

## Animal Trade in Amman Local Market, Jordan

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### Abstract

The magnitude of animal trade in Amman city, Jordan, was evaluated during July to November 2009. Birds have constituted the majority of specimens in trade with the sum quantity of 16942 specimens, represented by 54 species among 19 families. In addition, reptiles were also encountered, with a total of three species belonging to three families. Mammals were the least represented group with four species belonging to three families and a total of only nine specimens in trade. Twenty-three species of the traded birds were included in CITES appendices, where 16 and 7 species are listed in appendix II and III, respectively. Only one species of reptiles is under CITES lists, while none of the traded mammals are included under any CITES category.

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### 1. Introduction

Jordan, a Middle Eastern country with an area of 89,342Km<sup>2</sup> and a population of 5.97 million estimated in 2009. Despite that desert constitutes about 75% of the total size area of Jordan; it enjoys various habitats ranging from the Mediterranean forests, black lava, gravel deserts, and arid sandstone mountains. The heterogeneous habitats present in Jordan allow the presence of an enormous biodiversity contents, where a total of 78 mammalian species (Amr, 2000), 107 reptiles and amphibians (Modry *et al.*, 1999; Disi *et al.*, 2001; Abu Baker *et al.*, 2005) and 425 bird species (Andrews, 1995) and around 2500 plant species (Al Eisawi, 1996) were recorded.

Jordan is considered a leading country in the Middle East in biodiversity conservation, where eighteen acts and eight regulations include provisions on environmental protection are present. These laws and regulations are enforced through different governmental and non-governmental agencies. As far as nature conservation and wildlife protection goes, Agricultural Law No. 44 of 2002, Aqaba Region Authority law No. 32 of 2000 and the Law of Environmental Protection No. 1 of 2003 are in effect. Articles in these laws include protection of birds and wild animals and their hunting regulations, designate cooperation between different governmental agencies with competent authorities, assign responsibilities and power to act-enforcing the different articles, and distribution of the financial resources and available funds among agencies (Amr *et al.*, 2004).

In addition to national laws, Jordan pays attention to the role of international agreements for the protection of wildlife from overexploitation. Accordingly, it gets into force within the provisions of the Convention in International Trade in Endangered Species of Wild Animal and Plant (CITES), four years after the enforcement of this convention, and considered party number 47 in the chronological order of the world countries that have signed CITES convention, as well as party number four in the Middle East.

Since the Royal Society for the Conservation of Nature (RSCN) is the only NGO in the Middle Eastern countries with a mandate from the government of Jordan to establish, manage and operate nature reserves in Jordan, besides taking the full responsibilities for managing wildlife protection, hunting monitoring and control. It acquired a formal delegation from the Ministry of Agriculture (MOA) to acts side by side with the veterinarian department of the MOA, as the management authority of the CITES convention. Accordingly, the RSCN has been active on CITES issues in both global and regional contexts and has acted to the best of its ability to minimize activities and impacts determinant to Jordanian biodiversity.

Jordan is considered a passage for smuggling of animals to countries in the Arabian Peninsula and elsewhere in the Middle East. Shipments of reptiles (snakes and tortoises) were confiscated at the Jordanian border with Syria to be smuggled to Saudi Arabia (Amr *et al.*, 2007). Similarly, birds and mammals were confiscated at the Iraqi borders with Jordan (RSCN, personal communications).

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Regionally, very little was mentioned on trade of animals and plant species. Amr *et al.*, (2007) described the animal trade in Syria, and addressed the illegal trade of reptiles in Damascus Animal Market. Moreover, Soorae *et al.* (2008) conducted a survey on the trade in wildlife as pets in the United Arab Emirates. Further notes on the illegal wild animals trade was described from Lebanon by Dakdouk (2009).

In Jordan, virtually no information was reported concerning animal trades. However, it is practiced in two forms, animal pet shops that are licensed and subjected to a routine check- up by the RSCN, and in streets, especially on Fridays, the official day-off in Jordan, where vendors, hobbyists and hunters sell their animals in cages; this practice has been ongoing for many years, and, occasionally, the RSCN staff confiscates illegal items.

This study is the first of its kind from Jordan and it aims at identifying the magnitude of illegal animal in trade

at the Local Market in Amman, Jordan, in terms of species that are in trade, their volumes, and number of CITES species present in the market.

## 2. Materials and Methods

A Total of 10 visits to Local Market were carried out between July and November 2009. These visits were conducted by a group (three - four persons) of researchers from the RSCN and Birdlife International who inspected the animals that were in trade in Local Market in Amman city. Visits involved an early inspection of the market, in order to identify all species present to produce a species list. In addition, number of individuals of each species was counted and their prices were obtained. Origins of these animals were obtained when applicable.



**Figure 1.** Sun Conure and Timneh Gray Parrot offered for sale in Amman Local Market. Both species are listed under CITES appendix II.

## 3. Results

Ten visits were undertaken to evaluate the magnitude of animal trade in Amman Local Market. Three major groups of vertebrates were found in the Local Market in Amman. Birds have constituted the majority of specimens in trade with sum quantity of 16942 specimens, represented by 54 species among 19 families (Table 1,

Figure 1-2). In addition, reptiles were also encountered, with a total of three species belonging to three families, and a volume of 86 specimens. Mammals were the least represented group with four species belonging to three families and a total of only nine specimens in trade in the Local market (Table 2).



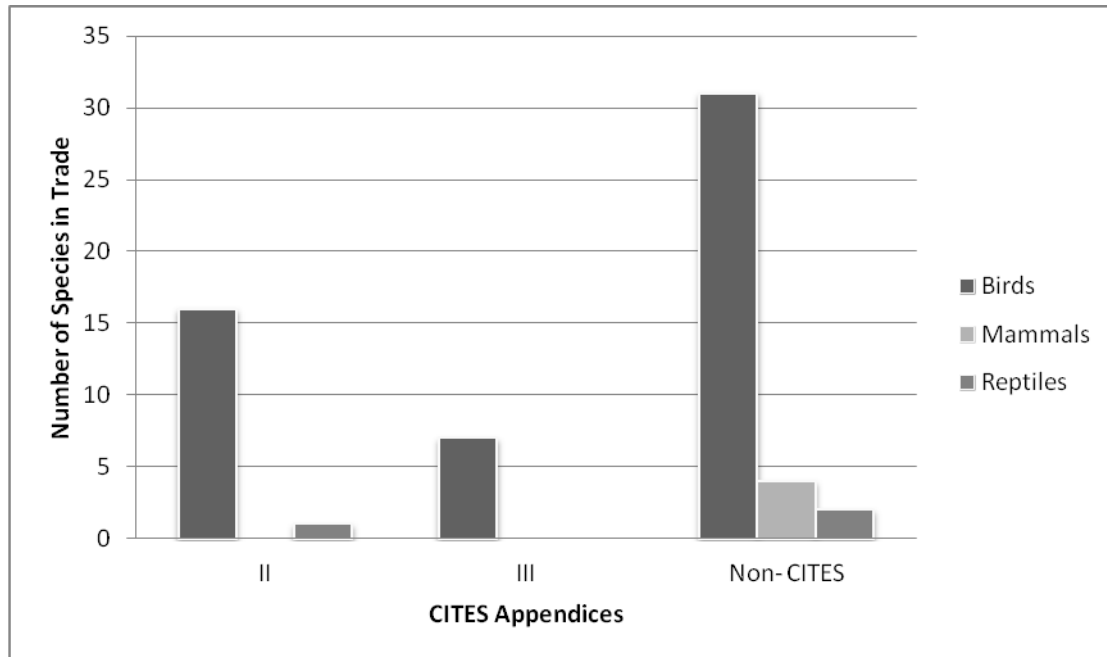
Figure 2. Caged Senegal Parrots “CITES species” for sale in Amman Local Market.

Table 1. Bird species in trade in Amman Local Market, NC is not listed.

Common Name	Scientific Name	CITES Status	Total No. in Trade	Price / bird in US\$	Total price in US\$
	Family: Numididae				
Helmeted Guineafowl	<i>Numida meleagris</i>	NC	2	21.2	42.4
	Family: Phasianidae				
Chukar	<i>Alectoris chukar</i>	NC	58	33.9	1968.3
Pheasant	<i>Phasianus colchicus</i>	NC	51	38.9	1983.2
Sand Partridge	<i>Ammoperdix heyi</i>	NC	4	49.5	198
Indian Peafowl	<i>Pavo cristatus</i>	NC	7	88.4	618.6
Black Francolin	<i>Francolinus francolinus</i>	NC	1	21.2	21.2
	Family: Falconidae				
Lesser Kestrel	<i>Falco naumanni</i>	II	2	28.3	56.6
Kestrel	<i>Falco tinnunculus</i>	II	25	31.1	839.9
	Family: Accipitridae				
Long- legged Buzzard	<i>Buteo rufinus</i>	II	3	70.7	212.1
	Family: Rallidae				
Moorhen	<i>Gallinula chloropus</i>	NC	1	2.8	2.8
	Family: Columbidae				
Ring Dove	<i>Streptopelia risoria</i>	NC	94	21.2	1993.8
Diamond Dove	<i>Geopelia cuneata</i>	NC	3	42.4	127.2
Palm Dove	<i>Streptopelia senegalensis</i>	III	1	3.5	3.5
Turtle Dove	<i>Streptopelia orientalis</i>	NC	3	3.5	10.6
	Family: Psittacidae				
Budgerigar	<i>Melopsittacus undulates</i>	NC	1527	12.6	19173.9
Fisher's lovebird	<i>Agapornis fischeri</i>	II	59	46	2711
Peach-faced Lovebird	<i>Agapornis roseicollis</i>	II	84	42.4	339.4
Nyasa Lovebird	<i>Agapornis lilianae</i>	II	48	46	92

Congo African Grey Parrot	<i>Psittacus erithacus</i>	II	84	282.8	23755.7
Timneh African Grey Parrot	<i>Psittacus erithacus timneh</i>	II	48	120.2	5769.2
Alexandrine parakeet	<i>Psittacula eupatria</i>	II	13	494.9	6433.8
Ducorp's cockatoo	<i>Cacatua ducorpsii</i>	II	2	424.2	848.4
Senegal Parrot	<i>Poicephalus senegalus</i>	II	34	70.7	2403.9
Cockatiel	<i>Nymphicus hollandicus</i>	NC	155	74.2	11506.6
Sun Conure	<i>Aratinga solstitialis</i>	II	10	131.5	1315
Blue-fronted Amazon	<i>Amazona aestiva</i>	II	13	353.5	4595.6
Ring-necked Parakeet	<i>Psittacula krameri</i>	III	26	56.6	1470.6
Eastern Rosella	<i>Platycercus eximius</i>	II	2	106	211.9
	Family: Strigidae				
Little Owl	<i>Athene noctua</i>	II	1	14.1	14.1
	Family: Upupidae				
Hoopoe	<i>Upupa epops</i>	NC	7	17.7	123.7
	Family: Paridae				
Great Tit	<i>Parus major</i>	NC	6	7.1	42.4
	Family: Alaudidae				
Crested Lark	<i>Galerida cristata</i>	NC	4	1.4	5.7
Temminck's Lark	<i>Eremophila bilopha</i>	NC	25	3.5	88.4
	Family: Pycnonotidae				
Yellow-vented Bulbul	<i>Pycnonotus xanthopygos</i>	NC	302	2.8	854.1
White-eared Bulbul	<i>Pycnonotus leucotis</i>	NC	39	17	661.8
	Family: Nectariniidae				
Palestine Sunbird	<i>Nectarinia osea</i>	NC	50	22.3	1117.1
	Family: Passeridae				
Rock Sparrow	<i>Petronia petronia</i>	NC	22	2.1	46.7
House Sparrow	<i>Passer domesticus</i>	NC	3	1.4	4.2
	Family: Ploceidae				
Golden Bishop	<i>Euplectes afer</i>	III	2	21.2	42.4
	Family: Estrildidae				
Zebra Finch	<i>Taeniopygia guttata</i>	NC	2874	6.4	18287.6
Indian Silverbill	<i>Lonchura malabarica</i>	NC	806	4.2	3419.1
Lavender Waxbill	<i>Estrilda caerulescens</i>	III	10	10.6	106.1
Cut-throat Finch	<i>Amadina fasciata</i>	III	23	8.5	195.1
Java Finch	<i>Padda oryzivora</i>	II	11	21.2	233.3
	Family: Viduidae				
Long-tailed Paradise	<i>Vidua interjecta</i>	III	61	31.8	1939.2
Pin-tailed Whydah	<i>Vidua macroura</i>	III	2	24.7	49.5
	Family: Motacillidae				
Yellow Wagtail	<i>Motacilla Flava</i>	NC	1	28.3	28.3
	Family: Fringillidae				
Greenfinch	<i>Carduelis chloris</i>	NC	325	1.4	459.6
Goldfinch	<i>Carduelis carduelis</i>	NC	1221	42.4	51795.8
Linnet	<i>Carduelis cannabina</i>	NC	123	1.4	173.9
Desert Finch	<i>Rhodospiza obsoleta</i>	NC	266	2.8	752.3
Canary	<i>Serinus canaria</i>	NC	8317	21.2	176406.9
Sinai Rose finch	<i>Carpodacus synoicus</i>	NC	76	3.5	268.7
Siskin	<i>Carduelis Spinus</i>	NC	5	2.8	14.2
	<b>Total</b>		<b>16942</b>	<b>3040.1</b>	<b>345835.4</b>

Twenty-three species of the traded birds were included in CITES appendices, where 16 and 7 species are listed in appendix II and III, respectively. Only one species of reptiles is under CITES lists, while none of the traded mammals are included under any CITES category (Table 2, Figure 3).



**Figure 3.** Number of species according to their CITES status

Table 2. Summary for CITES and non-CITES animal trade in Local Market

	No. of species	CITES		Non-CITES	
		No.	%	No.	%
<b>Birds</b>	54	23	43.4	30	56.6
<b>Mammals</b>	4	0	0	4	100
<b>Reptiles</b>	3	1	33.3	2	66.7

A total of 439 specimens of CITES- II species were in trade in the public market. The majority (90.4%) of these specimens belong to the Family Psittacidae. Among these, the Peach-faced Lovebird and the Congo African Gray Parrot were the most (19.1%) species in trade. Meanwhile, family Strigidae represented by the Little Owl was the least (0.2%) species in trade.

Also, a total of 125 specimens of CITES- III species were in trade, including 63 specimens of Family Viduidae, which constituted the majority of specimens in trade and among it, the Long-tailed Paradise was the major (48.8%) bird in trade (Figure 4). However, family Columbidae represented by the Palm Dove was the least (0.8%) bird in trade.

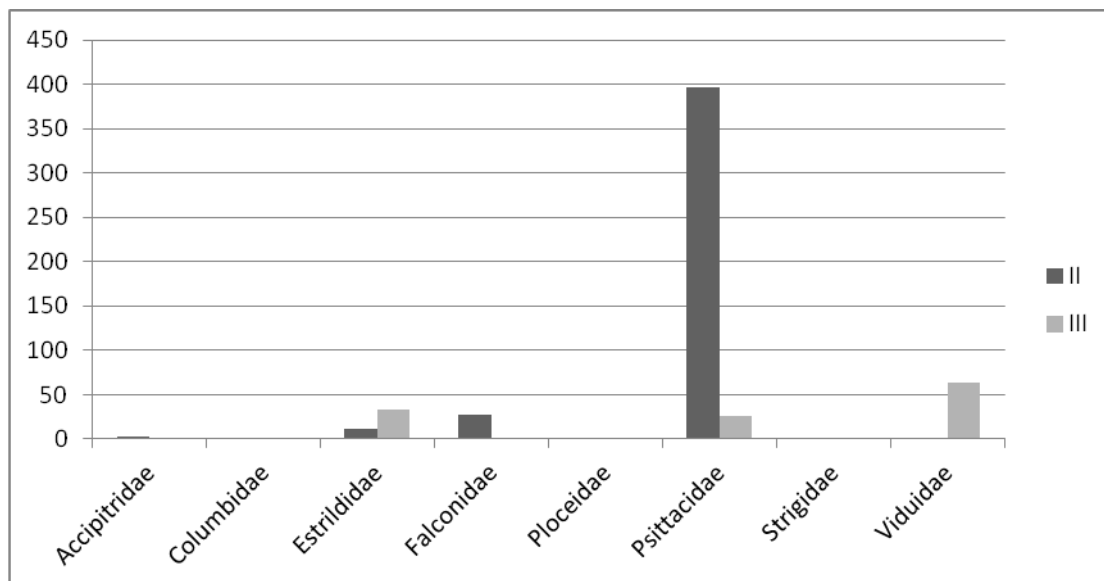


Figure 4 . Highest traded families according to their CITES status

Bird prices ranged from as low as 1.5 US\$ for the Hoopoe, White-eared Bulbul and others to as high as 525 and 450 US\$ for the Alexandrine parakeet and Ducorp’s cockatoo, respectively (Table 1).

Local and cage-bred birds were the most (96.7%) common species in trade and accounted for 16378 specimens. Local birds were either captured from Jordan or Syria and included the Kestrel, Long- legged Buzzard, Temminck’s Lark and others. Pheasant, Chukar, and the Ring Dove are bred in captivity for trade. Ring-necked Parakeet and the Indian Silverbill are introduced species through cage escapes that now breed at several areas in the wild.

The Budgerigar, Goldfinch, Canary and the Zebra Finch were the most species encountered accounting for 82.3%. These birds are imported legally from various countries and some are locally cage-bred.

Other local birds and some of the migrant bird species in trade were taken directly from the wild, either trapped from the mountains of north Jordan or the Jordan Valley as free-flying adults or taken as nestlings.

All four mammalian species in trade are of local origin. None of the mammals species are under CITES. The number of observed animals is very limited (Table 3). These animals are either trapped or picked up from the forests (*Sciurus anomalus* and *Eiranicus concolar*) or from the desert (*Allactaga euphratica*).

Table 3. Mammal species in trade in Amman Local Market.

Common name	Scientific name	CITES status	Total No. in trade
Long- eared Hedgehog	<i>Hemiechinus auritus</i>	NC	1
East European Hedgehog	<i>Eiranicus concolar</i>	NC	1
Persian Squirrel	<i>Sciurus anomalus</i>	NC	5
Five- toed Jerboa	<i>Allactaga euphratica</i>	NC	2

Three species of reptiles are in trade. Reptiles are either local (*Testudo graeca* and *Natrix tessellata*) or exotic (*Trachemys scripta*). Only the Mediterranean Spur- thighed Tortoise is listed under appendix II. These animals are also collected from their original habitats in Jordan

Table 4. Reptilian species in trade in Amman Local Market.

Common name	Scientific name	CITES status	Total No. in trade
Mediterranean Spur-thighed Tortoise	<i>Testudo graeca</i>	II	42
Dice Snake	<i>Natrix tessellata</i>	NC	15
The Red-eared slider	<i>Trachemys scripta</i>	NC	29

#### 4. Discussion

Despite all the effort by the RSCN to organize and minimize the illegal animal trade in Jordan, the large number and available of illegally sourced species in the market highlighted the need for further enforcement efforts on the part of the relevant authorities. The scale of animal trade in the Local Market in Amman reaches about 115,000 US\$ per month. This is comparably high taken into consideration the low annual income per capita (about 3000 US\$). Prices for animals are variable compared to those reported in the pet trade shops in the United Arab Emirates (UAE), for example, the Senegal Parrot is offered for 70 US\$ in the Amman Local Market, while offered for sale at a price of 325 US\$ in the UAE, while the Alexandrine parakeet is offered for about 495 US\$ in Amman compared to a maximum of 210 US\$ in UAE (Soorae *et al.*, 2008). Such variations in prices are attributed to the origin of the specimen, its general health and demand. Moreover, it was apparently noticed that CITES- II species are more expensive than CITES- III and the unlisted species which is in accordance with Courchamp *et al.* (2006) who stated that CITES listed species are more expensive than non- CITES species.

Contrary to other countries in Europe (Spellerberg, 1976; Auliya, 2003), demand on reptiles and mammals is very limited, whereas most of the demand is focused on birds. All mammals and reptiles are of local origin with the exception of the Red-eared Slider. Only four mammalian and two reptilians were found in trade. On the other hand, illegal trade in reptiles in Syria is more than that of Jordan, where at least five species were found in trade in very high number of individuals (Amr *et al.*, 2007).

The number of bird species traded in Amman Local Market and listed under appendix II and III were 16 and 7 respectively, compared to 6 and 20 species in UAE listed under appendix I and II respectively (Soorae *et al.*, 2008). No bird species listed under appendix I were found in trade in the Local Market, this is due to the extremely high prices of such animals that are not affordable by the local people who attend the Local Market.

As shown in table 1, most birds in trade are either of local origin (Sand Partridge, Turtle Dove, Palm Dove etc.) or breed in captivity (Pheasant, Canary etc.). Some local birds are trapped at a large scale (the Greenfinch, Goldfinch and the Linnet) and may impose a threat to their local status. Such illegal trade will certainly affects these species and will lead to a drastic decline in their populations. For example in Morocco, Lambert (1979) suggested that the net effect of collecting *T. graeca graeca* may have reduced pre-trade population levels by as much as 86%.

Dakdouk (2009) stated that an export ban for *T. graeca* was established in 2004 since trade in this species is popular in the pet trade in Lebanon and there is a high number of wild and captive specimens exported which raise concerns in Lebanon.

Trade of *Natrix tessellata* is not a common practice in Jordan and it is rarely sold in pet shops, as it is not a popular snake for husbandry due to its nervous behavior and foul odor. It is neither consumed by locals nor prescribed as a source of folk medicine (Amr *et al.*, in press).

Overharvesting of certain species addresses the need to evaluate the level of trade and make sure that it is not causing declines in wild populations. In Jordan, no records to track the imports and exports of reptiles are available. The lack of information implies that population declines due to overexploitations could be going undetected (Schaeffer *et al.*, 2005). Further investigation should focus on the actual number of traded animals in Jordan.

In order for CITES to be an effective conservation tool, it is imperative that parties recognize the scale of international trade in birds species as they constitute the majority of traded specimens in the market. And thus, a response should be performed accordingly especially at the entrance points of Syria by enhancing the enforcement and awareness to CITES convention.

#### 5. Conclusions

Animal trade in Amman Local Market reflects the enforcement of CITES in Jordan. About 60% of species in trade are not listed under CITES appendixes, however, only 16 and 7 species are listed under appendix II and III respectively. Birds were the most traded animals since they are favored by local people. Further studies are urgently required to evaluate the animal trade in Jordan in licensed pet shops in Amman and major cities. In addition, public awareness, law enforcement and routine inspection should be implemented on a larger scale to minimize trade in CITES animals in Jordan.

#### References

- Abu Baker, M., Široký, P., Amr, Z. and Modrý, D. 2005. The discovery of a population of *Phrynocephalus maculatus* Anderson, 1872 (Sauria: Agamidae) in the Hashemite Kingdom of Jordan. *Herpetozoa*, **18(3/4)**:107-113.
- Al-Eisawi, D. M. 1996. Florestic state of conservation in Jordan. Proceeding of the Meeting of Arab Plant Specialists (17-19 May 1996). Riyadh, Saudi Arabia.
- Amr, Z. S. 2000. **Mammals of Jordan**. United Nations Environment Programme. Amman. 116 pp.
- Amr Z. S., Hamidan N. and Quatrameez, M. 2004. Nature Conservation in Jordan. *Denisia*, **14**:467-477.
- Amr, Z., Shehab, A. and Abu Baker, M. 2007. Some observations on the herpetofauna of Syria with notes on trade in reptiles. *Herpetozoa*, **20**:21-26.
- Amr, Z. S., Mebert, K., Hamidan, N., Abu Baker, M. and Ahmad Disi, A. In press. Ecology and conservation of the Dice Snake, *Natrix tessellata*, in Jordan. *Mertensiella*.
- Andrews, I. J. 1995. **The Birds of the Hashemite Kingdom of Jordan**. Musselburgh. 200 pp.
- Auliya, M. A. 2003. Hot trade in cool creatures: a review of the live reptile trade in the European Union in the 1990s with a focus on Germany. Brussels: TRAFFIC Europe. 112 pp. CITES <http://www.cites.org/eng/app/index.shtml>
- Courchamp, F., Angulo, E., Rivalan, P., Hall, R. J. and Signoret L. 2006. Rarity value and species extinction: the anthropogenic Allee effect. *PLOS Biology*, **4(12)**: e415.12.
- Dakdouk, S. 2009. Lebanon- back on the illegal wild animals trade map. *Wildlife Middle East*, **4**:2.

Disi, A.M., Modry, D., Necas, P. and Rifai, L. 2001. **Amphibians and Reptiles of the Hashemite Kingdom of Jordan: An Atlas and Field Guide**. Edition Chimaira, Frankfurt. 408 pp.

Lambert, M. 1979. Trade and the Mediterranean tortoise. *Oryx*, **15**:81-82.

Modry, D., Al-Oran, R.M., Amr, Z. S. and Necas, P. 1999. A new record of the Tilbury's Spiny-footed Lizard, *Acanthodactylus tilburyi* Arnold, 1986 (Reptilia: Lacertidae) from the Hashemite Kingdom of Jordan. *Casopis Národního muzea, Rada prirodovedná*, **168 (1-4)**: 121-124.

Schaepfer, M. A., Hoover, C., Dodd, C. K. 2005. Challenges in evaluating the impact of the trade in amphibians and reptiles on wild populations. *Bioscience*, **55**:256-264.

Soorae, P.S., Al Hemeri, A., Al Shamsi, A. and Al Suwaidi, K. 2008. A survey of the trade in wildlife as pets in the United Arab Emirates. *Traffic Bulletin*, **22**:41-46.

Spellerberg, I. F. 1976. The amphibian and reptile trade with particular reference to collecting in Europe. *Biological Conservation*, **10**:221-232.