



Wildlife Middle East



Wetland Hima of Kfar Zabad ©David Thomas.

NEWS

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Wildlife Middle East News is published quarterly. It contains papers, reports, letters and announcements submitted by veterinarians, biologists, conservationists, educators, and other animal care professionals working with captive and free-living wildlife in the Middle East region. Contributions are not refereed, although every effort is made to ensure the information contained within the newsletter is correct, the editors cannot be held responsible for the accuracy of contributions. Opinions expressed within are those of the individual and are not necessarily shared by the editors. Guidelines for authors can be downloaded from www.wmenews.com

RAKBANK
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EDITORIAL

Welcome to the first issue of our second year of publication. Our thanks again to RAKBank who have continued their commitment to WME News by providing sponsorship for our second year. As we write this editorial the Reith Lectures presented by the eminent economist Jonathon Sachs are being broadcast by the BBC (see <http://www.bbc.co.uk/radio4/reith2007/lecture1.shtml>) and they make worthy, but also sobering listening to any of us who are concerned about the environment. Jonathon Sachs believes that the challenge of humanity is learning to live peacefully and sustainably in an extraordinarily crowded world that is creating unprecedented pressures on human society and on the physical environment. He talks of a planet that is crowded to an unprecedented degree, a planet that is bursting at the seams in human terms, in economic terms, and in ecological terms.

Those of us involved with wildlife and environmental issues in the Middle East are aware that we inhabit one of the most environmentally sensitive and stressed parts of the world. Development has transformed sleepy coastal towns and oasis villages into high tech cities where the beaches and open desert are fast being fenced off for farms, factories, skyscrapers, hotels and commuter belt residential areas. The cost is a disconnection between an urban population and the environment and the rapid disappearance of plant and animal species from their desert, mountain and aquatic habitats. What can be done to help the fast-disappearing wildlife of the region?

In the first Issue of Volume 2 of the newsletter we are pleased to include an article by Gayatri Raghwa on the environmental awareness work being carried out by the Environment Agency of Abu Dhabi. It is reassuring to learn how the awareness programmes developed by one of the newsletter Editors (Theri Bailey) have thrived. Environmental awareness has been undervalued as a tool for inspiring both children and adults to care for their environment for too long and there is a tremendous need for awareness programmes to be developed in other Emirates and countries within the region.

The region may be developing at breakneck speed, but traditional forms of land management can still play a role in preserving biodiversity. Mr Dakdouk from the Society for the Protection of Nature in Lebanon describes how the Hima, a traditional system to manage natural resources, is being revived in the Lebanon to protect nature reserves.

As part of series of articles on collection management we publish the first of a series of articles on the nutrition of captive wildlife by Mr Wensvoort who has worked in the nutrition field in the Middle East for over a decade. In the first article the challenges of keeping wildlife adequately nourished is reviewed along with common problems caused by poor diets.

Surveying wildlife in deserts can be challenging and Husam El Algamy and Greg Simkins report the use of camera traps to assess the status of wild carnivores in the Dubai Desert Conservation Reserve. Last, but not least Simon Brusland from Qatar reviews the captive management of guineafowl.

Our news section features articles on the exciting discovery of the largest wintering population of one of Eurasia's most endangered birds – the Sociable plover. However, conservationists are concerned that hunting parties visiting the reserve may have a negative impact on the population and are working with government bodies to safeguard the species. Our literature and information review includes abstracts of recent scientific papers on dhub lizard taxonomy and sand fox distribution, as well as reviews of two UNESCO books and a natural history book produced by the Environment Agency of Abu Dhabi.

Some food for thought from the Reith Lecture to end this editorial, which presents some themes on the interconnectedness of the environmental and wildlife issues 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.

“Our challenge is to understand these common problems, to see that the whole world is arrayed on the same side of them; to understand that a leader in Iran, or in Korea, or in Sudan, or in other places where we've made it a point not even to have a conversation, much less a negotiation or an attempt at peaceful solution, is facing problems of water supply, climate change, food production, poverty, and disease burden, many of which impinge directly on us. Can it be true incidentally that because we don't want to talk to Iran, H5N1 won't pass through Iran, that we won't have to deal with avian ‘flu in places we don't want to speak to, where we have put pre-conditions to negotiations, because we can't see the commonality of our problems? Can it really be, ladies and gentlemen, that the solution to Darfur, one of the most urgent crises on the planet, is all about peacekeepers and troops and sanctions, when we know that in Western Darfur the rebellion started because this is just about the poorest place on the whole planet, because there is not enough water to keep people alive, the livestock have no veterinary care, there's no basic infrastructure, and the electricity grid is hundreds of miles away? Can we really think that peacekeeping troops and sanctions will solve this problem? I do think we have a fundamental re-thinking to do.”

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THE REVIVAL OF THE HIMA SYSTEM IN LEBANON

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Ever since its foundation in 1986, the Society for the Protection of Nature in Lebanon (SPNL www.spnlb.org) has advocated the establishment of protected areas. Together with the Lebanese Ministry of Environment they have initiated projects for protected areas within Lebanon. After twenty years of experience working in nature reserves with government agencies and due to the increased concern at local, national and international levels for co-management of natural resources, SPNL is now reviving and advocating the use of the Hima system which has been prevalent in the Arabic region for the last 2000 years.

The Hima is a traditional protected area which involves the sustainable use of natural resources by and for the local communities surrounding the Hima. This indirectly benefits the conservation of biodiversity together with the natural and cultural heritage of the area. Historically, governance of Himas was initiated and handled solely by tribal chiefs in Arabia. Later it was handed over to religious leaders to ensure benefits to the underprivileged people in communities and within tribes. In countries of the near East, such as Lebanon this was later transferred to municipalities and other democratically elected bodies. This transfer ensured equity and the fair use of resources whilst sustaining the natural resources of the Hima. During the last thirty to fifty years, most countries in the Middle East have neglected the Hima system. More recently the region has witnessed the advocacy and adoption of other categories of Protected Areas managed by governmental agencies.

SPNL has been working on the Important Bird Areas (IBA) programme since 1994 and this has resulted in four sites being identified by SPNL/BirdLife International as IBAs, namely; Ammiq Wetlands, Chouf Cedar Nature Reserve, Ehdn Forest Nature Reserve, and Palm Islands Nature Reserves. More recent research in 2005 has identified a further five new sites. The ultimate aim of the IBA programme is the conservation of these sites. Some of these could be best preserved through community based conservation and the Hima system.

The limited ownership of the local communities within the current centralized system of protected areas has resulted in limited benefit sharing with local community groups. SPNL therefore, is hoping to gain stronger support for the Hima practice as a viable and sustainable alternative to nationally designated protected areas. The increased involvement of local communities and the benefits derived from protection will ultimately result in improved status of the natural resources themselves.

The overall goal of the Hima revival is to mesh traditional practices with recent conservation science as a way to reach sustainable development. Since 2004, SPNL has re-established two Himas, in two key biodiversity areas; namely Ebel es-Saqi in South Lebanon and Kfar Zabad wetland in the Bekaa region.

Another example of the Hima system is the Ammiq Marsh (Lebanon's most significant remaining natural freshwater site and one of the few in the Middle East). This major stop-over site for migrating birds was under severe threat. Since 1996, A Rocha Lebanon (<http://en.arocha.org/lebanon/>) has been initiating conservation programmes with private landowners, local communities and religious groups in the west Bekaa. Additionally it has worked nationally to engage religious communities in nature conservation and sustainable resource management. During the same period, work with the landowners of the Ammiq Marsh using Hima principles has led to the protection and restoration of this internationally important wetland. This is a unique project in Lebanon and has resulted in the cooperation between private landowners and an N.G.O. which has created the country's first private reserve which is now a designated Ramsar site.



Wetland Hima of Kfar Zabad (©SPNL).

Why Hima?

The Hima provides an approach through which conservation can be linked to the community. IBAs are identified on the basis of biology and geography. Designation as an IBA does not mean that a site is, or should be, protected under any formal mechanism, neither does the list of IBAs in itself constitute a conservation plan.

In Lebanon, it will not be feasible or desirable to designate every IBA as a formal Protected Area. Resource limitation, conflicting land ownership and high opportunity costs in productive landscapes often make this difficult. Also, formal Protected Area designation may not necessarily be the most effective approach to site-based protection, especially where many people live in and/or use an IBA. Indeed, in some circumstances, formal Protected Area designation could be counter-productive to conservation objectives, particularly where current Protected Area regulations (i.e. Nature Reserve) restricts traditional land and natural resource use practices that are compatible with or contribute to the biological value of a site.

In such circumstances, alternative approaches to site-based protection of IBAs are needed. These could include community managed conservation areas, or private reserves, through voluntary agreements with land owners, tribes and religious groups. They could be classified as Himas, thus complementing the Nature Reserve Category.

In many cases, the Hima approach may be cost-effective and help to engage support from sources not used or available to Nature Reserves. Hima status may also provide greater opportunities for sustainable human use of natural resources, and therefore, make a greater contribution to poverty alleviation for people whose use of natural resources forms a critical component of their livelihood strategies.



Wetland Hima of Kfar Zabad ©SPNL.

EDUCATION AND AWARENESS EFFORTS ON WILDLIFE ISSUES BY THE ENVIRONMENT AGENCY- ABU DHABI

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Little Salama was asked by her teacher to name four mammals in the UAE in her science class. She took her time and answered 'Rheem' (Sand Gazelle), 'Nimr' (Arabian leopard), 'Maha' (Arabian Oryx) and 'Tahr' (Arabian goat). The teacher asked her if she had seen them in her home in the desert and little Salama answered 'No, none of them'

For a small country, the UAE is blessed with a variety of habitats such as, the desert, marine, mangrove, mountain and wadi. About 800 species of plants, 35 species of terrestrial mammals, 435 species of birds and 53 species of reptiles besides a number of marine species are known to occur in the UAE. Four of the 35 species of terrestrial mammals, according to the IUCN Red Data Book, are listed as 'extinct in the wild', four as 'critically endangered', three as 'endangered' and three as 'near threatened'. The current estimate of UAE's population is over 4 million and the population has increased by 74.8 % in the last 10 years. Increasing population and impact of the fast pace of developmental activities, across the country, have taken their toll on the wildlife species and their habitats. It has also resulted in a complete dissociation of people living in the country from nature. With increasing habitat loss and developmental activities threatening the biodiversity in the Emirates, effective awareness and educational programmes to help raise this issue amongst the various targeted audience becomes imperative. Recognizing this need, the Environment Agency of Abu Dhabi (EAD), has established a 'Environment Education and Awareness Division' to identify the current state of awareness among the different targeted audience and establish effective environmental education programmes.

EAD Programmes For Students

The EAD's 'Environment Education and Awareness Division' started its efforts to help raise awareness amongst students in 1998, with the launch of the 'Nature Bus'. The 'Desert Experience' and 'Marine Experience' help to make primary and middle school students aware of the UAE's biodiversity. For secondary and senior students a field trips programme was started to explain different habitats through a very 'Hands on' approach to studying what they learn about in their in their school curriculum and helping them to apply their knowledge to real and local environmental situations. Currently, field trips on the marine, wadi, wetland, mountain and mangrove habitats have been developed. In addition, senior students are also taken to study Sir Baniyas Island, as an example of ex situ conservation, and to the Abu Dhabi Falcon Hospital to learn about falcons, falconry and sustainable hunting. On average nearly 3000 students from the Government and the Private Schools attend field trips each year. Students from Higher Education establishments are also targeted.

Teacher Training

Under the 'train the trainers' programme, teachers are shown interactive ways to incorporate environmental education into their classroom teaching. They are also updated on environmental issues through workshops and presentations. Government school teachers have been trained in making taxidermy specimens for their biology labs.

Educating The General Public

Besides students and teachers, the Agency motivates the general public, and especially women, through its non- formal awareness programmes. Under these programmes the division conducts regular clean up campaigns to help raise awareness about marine debris and its effect on marine organisms. The Agency also observes environmental days with appropriate activities and conducts regular public exhibitions, workshops and conferences on endangered species.

Marine Protection Department

The Marine Protection Department of the Agency has identified education and awareness as one of the important strategic actions towards the management of the MPA's (Marine protected areas). Awareness on marine endangered species is one important action undertaken by the Marine environment research center of the Agency. Efforts have so far centered on raising awareness about dugong and turtles. Materials and resources have been produced for those target groups who interact with the marine environment, such as; fishermen, island managers, coast guards and oil field workers.

National Avian Research Center

Similarly, the National Avian Research Center undertakes awareness programmes about the protection and conservation of the Houbara bustard. They do this through media campaigns, presentations, promoting visits to NARC and so on. Abu Dhabi Falcon Hospital reaches out to falconers, students, and other VIP's to help raise awareness about the status of falcons and the need to practice sustainable hunting.

Environmental Materials And Information

The Agency has produces a wide variety of materials; such as books, videos, posters and interactive CD's on environmental issues. For further information, please contact: 'Environment Education and Awareness Division', Environment Agency- Abu Dhabi, PO Box 45553, Abu Dhabi, UAE, Tel: +971 2 681717, Website: www.ead.ae



Nature bus of the Environment Education and Awareness Division', Environment Agency- Abu Dhabi © Tom Bailey

CAMERA TRAP SURVEY IN THE DUBAI DESERT CONSERVATION RESERVE

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Introduction

The Dubai Desert Conservation Reserve (DDCR) was established in 2003 as a protected area with the main aim of conserving the natural resources of Dubai's inland desert and to restore the natural fauna and flora of the reserve to its natural state. In order to achieve this aim it was decided to carry out a number of surveys to assess the current situation and to determine the priorities for the next phase.

Within the DDCR very little was known about species belonging to the order Carnivora, so the following questions were asked:

- What wild carnivore species are found in the DDCR?
- What is the distribution of these species?
- What is the population size of these species?
- Are there any feral species and where are they concentrated?

It was decided that the best method to answer these questions was to utilize camera traps. Camera traps have the advantage of detecting, with equal efficiency, nocturnal and diurnal activities while having minimal environmental disturbance. In addition to animal detection, camera traps can also provide information about patterns of activity and habitat use.

Target Species

The main focus of the survey was to assess the presence and distribution of the following species:

- Gordon's wild cat *Felis silvestris gordonii*
- Sand cat *Felis margarita*
- Caracal *Felis caracal schmitzi*
- Arabian red fox *Vulpes vulpes arabica*
- Sand fox *Vulpes rueppelli*

In order to attract these species the camera traps were baited with meat on a regular basis.

Results

The current sampling was done over a period of 1,029 active camera days at seven sites over the study area of the DDCR. These sites were representative of most habitats and vegetation cover types present in the DDCR and resulted in 1,991 pictures. A total of 1,286 (64.59%) were classified as "Live" pictures and were then sorted as follows: a) Wild mammals; b) Wild birds; c) Grazing livestock; d) Feral mammals, before being used in further analysis.

Table 1. Activity records of camera trap photographs in the DDCR

Site	Wild Mammals	Wild Birds	Grazing livestock	Feral Mammals	Total wildlife activity
Fox den	87.14%	0.00%	5.71%	0.00%	87.14%
Nazwa	17.78%	40.00%	0.00%	35.56%	57.78%
Faqa'a	35.61%	31.62%	19.37%	0.00%	67.23%
Spot	26.87%	52.00%	0.00%	0.00%	78.87%
Cam7	83.71%	14.93%	0.90%	0.00%	98.64%
Shj	17.14%	58.09%	7.62%	0.00%	75.23%
Cam8	47.06%	16.18%	5.88%	0.00%	63.24%

So far only two of the target species, Arabian red fox and Gordon's wildcat, were recorded. This would suggest that the other target species within the DDCR are not resident. Other wild mammal species that were recorded include cape hare (*Lepus capensis*), lesser jerboa (*Jaculus jaculus*) and Ethiopian hedgehog (*Hemiechinus aethiopicus*) as well as the introduced antelope Arabian oryx, (*Oryx leucoryx*), Arabian gazelle (*Gazella gazelle cora*) and sand gazelle (*Gazella subgutturosa marica*). Wild bird species include brown-necked raven, great grey shrike, long-legged buzzard and Lappet-faced vultures.

The most abundant and dispersed wild mammal species recorded was the Arabian red fox, then the Arabian gazelle (which was also recorded at all the sites but with less frequency) and finally the

Gordon's wildcat. The density estimates show that the Arabian red fox has a strong representation in the DDCR with approximately 168 individuals (0.75 individuals /km²). Gordon's wildcat does occur within the DDCR, however, the density estimate is very low at 0.02 individuals /km² yielding an estimated population of only five individuals. There is strong evidence to suggest that competition with feral cats, which occur in high concentrations around human habitation, camel farms and tour operator camps have forced the Gordon's wildcats out of these areas limiting their range within the DDCR.

Conclusions

Mammal species of the Dubai inland desert have been badly affected by decades of unsustainable utilization with unregulated grazing and off-road driving. Our results support this with only two of our target species being recorded and it can be concluded with confidence that species such as the sand cat, caracal and sand fox are absent from the DDCR. The Arabian red fox and Gordon's wildcat are the only remaining small to medium sized predatory mammals left in the reserve. While the Arabian red fox population is relatively abundant, the Gordon's wildcat population is suppressed and could be classified as threatened within the area. The main reason for the pressure on the wildcat population is through competition with feral cats which compete for food resources and territory and at the same time threaten the genetic integrity of the species by hybridization. In order to protect the remaining Gordon's wildcats, a program has been started to capture and remove as many feral cats from the DDCR as possible. This program has been concentrated around human habitation and so far has been yielding good results but will need to be continued indefinitely as feral cats continue to move into the area from surrounding towns.

This survey has shown that the diversity of predatory mammals within the DDCR is critically low and that serious conservation measures are required to protect the remaining species as well as focusing on the potential re-introduction programs for both sand fox and sand cat in the near future.

Acknowledgements

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Ruppell's sand fox
© Declan O'Donovan.

AN OVERVIEW OF THE NUTRITION OF ZOO ANIMALS IN THE MIDDLE EAST

PART 1

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Nutrient requirements of zoo animals are best described as the types, amounts, ratios and presentations of nutrients to support a near equivalent of natural life, reproduction and well-being of the captive animal. The variety of wildlife species kept in captivity in the Middle East is large and as a result so is the variability in nutritional ecology, digestive physiology and nutrient utilization (Van Soest, 1982; Hofmann, 1989). Consequently the feeding requirements vary considerably between different species (Ulrey, 1996). For example, browsers such as giraffe (*Giraffa camelopardalis*) are thought to require browse to stimulate gut function and behavioural health and tend to select feeds relatively high in protein (Hofmann, 2000; Claus et al, 2003). Conversely, grazers such as Arabian oryx (*Oryx leucoryx*) can be kept successfully on grass hay with small daily amounts of a low protein supplement.

Nutrient utilization can vary due to anti-nutritive factors and nutrient ratios (Robbins, 2001). For example, the availability of phosphorus (P), calcium (Ca), magnesium (Mg) and zinc (Zn) naturally bound with phytic acid in plants is limited for many monogastric animals (e.g. birds, primates), this is of no concern for ruminating animals because the phytate is destroyed by foregut microbial digestion. However, does phytate limit the availability of these minerals in hindgut fermenters such as horses or elephants? There is no clear evidence (NRC, 2006) that phytate limits phosphorous uptake in the domestic horse (*Equus caballus*). Phytates are prevalent in some foods such as seeds (grains) and brans (Maynard, 1984), and accounting for P, Ca, Mg and Zn supply in these foods in species that are considered to be unable to break down phytate requires caution. Additional nutrient balancing (e.g. with manufactured phytase) might be required and is widely practiced in commercial poultry and swine feeds (NRC, 1988; NRC, 1994). However, the levels of grains and grain products should be limited in the diets of phytate sensitive species.

For several species there is considerable variation in nutrient requirements if one allows for seasonality and changes in the physiological state (e.g. growing or lactating) of the animals (Lechner-Doll, 2000). Variation in body condition is part of many nutritional ecologies. Varying the types of feeds and feeding levels can help to mimic seasonality in captivity which, it is argued, helps maintain a healthy animal with a natural body condition (Lechner-Doll 2000).

Boredom and obesity are major problems in zoo animals in general and feed-related stereotypic behaviours, due to limitations of natural stimulants, are common (Ulrey, 1996). Good nutritional management includes not only meeting the animal's differing physiological requirements, but also consideration for its psychological well-being. Unfortunately, many keepers tend to offer their animals very digestible, processed and often nutritionally unbalanced feeds (e.g. high energy pellets, young grass, boneless meat etc.) and make these available ad-lib, which leads to over consumption and disease. For example; feeding too much energy (mostly from sugars, starches and fructans) through either pellets, grain or grass can cause metabolic bone disease (mbd) in ratites (Bennet et al, 1991) and rumen acidosis in zoo ungulates (Van Soest, 1996); feeding de-boned meat (often done for reasons of tidiness) to captive carnivores and raptors is sadly a common practice and leads to mbd, suffering and death.



Gerenuk feeding on browse trees at Wadi al Safa Wildlife Centre, Dubai ©Declan O'Donovan.

Internal skeletons of prey animals are a major source of minerals for predators (Robbins, 2001) therefore, their captive diets should consist of (parts of) whole carcasses.

Ad-lib feeding of processed and unbalanced feeds may satisfy the animal in the short term, but eliminates the need for natural foraging and feeding behaviour and may even induce stereotypic behaviours. Food should be provided in a habitat in which the animals can feed as naturally as possible and consume the correct amount (by avoiding oversupplying and bullying). Animals should be fed according to their body condition and feeding enrichment techniques with feeding behavioural aids can be used to increase the animal's natural behaviours.

Examples include:

- Provide treats to carnivores inside a box, feed tube or ball with a small hole, forcing them to turn it around in an effort to obtain feed.
- Vary a fox diet with farmed prey animals like rodents, birds and insects.
- Feed live insects hidden under leaves to insectivores.
- Feed fruits or fruit juice embedded in ice for primates; use timed automatic feeders.
- Feed browse in as natural a way as possible
- Alternate the provision of killed or live prey to carnivores.

Captive conditions may require that additional nutrients are added to the diet. For example; vitamin C in feed is essential (Robbins, 2001) for bats (*Chiroptera*), guinea pigs (*Cavia porcellus*), primates (*Anthropoidea*) and approximately one half of all perching birds (*Passeriformes*); the amount of light and wavelength are essential for vitamin D production in reptiles kept indoors (Lloyd, 2006); In contrast, browsers like gerenuk (*Litocranius walleri*), kept at low stocking densities in some parks normally often do well without any additional feeding, provided they have sufficient browse available.

In addition one needs to know the nutrients being fed, then balance and feed effectively. For example; Rhodes hay, common in the Middle East, is generally high in salts, low to deficient in selenium (Se) and its copper (Cu) availability (as opposed to content) is likely to be low. Therefore supplying additional trace mineral (Se and Cu) in a salt lick to avoid trace mineral deficiency is not necessarily sufficient. Due to the consumption of the (salty) hay, the urge to consume the lick block will diminish or disappear.

AN OVERVIEW OF THE NUTRITION OF ZOO ANIMALS IN THE MIDDLE EAST (PART 2)

Industrial domestic animal feeds are generally made to stimulate animal growth or production performance in the short term and are usually fortified to "specific species performance requirement". For example; the recommendation for Vit D3 in broiler diets is below the requirement (NRC, 1994) to make strong and long lasting bones, because it is not desired. Therefore houbara bustard (*Chlamydotis undulata*) or stone curlew (*Burhinus oedipnemus*) chicks cannot be fed successfully on broiler feeds. However, knowledge from domestic animal nutrition research can also be extrapolated to zoo animal diets. For example; the efficiency of absorption of a nutrient like Ca from a feed like alfalfa is approximately 3x times higher in domestic horses than in domestic cattle (*Bos taurus*), which is probably due to differences in their digestive physiology (NRC, 2001 and NRC 2006). Diet formulation for wild *Equidae* and *Rhinocoridae* are supported by this nutrition research.

The hot climate of the Middle East region requires that extra electrolytes (mainly Na, K, and Cl) are offered to compensate for losses through sweating and increased kidney excretion, due to panting and evaporation induced alkalosis (Schmidt-Nielsen, 1990, Borges et al, 2007). Water is most important in a hot, dry climate and water quality is an important factor to consider when formulating diets. For example; water from wells in the region is often quite salty. Thus feeds commonly fortified with salt could cause the diet to become too alkaline (i.e. high in Na, K and Mg). In alkaline conditions a good feed to use additionally could be wheat bran which has low Na and K.

Animal managers should consider using new knowledge from nutrition science. For example; prebiotics like fructo-oligosaccharides (Vancaeneghem et al, 2002), mannan-oligosaccharides (Cotter et al, 2002) are replacing feed antibiotics and are considered immune stimulants. Plant secondary metabolites (PSM's) like condensed tannins derived from trees, shrubs and forages like aspen (*Populus tremula*), sula (*Hedysarum coronarium*) and sainfoin (*Onobrychis viciaefolia*), act as natural de-wormers (Mefod'ev, 1996, Niezen et al, 1998, Molan et al, 2002, Hoste et al, 2005.); tannins are effective against bacteria, fungi and viruses (Claus, 2003); certain barks from willows (*Salix* sp.) and aspen (*Populus trimula*) are known to provide natural anti-inflammatory properties (Von Kreudener et al 1996). Caution is required however, as most PSM's also have anti-nutritional effects (Athanasiadou, 2004). Naturally bound Se (i.e. Se similar to levels found naturally in seeds) has a major positive impact on productive animal's health (Lyons, 2002) and common levels of nutrients (iron and vitamin A) in industrial domestic animal feeds are implicated in iron storage disease in frugivorous and omnivorous animals (Claus, 2006, Huisman, 2006, McDonald, 2006). Finally the use of gluten free feeds for

gluten intolerant species, such as red-bellied tamarins (*Saguinus labiatus*) seems to work. (Berndt et al, 2006).

Generally a zoo animal display is the outcome of a compromise between the needs of the captive animal and the requirements and available resources of the zoological collection. Traditionally zoo animal keepers have studied and developed diets for zoo animals. Most zoo animals are nutritionally and behaviourally adaptive, allowing people to keep them in captivity with variable degrees of success. It is advisable to feed captive wild animals as naturally as possible, i.e. feed what the species would eat while in its original habitat, and to use knowledge of nutrition from wild and domestic species as a guide. Zoo animal nutrition is an important and complex subject and the advice of a zoo animal nutritionist can have far reaching benefits for a captive wild animal collection.

References

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Radiograph of a Bonelli's eagle chick with metabolic bone disease ©Tom Bailey.



Cheetah cub with bilateral hip abnormality showing poor stance caused by poor nutrition (©Florine de Haas van Dorsser).

NOTES ON GUINEAFOWL AT THE AL WABRA WILDLIFE PRESERVATION (AWWP)

Simon Bruslund Jensen, Curator of Birds

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Guineafowl have been domesticated and kept by humans for many centuries and are valued for their eggs and meat. They have also been used to warn owners about intruders using their alarm calls and also may serve as rodent repellents. Guineafowl may play an important role in controlling ticks (del Hoyo 1997) and although they have long been considered to be crop pests, this role has recently been reviewed based on examinations of stomach contents which show large numbers of insect pests (Raethel 1988). Guineafowl are still common in most localities; however, the Moroccan form (*Numida meleagris sabyi*) is disappearing in the wild (del Hoyo 1997, Hastings Belshaw 1985).

The call of the guineafowl is a characteristic sound of the African Savannah and serves as communication for these social birds that do not have fixed territories (Raethel 1988). In the breeding season a male will defend a fixed area around his incubating female or young. In the summer guineafowl are gregarious and will congregate in large flocks with new pair bonds forming each year. (Raethel 1988).

There are many geographical variations of wild helmeted guineafowl, in total more than 30 races have been described, currently 9 races are generally recognized (del Hoyo 1997). It is interesting to note that populations of helmeted guineafowl in Yemen and South Western Saudi Arabia, likely to have originated from introduced African guineafowl are consistently and distinctly different in appearance than any of the African forms (Paul Vercammen pers. Communication). The Somali race of the helmeted guineafowl (*Numida meleagris somaliensis*) also called Somali tufted guineafowl, is rather a distinct form, possessing a thick tuft of pale yellow waxy bristles over the cere (Fig. 1) a feature it shares with the Sudan race (*N. m. meleagris*) Other thick black bristles cover the nostrils and also form lavish eyelashes that most likely function as dust catchers. The Somali tufted guineafowl is considerably smaller than the familiar domestic guineafowl and the characteristic horn or casque is much shorter being almost flat. Only the tip of the long thin gape wattles are pink with the males having longer gape wattles than females; there is marginal difference in the casque between males and females. The calls are very similar to that of other helmeted guineafowl although somewhat lower in pitch and volume. Weights of adult Somali tufted guineafowl at Al Wabra have been recorded at 970 – 1085 g for females and 1210 – 1335 g for males. An incubation time of 23 – 24 days is normal for guineafowl. Chicks can fly rudimentarily within a few days of hatching and will follow their parents into the trees at night. In Somali tufted guineafowl, adult plumage has developed by 4 months although some streaks of brown remain, particularly on the head. It may take a year for the casque and gape wattles to fully develop. The Al Wabra Wildlife Preservation in Qatar has been maintaining Somali tufted guineafowl since 1999.

While keeping and breeding Somali tufted guineafowl has not been entirely straight forward in the hot dry climate of Qatar, they are a hardy species and best results have been achieved when the birds have had access to grass areas or have been free roaming. In unsuitable enclosures clutches have been reduced to single eggs.

The wild Somali tufted guineafowl at AWWP have remained wild and nervous even after several years in captivity. Some birds are maintained in breeding aviaries of 70 m² with one male for two females. While wild guineafowl are normally monogamous, the establishment of these "trios" is often an advantage in captivity as both females are normally laying fertile eggs and the male dividing his attention in a smaller aviary is not a major problem and may even counter aggressive interactions. However, the greatest breeding success was achieved in free-ranging birds under semi-controlled conditions. The birds would be released to grassland areas with scattered palm trees and thick bushes in spring and soon after would produce the first clutches of eggs. Supplementary feeding would be done within their breeding aviary which would be frequented almost daily. Due to high predator pressure, especially from desert foxes, parent rearing of chicks was not successful so eggs were pulled for artificial incubation and hand reared without major difficulties. More recently the Somali tufted guineafowl were housed in a large 2000m² free-flight aviary with thick ground vegetation in the hope that they will rear their own young.

The AWWP also maintains a large population of vulturine guineafowl (*Acryllium vulturinum*). The population roams freely within a 2.5 km² fenced area and is semi feral only occasionally being offered supplementary food. The population is estimated at 75 birds currently and due to their considerably

larger physical size the population withstands predator pressure from foxes somewhat better than the smaller Somali tufted guineafowl. At AWWP the rolling and pleasant calls of the vulturine guineafowl is a common sound that can be heard throughout the night.

The vulturine guineafowl has a distinctive powerful bill, no casque, contrasting black and white neck hackles as well as a bright blue breast and under parts. They are long legged with an elongated pointed tail and their display behaviours emphasize this as the birds stretch to their full height and show their sides to each other both in mating and territorial displays. The AWWP collection begins to display in March and pairs then start to separate from the non-breeding groups. Established pairs become quite secretive and for a time it becomes rare to see the vulturine guineafowl during the day. At night the pairs can be seen roosting together, but later this is replaced by single birds while the females incubate their clutches. The first chicks appear with their parents at the end of May. As the young become older some pairs may come together and raise the chicks in small groups of 4 – 6 adults with anything between 5 and 16 chicks of approximately the same age between them. In the late summer the birds that failed to breed will form groups of up to 15 birds. These will later be joined by the adults and their young as the latter begin to attain adult plumage. These wintering groups will typically contain around 70 birds and will then occupy different areas of the gardens.

Guineafowl are an interesting and attractive addition to zoo exhibits, and can coexist with species such as antelopes in mixed exhibits without causing any problems. However, there is still much that is unknown about helmeted guineafowl biology in the wild, in particular their social behaviour and development of the different geographical races.

References

Available for download from the pdf website version at wmenews.com



Adult male Somali tufted guineafowl at AWWP.
© AWWP/Simon Bruslund Jensen

Adult male vulturine guineafowl at AWWP.
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WHAT'S NEW IN THE LITERATURE

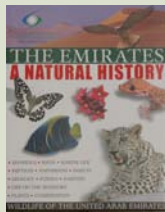
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Book Review - The Emirates – A Natural History

Published by Trident Press. Editors: Peter Hellyer and Simon Aspinall. Sponsored by the Environment Agency – Abu Dhabi. Cost – 131 \$US. ISBN 1-905486-02-2



The newly published 'The Emirates – A Natural History', is currently the most comprehensive reference book on the entire range of wildlife in the UAE. The book is divided into four main sections, entitled; 'Discovery, Geology, Habitats and Wildlife' and it will appeal to both the keen amateur natural historian, or professional scientific researcher. The editors, Peter Hellyer and Simon Aspinall, have done a good job at getting contributions from 34 authors, and the 580 stunning captioned photographs and over 50 other illustrations of UAE animals and plants, make the book a real pleasure to read. For those who need scientific information, there are up-to-date species checklists and a scientific index that lists over 3100 species. In addition, the book contains detailed references for each chapter and a comprehensive bibliography on UAE wildlife. Certainly, whether your interest lies in searching for ancient fossils, hiking through mountain wadis, identifying birds in your garden, exploring underground caves, beach combing along the shore, snorkeling in the shallows, SCUBA diving over coral reefs, or fishing from a boat, this book will provide information to enhance your pleasure of these activities. For further information contact: Environment Agency- Abu Dhabi, PO Box 45553, Abu Dhabi, UAE, Website: www.ead.ae

Amer, K.M. et al. (eds) (2006) Policy Perspectives for Ecosystem and Water Management in the Arabian Peninsula. UNESCO & UNU, Doha and Ontario. 171p.



The water crisis is one of the most critical challenges facing the world today and is particularly important for the countries of the Arabian Peninsula. Sustainable development in the region requires the formulation of principles for effective and equitable water resource management practices that also fully conserve various ecosystems. Such practices are the focus of this book which also presents guidelines developed by a multi-disciplinary group of experts from the region. Contact: Dr. B. Böer b.boer@unesco.org

Wilms, T.M.& Schmitz, A. (2007) A new polytypic species of the genus *Uromastix* MERREU 1820 from southwestern Arabia. Zootaxa 1394: 1-23.



Uromastix sp. © Tom Bailey

We describe *Uromastix yemenensis* sp. nov. from south-western Arabia, comprising two geographic subspecies, *U. y. yemenensis* and *U. y. shobraki* ssp. nov. The new species is a member of the *Uromastix ocellata* species group, closely related to *U. benti*. It is differentiated from its sister taxon by smaller scales around midbody and smaller ventrals. The new species is restricted to the extreme south-western tip of the Arabian Peninsula. The western populations of *U. yemenensis* differ genetically and are constantly distinct in respect to their colour pattern and are therefore recognized as a subspecies.

Murdoch et al. (2007) Rüppell's foxes in Al Dhafra, United Arab Emirates. Canid News 10:1 [online]:http://www.canids.org/canidnews/10/ruppells_foxes_in_UAE.pdf.



Dr Chris Drew, formerly EAAD, weighing a Rüppell's fox in the field ©Tom Bailey.

Here we provide a new record of Rüppell's fox *Vulpes rueppellii* in the Al Dhafra region of southwestern Abu Dhabi Emirate, United Arab Emirates (UAE). The presence of foxes in Al Dhafra represents an extension in the recognized range of the species within UAE.

Obon, E. et al. (2007) Establishment of an avian monitoring health scheme in the United Arab Emirates using wild mallards (*Anas platyrhynchos*). Proc. European Assoc. Avian Veterinarians. Pp 428-432.

Wild waterfowl have been widely recognized as carriers of numerous avian pathogens. This, in conjunction with the fact that they interact with captive waterfowl during feeding obviates the potential threat of disease introduction into closed populations. A surveillance programme was carried out in the lakes of Wadi al Safa Wildlife Centre, Dubai, UAE, using migrating wild mallards (*Anas platyrhynchos*). Thirty apparently healthy mallards were trapped, and the presence of various avian pathogens was investigated.

Editors note: Pdfs of some papers available for download at wmenews.com.

NEWS AND EVENTS

Ornithologists “hit jackpot” on sightings of Critically Endangered bird.

Damascus, Syria: A small expedition team travelling across Syria today announced the discovery of the largest wintering population of one of Eurasia’s most endangered birds, the Sociable Lapwing (*Vanellus gregarius*). Globally, the Sociable Lapwing has suffered a very rapid population decline – halving between 1960 and 1987. In recent years these declines are thought to have worsened, resulting in its Critically Endangered status. Previous estimates placed the global population of this Critically Endangered species at between 400 and 1500 individuals. However the expedition team reported seeing over 1200 birds in one day and over 1500 in total during the trip, all within a few grassland sites in Northern Syria. The finding gives tremendous encouragement to conservationists working to save the bird across Central Asia (where it is a summer resident) and the Middle East (where the bird winters).

The two major causes of biodiversity loss in the Syrian desert are illegal hunting and habitat degradation – both of which are thought to pose a threat to Sociable Lapwing in the region. Conservationists in the Middle East are now working urgently to ensure that the wintering population can be afforded immediate protection from these twin threats. “In order to safeguard this newly-discovered wintering population of Sociable Lapwing we have had to act quickly, working with local government agencies and the Syrian Society for the Conservation of Wildlife to help secure the site and its vitally important bird populations,” said Sharif Jbour of BirdLife Middle East, who are among those coordinating actions in the region. The expedition by the Syrian Sociable Lapwing Team was partly funded via a number of organisations: the RSPB (through a grant from the UK government’s Darwin Initiative), the Ornithological Society of the Middle East and the Dutch Van Tienhoven Foundation.

Story from BirdLife News Alert

Fri Mar 2 12:00:00 2007

http://www.birdlife.org/news/news/2007/03/sociable_lapwing_discovery.html



The Sociable Lapwing ©Mahmoud Sheish Abdallah.



Sociable Lapwing: less than 1500 were thought to exist before today’s announcement ©Koshkin Maxim.

Kuwait on alert after bird flu detected

Kuwait announced on Sunday [25 Feb 2007] that it had detected the deadly strain of avian influenza in poultry and birds and had shut the nation’s only zoo, AFP reported. The 20 cases of the deadly H5N1 avian influenza were detected in birds, mainly falcons. A nationwide emergency response program was implemented, which included a ban on all bird imports, the temporary closure of Kuwait Zoo and bird markets. Blood samples from all people suspected of having had contact with the infected birds were taken, and tests were underway. About 30 teams were dispatched to various parts of the country following the discovery of the virus. Kuwait is a member of the 6-nation Persian Gulf Cooperation Council which has recently adopted measures to prevent the spread of avian flu, including the ban of birds, poultry and their products mainly from countries in Asia and Europe, where bird flu cases have surfaced. The last case of avian flu in Kuwait was discovered in November 2005.

A ProMED-mail post

<<http://www.promedmail.org>>

Source: AFP via Presstv.ir [edited]

<<http://www.presstv.ir:80/detail.aspx?id=630§ionid=3510210>>

Foot & Mouth Disease, Gazelle - United Arab Emirates

According to the full report, 2 samples from FMD-infected gazelles were sampled in the UAE on 10 Jan 2007, received by the World reference laboratory for FMD (WRLFMD, Pirbright) on 9 Feb 2007, received for sequencing on 14 Feb 2007, and reported on 2 Mar 2007. The 2 UAE gazelle isolates had 100 percent identity. The other 9 close viruses were all Iranian (2006), of which the 2 closest were O/IRN/12/2006 and O/IRN/24/2006, both showing 98.9 percent identity with UAE/1/2007 and O/UAE/2/2007. No official information on the current FMD situation in Iran could be found in OIE’s WAHID (serotypes O and A) might be spreading there. FMD in free-roaming *Gazella gazelle* has been described in Israel in 1985, with extremely high morbidity and mortality rates. Similarly, cases have been reported from Israel earlier this year (2006) (see ProMED-mail posting Foot & mouth disease, gazelle - Israel (L. Galilee) (02): conf, OIE 20070324.1025). In both cases, FMDV serotype O was the causative agent.

A ProMED-mail post

<<http://www.promedmail.org>>

Source: World Reference Laboratory for Foot-and-mouth Disease (WRLFMD) (IAH-Pirbright) [edited]

<http://www.iah.bbsrc.ac.uk/virus/Picornaviridae/Aphthovirus/fmd_genotyping/2007/WRLFMD-2007-00002-UAE-O.pdf>