

Trade in exotic birds in the West Bank, Palestinian Territories

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Summary: A total of 87 species of exotic birds belonging to seventeen families were found in trade in local Palestinian pets market (West Bank) between 2020 and 2022. A number of these species are illegal traded. Five species are listed as globally Endangered, three as Vulnerable and nine as Near Threatened. Seven species are listed in Appendix I of CITES, 25 in Appendix II and three in Appendix III. Most of the exotic birds entered the Palestinian territories (West Bank) through Israeli settlements, which are considered the main source of illegal trade in the Palestinian territories.

INTRODUCTION

The illegal wildlife trade is a long-term and ongoing global threat to wildlife, causing severe decline in many species to the level of depletion (Lin 2005). Many animal species are threatened due to illegal smuggling, which involves trafficking and selling animals and their parts or products through both legal and illegal channels (Warchol 2004). Both legal and illegal trade often involve killing wild animals through poaching (Handal *et al* 2021). Illegal trade in pet birds is one of the most common and profitable forms of trade in the world (do Nascimento *et al* 2015, Eid *et al* 2011, Li & Jiang 2014).

Trade in both local and exotic species is becoming a growing problem in the Middle East, posing a problem for nature conservation officials in several countries, including Saudi Arabia (Felemban 1993, Aloufi & Eid 2014), Syria (Amr *et al* 2007), Turkey (Turkozan & Kiremi 2007), the United Arab Emirates (Soorae *et al* 2008), Lebanon (Dakdouk 2009, Abi-Said *et al* 2018), Iraq (Bachmann 2010), Jordan (Eid *et al* 2011), Kuwait (Al-Sirhan & Al-Bathali 2010) and the Palestinian Territories (Handal *et al* 2021), as well as in North African countries such as Morocco (Bergin & Nijman 2018) and Algeria (Nijman *et al* 2019, Razkallah *et al* 2019). Trade is one of the major pathways for speeding the spread of invasive species and zoonotic diseases among countries (Temple 1992, Brosky *et al* 2020, Green *et al* 2020).

With the absence of a legal framework for animal trading, specially birds, in the Palestinian Territories due to several constrains, chiefly the Israeli occupation and lack of proper enforcement (Handal *et al* 2021), illegal trade in exotic bird is becoming a major threat to the Palestinian environment. This study assesses the magnitude of trade in exotic birds in Palestinian animal markets (including online markets on Facebook), and discuss its potential threats to the environment and human health.

METHODS

Between 2020 and 2022, surveys of over 20 local animal markets in the Palestinian Territories (West Bank) were conducted, covering major cities in the West Bank; Bethlehem (six markets), Hebron (five markets), Jenin (two markets), Jericho (two markets), Nablus (two markets), Ramallah (two markets) and Salfit (two markets). We also monitored seven online social media groups (Facebook) advertising exotic birds offered for sale at least twice a month.

During each visit to the local markets, we documented animal species in trade and their numbers. For each species, its category under the Convention on International Trade in Endangered Species (CITES), and its status in Red List issued by the International Union for Conservation of Nature (IUCN) was recorded.

RESULTS

A total of 87 bird species belonging to sixteen families were reported in trade from both local and online markets (Facebook) in the Palestinian Territories (Table 1, Plate 1). According to the IUCN Red List, five species are globally Endangered: African Grey Parrot *Psittacus erithacus* (native range Africa), Sun Conure *Aratinga solstitialis* (South America), Sunset Lorikeet *Trichoglossus forsteri* (Indonesia), Java Sparrow *Padda oryzivora* (Indonesia) and Red Siskin *Spinus cucullatus* (South America). A further three species are listed as globally Vulnerable: Green-thighed Parrot *Pionites leucogaster* (South America), Crested Partridge *Rollulus rouloul* (South-east Asia) and Diamond Firetail *Stagonopleura guttata* (Australia). Nine species are listed as globally Near Threatened (Table 1). A total of 35 bird species are listed in CITES Appendices I-III, with seven in Appendix I, 25 in Appendix II and three in Appendix III (Table 1).

Birds of the family Estrilididae were represented by 24 species and constituted the highest percentage (27.5%) of all birds recorded. The families Psittacidae, Psittaculidae, Phasianidae, Fringillidae, Columbidae, Cacatuidae, Odontophoridae and Musophagidae were also heavily represented (Table 2).

Trade in local wildlife and exotic birds and other animals is practiced in the Palestinian local markets. Exotic birds are smuggled from some Israeli settlements to the West Bank in large numbers (Plate 2), including both CITES and non-CITES species.

The markets offering the largest number of exotic species for sale were located in Bethlehem, Nablus, Hebron, Jenin, Jericho, Ramalla and Al Bera (Figure 1). From our discussions with merchants we understand that four districts control the market in the West Bank (Bethlehem, Hebron, Nablus and Jenin); furthermore, most of the advertising posts on Facebook related to animal trading are placed by individuals from the same four districts.

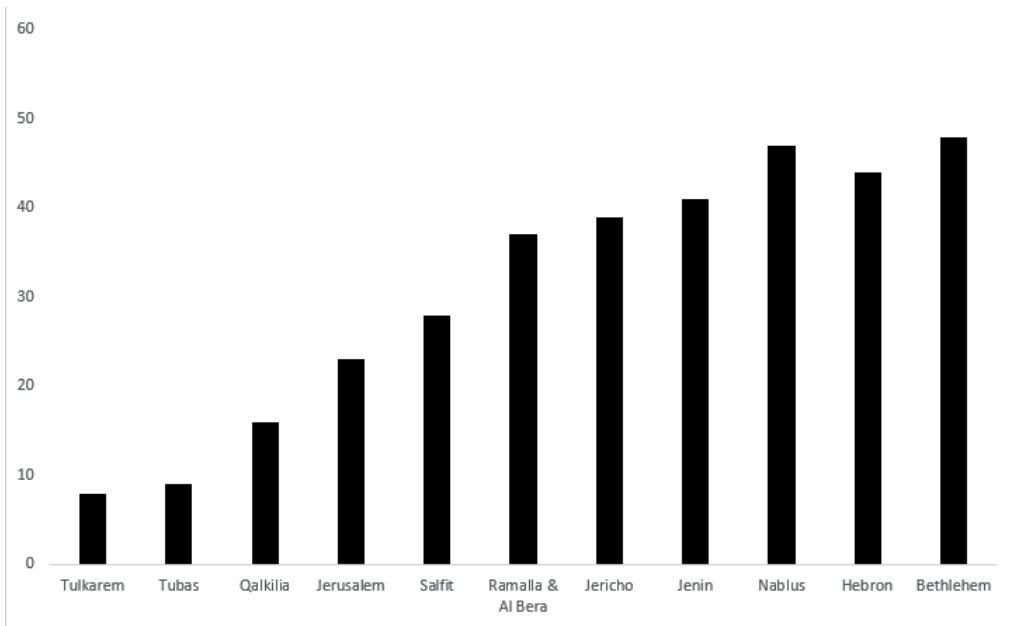


Figure 1. Number of traded exotic bird species in each district in the Palestinian territories, West Bank.

Table 1. List of birds reported in trade in Palestine, West Bank, showing IUCN status, CITES Appendix listing, number of individuals and number of markets species found in, and number of individuals found in Facebook markets. DD: Data Deficient; EN: Endangered; LC: Least Concern; NT: Near Threatened; VU: Vulnerable.

Family	Scientific name	Common name	CITES Appendix	IUCN status	Number of birds	Number of markets	Number of Facebook posts
Struthionidae	<i>Struthio camelus</i>	Common Ostrich	I	LC	39	0	1
Tinamidae	<i>Eudromia elegans</i>	Elegant-crested Tinamou		LC	4	0	1
Numididae	<i>Numida meleagris</i>	Helmeted Guineafowl		LC	34	1	3
Odontophoridae	<i>Cyrtonyx montezumae</i>	Montezuma Quail		LC	2	0	1
	<i>Callipepla gambelii</i>	Gambel's Quail		LC	7	0	1
	<i>Callipepla californica</i>	California Quail		LC	9	0	1
	<i>Perdicula asiatica</i>	Jungle Bush Quail		LC	17	0	2
	<i>Colinus virginianus</i>	Northern bobwhite	I	NT	8	0	1
Phasianidae	<i>Pavo cristatus</i>	Indian Peafowl	III	LC	113	9	6
	<i>Phasianus colchicus</i>	Common Pheasant		LC	2	0	1
	<i>Chrysolophus pictus</i>	Golden Pheasant		LC	2	0	1
	<i>Alectoris philbyi</i>	Philby's Partridge		LC	4	1	0
	<i>Alectoris barbara</i>	Barbary Partridge		LC	6	0	1
	<i>Lophura swinhoii</i>	Swinhoe's Pheasant	I	NT	8	0	1
	<i>Rollulus rouloul</i>	Crested Partridge		VU	3	0	1
	<i>Perdicula asiatica</i>	Jungle Bush Quail		LC	12	1	1
	<i>Symnaticus soemmerringii</i>	Copper Pheasant		NT	11	0	1
Columbidae	<i>Geopelia cuneata</i>	Diamond Dove		LC	> 500	7	4
	<i>Oena capensis</i>	Namaqua Dove		LC	37	3	2
	<i>Chalcophaps indica</i>	Common Emerald Dove		LC	2	0	1
	<i>Ocyphaps lophotes</i>	Crested Pigeon		LC	4	0	1
	<i>Phaps chalcoptera</i>	Common Bronzewing		LC	6	0	1
Musophagidae	<i>Tauraco corythaix</i>	Knysna Turaco	II	LC	5	0	1

Family	Scientific name	Common name	CITES Appendix	IUCN status	Number of birds	Number of markets	Number of Facebook posts
	<i>Muscophaga violacea</i>	Vioaceous Plantain-eater		LC	4	0	1
Megalaimidae	<i>Lybius dubius</i>	Bearded Barbet		LC	2	0	1
Cacatuidae	<i>Cacatua diucorspii</i>	Solomons Cockatoo	II	LC	1	0	1
	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	II	LC	3	1	1
	<i>Eolophus roseicapilla</i>	Galah	II	LC	3	0	2
	<i>Nymphicus hollandicus</i>	Cockatiel		LC	> 500	12	6
	<i>Calyptorhynchus banksii</i>	Red-tailed Black Cockatoo	II	LC	2	0	1
Psittacidae	<i>Psittacus erithacus</i>	African Grey Parrot	I	EN	18	2	5
	<i>Myiopsitta monachus</i>	Monk Parakeet	II	LC	89	9	5
	<i>Aratinga solstitialis</i>	Sun Conure	II	EN	5	1	2
	<i>Ara ararauna</i>	Blue and Yellow Macaw	II	LC	2	0	2
	<i>Ara macao</i>	Scarlet Macaw	I	LC	2	0	2
	<i>Cyanoliseus patagonus</i>	Burrowing Parrot	II	LC	1	0	1
	<i>Pyrrhura molinae</i>	Green-cheeked Parakeet	II	LC	72	5	4
	<i>Pionites leucogaster</i>	Green-thighed Parrot	II	VU	3	0	2
	<i>Pionites melanocephala</i>	Black-headed Parrot	II	LC	1	0	1
	<i>Amazona aestiva</i>	Turquoise-fronted Amazon	II	NT	3	0	2
	<i>Amazona ochrocephala</i>	Yellow-crowned Amazon	II	LC	2	0	1
Psittaculidae	<i>Agapornis lilianae</i>	Lilian's Lovebird	II	NT	> 500	14	5
	<i>Agapornis personatus</i>	Yellow-collared lovebird	II	LC	> 500	8	3
	<i>Agapornis roseicollis</i>	Rosy-faced Lovebird		LC	> 500	7	4
	<i>Agapornis fischeri</i>	Fisher's Lovebird	II	NT	> 500	6	4
	<i>Melopsittacus undulatus</i>	Budgerigar		LC	> 500	18	7
	<i>Psittacula krameri</i>	Rose-ringed Parakeet		LC	223	6	3
	<i>Psittacula derbiana</i>	Lord Derby's Parakeet	II	NT	1	0	1
	<i>Psittacula eupatria</i>	Alexandrine Parakeet	II	NT	1	0	1

Family	Scientific name	Common name	CITES Appendix	IUCN status	Number of birds	Number of markets	Number of Facebook posts
	<i>Platyercus eximius</i>	Eastern Rosella	II	LC	77	3	2
	<i>Eclactus rotatus</i>	Eclactus Parrot	II	LC	8	0	3
	<i>Cyanoramphus novaezelandiae</i>	Red-crowned Parakeet	I	LC	13	1	3
	<i>Trichoglossus forsteri</i>	Sunset Lorikeet	II	EN	17	2	4
	<i>Poicephalus gulelmi</i>	Red-fronted Parrot	II	LC	2	0	1
Ploceidae	<i>Euplectes afer</i>	Yellow-crowned Bishop		LC	3	0	1
Estrildidae	<i>Padda oryzivora</i>	Java Sparrow	II	EN	> 500	12	5
	<i>Euodice malabarica</i>	Indian Silverbill		LC	> 500	3	4
	<i>Taeniopygia guttata</i>	Zebra Finch		LC	> 500	18	7
	<i>Taeniopygia bichenovii</i>	Double-barred Finch		LC	17	3	5
	<i>Amadina fasciata</i>	Cut-throat Finch		LC	33	2	2
	<i>Amadina erythrocephala</i>	Red-headed Finch		LC	18	0	1
	<i>Bathilda ruficauda</i>	Star Finch		NE	32	1	2
	<i>Poephila acuticauda</i>	Long-tailed Finch		LC	13	1	2
	<i>Poephila cincta</i>	Black-throated Finch	II	LC	5	0	1
	<i>Erythrura gouldiae</i>	Gouldian Finch		NT	143	6	7
	<i>Erythrura trichroa</i>	Blue-faced Parrotfinch		LC	12	0	2
	<i>Erythrura psittacea</i>	Red-throated ParrotFinch		LC	14	0	2
	<i>Lonchura striata</i>	Bengalese Finch		LC	> 500	9	3
	<i>Lonchura pallida</i>	Pale-headed Munia		LC	4	0	1
	<i>Lonchura atricapilla</i>	Southern Black-headed Munia		LC	7	0	2
	<i>Lonchura cucullata</i>	Bronze Mannikin		LC	33	2	4
	<i>Amandava amandava</i>	Red Avadavat		LC	87	0	1
	<i>Uraeginthus bengalus</i>	Red-cheeked Cordon-bleu		LC	8	0	2
	<i>Estrilda melpoda</i>	Orange-cheeked Waxbill		LC	7	0	1

Family	Scientific name	Common name	CITES Appendix	IUCN status	Number of birds	Number of markets	Number of Facebook posts
	<i>Estrilda rufibarba</i>	Arabian Waxbill		LC	21	1	3
	<i>Estrilda caerulea</i>	Lavender Waxbill		LC	6	0	2
	<i>Vidua chalybitata</i>	Green Indigobird		LC	12	0	1
	<i>Stagonopleura guttata</i>	Diamond Firetail		VU	62	3	7
	<i>Spermophaga haematina</i>	Western Bluebill		LC	18	0	1
Fringillidae	<i>Serinus canaria domestica</i>	Domestic Canary		n/a	Thousands	All	All
	<i>Spinus cucullatus</i>	Red Siskin	I	EN	2	0	1
	<i>Carduelis carduelis carduelis</i>	European Goldfinch	III	LC	> 500	20	7
	<i>Carduelis carduelis caniceps</i>	Himalayan Goldfinch		DD	43	4	3
	<i>Crithagra mozambica</i>	Yellow-fronted Canary		LC	7	0	1
	<i>Pyrrhula pyrrhula</i>	Eurasian Bullfinch	III	LC	13	0	2
Emberizidae	<i>Emberiza melanocephala</i>	Black-headed Bunting		LC	32	2	3
Cardinalidae	<i>Cardinalis cardinalis</i>	Northern Cardinal		LC	1	0	1

Table 2. Summary for exotic bird species in trade by family by CITES Appendices I, II and III.

Family	No. species	% of species	I	II	III
<i>Struthionidae</i>	1	1.2	1	0	0
<i>Tinamidae</i>	1	1.2	0	0	0
<i>Numididae</i>	1	1.2	0	0	0
<i>Odontophoridae</i>	5	5.7	1	0	0
<i>Phasianidae</i>	9	10.3	1	0	1
<i>Columbidae</i>	5	5.7	0	0	0
<i>Musophagidae</i>	2	2.3	0	1	0
<i>Megalaimidae</i>	1	1.2	0	0	0
<i>Cacatuidae</i>	5	5.7	0	4	0
<i>Psittacidae</i>	12	13.8	2	10	0
<i>Psittaculidae</i>	12	13.8	1	8	0
<i>Ploceidae</i>	1	1.2	0	0	0
<i>Estrildidae</i>	24	27.5	0	2	0
<i>Fringillidae</i>	6	6.8	1	0	2
<i>Emberizidae</i>	1	1.2	0	0	0
<i>Cardinalidae</i>	1	1.2	0	0	0
Total	87	100.0	7	25	3



Plate I. A: Common Emerald Dove *Chalcophaps indica*, B: Bearded Barbet *Lybius dubius*, C: Knysna Turaco *Tauraco corythaix*, D: Rose Ringed Parakeet *Psittacula krameri*, E: Diamond Firetail *Stagonopleura guttata*, F: Red Siskin *Spinus cucullatus*, G: Double Barred Finch *Taeniopygia bichenovii*, H: Cut-throat Finch *Amadina fasciata*. © Saed Al-Shomali



Plate 2. A huge delivery of exotic wild birds prepared to enter the West Bank through an Israeli settlement.
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DISCUSSION

Wildlife has been used by humans since the dawn of our existence, representing an important resource for survival, especially in countries rich in biodiversity (Lenzen *et al* 2012, Carrete & Tella 2008). The Palestinian Territories (West Bank) have a unique political situation in terms of jurisdiction. The areas were occupied by Israel in 1967, and the Palestinian Authority was created as a self-governing body in 1994. It has since signed several international conventions and agreements, including the Convention on Biological Diversity (CBD). The Palestinian Authority is not a signatory

to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). With the absence of a legal framework, wildlife protection in the Palestinian Territories faces several constraints, especially the Israeli occupation and lack of proper enforcement (Handal *et al* 2021).

The domesticated Canary *Serinus canaria domestica* is dominant in Palestinian animal markets in high numbers that may reach more than 50 000 individuals, with several morphs. The pet trade does not only depend on locally bred birds, but also on imported birds from other countries, such as Turkey, Spain and Italy. For example, a pair of Red Siskins (Endangered, CITES Appendix I) found in the Palestinian animal market was being used to hybridize with domesticated canaries to obtain the red factor dimorphism.

Trade in exotic birds may lead to introduction of invasive alien species, and negatively affect the environment and native species. Of the 87 bird species recorded in this study, 36 species are considered either as introduced or invasive species in several countries around the world. Three species found in the Palestinian animal markets are considered as invasive species; Indian Silverbill *Euodice malabarica*, Rose-ringed Parakeet *Psittacula krameri* and Monk Parakeet *Myiopsitta monachus* (Handal *et al* 2021). Moreover, Namaqua Dove *Oena capensis* is considered as an introduced species that is found in trade in the Palestinian animal markets and is imported from abroad. The distribution of the Common Myna *Acridotheres tristis* remains almost entirely restricted to areas of human habitation all over the West Bank (Handal & Qumsiyeh 2021). Trade in exotic birds poses a threat to the local biodiversity and environment in Palestine, and trapping wild animal is increasing the threat to wild birds (Handal *et al* 2021).

Zoonotic diseases represent one of the most pressing concerns that may arise from illegal trade in exotic species, due to the absence of quarantine and poor knowledge in the diagnosis of zoonotic diseases by health official. The Environmental Law of the Palestinian authority lacks proper articles to regulate trade in exotic species. Articles No. 41 and 42 deal with the protection of all forms of wildlife, and these should be supplemented with regulations on animal trade. Becoming a signatory to the CITES agreement should be among the main priorities of the Palestinian Authority. More enforcement to regulate and monitor animal markets all over the Palestinian Territories should be undertaken by the environmental authorities as well as monitoring all forms of social media posting advertisement for animal trade. Increasing environmental awareness among the local communities on the threats of exotic species will positively affect their attitudes towards nature conservation.

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