

ECONOMIC IMPOTANCE OF FLYING VISITORS: MIGRATORY BIRDS

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ABSTRACT

This review aims to give a comprehensive summary of the economic importance of migratory birds using theoretical and empirical evidence provided in different literature and its influence on conservation and national development. Migration is a general phenomenon in the animal kingdom, which occurs in almost any vertebrate family on earth, several million European migratory birds en route to their winter quarters in Africa and on pre-nuptial flight to their European breeding grounds. It is a fundamental characteristic of the life history of many organisms and it is surely one of the most fascinating of all behaviours in animals without reservation. The huge number of migrating birds represents an important component of biodiversity indicators, occurring high in food chain and they are wide spread, diverse and mobile in most terrestrial and marine habitat across the continents. Many bird species display elaborate ornaments including feather structures such as facial plumes, crests, and tail streamers and bare part ornaments such as bill plates, knobs and wattles during their breeding seasons which promote tourism and hunting basically for trophies. Apart from that, game birds are also capable of producing oil. Nature based tourism and recreation, such as the viewing of wildlife coupled with; management of migratory birds promotes market for other industrial goods such as lead shot, guns and binocular.

Keywords: Migration; Recreation and Tourism; Trophies; Ornament; Food; Production of Oil

INTRODUCTION

Migration is a general phenomenon in the animal kingdom, which occurs in almost any vertebrate family (Gregor 2003). Several million European migratory birds en route to their winter quarters in Africa and on pre-nuptial flight to their European breeding

grounds (Society for the Protection of Nature in Lebanon 2005 and Nader 2013), it is a fundamental characteristic of the life history of many organisms from monarch butterflies to marine mammals and is surely one of the most fascinating of all behaviours in animals (Frank *et al.*, 2005).

The ultimate cause of this behaviour is the optimal use of shifting or patchy resources in space and time, often driven by seasonality in habitat (Gregor 2003). However, migration is an expensive activity, especially when the resources used, like energy, survival, and lost opportunities in the areas that are left behind are put into consideration. Therefore, animals have to mortgage the benefits of advancing for a new opportunity with moving away from a familiar place. Excellent examples are Palearctic migrant species (Cresswell *et al.* 2009) such as: Subalpine, Warbler, Woodchat Shrike, Whitethroat, Tree Pipit and Willow Warbler plus Flamingoes which are also found in Ejagham lake Etung L.G.A. Cross River State, Nigeria (Aniah *et al.* 2010), and Neotropical migrants which are many species of plovers, terns, hawks, cranes, warblers, and sparrows (Cotton *et al.* 2009). Birds form one of the pronounced examples of migratory animals (Barnard,

2014). as a result the inspired a large amount of studies concerning migration (Bairlein 2001) and the benefit of migratory birds cannot be left out considering their great contributions.

Therefore this review aims to give a comprehensive summary of the economic importance of migratory birds using theoretical and empirical evidence provided in different literature and its influence on conservation and national development.

Food

There are many reasons for participating in game farming. It can be an enjoyable hobby and means of increasing bird population (Ralph *et al.*, 2007). Wild game may have a different flavor and texture than domestic meat. But wild game can be delicious if properly prepared. Because game meat tends to be drier and less tender than domestic meat, it is better to use slow and moist-heat cooking methods (Bastin, 2007). In turn, the huge number of migrating birds

represents an important component of the food chain by eating millions of insects and fruits and dispersing seeds along their route (Ewert *et al.*, 2012) and the birds are also eaten as meat.

Game birds are native or non-native birds that historically were wild game or decorative fowl but are now raised commercially for their meat or egg production and also "flight-ready" birds for release on hunting preserves or by state wildlife agencies (Andress and Harrison, 2006). The shot birds are either consumed by the hunters themselves and their families, or they are offered for sale at local markets (Ramadan-Jaradi and Ramadan-Jaradi 2012). Most meat from different bird species, both domestic and wild game, can be frozen, canned, or dried (Cutter, 2011), making it a good delicacy for man. However, migratory birds may be an alternative solution to global food insecurity because birds have always been an

important food source for man. This can be achieved if and only if migratory birds are properly harnessed through adoption of better protection, management and conservation measures such that harvest will not amplify declines that are equal to harvest rate. Apart from that, better habitat protection can be adopted, avoidance of food shortage for bird species coupled with drastic reduction in poaching of wild birds.

Ornament

Neanderthals exploited birds for the use of the feathers or claws as personal ornaments (Finlayson *et al.*, 2012). Many bird species display elaborate ornaments including feather structures such as facial plumes, crests, and tail streamers and bare part ornaments such as bill plates, knobs and wattles during their breeding seasons. These ornaments vary in expression between the sexes, across age classes, and among individuals (Andersson 1994, Ian *et al.*, 2000). This factor must have stimulated the

high demand for migratory birds as a very good source of ornament.

However, in the *Migratory Birds Regulations*, 1994, Section 6 states that without the authorization of a permit, the disturbance, destruction, taking of a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird; possessing a migratory bird, carcass, skin, nest or egg of a migratory bird are prohibited (Government of Canada 2011a). The essence is to enhance the conservation of migratory birds to prevent extinction of the said species because of the ever increasing demand for their parts as ornaments.

Recreation and Tourism

Nature based tourism and recreation, such as the viewing of wildlife, is popular and often occurs in protected areas (Newsomeal., 2002; Higginbottom, 2004). This is a common benefit of birds. Game viewing attracts people to conservation areas for complete relaxation. Many migratory birds

which breed in Europe and central and western Asia use migration routes that pass through the Eastern and Southern Mediterranean, entailing the migration of large numbers of birds flying at predictable times of year and often at predictable sites (Plate 1). These birds with such migration “strategies” are especially vulnerable to threats such as hunting (Barnard, 2014). According to Business Management and Operations Division of Economics (BMODE, 2008), migratory birds are renewable, international, common property resource. Unlike resources with clear ownership, individuals have little or no incentive to conserve common property resources.

There are up to 12 000 registered hunters in Tunisia and another 20 000 in Lebanon. Indeed, hunting is an important socio-economic activity in the region, particularly in rural areas. Sport hunting has become widespread and brings in large numbers of

foreign visitors. However, the management of bird hunting in Mediterranean and third world countries places emphasis on biodiversity conservation in the lake basin and the continued presence of these species in their southern range (Ewert *et al.* (2012 and Barnard, 2014). This makes conservation efforts in the Lake Erie basin both locally and internationally important. Ecotourism has remained a high profit yielding business for those who have invested in it. It is estimated for instance that in 1988 there were 157 and 236 million international ecotourists worldwide and more North American birders are now taking trips to faraway places (Aniah *et al.*2010). In Costa Rica tourism values associated with visits by birds watching to observe the resplendent quetzal of the vanishing cloud forests of Montere de. Yet contributions to the economy arising from bird watching are often under rated. Financial benefits derived from nature

tourism are only of value to the resources when part of it is used to maintain those resources. In the USA revenue regenerated by tourism in visits to national parks amounts to US\$3billion a year. However, the proceeds have gone mainly to hoteliers, restaurants, purveyors of gasoline (Table 1), and t-shirts. Similarly, in South Africa bird watchers spend money on a variety of services and products in order to enhance their bird watching experience. These services range from gate fees for access at private and government run birding sites, accommodation, food and drinks, local bird guide fees, vehicle maintenance, fuel costs for transport to birding sites, birding equipment and a variety of other enabling services and products (Table 2). In addition to their ecological role, migratory birds are treasured by the many bird enthusiasts who visit or live in the region. The seasonal diversity and abundance of migrating birds attract birders from around the world, who

collectively benefit the region's economy by spending an estimated \$26 million on food, gas, lodging, and other expenses related to their visit to the Lake Erie coast (Ewert *et al*, (2012), migratory birds are considered to be important target for biodiversity conservation and the tourism industry depends on these species. In Egypt, most foreign hunters are Europeans visiting to shoot waterbirds, with smaller numbers from Lebanon (total of 990 foreign tourist hunters registered in 2000). Clearly, sport hunting is a significant issue in the region. Similarly, U.S. Department of the Interior, Fish and Wildlife Service, Office of Migratory Bird Management (2007) and Business Management and Operations Division of Economics (2008) reiterated, estimates of individual's willingness to pay for duck hunting provides some insight into the size of the consumer surplus derived from this activity. Willingness to pay for migratory waterfowl hunting (which includes both

ducks and geese) averaged \$67 per day (2007\$) (Walsh, Johnson, and McKean, 1990).

United State Institute for peace (2009) reported that tourism industry can help promote peace and stability in developing countries by providing jobs, generating income, diversifying the economy, protecting the environment, and promoting cross-cultural awareness. There is potential for considerable expansion of community benefits from tourism (Ashley, 1995) for example, incomes earned by local workers and communities from tourism enterprises, by raising local incomes and developing skills, this expansion can contribute to sustainable local development and community based conservation through wages paid to local staff by private operations, such as up-market lodges. Apart from that, the results of the contingent valuation survey in the Netherlands indicate that the respondents are willing to invest in a

market for the protection of migratory birds. However, the amount of money they are willing to pay for the protection of migratory birds is rather modest (Sultatiant, 2007). More than half of possible hand-outs are in the form of one-off payments as opposed to yearly donations. This implies that donations for the protection of migratory birds cannot be measured as the only source for funding of security.

A Report prepared for the United Nation Environmental Protection-Global Environmental Facility- Wow Wings over Wetlands (UNEP-GEF WOW) 2008 Project Coordination Unit in Nigeria, Project Title: Enhancing Conservation of the Critical Network of Sites required by Migratory Waterbirds on the African/Eurasian Flyways was carried out at Dogana village Yobe state, and table (3), shows the inflow and outflow of money within the contracted period. This is a practical example of economic importance of migratory birds in

this region. Tourism is the fourth largest industry in the global economy. It is fully dependent on the Delta's natural resources (Zwarts and Kone, 2005). Despite ample economic activities, the Delta still attracts millions of migratory and sedentary water birds. More than one hundred bird species can be observed in this region each year (Van der Kamp *et al.*, 2005).

Tourism has become one of the most significant and some studies denote unidirectional causality from tourism export sectors in many developing countries (Ahmad, *et al.*, 2011). For example Kenya, Nigeria, and India are three emergent countries with tourism industries at dissimilar stages of prime of life. Kenya has a long-established and highly successful tourist sector catering to the conventional and ecotourism markets. Similarly, a report from United State Institute for peace (2009) shows that international tourism is a lucrative source of income for Kenya,

accounting for 2.24 percent of the nation's gross domestic product (GDP) in 2006. By contrast, Nigeria barely has a tourist industry at all, reflected by tourism's insignificant contribution to national wealth, just .02 percent of GDP in 2006.

India has several tourist centers but, given its immeasurable size, it has yet to appreciate tourism's economic potential. International receipts from tourism made up just 0.35 percent of its GDP in 2006. In addition to that, an increasing number of birdwatchers are travelling to long haul destinations to spot new birds that cannot be seen in their own country or region, especially endemic birds (Nagel, 2009). Many long haul birdwatching destinations are traditionally in Africa (Plate 1), with Kenya, Tanzania, Botswana, Uganda and Namibia being the most popular. Long-established, popular birdwatching destinations in Asia are India, Nepal, China and Japan. Also less traditional birdwatching

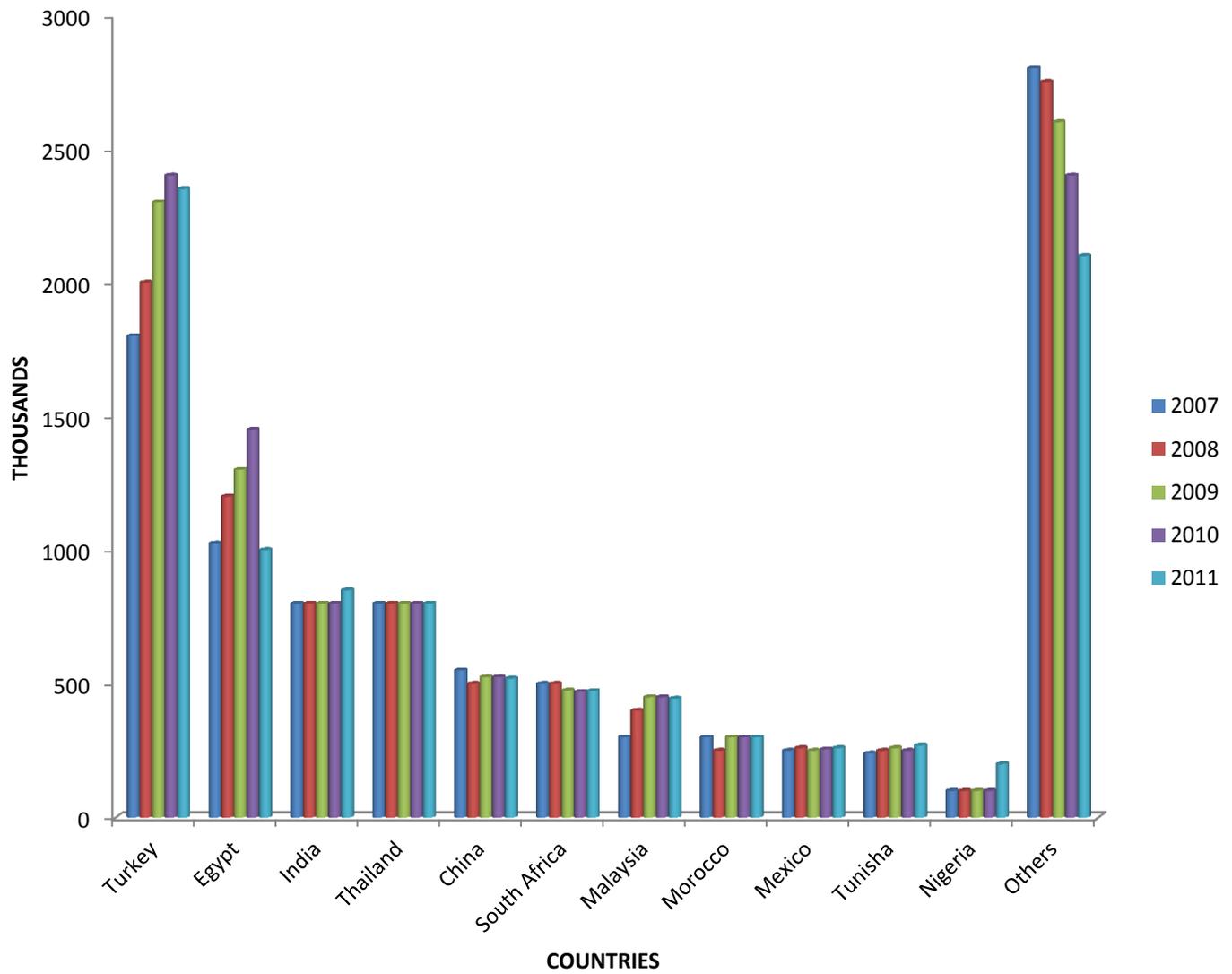
destinations are emerging like South Africa and Morocco in Africa, Brazil, Costa Rica and Ecuador in Latin America, Thailand, Sri Lanka and Kazakhstan in Asia, Georgia in Europe and Jordan and Oman in the Middle East (Fig.1).

One of the main reasons developing countries promote and sustain tourism is the expected economic growth (Surugiu, 2009; Fretchling, 1994). The role of the receiving community in tourism is very important since tourism affects the whole community in one way or another, be it benefits (value accrued to the community such as income, jobs) or costs (the negative effects tourism activities could have on a community such as environmental degradation, pollution and crime). However, Rathore (2012); Honey and Gilpin (2009) and; Tsundoda and Mendlinger (2009), Tafadzwa and Olabanji (2014) equally identify the benefits of tourism to include;

- Employment creation for the host community for example establishment of football team
- Improvement and development of public services and infrastructure respectively such as pipe borne water, electricity, health care centres and good road network
- Increase in local income levels
- Increase in demand for goods and services
- Improved standard of living for residents of the tourist area

While the costs of tourism include;

- Exploitation of the rural populace
- Urbanisation
- Repatriation of profits from the community
- Underpayment of rural labour
- Misuse of local infrastructure by visitors
- Increase in the cost of housing and land in the area
- Increased immigration of labour



Source: Nagel (2009)

Fig.1: Bird watching destinations for outbound UK tourist

Table 1: Trip Expenditure for Birding in USA

Total Trip and Equipment and Expenditures	\$40,942,680,033
Trip related Expenditures	\$14,868,424,740
*Total	
Food	\$4,625,942,734
Lodging	\$3,105,418,864
Transport	\$5,084,858,642
Other	\$2,052,204,500

Source: Erin (2013)

Table 2: Average amount spent on these Items for Birding per Annum in South Africa

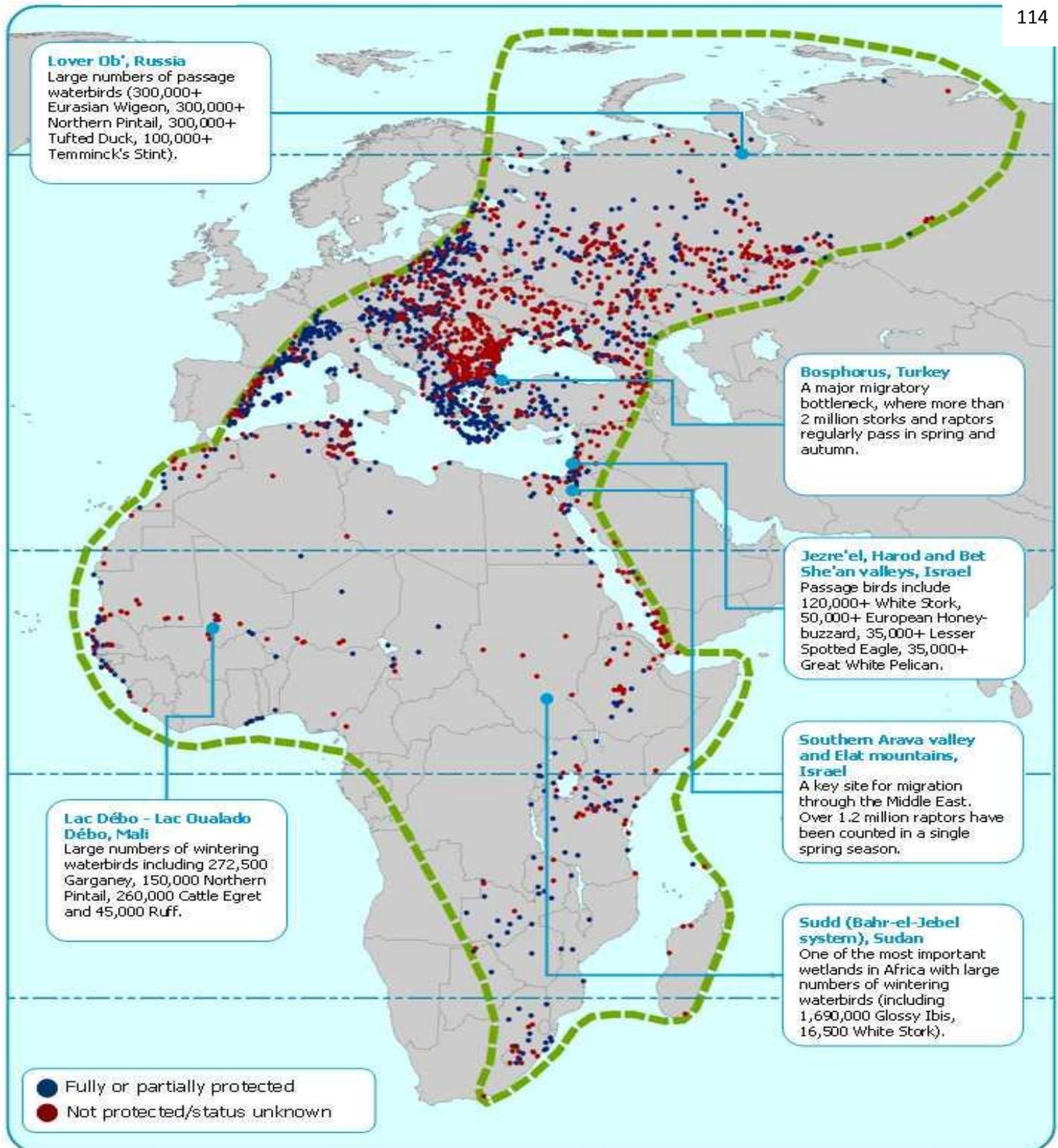
Category	Average Spend Per Trip	Average Trips Per Annum	Average Spend Per Annum In South African Rand	Average Spend Per Annum in Nigerian Naira
Gate Entrance Fees	R 15	23	R350	#5,833.33
Accommodation	R 400	11	R 4400	#73,333.33
Local Bird Guide Fees	R 300	17	R 5100	#85,000
Transport	R 350	23	R 8050	#134,166.67
Food and Beverages	R 350	23	R 8050	#134,166.67
Total	R 1415	31	R 25950	#432,500

Source: Soza (2011)

Table 3: Disbursement of United Nation Environmental Protection-Global Environmental Facility- Wow Wings over Wetlands funds

General Category of Expenditure	Total budget	Total Expenditure to date	Total budget balance	Opening balance this reporting period was zero	Last payment received	Reporting period in the previous six months including outstanding payment	Balance at the end of the reporting period
Personnel & Executing Agency support	51,000.00	5,551.19	45,448.81		12,750.00	5,551.19	7,198.81
Renovation furniture and equipment and vehicle	55,000.00	0.00	55,000.00		25,000.00	0.00	25,000.00
Subcontract: Typha clearing	20,000.00	0.00	20,000.00		10,000.00	0.00	10,000.00
Workshops and training and information materials	25,000.00	0.00	25,000.00		5,000.00	0.00	5,000.00
Travels: (local and International)	10,000.00	3,694.88	6,305.12		4,000.00	3,694.88	305.12
Monitoring, Evaluation and auditing	5,500.00	0.00	5,500.00		0.00	0.00	0.00
Operation Costs for Conservation Centre in Nguru	40,000.00	659.88	39,340.16		10,000.00	659.84	9,340.16
TOTAL	206,500.00	9,905.91	196,594.09	0	66,750.00	9,905.91	56,844.09

Source: UNEP-GEF WOW (2008)



Source: Birdlife international (2013)

Plate 1: Map of selected countries showing flyway and migratory birds Promote Industry

Stocking of game birds to established or increase a resident population for hunting is a long term established practices among professionals, wildlife managers, landowners and sportsmen (Ralpha *et al.* 2007). It is necessary to implement a step by step prevention and management of Migratory Birds nesting in buildings and structures undergoing renovation and nesting on equipment used to perform work (Keith and Steve, 2014). This factor is capable of increasing wearing, tearing and also the maintenance cost for some industrial equipment. However, management of migratory birds promotes market for industrial goods such as lead shot, guns and binoculars, according to

estimates by local conservationists, between 10 and 20 million migrant birds are shot annually in the Lebanon (Nader, 2013).

The mass shooting of large soaring bird species such as birds of prey, herons and storks is regarded as critical (Cabs and Lem, 2013), but increases the demand for lead shot, guns, cameras, bags and binoculars (Table 4 and 5). Cabs and Lem (2013), equally emphasized on a new and widespread phenomenon, especially among young hunters, who were seen photographing their bag immediately after the shoot using a mobile phone or compact digital camera and later uploading the pictures to social networks or photo-share sites on the internet.

Table 4: Average amount spent on Equipment for Birding per Annum in South Africa

Category	Average spend per annum	Average total spend in 3 years in South African Rand	Average Total Spend in 3 years in Nigerian Naira
Binoculars	R 2000	R 6000	#100000
Bird Feeders	R 500	R 1500	#25000
Club and Society Membership	R425	R 1400	#23333.33
Video Camera	R 2350	R 7000	#116666.67
Field and Reference Guides	R 425	R 1400	#23333.33
Magazines	R 425	R 1400	#23333.33
Total	R 6200	R 18600	#310000

Source: Soza (2011)

Table 5: Equipment Expenditures for Birding in USA

Equipment ** total	\$26,074,255,293
Wildlife Watching Equipment	\$7,573,105,647
Auxiliary Equipment	\$1,034,484,181
Special Equipment	\$9,534,331,263
Other Items	\$7,932,334,202

Source: Erin (2013)

Production of oil

Game birds are capable of synthesizing oil. Nutritional Information for 3 ounces of raw wild game reviewed that game bird ranging from 103 to 188 calories is capable of producing 2- 9g fat and 1-2g saturated fat (Nash, 2003). Similarly, according to Calorie laboratory, (2004) game bird calorie

count, stated that, the calorie of game birds ranges from 3.0 to 48.8 fat contents. In general, wild game is leaner than domesticated animals, because animals in the wild are typically more active. In comparison to lean cuts of beef and pork, game meat has about one-third fewer calories (game birds have about half the

calories) and quite a bit less saturated and total fat. Cholesterol for wild and domestic meat ranges from 50 to 75 milligrams for a 3-ounce serving, with wild game tending to be in the lower end of the range (Nelson and Zeratsky, 2014).

Trophies

Most hunting trophies imported from Africa must come through Fish and Wildlife Service designated port (U.S. Fish and Wildlife Service, Office of Law enforcement, 2014). Under limited circumstances, you may be authorized under permit to use a port that does not normally handle wildlife trade. You must show that not using one of the designated ports would result in substantial deterioration or loss of the wildlife, or would cause undue economic hardship. If you are importing your trophy through a non-designated port, you must have a copy of your valid port exception permit. An economic activity of a nation tends to increase with respect to an increase

in importation of migratory birds' trophies. However, the increment depends on the duration of trading.

In some parts of the world, residents may import game free of duty. According to Customs and Border Protection (CBP) 2014, United States residents may only import migratory game birds that they themselves have legally killed. The Fish and Wildlife Service has regulations regarding the number and species of migratory game birds that may be imported from Canada, Mexico, and other countries. Many hunting trophies are subject to requirements and restrictions enforced by other U.S. federal agencies and CITES. In some cases there are numerous countries demanding export permits for trophies of migratory birds, even for species not protected under CITES. In null shell trophies of migratory birds such as feathers, beaks, feet, necks, mounted trophies for taxidermy and many live birds sold as pets are capable of stimulating economic

activities of different countries through the demand and supply of trophies which invariably enhances national development.

CONCLUSION

Birds form one of the common examples of migratory animals. In turn the huge numbers of migratory birds represent an important component of the food chain whether, native or non-native species. Their beautiful plumage, crests, tail streamers, bill plates and wattles contributes to uniqueness of birds' existence during breeding seasons making, bird species an excellent source of recreation that is capable of generating millions of dollars for nations due their diverse nature and distribution.

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This is responsible for difficulty encountered during conservation both locally and internationally. Managing migratory birds requires a step by step approach which may involve prevention and management. Poaching basically is capable of reducing population of migratory birds, irrespective of the amount of oil being synthesized and trophies exported from one country to another.

RECOMMENDATIONS

Cultivation of proper prevention, management and conservation culture by nations, in addition to formulating new laws and enforcing old ones to promote global conservation of migratory birds for generations yet unborn becomes imperative.

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