt.* to UNEP-WCMC, 2011). The Ethiopian Wildlife Development, Conservation and Utilization Council of Ministers Regulation No. 163/2008 did not include *B. pavonina* in the 'list of birds to be allowed for Hunting by Foreign Tourists and Resident Hunters' *(*F. Debushe, *in litt.* to UNEP-WCMC, 2011).
Gabon	Law No. 115/PR/MAEFDR (1981) prohibited the killing or capturing of any wildlife, except with permits issued by the relevant authority (Gabon, 1981).
Gambia	The Wildlife Conservation Act No. 36 of 1978 did not include *B. pavonina* in the list of species for lawful hunting under Schedule III (The Republic of the Gambia, 1978).
Ghana	*B. pavonina* was listed under the First Schedule of the Wildlife conservation regulations of 1971, prohibiting the hunting and capturing of the species (Ghana, 1971).
Guinea	*B. pavonina* was listed under Annex I of the Wildlife law (1999), banning the hunting, capture, egg collection and export of the species except for permits given for scientific purposes (Republique de Guinee, 1999).
Guinea Bissau	*B. pavonina* was not listed as a protected species in Appendix I of the Decree No 40.040 (1955) on the Protection of Land, Flora and Fauna (Ministério do Ultramar, 1955). It is not known whether more recent legislation has been published.
Kenya	The Wildlife Conservation and Management Act of 1976 (amended in 1989) declared *B. pavonina* a protected animal in Kenya, along with all other birds that were not classified as game animals. The Wildlife Act also specified that permits/licenses were needed for the ownership of live animals and trophies and the export of live protected animals.
Mali	*B. pavonina* was listed as a fully protected species in Law No. 95-031 on the management of wildlife and habitats. However, interviews conducted by Kone *et al.* (2007) revealed that few crane owners were aware of the legislation. The authors reported that the National Directorate for the Preservation of Natural Reserves had made *B. pavonina* exports from Mali illegal in 1998, however, exports had continued, albeit limited by the high costs of transportation and taxes.
Mauritania	*B. pavonina* was not included in the list of protected species in Law No. 97-006 on hunting and conservation.
Niger	*B. pavonina* was classified as a fully protected animal species according to the law on hunting and wildlife protection No. 98-07. Tréca (1996b) considered that protection in most wetlands was insufficient and reported that hunting and capture, although illegal, was still taking place on a small scale.
Nigeria	*B. pavonina* was listed in the Second Schedule (Animals relation to which international trade may only be conducted under licence) of the Endangered species (control of international trade and traffic) Act of 1985, specifying that the hunting, capture, and trade of the species required an official licence.
Senegal	*B. pavonina* was listed as a fully protected species in decree No. 86-866 on hunting and wildlife protection. The hunting, capturing, and collecting of eggs was prohibited, however it was noted that permits for hunt on the species could be issued when population numbers were high within a certain area.
Sierra Leone	*B. pavonina* was classified as a 'Prohibited animal' under the Second Schedule of the Wildlife Conservation Act No. 27 of 1972, making any hunting or capturing of the species illegal.
Sudan and South Sudan	In Sudan, the species was listed as protected under Schedule II of the Wildlife Protection Act of 1986 and its hunting or capture without a license was prohibited (The CITES Management Authority of Sudan, O. Sulieman, *pers. comm.* to UNEP-WCMC, 2011). No information on legislation was located for South Sudan.
Togo	The Decree No 90-178 of hunting regulations specified the need for hunting permits and established a tax of XOF 5000 (~USD 10) for the hunting or capture of *B. pavonina*.
Uganda	The Uganda Wildlife Statute No. 14 of 1996 specified the need of permits for hunting and trading protected species. According to the Game (Preservation and Control) Act of 1959 Cap. 226, Revision (1964), all cranes were included in First Schedule, Part A (animals not to be hunted or captured throughout Uganda except under special permit).

7.2 International

B. pavonina has been included in CITES Appendix II since 1985. International trade is regulated by Article IV of the Convention.

8. Species management

8.1 Management measures

In 1999, the *Black Crowned Crane programme* was launched by the International Crane Foundation and Wetlands International to identify key areas where effective projects could be conducted to help in the conservation of the cranes and their habitat (Williams *et al.* 2003). As part of this effort, a black crowned crane network was established across 20 nations in West, Central and East Africa to identify key areas where effective projects could be established for conservation of the species and their habitat (Williams *et al.* 2003).

8.2 Population monitoring

The first rangewide survey of black crowned cranes was conducted from January to April 2000 and 2001 in 20 African nations (Williams *et al.* 2003, Beilfuss *et al.* 2007). Two hundred and twenty six areas were surveyed (Appendix 1). The surveys were conducted using ground and aerial surveys, questionnaires, interviews and records (Williams *et al.* 2003, Beilfuss *et al.* 2007). The purpose of these surveys were to assess population size, distribution, habitat use and threats (Williams *et al.* 2003). The data was analysed and used to develop population estimates for crane areas and was the basis for developing a Conservation Management Plan that was published in 2003 (Boere *et al.* 2006).

In Sudan, efforts have been made to undertake monitoring and surveys but these attempts have been limited due to political instability and insufficient funding (CITES 2016).

8.3 Control measures

8.3.1 International

There are no international control measures beyond those of CITES.

8.3.2 Domestic

Domestic control measures implemented in range States need to be clarified.

8.4 Captive breeding and artificial propagation

There have not been any formal reintroduction programs undertaken for black crowned cranes although the potential for this to occur is being considered (Meine *et al.* 1996, Archibald *et al.* 2018). Due to unpredictable breeding results, this species is moderately difficult to keep in captivity (Kone *et al.* 2007, Edet *et al.* 2018). Nigeria conducted an experimental release in 1992 in association with the West African Crane Conference (Meine *et al.* 1996, Edet *et al.* 2018). There have been discussions of developing a captive breeding program in Borno State, Nigeria and a release program in the Chingurme-Duguma section of the Chad Basin National Park but only if habitat conditions are assessed and a habitat management plan is implemented (Meine *et al.* 1996).

8.5 Habitat conservation

Williams *et al.* (2003) identified 226 sites that supported black crowned cranes. Approximately 21% or 48 of these sites have some degree of official habitat protection that includes National Parks (12%), Ramsar sites (4%), reserves (4%), and locally protected sites (1%). Seventy nine percent of the sites are unprotected. Of these numbers, only 17% of the protected sites occur in the range of *B. p. ceciliae,* while 41% occur in the range of *B. p. pavonina.*

8.6 Safeguards

Other than the legal instruments and management efforts previously described, no safeguards are in place for this species.

9. Information on similar species

The grey crowned crane (*Balearica regulorum*) looks very similar to the black crowned crane (*B. pavonina*). The black crowned crane is distinguished from the grey crowned crane by the red found in the lower part of the cheek patch, a darker neck and smaller wattle (Archibald *et al.* 2018). The grey crowned crane is also included in CITES Appendix II.

10. Consultations

Consultations were led during a regional meeting of representatives from the Economic Community of West African States (ECOWAS) member States which took place in Abuja, Nigeria, on 2-4 July 2018, and during a meeting of representatives from the African Union which took place in Luanda, Angola on 19-20 December 2018. The proposal was also sent out to range States representatives by email in English and in French on 7 December 2018. Feedback received in the course of these consultations was supportive of the proposal.

11. Additional remarks

12. References

Archibald, G. W., Meine, C. D., Kirwan, G. M. and E. F. J. Garcia. 2018. Black crowned crane (*Balearica pavonina*) *in* Handbook of the Birds of the World Alive. Lynx Edicions, Barclona. (retrieved from https://www.hbw/node/53551 on 26 September 2018).

Birdlife International. 2016. *Balearica pavonina.* The IUCN Red List of Threatened Species 2016.

BirdLife International. 2018. Species factsheet: *Balearica pavonina*. Downloaded from http://www.birdlife.org on 10/3/2018.

Beilfuss, R., T. Dodman, and E. K. Urban. 2007. The status of cranes in Africa in 2005. Ostrich 78(2):178-184.

Boere, G.C., Galbraith, C.A. & Stroud, D.A. (eds). 2006. Waterbirds around the world. The Stationery Office, Edinburgh, UK. 960 pp.

Borrow, N. and R. Demmey. 2001. A guide to the Birds of Western Africa. Princeton University Press, Princeton and Oxford.

Boyi, M. G. 2001. Survey of black crowned crane trade in northern Nigeria. Black Crowned Crane Program, International Crane Foundation. Baraboo, Wisconsin USA and Wetlands International, Dakar, Senegal.

Burkina Faso. 1996. *Décret no 96-061/PRES/PM/MEE/MATS/MEFP/MCIA/MTT portant réglementation de l'exploitation de la faune au Burkina Faso*.

Burundi. 1971. *Réglementation de la chasse et la protection des espèces animales*.

Chad Ministere de l'Information et du Tourisme. 1963. *Ordonnance no 14-63 du 28 mars 1963 réglementant la chasse et la protection de la nature*. Journal officiel de la République du Tchad no 8, 15 avril 1963.

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). 2009. Summary Record. Twenty-fourth meeting on the Animals Committee. Geneva, Switzerland

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). 2011a. Review of Significant Trade in specimens of select Appendix II species. Twenty-fifth meeting on the Animals Committee. Geneva, Switzerland.

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). 2011b. Summary Record. Twenty-fifth meeting on the Animals Committee. Geneva, Switzerland.CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). 2012a. Summary Record. Twenty-sixth meeting on the Animals Committee. Geneva, Switzerland and Dublin, Ireland.

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). 2012a. Summary Record. Sixty-third meeting of the Standing Committee. Bankok, Thailand.

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). 2012b. AC26 Doc 12.2 Annex. Review of significant trade: species selected by the CITES Animal Committee following

CoP 14 and retained in the review following AC25. Twenty-sixth meeting on the Animals Committee. Geneva, Switzerland and Dublin, Ireland.

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). 2016. SC 66 Doc 31.2 Annex. Review of Standing Committee recommendations to suspend trade made more than two years ago. Sixty-sixth meeting on the Standing Committee. Geneva, Switzerland.

Clemmons, J. R. 2003. Status survey of African grey parrot (*Psitaccus erithacus timneh*) and development of a management program in Guinea and Guinea-Bissau. Unpublished report for CITES/IUCN.

Dickinson, E. C. 2003. The Howard and Moore Complete Checklist of the Birds of the World. 3rd edition. Christopher Helm, London.

Direction de la Faune et des Aires protégées. 2009. *Manuel legal pour la protection de la faune sauvage en Republique Centrafricaine*. Ministére de l'Environnement, des Eaux, des Forêts de la Chasse et de la Pêche (MEEFCP).

Djeukam, R. 2007. *The Wildlife law as a tool for protecting threatened species in Cameroon*. Ministry of Forestry and Wildlife (MINFOF), Department of Wildlife and Protected Areas.

Edet, D. I., Akinyemi, A. F., Edet, A. I. and F.A. Egwumah. 2018. Conservation of the west African black-crowned crane *Balearica pavonina* (linn 1758) in the sudano-sahelian wetlands of northern Nigeria. International Journal of Avian and Wildlife Biology 3(I):15-19.

Elgood, J. H., Heigham, J. B., Moore, A. M., Nason, A. M., Sharland, R. E., and N. J. Skinner. 1994. The Birds of Nigeria. 2nd Edition edn. British Ornithologists' Union, Herts, UK. 305 pp.

Eljack, A. O. 1996. An overview of the status of the black crowned crane in West Africa *in* Archibald, G. W. and R. F. Pasquier (eds.) pp157-158. Proceedings of the 1983 International Crane Workshop, International Crane Foundation, Baraboo, Wisconsin, United States of America.

Ellis, D. H., Gee, G. F., and C. M. Mirande (eds.). 1996. Cranes: their biology, husbandry, and conservation. Department of the Interior, National Biological Survey. Washington, D. C. and the International Crane Foundation, Baraboo, Wisconsin.

Eritrea. 2006a. *Forestry and Wildlife Conservation and Development Proclamation (No. 155/2006)*.

Eritrea. 2006b. *Regulations for the issuance of wildlife permits (L.N. No. 112/2006)*.

Fry, C. H. 1983. New data on the status of the Black Crowned Crane in West Africa *in* Archibald, G. and R. F. Pasquier (eds.) pp. 331-335. Proceedings of the 1983 International Crane Workshop, International Crane Foundation, Baraboo, Wisconsin, United States of America.

Fry, C. H. 1987. New data on the status of the Black crowned crane in West Africa *in* Proceedings of the 1983 International Crane Workshop, pp 331-335, Barboo, WI: International Crane Foundation.

Gabon. 1981. *Décret no 115/PR/MAEFDR portant protection de la faune*.

Gemeda, D. O., Minstro, A. A., Feyssa, D. H., Sima, A. D. and T. M. Gutema. 2016. Community knowledge, attitude and practice towards black crowned crane (*Balearica pavonina* L.) conservation in Chora Boter district of Jimma Zone, Ethiopia. Journal of Ecology and the Natural Environment, Vol 8(4):40-48.

Ghana. 1971. *Wildlife Conservation Regulations, 1971 (L.I. 685)*. Official publication, pp. 1-20.

Harris, J. and C. Mirande (eds) In preparation. Crane Conservation Strategy. International Crane Foundation, Baraboo, Wisconsin.

Ilyashenko, E. and C. Mirande. 2017. Illegal take including hunting, trapping, and poisoning. Convention on the Convention of Migratory Species of Wild Animals. Meeting document No. 5.

International Crane Foundation. 2009. Trade in grey (*Balearica regulorum*) and black crowned (*Balearica pavonina*) cranes. Kerryn Morrison and Partnership for African Cranes. Background information for the CITES Animals Committee meeting 20-24 April 2009. 1-114. Parkview, South Africa, Convention on International Trade in Endangered Species of Wild Fauna and Flora.

International Crane Foundation. 2011. *African Crane Trade: how zoos can help*. International Crane Foundation, Endangered Wildlife Trust. Johannesburg, South Africa. 2 pp.

International Crane Foundation. 2016. Renewing our commitment to black crowned crane conservation in West Africa *in* Black crowned crane, Newsroom, Sub-saharan Africa.

Johnsgard, P.A. 1983. Cranes of the World. Indiana University Press, Bloomington, Indiana.

Journal Officiel de la République Démocratique du Congo. 2005. *Arreté no 014/CAB/MIN/ENV/2004 du 29 avril 2004 relatif aux mesures d'exécution de la Loi no 82-002 du 28 mai 1982 portant réglementation de la chasse*.

Keith, S. 1968. Notes on the Birds of East Africa, including additions to the avifauna. American Museum Novit., 2321.

Kone, B., Fofana, B., Beifuss, R. and T. Dodman. 2007. The impact of capture, domestication and trade on black crowned cranes in the Inner Niger Delta, Mali. Journal of African Ornithology, Vol 78(2):1-3.

Maxson, S. J., Fieberg, J. R. and J. R. Riggs. 2008. Sandhill cranes nest habitat selection and factors affecting nest success in northwestern Minnesota. North American Crane Workshop Proceedings, 186.

Meine, C. D. and G. W. Archibald. 1996. The cranes – status survey and conservation plan. International Union for Conservation of Nature and Natural Resources. Gland, Switzerland, and Cambridge, U.K.

Ministério do Ultramar. 1955. *Decreto no 40.040*. Diário do Governo-I No. 16, 20 January 1955. 60 pp.

Morrison, K., Beall, F., Friedmann, Y., Gichuki, C., Gichuki, N., Jordan, Kaita, M., M., Ndang'ang'a, P and Muheebwa, J. (eds). 2007. African Crane Trade Project : Trade Mitigation Planning Workshop. Workshop Report. Conservation Breeding Specialist Group (SSC / IUCN) / CBSG Southern Africa. International Crane Foundation / Endangered Wildlife Trust Partnership, Johannesburg.

Morrison, K. 2011. *Kerryn Morrison (International Crane Foundation and Endangered Wildlife Trust Partnership, African Crane Conservation Programme) in litt. to UNEP-WCMC*, 17 October 2011.

Nikolaus G. 2001. Bird exploitation for traditional medicine in Nigeria. Malimbus 23:45-55.

Nikolaus, G. 2011. The fetish culture in West Africa" An ancient tradition as a threat to endangered birdlife. Pp.145-149 *in* Schuchmann, K-l. (ed), Tropical vertebrate in a changing world. Bonn.

Oglethorpe, J., Shambaugh, J. and R. Kormos. 2004. Parks in the crossfire:strategies for effective conservation in areas of armed conflict. Parks, the International journal for protected area managers. War and Protected Areas Vol 14 (1) 2-7.

Olupot, W. and A. Plumptre. 2006. The status of crowned-cranes in Uganda: a national assessment of breeding, population distribution, and threats. Wildlife Conservation Society.

Republique de Côte d'Ivoire. 1994. *Loi no 94-442 portant modification de la loi no 62-255 du 4 août 1965 relative à la protection de la Faune et à l'exercice de la Chasse*. Journal Officiel de la Republique de Côte d'Ivoire.

Republique Democratique du Congo. 2006. *Arrete ministeriel no 020/CAB./MIN/ECN-EF/2006 du 20 Mai 2006 portant agrement de la liste des especes animales protegees en Republique Democratique du Congo*.

Republique de Guinee. 1999. *Loi L/99/038/AN Adoptant et promulgant le code de protection de la faune sauvage et reglementation de la chasse*. Assemblee Nationale de la Republique de Guinee.

Republic of Cameroon and Ministry of Forestry and Wildlife 1994. Law No. 94-1 to lay down Forestry, Wildlife and Fisheries regulations. *Official Gazette of the Republic of Cameroon*.

République Populaire du Benin. 1987. *LOI no 87-014 du 21 Septembre 1987 portant réglementation de la protection de la nature et de l'exercice de la chasse en République Populaire du Bénin*.

Scholte, P. 1996. Conservation status of cranes in North Cameroon and Western Chad. Proceedings 1993 African crane and wetland training workshop, Beilfuss, R. D., Tarboton, W. R., and N. N. Gichuki (eds), pp 53-59, Barboo, WI: International Crane Foundation.

Soothill, E. and R. Soothill. 1982. Wading Birds of the World. Blandford Press, Poole Dorset.

The Republic of the Gambia. 1978. *Wildlife Conservation Act, 1977 (Act No. 1 of 1977)*. Supplement "A" to The Gambia Gazette No. 58 of 30th December, 1978.

Tréca, B. 1992. Wetland habitats for black crowned cranes in West and Central Africa *in* Addendum to the Proceedings of the Conference on the black crowned crane and its wetland habitats in West and Central Africa. Kano State, Nigeria.

Tréca, B. 1996. Wetland habitats for Black Crowned Cranes in West and Central Africa *in* Beilfuss, R., Tarboton, W. and N. Gichuki, (eds), pp. 99-101, Proceedings of the 1993 African Crane and Wetland Training Workshop, International Crane Foundation, Baraboo, Wisconsin, United States,.

Tursha, L. G. and M. G. Boyi. Status of the Black Crowned Crane (*Balearica pavonnina*) in Northern Nigeria. Indwa-Journal of the South African Crane Working Group (SACWG), 7: 30-36.

Urban, E. K., Fry, C. H. and S. Keith. 1986. The Birds of Africa, Volume II. Academic Press, London.

Urban, E. K. 1988. Status of cranes in Africa *in* Proceedings of the sixth Pan-African ornithological congress, Blackhurst, G. C. (ed), pp315-329, Nairobi, Kenya.

Urban, E. K. 1996. Status of Cranes in Africa *in* Proceedings African crane and wetland training workshop, Beilfuss, R. D., Tarboton, W. R., and N. N. Gichuki (eds), pp 53-59, Barboo, WI: International Crane Foundation.

Walkinshaw, L. 1973. Cranes of the World. Winchester Press, New York, USA.

Williams, E., R. Beilfuss, and T. Dodman. 2003. Status Survey and Conservation Action Plan for the Black Crowned Crane *Balearica pavonina.* International Crane Foundation, Baraboo, Wisconsin, USA and Wetlands International, Dakar, Senegal.

Williams, V. L., Cunningham, A. B., Kemp, A. C., and R. K. Bruyns. 2013. Birds of a feather: Quantitative assessments of the diversity and levels of threat to birds used in African traditional medicine *in* Aves, R. and I. Rosa (eds) Animals in traditional folk medicine, Springer, Berlin, Heidelberg.

Williams, V. L., Cunningham, A. B., Kemp, A. C., and R. K. Bruyns. 2014. Risks to birds traded for African Traditional Medicine: A quantitative assessment. PLoS ONE 9(8):e105397.

Appendix 1. Black crowned crane survey sites conducted in 2000-2001. Directly taken from Williams *et al.* 2003.

Country	Sites surveyed by air or ground	Sites surveyed by questionnaire	Key Sites not surveyed
Benin	Parc National de la Pendjari	P. N. Pendjari	
Burkina Faso	Mare aux Hippopotames		
	Pama Game Reserve		
	Parc National d'Arly		
	Kompienga Lake		
	Barrage de Bagré		
	Parc National du « W »		
	Mare d'Oursi		
Cameroon	Waza-Logone	Waza-Logone	
	Lac Tchad		
Central African Republic			
Chad	Lac Tchad	Plaine du Logone : Mare de Katoa	Depression de Toubouri (1987)
	Bas Chari	Plaine du Logone : Mare Toufgounou Marsay	Cuvette de M'bourao (1987)
	Plaine du Logone:Bongor - Ndjamena	Au abords du fleuve Logone	Mayo Kebbi :Lac Tikem (1987)
	Au abords du fleuve Logone	Plaine du Logone : Mare Kiamé Télém(Bongor)	?? Parc National de Manda
	Fleuve Chari (amont de Njamena)	Plaine du Logone : Mare Lifi-Baki (Bongor)	
	Lac Fitri	Plaine du Logone : Mare Mana-Toura (Bongor)	
	N'Djamena:Massaguet -Bisney	Plaine du Logone : Mare Dogoya-Yamatcha (Holom)	
	Plaine du Logone : Mare de Katoa	Plaine du Logone : Casiers rizicoles de Bongor	
	Plaine du Logone : Mare Toufgounou Marsay		
	Au abords du fleuve Logone		
	Plaine du Logone : Mare Kiamé Télém(Bongor)		
	Plaine du Logone : Mare Lifi-Baki (Bongor)		
	Plaine du Logone : Mare Mana-Toura (Bongor)		
	Plaine du Logone : Mare Dogoya-Yamatcha (Holom)		
	Plaine du Logone : Casiers rizicoles de Bongor		
	Parc National de Zakouma		
Côte d'Ivoire		Région of d'Odienne (1985)	?? Parc National de la Comoé
Gambia	Dankunkwu rice field	Dankunkwu rice field	
	Bambali Swamp	Bambali Swamp	
	Pirang	Tendaba (1999)	
	Samba Soto Swamp	Kaur (1999)	
		Balangar (1995)	
		Pirang	
		Samba Soto Swamp	
		Sotokoi rice field (?)	
		Kajalat Island (?)	
		Scan-Gambia Shrimp (?)	
		Pakali Ba (1995)	
		Allahein River shores (1995)	
		Kiang West National Park (1995)	
Ghana		Volta Basin (1990/9)	
		White Volta: Bawku (?)	
		White Volta:Nasia (?)	
		Black Volta:Lawra (?)	
		Black/White Volta:Mpaha (1999)	
Guinea		Koundara (?)	
		Kadiene (199?)	
Guinea Bissau			Lago de Cufur/Catió (1997)

Mali	Délta Intérieur du fleuve Niger	Délta Intérieur du fleuve Niger	Fleuve Niger:Gao -Labezenga (1984)
	Cercle de Djenné: Djenné Senessa	Cercle de Djenné: Djenné Senessa	?? Réserve de Faune du Bafing (1996)
	Diountou (Koubi)	Diountou (Koubi)	
		Mopti :Sibo Niala (1999)	
		Cercle de Djenné: Diera (1990)	
		Cercle de Djenné:Sekoula (1997)	
		Goumitogo Mare (1997)	
		Focoloré:Mare Bilade (1996)	
		Focoloré:Mare Tidda Leida (1996)	
		Focoloré:Mare Nouré Oumalou (1996)	
		Focoloré:Mare Mini Mana (1996)	
Mauritania	Parc National du Diawling	Parc National du Diawling	
	Lac d'Aleg	Gâat Mahamouda	
	Gâat Mahamouda		
Niger	Fleuve:Tillabery: Mare de Kero	Fleuve Niger: Tillabery: Mare de Kero	Fleuve Niger: Ayorou (1995)
	Fleuve Niger:Tillabery: Kokorou	Fleuve Niger: Tillabery: Kokorou	Département de Zinder (Damergou/Damagaram)
	Fleuve Niger:Tillabery: Ossolo	Tillabery: Ossolo	Département de Diffa (Mandaram/Manga)
	Fleuve Niger :Tillabery: Dortoir de Tillabery	Fleuve Niger : Tillabery: Dortoir de Tillabery	
	Flueve Niger : Parc National du W	Fleuve Niger : Parc National du W	
	Fleuve Niger : La Tapoa Pékinga	Tillabery : Youmba	
	Fleuve Niger:Tillabery : Youmba	Tahoua :Dossey	
	Abalak: Chimzazoren	Tahoua: Tabalak	
	Abalak: Mare de Tabalak		
	Tahoua :Dossey		
	Tahoua: Tabalak		
	Diomona		
	Namga		
	Kpennuya/Kpeniago		
	Fleuve Niger :N'Dounga		
	Fleuve Niger :Sébéri		
	Fleuve Niger/Rive gauche : Périmètre de Saga		
	Fleuve Niger:Liboré/N'Doungo		
Nigeria	Hadejia – Nguru Wetlands (including Dagona National Park)	Chad Basin N. P. Chingurume – Duguma (1998)	Upper Benue System (1996)
		Chad Bassin N. P: Bula Tura Oasis (?1996)	
		Chad Basin N. P: Kujila Oasis (?1996)	
		Bama :Mboro (1996)	
		Gulumba : Kutila (1996)	
		Hadejia - Nguru Wetlands (including Dagona N. P)	
		Bal Oasis (1990)	
Senegal	Parc National Oiseaux du Djoudj	Delta du fleuve Senegal	Louga/Ferlo (1987)
	ZIC de Djeuss	Parc National Oiseaux du Djoudj	
	Bassin du Ndiael	ZIC de Djeuss	
	Lac de Guier-Vallée de Ferlo	Bassin du Ndiael	
	Fleuve Casamance	Fleuve Casamance	
	Kolda	Kolda	
	Parc National du Niokolokoba		
Togo		Oti (?1990)	
		Valée Oti -Mandouri(?1990)	
		Parc National de la Kéran (?1990)	
Eritrea	Asmara	Asmara?	
Ethiopia	Akaki Lakes	Lake Awassa	
	Abijatta-Shalla Lakes National Park	Kurt Bahir	Kirigna (1999)
	Lake Awassa	Shesher-Wallala Wetland	
	Boyo Wetland	Wagetera Marsh	
	Barbu Gaya Wetland	Yiganda Wetland (1998/9)	
	Bahir Dar Zuria		
	Cheleleka Wetland		
	Enfraz Wetland		
	Koka Dam		
	Kurt Bahir		
	Shesher-Wallala Wetland		

	Tikur Wuha Marsh		
	Wagetera Marsh		
	Lake Ziway		
Kenya		Lake Turkana (1992)	
Sudan	Western Kordufan:Dambloia	Western Kordufan:Dambloia	The Sudd
	Southern Darfur:Radom National Park	Southern Darfur:Radom National Park	
	Southern Kordufan:Lac Keilak	Southern Kordufan:Lac Keilak	
	Southern Darfur: Lake Kundi	Southern Darfur: Lake Kundi	
		Southern Darfur: Um-Dafog (?)	
	Southern Darfur:Kelling Swamps	Southern Darfur:Kelling Swamps	
	Western Darfur:Tesi Swamp	Sennar: Dinder National Park (?)	
		Western Darfur:Tesi Swamp	
Uganda		Arua Town (1998)	
		Arua Town:West Nile Golf field (1998)	
		Rhino Camp: Ewanyapa (1998)	
		Rhino Camp: Ayilo Valley (1998)	