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## Assessment of Birds Trade in Urban Kano

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### ABSTRACT

The bird trade puts pressure on both wild and domesticated populations, and several species are at risk of extinction due to this activity. The aim of this work was to find out the extent of the bird trade in urban Kano, Nigeria. A total of six markets were surveyed. The data was obtained through interviews and observations. The conservation statuses of the traded birds were assessed using the International Union for the Conservation of Nature (IUCN) Red List and the Nigeria Endangered Species (Control of International Trade and Traffic) Act, 2016. A total of 101 birds belonging to 18 species were found to be under trade in various forms in the places surveyed, with *Columba* species (20 (19.8 %)) being the most encountered birds, while the least encountered were *Balearica pavanina* (1 (1.0 %)), *Bubulcus ibis* (1 (1.0 %)), *Pavo muticus* (1 (1.0 %)), and *Crithagra mozambica* (1 (1.0 %)). Most of the bird species are traded as pets, and the traders source them from different places within and outside the country, with the majority (56.8 %) of the traders entering the trade through family inheritance. Although most of the birds encountered belong to the least concern category of the IUCN, legally protected species are openly displayed in the places surveyed. To give endangered birds a future and to identify species in urgent need of conservation interventions, the authorities concerned should consider regular market monitoring and continuous bird surveys.

**Keywords:** *Bird; Trade; Urban Kano; Conservation*

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### INTRODUCTION

As the human population expands the trading of wild fauna also expands, and the unethical activity is being fueled by extreme poverty and increasing demands for exotic species of animals worldwide (World Wildlife Fund, 2022). Other reasons include high profit margins, unemployment, ignorance, cultural preferences, a lack of coherent wildlife protection policies, and corruption (Roe, 2008; Okere, 2023). Birds are among the most heavily traded animals worldwide, with approximately 30 % of all extant birds (i.e., close to 3,000 bird species) subjected to the trade (Scheffers *et al.*, 2019). The trade includes live birds, carcasses, eggs, body parts and by-products, and it is often difficult for the average person to assess whether the bird is being

sold lawfully or not (Stichting BirdLife Europe, 2019). A study of bush meat markets conducted by Fa *et al.* (2006) reveals that more than 900,000 reptiles, birds, and mammals are sold each year in Nigeria and Cameroon, corresponding to approximately 12,000 tons of terrestrial vertebrates, with birds accounting for 8.42 tons. Additionally, a survey of pet markets in Kaduna State, Nigeria, recorded a total of 543 live wild birds between March and May 2012 (Assam *et al.*, 2021). Furthermore, Oduah (2019) reported that in Nigeria, nearly 500 tons of vultures are trafficked every month. In South Africa, between 174, 000 and 428, 000 game birds are illegally poisoned every year (BirdLife International, 2021a).



Around the Mediterranean, Northern Europe and the Caucasus, over 25 million birds are illegally killed every year (BirdLife International, 2021a).

Among avian species, parrots are the most traded, followed by passerines, falcons, pigeons, and doves (Bush *et al.*, 2014; Furnell, 2019), and almost 90 % of all birds traded were from the order Psittaciformes (Furnell, 2019), where Martin (2018) pointed out that over 3.3 million wild – sourced African parrots have reportedly been traded internationally since 1975. BirdLife International (2021b) reveals that each year, hundreds of thousands of birds are taken from the wild for illegal trade or killed for their meat through poisoning in Sub-Saharan Africa. Nigeria has the highest number of incidences, as a study conducted by Williams *et al.* (2014) reveals that approximately 354 bird species are commercially traded in traditional medicine markets in Africa, with Nigerian markets having the highest number of recorded species (over 200 species). Additionally, Buij *et al.* (2016) stated that in West Africa from 2008 to 2013, an estimated 4,214 – 6,321 raptor carcasses were traded every year, with Nigeria accounting for 73 % (3,084 – 4,626) of the traded carcasses.

Many bird populations are declining worldwide, with 1,200 species facing extinction in the next century (Worldwatch Institute, 2021). From 1976 to 2005, the hooded vulture (*Necrosyrtes monachus*) declined by 62 % in and around the Masai Mara National Reserve, Kenya (Birdlife International, 2021b). In Nigeria, the species declined by 83 %, largely due to poisoning and persecution (Urjorha, 2018). The Egyptian vulture (*Neophron oerecnopterus*), which was previously found around the Northern States of Nigeria, has been slumping towards extinction due to threats including poisoning and trading for traditional medicine (Ogada *et al.*, 2012;

Saidu and Buij, 2013). The black-crowned crane (*Balearica pavonina*) has already been eradicated from parts of its range in West Africa (Stichting BirdLife Europe, 2019). The trade has also severely declined the population of Marabou Storks (*Leptoptilos crumenifer*) in many localities in West Africa, including Nigeria (Monadjem and Bamford 2009; Ringim *et al.*, 2021). In Ghana, the trade has driven formally abundant African grey parrots close to extinction. Nearly 99 % of the species have disappeared from the country's forests since 1992. Additionally, the species is now extremely rare or locally extinct in Nigeria, Benin, Burundi, Guinea, Guinea-Bissau, Kenya, Rwanda, Tanzania and Togo (Annorbah *et al.*, 2016; World Wildlife Fund, 2016). Similarly, the iconic Eurasian goldfinch (*Carduelis carduelis*) has lost 56.7 % of its range in the Western Maghreb (Birdlife International, 2021a), while the spix's macaw (*Cyanopsitta spixii*) of Brazil is already extinct (Stichting BirdLife Europe, 2019). Taking birds away from their natural habitat and direct killing puts pressure on bird populations and sometimes leads to extinction. Therefore, quantitative information on trends and impacts of the bird trade is urgently needed to support conservation strategies and plans, as birds play important roles in ecosystems. The study evaluated the extent of bird trade in the Kano metropolis.

## MATERIALS AND METHODS

### Study Area and Sampling Sites

The study was conducted in Kano city located between latitude 11°59'59.57"N to 12° 02'39.57" N and longitude 8°31'19.69" E to 8°33'19.69" E. It has a total land area of 137 Km<sup>2</sup> and comprises 8 Local Government councils; Kano Municipal, Fagge, Dala, Gwale, Tarauni, Nassarawa, Ungogo and Kumbotso.



The estimated population of the city is about 3.3 million (National Population Commission, 2011). The survey was conducted at Abubakar Rimi Market, Galadima Road, Rimi Market, Kurmi or

K/Wambai Market, Tarauni Market and Race Course. These locations were chosen due to the frequent wildlife trade that takes place on a daily basis in the area.



**Figure 1: Map of the Study Area Showing Locations of Kano Municipal, Fagge, Dala, Gwale, Tarauni, Nassarawa, Ungogo and Kumbotso Local Government Area**

### Mapping and Data Collection

The study areas were carefully surveyed before planning for data collection according to Song (2003), selection of participants for the survey was random and voluntary as only those who were willing to partake in the survey were interviewed. On visit to the various places selected, the willing traders were informed about the purpose of the research. Bird species in trade were carefully sighted and examined in their cages or enclosures and counted. The species obtained were then identified with the help of bird identification guide (Clement, 2000). Conservation statuses of the traded birds were determined using the International Union for the Conservation of Nature (IUCN) Red List categories (<https://www.iucnredlist.org>) and Nigeria Endangered Species (Control of International Trade and Traffic) Act, 2016. Interviews were conducted with the traders on different aspects such as the ages of the traded birds, sources of their supply, reason for their involvement in the trade and uses of the traded species. The data obtained were analyzed using descriptive statistics.

### RESULTS

#### Diversity, Uses and Conservation Status of Birds Species Traded in Urban Kano

A total of 101 birds belonging to 18 species were found to be under trade at the time of the survey, with *Columba* spp. (20 (19.8 %)) being the most encountered birds, followed by *Ploceus cucullatus* (13 (12.9 %)), *Coturnix coturnix* (12 (11.9 %)) and *Anser anser* (12 (11.9 %)) which are all common species, while the least encountered are *Balearica pavanina* (1 (1.0 %)), *Bubulcus ibis* (1 (1.0 %)), *Pavo muticus* (1 (1.0 %)) and *Crithagra mozambica* (1 (1.0 %)). Out of the 18 species traded, 1 (*Necrosyrtes monachus*) is listed by IUCN as critically endangered, 3 (*Pavo muticus*, *Spinus cucullatus* and *Psittacus erithacus*) endangered, 1 (*Balearica pavanina*) vulnerable and 13 least concerned. So also, 4 out of the 18 species traded are listed in Schedule 1, 9 in Schedule 2 of the Nigeria Endangered Species (Control of International Trade and Traffic) Act, 2016, while 5 were not listed. Also, most of the traded birds are used as pets while few species are traded for food and to a lesser extent for medicinal purposes. Majority of these birds are traded alive (i.e., 17 out of the 18 species) with the adult (13) category being the most traded, followed by juveniles (2) and infant to juveniles (2) (Table 1).



**Table 1: Diversity, Uses and Conservation Status of Birds Species Traded in Urban Kano**

Common Name	Scientific_Name	Forms Traded	Uses	Age	Number in Trade	Conservation Status	
						IUCN	Nigerian National Schedule
Abdim's stock	<i>Ciconia abdimii</i>	Live	Medicine, pet	Adult	2 (2.0%)	LC	2
African jacana	<i>Actophilornis africanus</i>	Live	Pet	Adult	4 (4.0%)	LC	-
Golden Eagle	<i>Aquila chrysaetos</i>	Live	Pet	Juveniles	3 (3.0%)	LC	1
African hawk eagle	<i>Aquila spilogaster</i>	Live	Pet	Juveniles	3 (3.0%)	LC	1
Hooded vulture	<i>Necrosyrtes monachus</i>	Live	Food, medicine, pet	Adults	2 (2.0%)	CE	2
Black-crown crane	<i>Balearica pavanina</i>	Live	Pet, food	Adult	1 (1.0%)	VU	2
Common quail	<i>Coturnix coturnix</i>	Live	Medicine, food	Infant-Juvenile	12(11.9%)	LC	-
Cattle egret	<i>Bubulcus ibis</i>	Live	Medicine food, pet,	Adult	1 (1.0%)	LC	2
Blue-eared starling	<i>Lamprotornis chloropterus</i>	Live	Pet	Adults	3 (3.0%)	LC	-
Dove	<i>Columba spp.</i>	Live	Food, pet	Adults	20(19.8%)	LC	2
Goose	<i>Anser anser</i>	Live	Food, pet	Adults	12(11.9%)	LC	-
Peacock	<i>Pavo muticus</i>	Live	Pet, food, medicine	Infant-Juvenile	1 (1.0%)	EN	2
Yellow – fronted canary	<i>Crithagra mozambica</i>	Live	Pet	Adults	1 (1.0%)	LC	2
Red-siskin canary	<i>Spinus cucullatus</i>	Live	Pet	Adults	11(10.9%)	EN	2
Grey parrot	<i>Psittacus erithacus</i>	Live	Pet, medicine	Adults	6 (5.9%)	EN	1
Senegal parrot	<i>Poicephalus senegalus</i>	Live	Pet	Adults	4 (4.0%)	LC	1
Village weaver	<i>Ploceus cucullatus</i>	Live	Pet	Adults	13(12.9%)	LC	-
Ostrich	<i>Struthio camelus</i>	Carcass, head	Food, medicine	-	2 (2.0%)	LC	2
<b>Total</b>					<b>101</b>		

Key: IUCN: International Union for the Conservation of Nature; EN: Endangered; VU: Vulnerable; CR: Critically endangered; LC: Least concern Nigerian National Schedule Category:1; Schedule 1; 2: Schedule 2; Not Listed



### Sources of the Birds on Sale in Urban Kano

Interaction with the traders reveals that most of the traded species were usually imported from within and outside Nigeria (Table 2).

**Table 2: Sources of the Birds on Sale in Urban Kano**

Country	Common Name of Bird
America	Golden Eagle, Dove, Red-siskin canary
Cameroon	Abdim's stock, African jacana, Hooded vulture, Black-crown crane, Blue-eared starling, Cattle egret, Dove, Goose Village weaver, Grey parrot, Senegal parrot
Chad	Abdim's stock, Golden Eagle, African hawk eagle, African jacana, Hooded vulture, Black-crown crane, Blue-eared starling, Ostrich
Niger	Abdim's stock, African jacana, Black-crown crane, Hooded vulture, Cattle egret, Blue-eared starling, Goose, Golden Eagle, Ostrich, Dove, Senegal parrot,
Nigeria (Port Harcourt, Taraba, Bauchi, Kaduna, and entire Northern parts of Nigeria)	Abdim's stock, African jacana, African hawk eagle, Black-crown crane, Hooded vulture, Common quail, Cattle egret, Blue-eared starling, Dove, Goose, Peacock, Village weaver, Ostrich, Grey parrot, Senegal parrot, Yellow – fronted canary

### Reasons for Trading of Birds in Urban Kano

The results from Table 3 indicated that the majority (56.8 %) of the traders entered the

trade through family inheritance, while the remaining (43.2 %) became involved primarily to earn income.

**Table 3: Reasons for Trading of Birds in Urban Kano**

Reasons	Number	Percentage (%)
Inheritance	21	56.8
Source of income	16	43.2
Total	37	100

### DISCUSSION

An overexploitation of breeding-age adults could lead to a decline in the reproductive capacity of the population as a whole. This problem may be especially acute for species with slow recruitment rates, such as larger species of *Psittacines* and Hornbills (Mulliken *et al.*, 1991). During the survey, 101 birds were encountered, representing a total of 18 species, including adults and juveniles, with adults dominating the trade. Additionally, the majority of the birds were traded alive. Favoring certain bird categories

and age groups over others could have serious consequences for future generations, as the practice could lead to a reduction in genetic diversity and the inbreeding depression of targeted populations. Selling birds as commodities subjects them to trauma and suffering, which can shorten their lifespan. The bird trade is not only an animal welfare problem but also, a threat to the environment as birds play important roles such as predators, pollinators, scavengers, seed dispersers, seed predators, and ecosystem engineers.



Dasgupta (2016) also asserts that the disappearance of bird species due to trade can have a knock-on effect on the ecosystem. Unregulated trade and consumption of wildlife can also spread diseases and introduce harmful invasive species; for instance, the transfer of avian influenza from wild birds to humans was believed to take place in China's wildlife markets (William *et al.*, 2007).

The study uncovered some bird species that were of serious conservation concern according to the IUCN and the Nigeria Endangered Species (Control of International Trade and Traffic) Act, 2016, while the least concern species had a larger trade volume. This is in line with the findings of Pires (2012), who reported that species that were more widely abundant and listed as least concern usually had a larger trade volume. Additionally, studies conducted in different parts of the world on wildlife trading show similar compositions of wildlife species in various markets (Okiwelu *et al.*, 2009; Nijman, 2010; BirdLife International, 2021a). One of the species that is of serious conservation concern is vulture (*Necrosyrtes monachus*). Although the species is listed in Schedule 2 of the Nigerian Endangered Species Act, the IUCN has categorized it as critically endangered (CE), meaning the species is declining at an alarming rate and heading towards extinction. If vulture (*N. monachus*) becomes extinct, we are in trouble, as they are our unpaid sanitary inspectors who help prevent the spread of disease. The Vulture Conservation Foundation (2019) reported that Kano State is among the places where vulture (*N. monachus*) trade is prevalent. The appearance of Schedule 1 listed species of the Nigerian Endangered Species Act (i.e., *Aquila chrysaetos*, *Aquila spilogaster*, *Psittacus erithacus*, *Poicephalus senegalus*) clearly indicates poor monitoring and

assessment, lack of enforcement of legislation, and corruption among stakeholders. Similar problems were reported from other regions of the world (Shepherd, 2006; Usman and Adefalu, 2010; Sanchez-Mercado *et al.*, 2021). Even the non-listed and least concerned species, although widespread and quite secure in some areas, could worsen if action is not taken soon. A literature search reveals that most of the species that were categorized as least concern were known to be declining worldwide (IUCN, 2021), and their trade may threaten the species' population in the future. The passenger pigeon was once the most numerous species of bird alive; however, overhunting reduced a species that once numbered in the billions to extinction (Biello, 2014). McOmber (2002) affirms that some wildlife species in the world today are still under serious threat of extinction because they are not listed.

The study also reveals that the trade of birds for pets, food, and medicine is the major factor driving the trade, with most of the birds being trafficked for the pet trade. The usage of wild avian species as pets is one of the main drivers of their trade (Shepherd, 2006; Williams *et al.*, 2014; Roldan-Clara *et al.*, 2017). Wildlife and their products are not only traded for food or as pets but also for traditional medicines used to treat different ailments in various parts of the world (Phelps, 2017; Verrissimo *et al.*, 2020). Dogs, cats and many exotic birds retain their wildness and instincts. Traders and consumers who purchase exotic birds often lack adequate information on their care. Thus, keeping birds alone in insufficient space and in pathetic conditions can significantly shorten their lifespans. The international pet trade is associated with animal welfare and biosecurity (Baker *et al.*, 2013).



Most of the birds sold in the markets are not native to the state. Saidu and Buij (2013), Urjorha (2018), Muhammad and Mustapha (2020), and Assam *et al.* (2021) reported that birds are mostly brought into Nigeria from Burkina Faso, Cameroon, Chad, the Niger Republic, and several other countries. Bird sellers engage in the trade for various reasons, with the majority of them (56.8 %) indicating that it is a family tradition they intend to uphold, while 43.2 % are motivated by financial gains. These results suggest that the wildlife trade is a major livelihood source through which people earn income to support themselves and their families. Previous studies have demonstrated that bird trade activities are very profitable in terms of monetary returns worldwide (Alves *et al.*, 2013; Ringim *et al.*, 2021).

## CONCLUSION

In conclusion, this study has discovered that live birds and their parts including legally protected species, were sold openly in urban

Kano with adults dominating the trade. The trade involves 18 species of birds, with *Columba spp.* (19.8 %) being the most encountered bird species, while the least encountered are *Balearica pavanina* (1.0 %), *Bubulcus ibis* (1.0 %), *Pavo muticus* (1.0 %) and *Crithagra mozambica* (1.0 %). The trade is not only limited to local birds but also includes exotic species from different parts of the world, with most of the birds purchased as pets. The study also discovered that most of the traders enter the trade through family inheritance. Since the loss of species can pose as much danger to life on Earth as climate change does, there is a need for continuous enlightenment campaign on the ecological consequences of destroying and over-exploiting existing bird species in an unsustainable manner. Additionally, to give endangered birds a future and to identify species in urgent need of conservation interventions, the authorities concerned should consider regular market monitoring and a continuous bird surveys.

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