

Trends in CITES Listed Bird's Trade in South Asian Countries in View of Evolution of Indian Laws during Last Four Decades

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ABSTRACT

Wildlife is considered to be a very effective money making trade. Very lucrative and important among these is trade in cage birds. It is considered to be difficult to obtain information on both legal and illegal aspects of trade. Present study is an attempt to understand the changing trade of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) enlisted bird species of South Asian countries with focus on India-relating to ever emerging wildlife laws in India. This study has taken into account CITES listed bird's import and export since 1975 to 2019 for India, Pakistan, Bangladesh and Nepal. The analysis has showed that import as well as export of birds in India has rapidly declined after 1991, which may be associated with The Wildlife Protection (Amendment) Act, 1991. The analysis also shows that import of birds has started rising for Nepal, Bangladesh and Pakistan since 1991 and has increased tremendously from 2010 for Bangladesh and Pakistan. Maximum of these birds are captive birds. These birds may end up in India from its porous border with adjoining countries. The authors suggest reading between the lines and having an improved system of surveillance and active local community participation to curb illegal bird trade.

Keywords: CITES, import, export, bird trade, Psittaciformes, Passeriformes, parrot trade, India, The Wildlife Protection Act, Pakistan, Nepal, South Asia, Bangladesh.

Mathematics Subject Classification: 62J12, 62G99

Journal of Economic Literature (JEL) Classification : Q12, D24

1. INTRODUCTION

The global wildlife trade is one of the biggest reasons for population decline along with introduction of alien parasites in wildlife (Tingley et al. 2017; Aloysius et al. 2019). Millions of animals belonging to thousands of species are transported from one region to another nationally and internationally for

wildlife trade (Broad et al. 2003). As advancement in science and technology is making the world more connected, international trade in wildlife is also increasing manifold. This has not only created problems of conservation of wildlife, but is also associated with other spheres such as economic, ethical, human health, animal welfare, overexploitation, alien species invasion etc. COVID is the most recent example of the same (Baker et al. 2013; Harkins et al. 2014; O'Hanlon et al. 2018; Martin et al. 2018). Hence, it is critical to understand the patterns of wildlife trade to know its extent, the way it operates and make informed policies for its regulation/control (Challender et al. 2015).

Birds as valuable pets are gaining more popularity in recent years due to their ability to mimic human voice, their colour, tolerance to captivity and low maintenance especially parrots. The bird pet industry is flourishing and is cause of new invasive birds species throughout the world (Vall-Illouera and Cassey 2017). Parrots have coexisted with humans since long due to their high intelligence and beautiful coloured wings. They have even been used as flagship species in many regions to protect their biodiversity (Fliesman et al. 2000). But these characteristics have also made them most threatened bird order today (Berkunsky et al. 2017). Presently, in India, the demand of parrots as pets is all time high as suggested by various reports (Kumar, 2019). The amount of pet birds has increased from 143 thousand to 157 thousand from 2014 to 2019 and will reach upto 173.6 thousand by 2023 in India only, majority of whom are exotic birds (Keelery, 2021). It is a very worrying figure. In view of the above, it is essential to know from where these exotic pet birds are coming to India as India is not a native home for many of them including Cockatiels, Parakeets, African Love Birds, Pineapple Conure, etc.

South Asia is a mega diverse region with many biodiversity hotspots and has a glorious tradition in protection of wildlife. Various indigenous communities worship various birds and consider them sacred. However, over time, agenda of conservation has changed in South Asian countries due to change in societal structure, cultural beliefs and political changes. Moreover, birds trade has increased over time due to high demand, monetary value and cultural acceptance (Indraswari et al. 2020). Avibase (2020) has recorded 1513 species in South Asian region, out of which 127 species are globally threatened. India has been reported to have 1349 (including extinct species) species of birds among which 78 are endemic (Leopgae, 2019). Another recent mega data compilation reported 867 bird species from India (State of India's Birds 2020). The study highlighted that long term estimates show that 52% of bird species have declined since the year 2000, with 22% declining strongly while current annual trends (last 5 years) for 146 species showed that nearly 80% are declining, with almost 50% declining strongly in India. One example of which is Great Indian Bustard (GIB), India's heaviest flying bird whose population has declined by 80% in 50 years (Dharmakumarsinhji 1971; Bird Life International 2018).

The *CITES Trade Database* is managed by the UNEP World Conservation Monitoring Centre (UNEP-WCMC) on behalf of the *CITES* Secretariat. It includes the data of trade of all *CITES* listed species for countries who are member of *CITES*. Many studies have used *CITES* database to analyse the trends of trade for various species (Green and Hendry 1999; Pernetta 2009; Foster et al. 2014; Li and Jiang 2014; Sarah et al. 2016; Fleur, 2020). No such study has been carried out for South Asian countries. This is the first such comprehensive study. The study gives insights on how change in Indian wild life

laws has changed bird trade in South Asian countries in last four decades. All countries taken in the study had become parts of CITES relatively early i.e. Nepal in 1973, Pakistan and India in 1976, Bangladesh in 1981 (CITES 2020). India has been a major exporter of birds till 1990's.

The analysis of this data is very important due to various reasons. Indian laws are considered very uncompromising when it comes to wildlife trade majorly due to The Wildlife (Protection) Act, 1972 which has been amended over time to meet up the demands of protection of wildlife. Along with these laws, The Customs Act, 1962 and the foreign trade (development and regulation) act, 1992 also regulate movement of birds to and from India. We have attempted to understand the trade of CITES enlisted birds in South Asia with focus on India since 1975 by addressing few key questions: What is the total amount of bird trade in south Asia? How it has changed over time? How changes in Indian laws have affected this trade? Which species are more vulnerable to trade?

2. METHODS

The data of import and export of birds from India since 1975 to 2019 and for Pakistan, Nepal and Bangladesh from 1975 to 2018 was downloaded from CITES database i.e. <https://trade.cites.org> and was used for analysis. As per CITES trade database guide, 2013 "The CITES Trade Database, managed by the UNEP World Conservation Monitoring Centre (UNEP-WCMC) on behalf of the CITES Secretariat, is unique and currently holds over 13 million records of trade in wildlife and over 34,000 scientific names of taxa listed in the CITES Appendices". All Indian wildlife laws have been studied through literature search to find the laws affecting wild life trade. The most important laws found include The Wildlife Protection Act, The Customs Act and various advisories issued by government from time to time. The Wild Life (Protection) Act, 1972 is the umbrella law regarding wildlife trade whose evolution was found associated with changing wildlife trade. The sections of The Wild Life (Protection) Act, 1972 which are associated with wild life trade were studied in detail and a timeline was drawn connecting the amendment in this act to changing bird trade.

3. Results

3.1 Overall levels of Trade for India

India has been a major exporter of birds from 1980's to 1990's which as depicted in the Figure 1 and Figure 2. During the period of 1975 to 2019 the total number of live birds exported was 212308 and live birds and their products were 315607. The difference in these numbers is due the large number of small bird products such as feathers. Most of these birds and their products has been exported in between 1981-1990 i.e. 211038 live birds and 311186 birds and their products. However, the import data do not show such trend as total live birds imported was 4924 and number of birds imported between 1981-1990 was 1621. When it comes to the period in between 1981-1990 the birds and their products, the total import was 19124 and 3177. If the bird import data is observed more closely it is evident that there are three other minor peaks during 1995, 2005 and 2012. However, none of the peak is major as shown in Figure 1 and Figure 2.

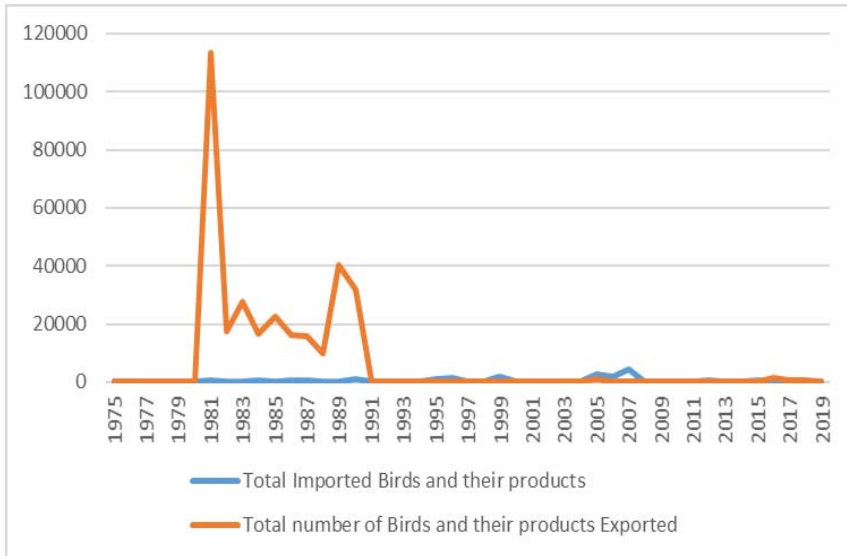


Figure 1. Import and Export of live birds and their products and birds since 1975 to 2019 as per CITES database.

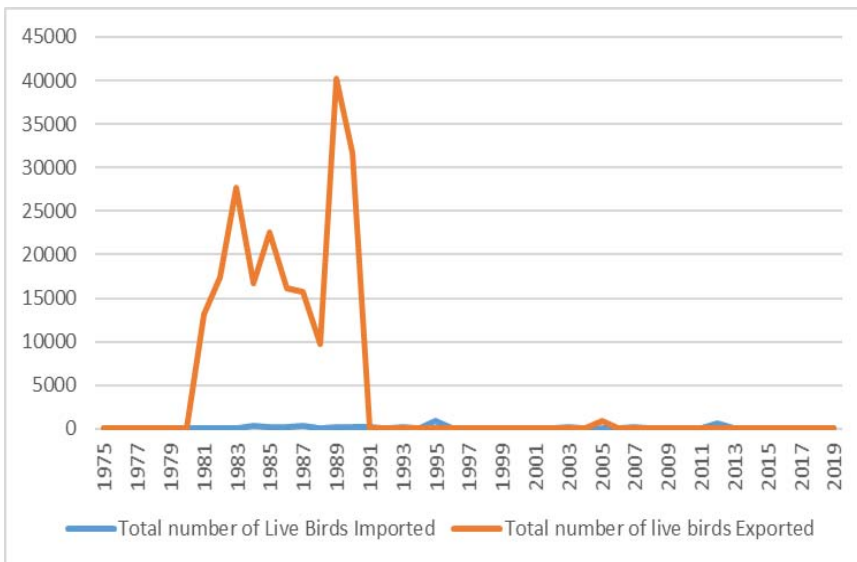


Figure 2. Import and Export of live birds since 1975 to 2019 as per CITES database.

Table 1. Number of Species and individuals of live birds imported and exported in international since 1975 to 2019 as per CITES database.

Order	No. of Species imported	No. of individual birds Imported	Number of species Exported	Number of individuals Exported
Psittaciformes	109	3859	39	211797
Anseriformes	2	27	1	52
Gruiformes	4	24	2	6

Sphenisciformes	1	24	Nil	Nil
Struthioniformes	1	12	1	25
Coraciiformes	1	2	1	1
Rheiformes	1	3	Nil	Nil
Ciconiiformes	2	37	2	15
Galliformes	9	236	Nil	Nil
Passeriformes	6	732	3	403
Falconiformes	7	18	5	6
Piciformes	6	17	1	1
Rheiformes	2	4	Nil	Nil
Columbiformes	5	45	1	2
Piciformes	2	5	Nil	Nil

Table 2. Maximum exported Species and no. of individuals from India from 1975 to 2019 as per CITES database

Maximum exported species (Scientific Name)	Maximum exported species (Common Name and Indian Name)	Order	No. of individuals Exported
<i>Psittacula krameri</i>	Rose-ringed parakeet (तोता)	Psittaciformes	59758
<i>Psittacula cyanocephala</i>	Plum-headed parakeet (टोईया, सुगा, दुई, तोता)	Psittaciformes	57937
<i>Psittacula eupatria</i>	Alexandrine parakeet (सिकंदर, पहाड़ीतोता, पहाड़ी पोपट)	Psittaciformes	54987
<i>Psittacula alexandri</i>	Red-breasted parakeet, Moustached Parakeet	Psittaciformes	29413
<i>Psittaciformes spp.</i>	Parrot (तोता)	Psittaciformes	4400
<i>Psittacula spp.</i>	Parrot (तोता)	Psittaciformes	3350
<i>Psittacula himalayana</i>	Slaty-headed parakeet/ Himalayan Parrot (पहाड़ी तोता)	Psittaciformes	1020
<i>Psittacula roseata</i>	Blossom-headed parakeet (तोता)	Psittaciformes	507
<i>Gracula religiosa</i>	Common hill myna (मैना)	Passeriformes	302
<i>Aratinga aurea</i>	Peach-fronted parakeet (तोता)	Psittaciformes	172
<i>Eos rubra</i>	Red lorry (लाल तोता)	Psittaciformes	100
<i>Lonchura cantans</i>	African silverbill, White-throated munia (मैना)	Passeriformes	100

Table 3. Maximum imported Species and no. of individuals to India from 1975 to 2019 as per CITES database

Species Maximum imported (Scientific Name)	Maximum imported species (Common Name)	Order	No. of individuals imported
<i>Platyercus eximius</i>	Eastern rosella	Psittaciformes	407
<i>Psephotus haematonotus</i>	Red-rumped parrot	Psittaciformes	383
<i>Serinus leucopygius</i>	White-rumped seedeater	Passeriformes	300
<i>Serinus mozambicus</i>	Yellow-fronted canaries	Passeriformes	300
<i>Agapornis personatus</i>	Yellow-collared or black-masked lovebirds	Psittaciformes	256
<i>Psittacus erithacus</i>	Grey parrot	Psittaciformes	237

<i>Platycercus elegans</i>	Crimson rosella	Psittaciformes	227
<i>Catreus wallichii</i>	Cheer pheasant	Galliformes	194
<i>Poicephalus gulielmi</i>	Red-fronted parrot	Psittaciformes	151
<i>Amadina fasciata</i>	Cut-throat finch	Passeriformes	150
<i>Neophema pulchella</i>	Turquoise parrot	Psittaciformes	149
<i>Aratinga solstitialis</i>	Sun parakeet	Psittaciformes	113
<i>Vidua paradisaea</i>	Long-tailed paradise or eastern paradise whydah	Passeriformes	100

Table 4. Purpose and source of import and export bird trade from India since 1975 to 2019 as per CITES database.

Purpose	No. of birds Exported	No. of birds Imported	Source	No. of birds Exported	No. of birds Imported
Undefined	72964	870	U	213466	556
P	141	863	C	1347	2898
T	142184	2854	I	18	16
Z	19	124	W	639	1287
B	154	40	O	3	16
S	3	63	R	1	6
E	4	44	F	8	86
Q	13	9	D	Nil	4
N	Nil	2			
Total	215482	4869		215482	4869

The full form of keywords used here : "Purpose is P-Personal, T-Commercial, T-Zoo, B-Breeding in captivity, S-Scientific, E-Educational, Q-Circus or travelling exhibition, N- Reintroduction or introduction into the wild and for Source is U-Source Unknown, C- Animals bred in captivity in accordance with Resolution Conf. 10.16 (Rev.), as well as parts and derivatives thereof, exported under the provisions of Article VII, paragraph 5, of the Convention, I- Confiscated or seized specimens, W-Specimens taken in the marine environment not under the jurisdiction of any State, O-Pre-Convention specimens, R-Ranched specimens: specimens of animals reared in a controlled environment, taken as eggs or juveniles from the wild, where they would otherwise have had a very low probability of surviving to adulthood, F-Animals born in captivity (F1 or subsequent generations) that do not fulfil the definition of 'bred in captivity' in Resolution Conf. 10.16 (Rev.), as well as parts and derivatives thereof and D-Appendix-I animals bred in captivity for commercial purposes in operations included in the Secretariat's Register, in accordance with Resolution Conf. 12.10 (Rev. CoP15), and Appendix-I plants artificially propagated for commercial purposes, as well as parts and derivatives thereof, exported under the provisions of Article VII, paragraph 4, of the Convention."

Table 5. Number of species and their individuals imported from and exported to various countries since 1975 to 2019 as per CITES database (In cases when importer and exporter countries showed different number of individuals, higher amount was considered)

Name of Country	No. of Live Birds Exported	No. of species of Birds Exported	No. of Live birds imported	No. of birds species imported
UNKNOWN	25223	8	Nil	Nil
JAPAN	45502	7	27	7
ITALY	32124	4	Nil	Nil
GERMANY	31702	5	18	4
NETHERLANDS	25185	8	2197	43
UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	22440	15	103	18
BELGIUM	13656	4	339	16
France	12141	8	Nil	Nil
MALAYSIA	8405	4	28	3
SWEDEN	6087	5	1	1
THAILAND	4966	2	8	3
UNITED STATES OF AMERICA	4865	15	41	17
UNITED ARAB EMIRATES	3733	11	848	38
Portugal	3652	6	2	1
SINGAPORE	3033	15	688	72
AUSTRIA	2143	4	Nil	Nil
GREECE	1195	3	Nil	Nil
HONG KONG	860	3	18	6
DENMARK	790	5	1	1
EGYPT	700	2	1	1
SWITZERLAND	574	5	3	2
JORDAN	378	4	Nil	Nil
PHILIPPINES	102	2	27	6
KUWAIT	100	1	50	6
MALTA	100	1	Nil	Nil
NIGERIA	25	1	1	1
FORMER EAST GERMANY	14	3	Nil	Nil
OMAN	13	2	13	3
MADAGASCAR	8	1	Nil	Nil
CANADA	7	4	1	1
SAUDI ARABIA	6	3	2	1
IRAQ	4	1	Nil	Nil
SPAIN	4	4	Nil	Nil
CZECH REPUBLIC	3	3	30	6
RUSSIAN FEDERATION	3	1	4	1
ISRAEL	2	1	Nil	Nil
SOUTH AFRICA	2	1	127	7
CHINA	1	1	Nil	Nil

DOMINICAN REPUBLIC	1	1	Nil	Nil
KENYA	1	1	12	2
QATAR	1	1	30	7
DEMOCRATIC REPUBLIC OF THE CONGO	Nil	Nil	171	2
SURINAME	Nil	Nil	52	11
SUDAN	Nil	Nil	30	1
SRI LANKA	Nil	Nil	30	4
PAKISTAN	Nil	Nil	25	3
REPUBLIC OF KOREA	Nil	Nil	22	2
UNITED REPUBLIC OF TANZANIA	Nil	Nil	17	4
BAHRAIN	Nil	Nil	15	5
TRINIDAD AND TOBAGO	Nil	Nil	15	5
MAURITIUS	Nil	Nil	8	2
GHANA	Nil	Nil	6	2
NEPAL	Nil	Nil	6	2
GUYANA	Nil	Nil	4	2
INDONESIA	Nil	Nil	4	3
NEW ZEALAND	Nil	Nil	4	1
AUSTRALIA	Nil	Nil	2	2
BELIZE	Nil	Nil	2	1
TOGO	Nil	Nil	2	1
UGANDA	Nil	Nil	2	1
BRAZIL	Nil	Nil	1	1

Number of species imported is almost always higher than the number of species exported. The maximum species of birds were imported in 1989 (50 species), 2003 (45 species) followed by 1999 and 2011 (32 species) while the number of birds species exported has remained below 10 except in 1999 and 2003 (11 species exported). Interestingly, the number of species exported in years 1981-1990 varies from 4-8 species per year. This clearly shows that species specific large scale export had taken place with maximum species of parrots from *Psittaciformes* except *Gracular eligiosa* which belong to *Passeriformes* (Table 2). Purpose and source of import and export bird trade from India since 1975 to 2019 is provided in Table number 4. The list of countries with which bird trade occurred has been provided in Table no. 5 along with number of live birds and number of species of birds. The species which were maximum imported and exported are given in Table number 2 and 3 along with number of individuals.

3.2 Changing Trends of Indian Bird Trade over Time

As shown by Figure 1, 2 and 3, the import and export bird trade has followed different pattern species in the one decade i.e. 1981-1990. In this decade when export of the birds increased suddenly reaching its peak while import remained more or less the same. One major trade regulation which changed during this decade was the liberalization in industry and trade which was introduced in India

in 1980's in various phases. A pareto chart as shown in Figure 4 shows that with the passage of time, the bird trade has decreased.

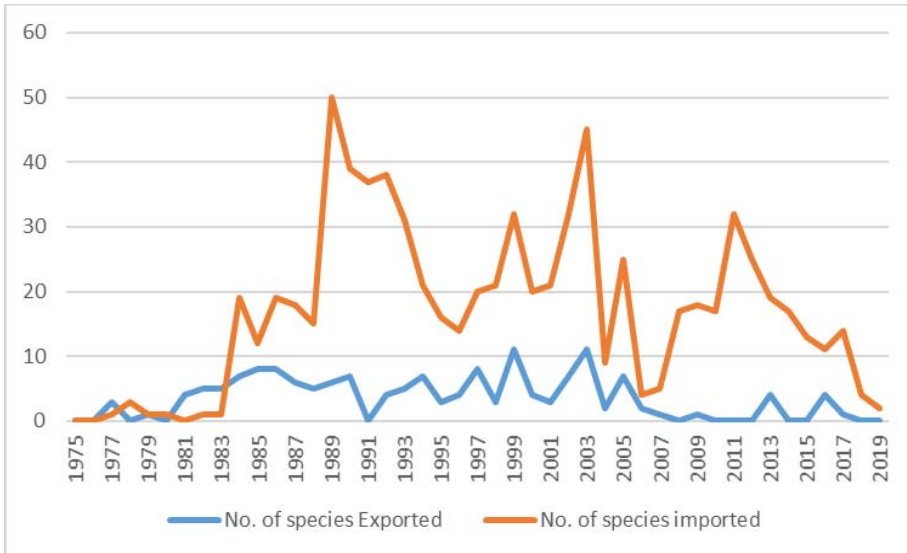


Figure 3. Import and Export of number of species of live birds since 1975 to 2019.

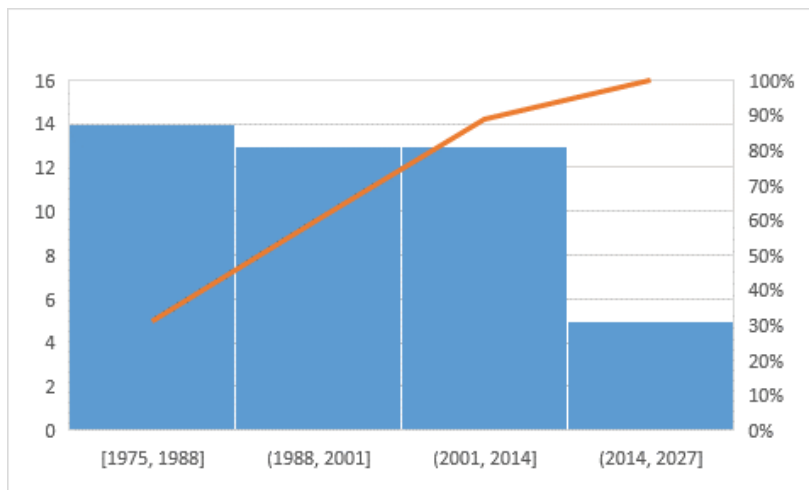


Figure 4. Distribution of Import and export of live birds over time using pareto chart. The data is as per CITES database

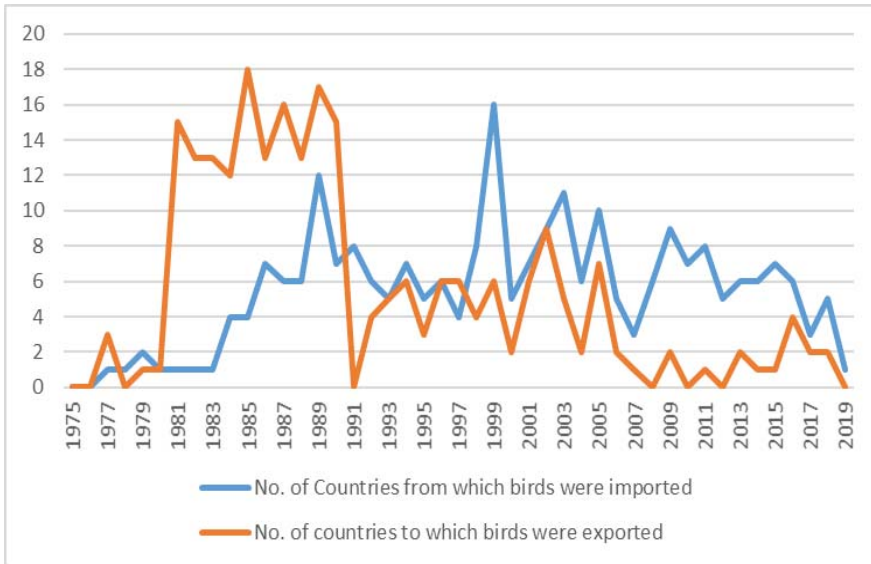


Figure 5. Number of countries to which live birds were imported and exported since 1975 to 2019 as per CITES database

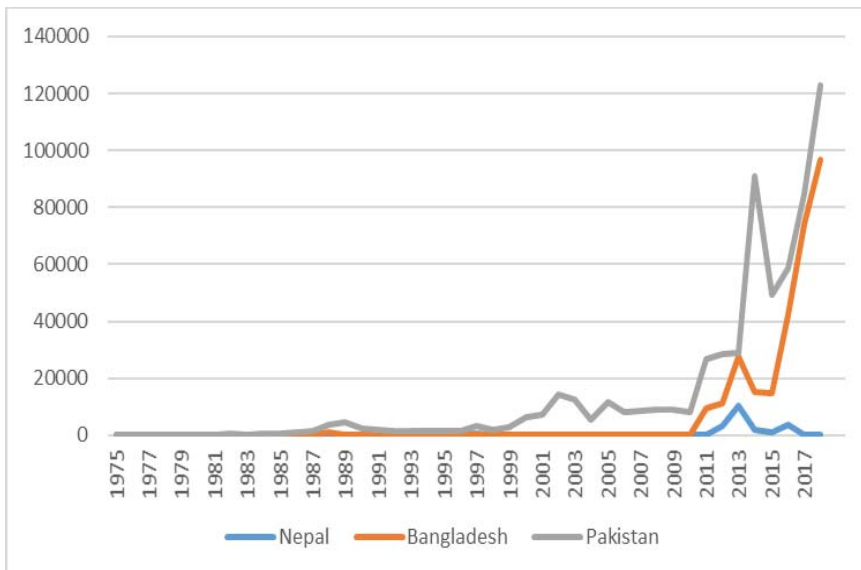


Figure 6. Import of live birds and their products since 1975 to 2018 as per CITES database.

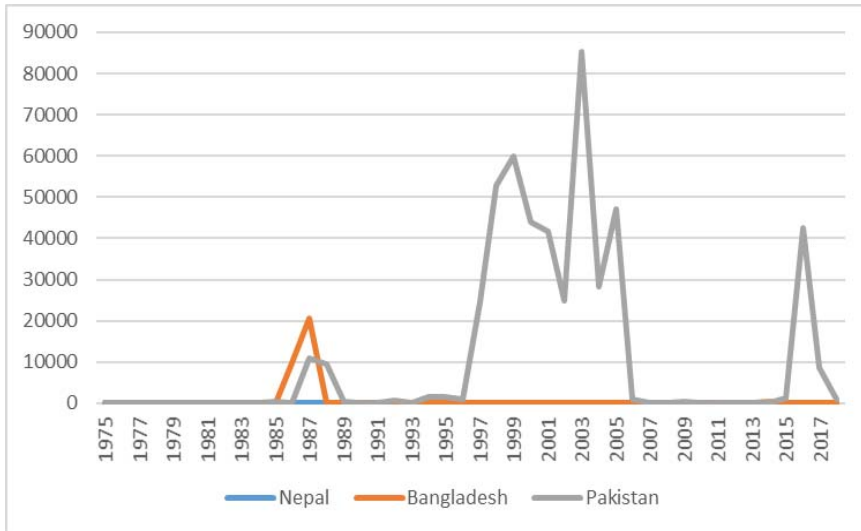


Figure 7. Export of live birds and their products since 1975 to 2018 as per CITES database

Table 6. Source of import of bird and their products since 1975 to 2018 as per CITES database.

Source Code	No. of Birds and their products imported to Nepal	No. of Birds and their products imported to Bangladesh	No. of Birds and their products imported to Pakistan
C	22025	288316	580825
W	771	6608	32323
O	2	1	88
Z	2	Nil	Nil
U	36	3555	9278
F	88	129	2312
T	342	Nil	Nil
R	Nil	2	274
D	Nil	Nil	1278
I	Nil	Nil	56

3.3 Change in Trade due to amendments in Wild Life Laws especially The Wild Life (Protection) Act, 1972

Among Indian regulations for wildlife trade, most important is The Wild Life (Protection) Act, 1972 which has been amended several times i.e. in 1982, 1986, 1991, 1992, 2002, 2006, 2013 and 2017.

However, the foundation for the Wild Life (Protection) Act, 1972 was laid much earlier. The first ever law for protection of any animal (Elephant) was laid by King Ashoka on stone edicts in 3rd century B.C. (Sinha 2010). First modern law related to wildlife crimes may be traced back to mid-nineteenth century in the Indian Penal Code, 1860 which defined "animal and declared killing or maiming of

animals as a punishable offence" followed by Elephant Preservations Act, 1879, Wild Bird Protection Act, 1887 and Wild Birds & Animal Protection Act, 1912 (Madhuker et al. 2018). Wild Birds & Animals Protection Act (1912) was amended in 1935 as Wild Birds & Animals Protection Act (1935). The most noteworthy law of which was Section 11 which gave the Provincial Government power to "declare any area to be a sanctuary for the birds, or, animals; and their killing was made unlawful. Any violation of Section 11 was made punishable with fine" (Madhuker et al. 2018). This act was later replaced by The Wild Life Protection Act (1972) which was the first act passed in independent Indian Parliament regarding wildlife crimes.

The Wild Life (Protection) Act, 1972: The Wildlife Protection Act was passed by Indian Parliament in 1972 when Parliament reached a common consensus that The Wild Birds and Animal Protection Act, 1912 had become completely outmoded. The Wild Life Protection Act (1972) defines "animal as it includes amphibians, birds, mammals and reptiles and their young, and also includes, in the cases of birds and reptiles, their eggs; animal article means an article made from any captive animal or wild animal, other than vermin, and includes an article or object in which the whole or any part of such animal has been used, and ivory imported into India and an article made therefrom". It makes it clear that birds and their eggs are categorized as animals while any article made using any bird/egg is defined as animal article. As we cannot explain the whole articles here, major points which are related to bird trade which evolved after every amendment are being listed below. To keep up with the Act, "animal" word used below in the act shall be understood as "bird/egg" in context of this paper.

The Wild Life (Protection) Amendment Act, 1982: The two major objectives of The Wild Life Protection Act, 1982 were "i) Specified endangered species are protected regardless of location ii) all species are protected in specified areas." This act for the first time banned licensing for carrying on business in animal made trophy and articles which discouraged trade in trophies made by various animals' (The Wildlife Protection Act, 1982). It also had no provision for scientific research and management of wild animals. Section 44 of this Act relates to grant of licensees (within specified time) for carrying on business in trophy and animal articles.

The Wild Life (Protection) Amendment Act, 1986: The main guideline which affected the wildlife trade was that no one was to be permitted to trade in wild animals specified in Schedule I or Part II of Schedule II of the Act or in any of its derivatives. However, the act allowed trade or commerce in wild animal's articles and trophies within the country which has been used by poachers for carrying out illegal trade of wildlife as there is not such wildlife trade market locally and this point is being used to meet the demand in foreign markets. The article also attempted to acquire the declared stocks of skins of some wild species, but it was not much fruitful as traders are not inclined towards making their stocks public. Hence, later all licenses for wildlife trade were made invalid and no fresh licenses were issued.

The Wild Life (Protection) Amendment Act, 1991: **The hunting of wild life animals was banned by this act** except in certain crucial cases such as self-defense, "dangerous to human life or is as disabled or diseased as to be beyond recovery" with prior permission from Chief Wild Life Warden.

This act also deleted the clause of maintenance of records of wild animals killed or captured. This act also made it mandatory for transporters to take proper permission before transport of any wild life product.

Another very useful Clause was the **appointment of Honorary Wild Life Wardens and rewards to persons helping in apprehension of offenders regarding wildlife crimes**. The act also **increased the penalties for various offences regarding wildlife crime and gave right to everyone to file complaints in the Courts for offences under the Act. Moreover, the import and export of African ivory for commercial purposes was prohibited**.

The Wild Life (Protection) Amendment Act, 1993: Central Zoo Authority was made which is "responsible for overseeing the functioning and development of zoos in the country. Only such zoos would be allowed to operate as are recognized and maintain animals in accordance with the norms and standards prescribed by the Zoo Authority."

The Wild Life (Protection) Amendment Act, 2002: This act made The Wild Life Protection Act (1972), more comprehensive, effective and high lightened the ecological and environmental objective of the act as well as added new definitions in the act. The act gave statutory status to the National Board for Wild Life and restructured State Wild Life Advisory Boards. Many safeguards were introduced in the Act to stop killing of animals on the pretext of being dangerous to human life and property. The act also banned commercial sale of forest produce removed from national parks and sanctuaries and stopped the further every kind of commercial construction inside the national parks and sanctuaries except with the prior approval of the National Board for Wild Life.

The act also forced that "zoos shall not acquire, or dispose of any wild or captive animals to any organization other than a recognized zoo and ascertained that captive animals and wild animals included in Schedule I and part II of Schedule it of the Wild Life Act and their parts and products can be acquired only by way of inheritance." The act also "enhanced rewards to persons rendering assistance in detection of offences and apprehension of offenders and provided that the vehicles, weapons and tools, etc., used in committing compoundable offences are not to be returned to the offenders."

The Wild Life (Protection) Amendment Act, 2006: This act leaded to creation the National Tiger Conservation Authority and the Tiger and Other Endangered Species Crime Control Bureau (Wildlife Crime Control Bureau).

The Wild Life (Protection) Amendment Act, 2013: The act established a legal framework for the protection and conservation of various species of plants and animals and the proper management of their habitats. The act also the regulation and control of trade in parts and products derived from such species.

The Wild Life (Protection) Amendment Bill, 2017: The latest amendment purposed in The Wild Life (Protection) Amendment Act, 2013 is The Wild Life (Protection) Amendment Bill, 2017 which was introduced in Lok Sabha in 2017; it is yet to be passed as an Act from Indian Parliament as discussion

on this is still ongoing. This bill purposed the constitution of "National Rhino Conservation Authority" by the country and "Rhino Conservation Foundation" by states.

CITES listed birds trade in India's neighbouring countries

Figure 6 and 7 show the import and export data of birds from India's neighbouring countries i.e. Nepal, Bangladesh and Pakistan. The data for Pakistan and Bangladesh shows clear peaks in import from 2010. The imports start increasing from 1997 in case of Pakistan and keep doing so with minor fluctuations while they show very high increase in last one decade in case of Bangladesh.

As these countries geographical area is very less as compared to India but have too much imports, source of the birds was sought for these countries (Table 7), which showed that majority of these birds were originated from captive breeding. One reason for these high imports in India's surrounding small countries may be that they illegally end up in India via porous land border.

4. Discussion and Conclusion

The data clearly shows that CITES listed bird's trade has increased significantly in last few years in South Asian countries, especially for Bangladesh and Pakistan. Both countries are members from CITES since long and have well established legal structure against wildlife trade. The most important law of Pakistan for wildlife trade is Pakistan Trade control of Wild Flora and Fauna Act, 2012 (Pakistan Trade control of Wild Flora and Fauna Act, 2012) along with various case laws (Mughal, 2020). The umbrella legislation for illegal wildlife trade in Bangladesh is Wildlife (Protection and Safety) Act 2012 (Wildlife Act, 2012; Dey and Rabbi, 2015). The number of birds imported has remained less than two thousand birds per year for India, Pakistan, Nepal and Bangladesh while for Pakistan and Bangladesh, it started increasing tremendously after 2010. The number of birds imported is more than one lakh for Pakistan and more than eighty thousand for Bangladesh for year 2018. While India and Nepal has collectively imported less than one thousand birds in the same year. As trend of exotic birds as pets has increased in recent years, (Aloysius, 2019), it may be the reason of increased import. As Pakistan and Bangladesh are geographically small and exotic birds are highly priced (Kumar, 2019), it is highly possible that these birds end up in India via porous border between these countries. The forecast of environmental intensity based on the Grey (1,1) model demonstrates that Pakistan's environmental intensity would decrease as economic development, CO₂ emissions, and material resource use decrease (Yousaf et al., 2020). Many other studies back this claim (Kabir, 2019; Ali and Khan, 2020; Datta, 2021; Essa, 2021; Keelery, 2021). Niraj et al. (2012) performed detailed trend analysis on *Pterocarpus santinilus* with a high frequency of seizures over time and described their deterministic/stochastic patterns and structural breakdowns.

As most birds easily migrate across varied geographical areas. Traders use bird migration to their advantage in different countries and regions of the world (Pires and Moreta, 2016). Hence, to control birds trade local, national, regional and international cooperation is needed. India follows many bilateral, regional and international agreements to curb the wildlife trade. Most important of them is CITES. The findings of the research done by Mandal et al. (2018) suggested that conservation spending might be enhanced, since it now accounts for just 3.52 percent of overall willingness to pay.

Furthermore, 8.86 percent of conservation expenditures may be recovered from users, with the remainder coming from general tax payers. The existing user charge is determined to be severely underpriced, and it may be increased to achieve greater and more effective conservation.

India has been a respectable country since the beginning due to strict wildlife laws. The love for wild animals and plants are a part of cultural traditions and beliefs since the start of civilizations in Asia. South Asia is a mega-diverse country not only for wild life but also for various religions, cultures, languages, communities and food habits amongst others. Different cultures worship and protect different animals and plants such as Bishnoi community protect Khejdi tree (*Prosopis cineraria*) and Indian antelope (*Antelope cervicapra*), Hindus worship many trees and animals such as owl, peacock, horse, monkey, tulsi (*Ocimum sanctum*), peepal (*Ficus religiosa*), banyan (*Ficus benghalensis*) to name a few. Hence, the nature of love and respect for all living organisms is imbibed amongst Indian general population.

India has improved its wildlife laws over time principally by Amendments in The Wild Life Protection Act, 1972. Even presently, The Wild Life (Protection) Amendment Bill, 2017 stands with Indian Parliament for another amendment. Presently, Constitution of India in The Wild Life (Protection) Amendment Act, 2013 has defined import, export, specimen and trade as following “(e) ‘export’ means export from India to any other country of animal, animal article, meat, trophy, specimen, exotic species or of any of them; (f) ‘import’ means import into India from any other country of animal, animal article, meat, trophy, specimen, exotic species or of any of them ‘specimen’ means-(A) for species included in Appendices I and II, any readily recognizable part or derivative thereof; (B) for species included in Appendix III, any readily recognizable part or derivative thereof specified in Appendix III of Schedule VII in relation to the species; ‘trade’ means export, re-export, import and introduction from the sea”. Although, the law defines everything in a very good way, is strict, is positive towards informers, still traders are finding ways amongst all to not only survive, but also thrive as shown by traffic reports (Sinha 2010).

Statistics reveal that bird import to India has remained very less throughout the period of study, but bird export had attained peak in a decade (1980-1991). One major trade regulation which changed during this decade was the liberalization in industry and trade which was introduced in India in 1980's in various phases. Several export incentives were introduced or expanded at that time and relaxation of extra layer of regulation was given (Panagariya 2004). While these liberalizations do not talk about wildlife trade anywhere as such, yet, there is not any other major change in Indian trade regulations at that time. Panagariya (2004) also writes that although liberalization was already under way during the 1980s but growth in the 1980s was fragile and unsustainable. Later, in 1990's however, more systematic and systemic reforms were put in place by India but they do not have any relations to the wildlife trade which suddenly dropped in 1990's in India. The one Amendment however, may be the cause of it which is The Wildlife Protection Amendment Act (1991). It can be seen that this act changed the export trade of India and the bird export which was more than 20,000 bird export a year in 1981-1990, which fell down to approx. 20 birds a year in 1991-2000. Hence, if we have to note the

single amendment which has affected the wildlife trade in India, The Wildlife Protection Amendment Act (1991) should be it.

It also highlights another very important factor that although India has become a member of CITES in 1976, the first law which banned the trapping/harvesting of wildlife came in 1991 in the form of Wildlife Protection Amendment Act (1991) as per Indian constitution. Even after 1991, India has further strengthened its wildlife laws mainly with Amendments in already existing laws. Latest of which was a voluntary disclosure scheme announced by Indian government advisory in June, 2020 which urged Indians to declare possession of any exotic live species which come under any of three appendices of CITES. The advisory even promised that no action would be taken even if the owners lacked proper documentation to allow maximum disclosures (Advisory for dealing with import of exotic live species in India and declaration of stock, 2020). Under the wake of this, the ministry received disclosure applications from 32,645 Indians. The disclosures indicated that parrots, cockatiels, macaws and lovebirds formed the maximum part of exotic live species (Ganekar, 2021). This shows that even after approximately 30 years of 1991 ban, illegal wildlife trade of exotic animals listed in CITES is very high in India, especially for birds. Researchers argue that despite measures implemented in 1991 to ban the capture and trade of wild birds as many as 300 species are still trapped and traded with impunity (Bagla, 2002; Singh et al, 2011). Lack of implementation and ignorance of wildlife law are major factors behind the thriving bird trade in India, though the biggest single reason for it is the huge demand.

CITES data for South Asian countries Nepal and India do not show much import and export in recent years while import of birds has increased manifold for Pakistan and Bangladesh. Imports or exports show occasional peaks after 1991 which may be due to various reasons. The demand for pets, coupled with deforestation and habitat loss, is the primary driver of birds (parrots) imperilled status. However, illegal wildlife trade in India can not be neglected just by CITES data. A TRAFFIC report published in 2020 shows that wild animal populations in India were under additional threat during the lockdown period due to COVID (Badola, 2020). Similarly, in response to an advisory by Ministry of Environment and Forest, Government of India (Advisory for dealing with import of exotic live species in India and declaration of stock, 2020), more than thirty thousand people declared that they have CITES listed wild animals as pets, most of which were birds (Ganekar, 2021). This reveals that it is the time to read between the lines. Indian wildlife laws are not be enforced properly as shown by various reports (Sinha 2010; Madhuker et al. 2018; Hindustantimes.com 2020; Scroll.in 2020; State of India's Birds 2020). The large import data of India's surrounding small countries also suggest the same. The most traded group among birds is parrots. Currently, the population of 56% of parrot species is decreasing globally (Olah et al. 2016)

Online trading and social media platforms are creating more opportunities for pet traders throughout the world (Martin et al 2018). South Asian countries are not separate from it and their porous borders add to these hues. This shows the need of more innovative and flexible methods to reach the root of the problem. India is doing efforts to conserve biodiversity and updating its laws from time to time. More elaborative scientific studies which also involve local people are need of the hour to protect the

mega-biodiversity of the region. Real time monitoring of wildlife products, education campaigns for costumers to tell the impact of trade on threatened species, transparency in the work of everyone involved, informed policies for every region, active involvement of local communities are necessary tools to mitigate conservation risks for these beautiful species.

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