



# Wildlife Middle East

# NEWS

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## EDITORIAL

We are now starting our sixth year and we would once again like to express our gratitude to RAK Bank for their continued support of Wildlife Middle East News. April of this year saw our long standing colleagues Dr Tom Bailey and his wife Theri return to the UK with their family to start a new life there; we wish them well. While not here in person, Tom and Theri will still be integral to the Newsletter, but their absence is being felt already (no one to whip us into line and get the Newsletter to bed on time).

News from the Middle East is unfortunately dominated with the unrest in a number of countries in the region and our thoughts go out to all those caught up in the suffering. One wonders, leaving aside the human tragedy, what the long term effects will be on the many conservation initiatives in these countries. The Foundation for the Protection of the Arabian Leopard, in Yemen, continues its fantastic work, going from strength to strength. Also in Yemen, the National Avian Research Centre (based in Abu Dhabi), has been conducting field research on the Arabian bustard. They report in this issue on their initiative to get security officers and school children involved in the bustards conservation through education programmes which they have been running.

Perhaps one of the most interesting news stories recently was the downgrading of the Arabian oryx (*Oryx leucoryx*) from Endangered to Vulnerable. The Arabian oryx makes history by being the first species once listed as Extinct in the Wild to have improved by three threat categories. Indeed, the IUCN estimates there are more than 1,000 Arabian Oryx in the wild, with 6,000-7,000 held in captivity worldwide in zoos, preserves, and private collections. The many release programmes in the range states and the subsequent monitoring policies put in place have shown that reintroduction is a viable option.

There still remains, however, one major obstacle to the success of these projects, as witnessed with the release in the Arabian Oryx Sanctuary in Oman. There is still a demand for these animals in private collections in the region which has in the past led to the wide-scale poaching and mortality of the oryx from 'protected' areas. Why is this necessary when we have up to 7,000 in captivity? Most captive collections have overpopulation problems and often have to set up bachelor herds of surplus males that cannot be kept with the main herd because of fighting. Could more be done to facilitate exchange and distribution of these animals?

A solution might be that some of these 7,000 captive animals are made available to organisations or individuals who want them. Each organisation requesting animals would have to meet strict criteria suitable for the species. These standards could be vetted by a committee comprising members drawn from internationally accredited bodies (e.g. in this region EAZA accredited facilities). Finally, recommendations on which animals are moved can be made by the Arabian Oryx General Secretariat.

This system need not be limited to Arabian oryx and could be rolled out to cover many other species in the region. This policy would prove successful on two fronts. Firstly, it reduces the need for illegal animals. Money which would have been spent on the animal can now be channelled into creating suitable holding areas and increasing animal welfare such as that described in the environmental enrichment programmes in Al Ain Wildlife Park and Resort (this issue), as well as improved veterinary and husbandry care. Secondly, it would push forward the idea and need (as covered in a number of previous WME News articles) for a Regional Zoo/Animal Collection Association to drive forward animal welfare in the many different collections in the region.

### WILDLIFE MIDDLE EAST NEWS OBJECTIVES

- Raising awareness of environmental and conservation issues affecting wildlife in the Middle East.
- Distributing information to enable better management healthcare and welfare of wildlife.
- Providing a central contact point for practical advice and information on wildlife management in the region.

More controversial ideas for use of the animals might also include controlled hunting or farming for meat? Those of us involved with managing oryx in captivity, know how supremely adapted they are to surviving and multiplying in an arid environment. As oryx are now protected, in the future the problem will not be extinction, it will be overpopulation. Sustainable harvesting of oryx may be an option.

All this provides food for thought. However, we digress from the contents of the latest issue! In addition to articles already mentioned, great contributions in this issue cover surveys on illegal bird trapping in Iraq, and surveys of insects in the UAE, a project to revitalise the River Jordan, a review of reptile lighting and a taster of the Wild Arabia exhibition soon to open in Abu Dhabi.

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# ARABIAN BUSTARD CONSERVATION IN YEMEN: PUBLIC AWARENESS PERSPECTIVE

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Keywords: Arabian bustard, *Ardeotis arabs*, International Fund for Houbara Conservation, Yemen, Public awareness

## Introduction

The Arabian bustard, *Ardeotis arabs*, is an endangered bird species in Yemen where it is confined to scattered pockets in Tehama, in the West of the country, where traditional cereal fields represent an ideal habitat for the species (Figure 1). Poaching, illegal egg collection and large-scale commercial farming are key threats contributing to the marked decline of the Arabian bustard. Since 2002 the National Avian Research Centre (NARC), a research center of the International Fund for Houbara Conservation (IFHC), has been conducting field expeditions to Tehama plains to study the species ecology (Judas et al. 2006). One conclusion of these field studies was that local people are unaware of the unsustainable practices which significantly affect the long-term survival of the species. In response, a conservation education campaign was developed with a straightforward goal to address the problems facing the Arabian bustard, locally called *Louwa*. Security officers and school students were identified to be the primary target group for the campaign. This article describes the campaign and outlines future directions of public awareness campaigns dealing with Arabian bustard in Yemen.

## Illegal trade issues

Although Yemen is a member party of the Convention on International Trade in Endangered Species (CITES), several instances of illegal trade in wild birds have been recorded (e.g. Stanton 2010). During the last decade the Arabian bustard population has been heavily poached. The most common capture method uses locally designed traps placed in cereal fields where the bustards are commonly found. Once caught, the birds are transported and sold outside the country for private collections and falcon-training purposes. The increasing levels of poverty in rural areas of Tehama and the high market value of the Arabian bustard are all catalysts for the trade.

In an attempt to curtail this trade, the education and involvement of security officers was considered to be an urgent anti-poaching measure. NARC, in collaboration with the Environment Protection Authority (EPA) of Yemen, organised an environmental workshop in February 2009 which was attended by security officers throughout Tehama. The goal of the workshop was to introduce the Arabian bustard conservation programme to security officers and other senior government officials in Tehama. Several presentations were given covering a wide range of conservation issues. The workshop concluded by stressing the importance of implementing necessary measures against ongoing poaching of the Arabian bustard population in Yemen.



Figure 1. A displaying male of Arabian bustard in Tehama, Yemen (IFHC)



Figure 2. Students attending a presentation about Arabian bustard (IFHC)

## School campaign

Tehama has a good network of public schools with a large number of children from farming backgrounds. These were targeted by the Arabian bustard public awareness campaign. Many schools were poorly equipped, often without electricity or large enough class rooms. These logistical obstacles were overcome with a portable generator and a sub-selection of students from each class chosen to attend. The presentation covered issues relating to the Arabian bustard conservation. Many students were familiar with the species having encountered it on their farms; however, most were unaware of its declining status. Questions related to the Arabian bustard were posed at completion of the presentation and students answering correctly were rewarded with Arabian bustard T-shirts, hats, and pencils. The campaign visited 9 schools and was attended by 532 students. This represents 13% of the students in the public schools of this important Arabian bustard habitat.

## Future directions

- Strengthen the relationship with security departments in Tehama and provide them with periodic updates about the status of the Arabian bustard as indicated by annual population surveys.
- Educate local farmers on the importance of the Arabian bustard conservation program. This is most likely to be effective if the conservation/ education program is based on marketing the Arabian bustard amongst villagers as a flagship species for bird conservation in Tehama.
- Secure sufficient financial resources to implement future public awareness campaigns.
- Periodically evaluate the impact of the public awareness campaign on perception and behaviour of target groups and adapt the activities of the campaign accordingly.

*Acknowledgements and references are available on the more detailed web version of this article.*

# WILD ARABIA WITH NATIONAL GEOGRAPHIC AL ARABIYA: ART AS A TOOL FOR CONSERVATION



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Fig 1. Steve Bloom's Spirit of the Wild exhibition in Copenhagen

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Keywords: Awareness, Arabian Wildlife, Conservation, Outdoor Touring Exhibition

## CHANGING PERCEPTIONS

For years, the international and local communities have associated the Gulf Cooperation Council (GCC) countries with empty deserts and endless construction sites. Wild Arabia, with National Geographic Al Arabiya, is hoping to reveal a vibrant new face of the region. "It is a multi-platform project that includes free, large-scale international touring exhibitions, an interactive website, books, educational materials and events. This 'tour de force' will help change people's perceptions and share a positive and powerful message about the GCC countries with the world" says Managing Director Caterina Lo Mascolo. Behind this momentous project is Univers K – an art, design, life, performance company, creating bespoke projects for the GCC. They have partnered with National Geographic Al Arabiya to showcase 100 stunning images of Arabian wildlife from National Geographic Society.

## TAKING ART TO THE STREET

Univers K is renowned for having amassed a 'Kollective' of world-class artists from all creative domains. Their exhibition designer, architect Franck Minthe, is no exception. This concept of outdoor exhibitions has existed for years in Europe and North America. Franck Minthe is internationally renowned for having designed outdoor exhibitions in some of the world's most beautiful squares such as photographer Yann Arthus Bertrand's famous 'Earth From Above' and Steve Bloom's 'Spirit of the Wild' exhibitions. Currently, Minthe is designing the outdoor exhibitions for 'Wild Wonders of Europe'. That said, no one has ever thought of showcasing Arabian wildlife on such a large scale, simply because most people are not aware of the fact that the Gulf is host to an incredible biodiversity. Furthermore, up until now there hasn't been much outdoor human traffic to properly experience an outdoor exhibition, but over time we have seen the cities develop their outdoor landscapes and we are thrilled to launch the World Première exhibition on the Abu Dhabi Corniche, hosted by the Abu Dhabi Municipality, where it will be seen by thousands of people, explains Lo Mascolo.

The organisers intend for the exhibition to be eco-friendly. His Highness Sheikh Abdul Aziz bin Ali al Nuaimi, also known as 'the Green Sheikh', is a project Ambassador and spokesperson; and the pavilion information centre will be designed with 'green' in mind exclusively using 'Lussi Design' furniture made of recycled cardboard and FSC certified wood.

## LEADERS IN CREATING A CULTURE OF CONSERVATION

"When I tell people about the outstanding initiatives in the United Arab Emirates alone, they are surprised and even sceptic. What most people who have never come to this region don't realise is that environmental and wildlife conservation was one of the biggest concerns of the UAE's founding father, the late Sheikh Zayed bin Sultan Al Nahyan. Today, people are working together to create many initiatives to keep that dream alive" explains Caterina Lo Mascolo, who was recently invited to speak about conservation efforts at the TEDx Al Ain conference in the United Arab Emirates. Among the prestigious partners of Wild Arabia with National Geographic Al Arabiya, are the Mohamed bin Zayed Species Conservation Fund which was created with the largest endowment in the world for the preservation of international wildlife and ARKive ([www.arkive.org](http://www.arkive.org)) – an online image bank that can be used freely for educational purposes and is funded by the Abu Dhabi Environment Agency. "The international community is quick to judge this region, focusing on the construction of the cities,

however, people here are very proud of their heritage, and that includes a desire to protect and explore its natural wildlife" explains Lo Mascolo. Exhibition designer Franck Minthe adds, "With my exhibition designs, along with the photographers, we transform the street, creating a visual confrontation with citywalkers and the images before them. If people are familiar with their wildlife, they will be moved to help conserve it. Awareness is the first step to finding solutions."

Wild Arabia, with National Geographic Al Arabiya, will create a new consciousness on an international level about the abundance of the remarkably unique species in the GCC. The world première exhibition will launch in Abu Dhabi in the central part of the Corniche in December 2011 before heading to Dubai and then regionally and internationally over the next few years. Currently, extensive research is underway with the help of regional conservation groups to select the 100 Ambassador Arabian species that will be showcased. "It is an enormous undertaking and responsibility to determine what Arabian species will travel the world. We want to show everyone that the Gulf has much more to offer than camels, falcons and scorpions" explains Lo Mascolo. Each species will be scaled according to the IUCN Red List, the world's most comprehensive inventory of the global conservation status of plant and animal species. It will showcase endemic, endangered and also more common species.

"This region has many riches, but the wildlife is the hidden treasure we intend to reveal. Never before have so many conservation groups come together under one umbrella to promote this region's natural heritage and people are ecstatic to have the opportunity to bring the world face to face with 'Wild Arabia'.

To inquire about becoming a partner of Wild Arabia with National Geographic Al Arabiya, contact Managing Director Caterina Lo Mascolo at [caterina@universka.com](mailto:caterina@universka.com).

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### Wild Arabia with National Geographic Al Arabiya

<b>WHAT</b>	100 images of Arabian wildlife from National Geographic Al Arabiya showcased in outdoor exhibitions, an interactive website, books, and events.
<b>WHERE</b>	Launching in the central part of the Abu Dhabi Corniche.
<b>WHEN</b>	World Première from December 2011 to January 2012 followed by Saudi Arabia, Qatar, Europe and North America
<b>WHO</b>	Conceived and Produced by Univers K, an Art Design Life Performance Company.
<b>SPOTLIGHT</b>	The exhibitions are designed by Univers K's Franck Minthe - Architect for Yann Arthus Bertrand's 'Earth From Above', Steve Bloom's Spirit of the Wild, and 'Wild Wonders of Europe' exhibitions.
<b>BONUS</b>	The exhibitions will be free and open 24/7.



Fig 2. Spirit of the Wild exhibition in Stockholm

©Steve Bloom



# INTRODUCTION TO ENVIRONMENTAL ENRICHMENT AT AL AIN WILDLIFE PARK AND RESORT (AWPR)

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Keywords. Enrichment, Visitors, AWPR, Behaviour, Training.

One of the main objectives of Al Ain Wildlife Park and Resort (AWPR) is to safely recreate environments, situations and challenges for animals that will encourage natural, species-appropriate behaviours. To assist in the achievement of this goal, a training and enrichment committee was formed at AWPR in 2010. We would like to introduce the concept of environmental enrichment and how the practices initiated at AWPR have seemingly enhanced our husbandry routine as well as our guests' experience.

Animal enrichment generally refers to any changes to the animal's environment that helps to provide a positive outcome and bring about improved welfare (Young, 2003). Enrichment aids in avoiding potential harmful behaviours which include stereotypic behaviours and excessive grooming, amongst others. An efficient enrichment program can be more important than the size of the enclosures. (Smith, 2005).

Enrichment comes in many shapes and forms and is usually divided into the following categories: Diet-based enrichment, physical enrichment, sensory enrichment, social enrichment and cognitive enrichment. An example of the type of enrichment noted could include: foraging behaviour (diet-based), climbing structure (physical enrichment), distribution and introduction of approved herbs / spices (sensory enrichment), introduction of mixed species habitat (social enrichment), introduction of puzzle feeder (cognitive enrichment).

When offering enrichment to animals, it is important to remember that it can result in different behaviours in different species, individuals and even the same individual at different times. Just as important as implementing enrichment, is the approval process, monitoring, evaluating and recording effects, as well as introducing new elements. It is extremely important to introduce an enrichment proposal with full assessment and approval procedure that would include Veterinary Services understanding of the idea, implementation and monitoring period. Some examples of ongoing practices at AWPR include browse items, spices, herbs, ice blocks, scatter feeds, snake sheds and bird feathers. It has been suggested that one of the benefits of animal training is that it is enriching, although currently there is not sufficient data to support or disprove this (Hosey *et al.* 2009). In our experience at AWPR, however, training has proved to be a valuable tool that our animal care staff use to enhance the welfare of the collection. AWPR's training program is based on the principles of operant conditioning, using positive reinforcement as the primary tool. Several of our carnivores have been trained using positive reinforcement to participate voluntarily in their own medical care, including treatment of wounds and hand injections for annual vaccinations. Many are also trained to step onto a scale for monthly weighing. Positive reinforcement training has also been implemented by our education staff when presenting program animals to school groups.



Fig 2. Behavioural/operant conditioning of a cheetah (Xavier-AWPR)

One goal of our training and enrichment committee is to incorporate environmental enrichment into the husbandry routine of every animal and to familiarise AWPR Staff at all levels and departments with their role in the program. All staff in all departments can be involved in animal enrichment either directly or indirectly. Our horticulture department cuts and delivers browse to primates and carnivores on a weekly schedule. Our education department offers an enrichment program for AWPR's Summer and Winter Camps. In this program children learn about the importance of environmental enrichment and are given the opportunity to make enrichment items. These items are then presented to animals while



Fig 1. Bengal tiger with meat ice block enrichment (Xavier-AWPR)

the children observe and evaluate their responses. Staff in the maintenance department have constructed enrichment devices such as puzzle feeders for meerkats, while staff members in other departments have collected cardboard boxes, tubes, shredded paper and newspaper to be used for enrichment.

Humans (both zoo staff and zoo visitors) are part of the zoo animal's environment and are likely to have some impact on the behaviour. Likewise, the animals are likely to have some impact on the humans as well. AWPR aims to make all human-animal interactions as positive an experience as possible.

A study at Beijing Zoo by Davey *et al.* (2005) found that visitor behaviour changed when viewing an enclosure in which enrichment had been added. In particular, viewing and stopping times increased in comparison with those at the enclosures prior to enrichment.

Although studies need to indicate the percentage of visitor's time spent in front of exhibits at AWPR, it is our goal to provide the animals with both behavioural and environmental stimuli that will solicit naturalistic behaviours within their habitats. Improving guests' perception of our husbandry practices, aiming for longer viewing periods in front of the habitat and increasing visitor's interest and understanding of conservation messages continues to be one of our main objectives.

## Acknowledgements

We thank Ghanim Al Hajeri, Director General of AWPR, for his support of this program. We also thank our colleagues in the following AWPR departments: Animal Collection, Education, Horticulture, Operations and Facilities Maintenance. Thanks also to Xavier Eichaker for his photographs.

*Full references are available in the online version.*

# INSECT DIVERSITY IN THE NEARBY AND OFFSHORE ISLANDS OF ABU DHABI EMIRATE

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Key words: insect diversity, nearby islands, offshore islands, baseline survey, collection methods

## INTRODUCTION

Invertebrate assemblages of very few island habitats in Abu Dhabi have been documented (Gillett and Gillett, 2002). This survey aimed to provide a taxonomic inventory of terrestrial invertebrates and their habitat associations on a specific coastline site, Al Bahia and Al Bahrani, Bul Syayeeef, Ras Garab and Sadiyat islands surrounding Abu Dhabi. The invertebrate survey was carried out during February to November 2008. In addition, three offshore islands – Zirku, Arzanah, and Sir Bani Yas were also studied for invertebrate diversity in 2001 and 2005 and the results have been included in this article.

## METHODS

Locations of the invertebrate survey are shown in the (Figure 1). In the current study invertebrates were collected using different collection methods as described by Van Harten, (2007). These included aerial netting, beating method, malaise trapping, water trapping and aspirator method. A rapid baseline survey carried out using these collection methods during the day time with one or two visits to each site.

## RESULTS & DISCUSSION

Approximately 77 invertebrate species representing 12 orders of insects were collected and identified from this survey. Of the 8 islands surveyed, Bul Sayeeef was noted to have the highest insect diversity among all sites, whilst Al Bahrani was the lowest in regard to invertebrate diversity in terms of number of the family, genera, and species recorded, probably as a result of a lack of vegetation. The results suggest that insect diversity on the surrounding islands of Abu Dhabi is moderate with 12 of the 23 listed insect orders of UAE fauna recorded).

However, the orders currently listed the predominance of Hymenoptera and Diptera. This is a similar finding to those of mainland habitats of the UAE. Many insects and other invertebrates notably absent from the islands are those usually associated with specific mainland habitats. There were no endemic species found on the island. However, those that were identified showed that they were less abundant with an uneven distribution. According to Niemelä, et al. (1988) there is no clear relationship between the dispersal ability of a species and their island-mainland occurrence. This

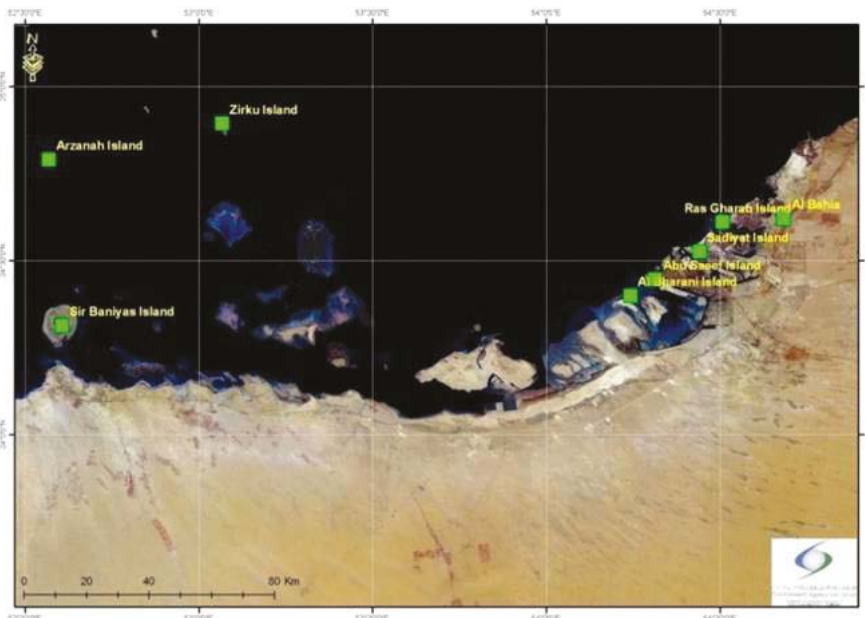


Fig 1. Map showing the location of surveyed islands during the study (EA, Abu Dhabi)



Fig 2. *Pachycodyla sennarrens* (Samsun ant)- (from Sir Baniyas Island) (Anitha Saji)

could be the most probable explanation for uneven distribution of Tenebrionid beetle species observed in the current study among these islands. It is suggested that both habitat effects and island isolation determine the abundance and distribution pattern of the species. It is also believed that this is a baseline study and that the insect diversity on Abu Dhabi Islands would be far more diversified than the current observation's suggest.

Surveys for terrestrial insects and most other invertebrates should be carried out at the time of the year when the group is most active and at a time which will provide more accurate baseline information. Further studies/surveys at different times of the year, with altered collection techniques for specific habitats would certainly add many more insect and other arthropod species records to the present list.



Fig 3. Dragonfly species recorded from Sadiyat Island (EA, Abu Dhabi)

## Acknowledgments

We thank the Environment Agency-Abu Dhabi for their support and encouragement.

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# A SURVEY REPORT ON THE TRAPPING AND TRADE OF RAPTORS IN IRAQ

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## INTRODUCTION

Iraq is considered one of the main pathways for migratory raptors passing through to wintering grounds in Arabia and Africa. It also has a remarkable number of resident and breeding birds of prey. Forty-seven species of birds of prey (including owls) were recorded in Iraq (Al-Sheikhly in prep). Every year the local animal markets (Suq singular) in Iraq exhibit thousands of captured wild birds from small passerines to large birds of prey. Four main animal markets in four different Iraqi provinces were surveyed. Suq Al-Gazel in Baghdad, Suq Ba'aquba in Diyala, Suq Al Qa'la in Kirkuk, and Suq Al-Ramadi in Anbar. Thirty-six raptors species (including seven owl species) with a total count of 885 birds of prey were recorded during a two-year period between December 2008 and December 2010. Suq-Al-Gazel and Suq Ba'aquba were visited, when possible on a weekly basis. Suq Al Qa'la and Suq Al-Ramadi were visited, when possible, on a monthly or bi-monthly basis.

## RESULTS & DISCUSSION

Raptors were brought to the *Suq* to be sold for prices ranging from 10 to 300 USD depending on their age and state of health. They were either sold locally, smuggled to neighbouring countries or died in captivity. Raptors are often presented in poor health with injuries usually caused by careless trapping or handling. Detailed information about the trapping and traffic of falcon species such as saker falcons (*Falco cherrug*), lanner falcons (*Falco biarmicus*), and peregrine falcons (*Falco peregrinus*) was collected. Iraq has some laws that restrict hunting, but these are not enforced and there is extensive illegal hunting/trapping of many IUCN Red-listed species. Action is seriously needed to stop such practices, otherwise such activities will continue, and could result in a significant decline of raptors numbers in Iraq.

During Nature Iraq Key Biodiversity Area surveys, large numbers of passage migrant raptors were recorded at one site (east of Tharthaar Lake) consisting of a mixed flock of 437 black kites (*Milvus migrans*) and black-eared kites (*Milvus lineatus*), and a flock of up to 450 lesser kestrels (*Falco naumanni*) were found in another site in the western desert of Iraq (Nature Iraq, 2011).

Falconry hunting parties from different Arabian countries have been visiting Iraq in order to trap falcons particularly saker, lanner, peregrine and barbery falcons (*Falco pelegrinoides*) or to hunt houbara (Macqueen's) bustard (*Chlamydotis macqueenii*), great bustard (*Otis tarda*), and little bustard (*Tetrax tetrax*). It has been locally reported that both these falcon and bustard species are becoming increasingly rare in Iraq because of hunting and trapping (Nature Iraq, 2009).

During the first visit to the *Suq-Al Gazel* in Baghdad in December 2008, four raptor species were present. In 2009 and 2010 more detailed surveys were carried out in order to cover the main raptor species present at the Suqs. During a total of 97 regular visits to all four Suqs, 885 birds of prey belonging to 36 species were recorded. Seven of these species were listed on the International Union of



Fig 1. Juvenile Asian imperial eagle at Suq Al Gazel in Baghdad (Omar Fadhil).

Conservation of Nature (IUCN) Red List for endangered species and were frequently present at the Suqs.

Extensive information was also gained from hunters/trappers, falconry associations, and animal shop owners about the main targeted species and counts of birds of prey that have been trapped and sold during the years of 2009 and 2010. In order to develop future conservation efforts to protect falcon species, one goal of these surveys was to determine which species was the most popular and prized for capture and sale. Through interviews, as well as data gathered from visits to the Iraqi Suqs, saker falcons are the most popular species and dominate the international falcon trade. According to one hunter in 2010, he was involved in the trapping of seventeen saker, nine peregrine, and 11 barbery falcons in Anbar and smuggled them to a neighbouring country via Iraq's western and southern borders. More clarification regarding the falcon trade in Iraq is still needed such as determining the methods used to move species across national borders and the number of species and individuals involved in this cross border trade.

## Conclusions

Illegal hunting and trapping of birds of prey continues in Iraq and the absence of adequate laws and particularly full enforcement of existing laws may cause regional declines of these species. Each year hundreds of professional falcon trappers set their traps in different hot spots in Iraq for raptors. Trapper camps can be found near oases in the middle of the western desert, on the shores of large wetlands, or close to mountains and foothills of northern and eastern Iraq; anywhere falcons are likely to be found and captured. The continuance of such practices combined with other man-made threats such as poisoning, habitat destruction, disturbance, etc could reduce the population of resident and migrant raptor species in Iraq unless action is taken. It is encouraging to note that Iraq is currently discussing becoming a signatory nation to the Convention on Migratory Species (CMS) and the Convention on International Trade in Endangered Species of Flora and Fauna (CITES). This will hopefully lead to future conservation steps to protect raptor species in Iraq.

Please see the online version for acknowledgements, references and Tables.



Fig 2 Long -legged buzzards at Suq Al Gazel in Baghdad (Omar Fadhil)



## THE IMPORTANCE OF LIGHTING FOR REPTILES

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Lighting is an important aspect in the management of reptiles, but it is often underestimated and is poorly understood. Few studies have looked at the beneficial effects of proper lighting to captive reptiles and more research is needed to produce hard evidence that proper lighting is necessary for reptiles. At the moment, the most detailed and complete source of information of lighting in reptiles is a website: [www.uvguide.co.uk](http://www.uvguide.co.uk). On this website, all aspects of lighting are professionally evaluated.

In the wild, reptiles follow a daily and seasonal pattern that is regulated by the sunlight. Solar light is divided into visible light and ultraviolet (UV) light and reptiles are able to see both. In any indoor reptile enclosure white light using incandescent or halogen lamps and UV lamp should be provided in order to mimic the light wavelength of the sun and recreate a more natural enclosure.

UV-b light, a fraction of the ultraviolet light, is also essential for the reptile in order to produce Vitamin D3 (25-hydroxyvitamin D3) necessary to absorb calcium from the diet and prevent hypocalcaemia and many other related diseases.

Recent studies have demonstrated that plasma concentrations of vitamin D3 are higher in reptiles that are provided with supplemental UV lighting. These studies were conducted on bearded dragons (*Pogona vitticeps*) (Ooninx *et al.* 2010), corn snakes (*Elaphe guttata*) (Acierno *et al.* 2008) and red eared sliders (*Trachemys scripta elegans*) (Acierno *et al.* 2006). One study showed that captive animals kept without UV light supplementation were unable to maintain the same plasma level of vitamin D3 that wild animals have (Ooninx *et al.* 2010). The other two studies demonstrated that plasma concentration of vitamin D3 was higher in captive reptiles kept with UV light source than in the control group (Acierno *et al.* 2008; 2010).

Another study showed that marine reptiles also suffer from the lack of UV light. In 2009, Purgley *et al.* demonstrated that the plasma concentration of vitamin D3 in green sea turtles (*Chelonia mydas*), moved from an outdoor to an indoor facility with no UV light, gradually decreased over a period of six – eight years from 60-70 nmol/L to 5-15 nmol/L.

Vitamin D3 supplementation is necessary to absorb calcium from the gut and it is advisable to add to the diet. However, supplementation is not effective in raising the plasma concentration in reptiles that are not exposed to UV-b light (Ooninx *et al.* 2010).

Another important consideration is where to place the UV light source within the reptile enclosure in order to potentiate the beneficial effects of it. UV-b radiation diminishes with the distance from the source and it needs to be placed at a distance of 20-30 cm from the reptile. It should also be placed near a heating source because warm skin activates the entire process of vitamin D3 production.



Fig 1. Outside reptile enclosure (Livia Benato)



Fig 2. Measuring the UVB output from a reptile bulb (Livia Benato).

UV-b light is filtered by glass, plastic and small mesh netting. If the animal is separated from the UV-b source such as lamp or sun by these materials, it will not receive enough radiation to produce vitamin D3. To mitigate this problem a Scottish company, QD Plastics Ltd, produces and sells a plastic material that is permeable to ultraviolet light and it could be the optimal solution for safe outdoor enclosures. The limitations of these plastic sheets are that they need constant cleaning and maintenance in order to be effective and that damage to the surface and growth of algae can stop UV light.

Nowadays, many organizations and zoological collections are putting their efforts together to prove the benefits of proper lighting not only in captive reptiles kept in private and public collections but also in wild animals that after a period of rehabilitation need to be released back into the wild.

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# REHABILITATING THE MIGHTY JORDAN RIVER THROUGH ENVIRONMENTAL PEACEMAKING

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The Jordan River is a historical, cultural, and religious site with great ecological significance for the four regions that share its banks and tributaries. Revered in the holy books of Judaism, Christianity, and Islam, the Jordan River has been a sacred place for the world's three monotheistic religions. Situated in the Jordan River Valley, the Jordan River is part of one of the most important bird migration flyways on the planet. An estimated five hundred million birds migrate annually through this region between the northern and southern hemispheres.

A historic flow of 1.3 billion cubic meters (bcm) coupled with the river's great biodiversity generated the river's nickname as "the mighty Jordan." Yet, if one looks at the river today, only 2% of the original volume remains, and the water that "flows" is nothing but a polluted trickle. Many people are not aware the Jordan is drying up due to the fact that most of the river is a closed military zone and off limits to the public. Yet, one organization in the Middle East is raising awareness about the dire state of the Jordan River, and is bringing it back to life.

EcoPeace/Friends of the Earth Middle East (FoEME) is an environmental peacemaking organization that promotes transboundary collaboration among Palestinian, Jordanian, and Israeli environmentalists. A unique organization, FoEME tackles common ecological issues by creating a space for dialogue and action for communities in all three regions vis-à-vis cooperative efforts. One such program dedicated to protecting the region's shared environmental heritage is the Jordan River Rehabilitation Project, which focuses on restoring the Lower Jordan River.

FoEME's Jordan River Rehabilitation Project recently published an extensive environmental flows report in 2010 explicating how to rehabilitate the river, as well as a complementary economic analysis of policy opportunities to return fresh water to the river. The reports recognize the essential need for ecological stability for the Jordan, such as the return of annual floods, reduction of pollution and sewage, and the restoration of natural flora and fauna.

The Lower Jordan River (LJR) once flowed from the Sea of Galilee to the Dead Sea, creating a lush wetland, rich in biodiversity. Overdevelopment and intensive agriculture led to divergence of over 98% of the water to the surrounding regions. Not only did this have a dire effect on the annual water flow, but also drastically affected the ecological makeup of the river. Rampant pollution and sewage dumping further led to a dramatic 50% reduction in biodiversity.

One of FoEME's recommendations includes an experimental flood of the LJR to flush sediment and pollutants, which would reconnect the channel and floodplain while removing invasive plant and animal species. The restoration of freshwater would create biological cues for native migration and breeding. FoEME calls for the return of a healthy ecosystem, which benefits nature and society alike.

FoEME is a best practice model for environmental peacemaking in the Middle East region, demonstrating how collaboration among Jordanians, Palestinians, and Israelis leads to both peaceful interaction and ecological rehabilitation.

*For more information about FoEME please visit our website at [www.foeme.org](http://www.foeme.org).*

*For recent highlights of our activities, read our monthly environmental peacemaking newsletter (available at: <http://www.foeme.org/peace.php>) or follow us at Facebook, Twitter and blog.*



Fig 1. View of Jordan River from Adam-Damyia Bridge (FoEME)

## ABU DHABI IS GEARING UP FOR THE LARGEST GATHERING OF FALCONERS THE WORLD HAS EVER SEEN.



Fig 1. Falconer on horse (Linda Wright)

The International Festival of Falconry will come to the Jahili Fort, Al Ain, in December 2011 to celebrate this ancient sport. The week-long festival will be a free event, hosted by the Emirates Falconers' Club, which will showcase falconry's contribution to education, science, art and heritage.

The Festival will open with a three-day conference that will see vets, conservationists and regional experts gather to discuss the most topical issues that they face. Conference organiser Dr Andrew Dixon believes it will be a forum for lively debate and where some of the most respected and senior falconers, such as Dr Tom Cade (founder of the Peregrine Fund), can engage with the next generation of falconers.

The importance of education and passing on skills and knowledge is vital for the survival of falconry. As such, the Festival will host local schools and children at the Education Day. For children, the Education Day is a brilliant opportunity to come into close contact with birds of prey, ask questions, and learn about wider issues such as the conservation of prey species such as the Houbara bustard.

The 16th and 17th December will see the Festival open its doors to the public who will be hosted by the international falconers in their assorted tepees, yurts, hunting lodges and Bedouin tents. There will also be a full arena programme of historical re-enactments and flying displays with horses, camels and salukis.

Festival Director, Nick Fox believes that the Emirates have never seen such an event. "Emirati, expatriate and international visitors will all find something to enjoy. People are invited to experience the rich and varied cultures of falconry in the Americas, Asia, Africa, Europe and of course the Middle East, which makes this an event not to be missed. This is going to be the world's largest gathering of falconers and we hope you'll be there too".

*For more information in 10 languages, visit [www.falconryfestival.com](http://www.falconryfestival.com) or find us on Facebook*

## WHAT'S NEW IN THE LITERATURE

**An attack by ratel *mellivora capensis* on pre-release asian Houbara bustards *chlamydotis macqueenii* in central saudi arabia**

*IN: Small Carnivore Conservation*, Vol. 44: 35–37, June 2011.

M. Zafar-ul ISLAM, P. M. BASHEER, Waliur RAHMAN and Ahmed BOUG

Keywords: Honey Badger, MacQueen's Bustard, Mahazat as-Sayd Protected Area, Ratel–human conflict, Reintroduction.

**ABSTRACT**

On 8 December 2009 a Ratel *Mellivora capensis* broke into a purportedly predator-proof pre-release cage for Asian Houbara Bustards *Chlamydotis macqueenii* in Mahazat as-Sayd Protected Area, Saudi Arabia, and caused the death of 29 of the 75 housed Houbaras. The Ratel ate six of them; 23 more died through panic-stricken collision with the walls. This is the first documented instance of Ratel, one of six predators in the area, attacking the reintroduction Houbaras, but on three occasions Ratels have attacked captured foxes *Vulpes*. Loss of juveniles by predation in the first few weeks after release is the single largest cause of Houbara mortality in the project and radio-tracking studies of Ratel are planned.

**POPULATION STRUCTURE OF FARASAN GAZELLE**

*IN: Mammalia*. Volume 75, Issue 2, Pages 157–161, ISSN (Online) 1864-1547, ISSN (Print) 0025-1461, DOI: 10.1515/MAMM.2011.010, May 2011

Peter L. Cunningham and Torsten Wronski

Keywords: Farasan Islands, *Gazella gazella farasani*, group size and composition, Saudi Arabia, sex ratio

**ABSTRACT**

Some aspects of population structure (group size, group composition, sex ratio, female/juvenile ratio) of the Farasan gazelle *Gazella gazella farasani* were studied on the Farasan Islands, Saudi Arabia. The overall mean group size has remained consistent since 1988, indicating a stable population. *G. g. farasani* are mainly observed as single animals with females usually being solitary or in female groups. The largest group of gazelles comprised eight individuals in a mixed herd. The male/female sex ratio of adult animals during summer is skewed towards females with an extremely low juvenile/female ratio. A higher male mortality due to dispersal and related issues with anthropomorphic reasons is suspected. Results are discussed in the light of published and unpublished data from previous studies on the Farasan Islands and other Mountain gazelle (*Gazella gazella*) populations from the Arabian mainland and the Levant.



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**TWENTY YEARS OF MONITORING OF THE VULNERABLE FARASAN GAZELLE *Gazella gazella farasani* ON THE FARASAN ISLANDS, SAUDI ARABIA: AN OVERVIEW**

Peter L. Cunningham and Torsten Wronski

*N: Oryx*, 45(1), 50–55

doi:10.1017/S0030605310001298

Keywords: Farasan gazelle, *Gazella gazella farasani*, monitoring, Saudi Arabia, status

**ABSTRACT**

The mountain gazelle *Gazella gazella* in Saudi Arabia is categorized as Vulnerable on the IUCN Red List. On the mainland the species' survival depends on a few remnant populations in the western Mountains and coastal plains and on two reintroduced populations. The largest natural population of *G. gazella* in Saudi Arabia is the Farasan gazelle subspecies *G. g. farasani*, which inhabits the Farasan Islands in the Red Sea. We review and collate the available literature on this subspecies, mainly unpublished reports presenting wildlife census data, and supplement this with the most recent, 2009, count. The number of free-ranging gazelles has remained approximately constant since the first counts in 1988, with an overall density of 0.64 km<sup>-2</sup> and an estimated population of 1,039 on Farasan Kebir in 2009. The populations on two other islands, As Saqid and Zifaf, have not fared as well, possibly because of uncontrolled hunting pressure, competition with domestic stock or poor habitat conditions overall. The population on Qummah Island is extinct. Threats to this subspecies include uncontrolled hunting and uncoordinated development. Continued protection of this apparently stable population of mountain gazelle in Saudi Arabia is imperative to ensure the survival of the species.



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