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# Wildlife Middle East 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

# EDITORIAL

Sean McKeown

This editorial has taken longer to complete than anticipated. In the time taken to write it we have seen the annual mass migration/vacation of people from the Arabian Peninsula. Schools have closed for the holidays and many people have taken advantage of this to head overseas to their home-country or simply on their annual vacation. The school break offers people the opportunity and time to flee the extremes of temperature that make the Arabian Peninsula an arid, challenging environment. Some are not returning for various reasons and we at WME News wish Sean McKeown all the best for the future in his new role as Director of Fota Wildlife Park.

Over the past 18 issues of WME News we have attempted to describe a few of the many projects and initiatives being undertaken in the Middle East and this issue is no different. We hear from Sarah Gough who describes a City and Guilds course she is completing as a Veterinary Nurse to help her improve her standards and the level of care she can provide for the animals she is responsible for.

Locally, there are many Universities within the region offering top class courses of study and the opportunity to carry out research projects. One of these is the UAE University in Al Ain and they report a preliminary study investigating activity patterns of captive Arabian oryx. Studies like this contribute towards the scientific objectives of regional initiatives such as the Arabian Oryx secretariat who have renewed their activities and are in the process of completing the regional studbook for this species.

Also in this issue we are informed that the Kuwait Turtle Conservation Project has teamed up with other partners to satellite tag green and hawksbill turtles on islands off Kuwait. The use of satellite tags to monitor these animals is one of the most important and significant tools now available to acquire information on animal migrations. We are also fortunate to learn about two projects being carried out by our Iranian colleagues. One presents a brief description of the mugger crocodile and its biology, while the other describes how the Iranian Cheetah Society has used the experiences built up over a decade of work on the Iranian cheetah to highlight the plight of the regions second leopard subspecies and the perils it now faces across its range.

Our colleagues at AWWP describe how detailed animal records can be used to determine population trends and possible veterinary issues within animal collections, while the researchers of Sharkwatch Arabia explain how recreational divers and sea farers can become involved in a monitoring programme for certain marine species. With a little bit of further education and training recreational divers can provide a much wider data collection area than could be accomplished by a small team of researchers.

In our book review section, Prof Rolf Schuster reviews the 3rd volume of the Arthropod Fauna of the UAE. Together with the species covered in the previous two volumes, more than 170 families have been described from the UAE.

We would also like to draw your attention to a useful online resource called the Avian Rearing Resource Website which should be a must visit site for anyone involved in rearing birds from eggs.

Finally, we again call for articles from researchers/ organisations in the Middle East. If you would like to contribute, please contact us at the addresses provided.

## 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.

# PRELIMINARY STUDIES ON DIURNAL TIME ACTIVITY OF CAPTIVE ARABIAN ORYX (ORYX LEUCORYX) IN AL AIN WILDLIFE RESORT AND PARK, AL AIN, UAE.

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## INTRODUCTION

The Arabian oryx (*Oryx leucoryx*) is endemic to the hyper-arid environments of Arabia. Currently wild populations of the Arabian Oryx are limited, collectively totalling about 1100. The captive oryx populations total 6000-7000 individuals. Behavioural data on the Arabian oryx is limited and has been targeted towards quantifying behaviour that is of practical value in reintroduction efforts. The authors quantified activity budgets of captive Arabian oryx to help captive management efforts.

## METHODS

This study was conducted at the Al Ain Wildlife Park and Resort (AAWPR) in Al Ain, UAE. The AAWPR has a captive breeding and re-introduction program for the species. We observed focal animals and recorded individual behaviors every five minutes. Each focal individual was monitored for a period of 1-2 hours at designated times (Morning 9:00AM-11:00AM; Afternoon 12:00PM-3:00PM; and Evening 4:00PM-7:00PM). A total of 13 hours of observation was made during the course of this study on seven Arabian oryxes housed in a mixed species enclosure in March and April, 2009. Other species present in the enclosure were Sand gazelles (*Gazella subgutturosamarica*) and Dorcas gazelles (*G. dorcas*).

### Results and Discussion

Little is known about the time activity budgets of the Arabian Oryx in the wild. Desert animals generally tend to be most active in the early morning and late evening. Most 'active' behaviours were observed in the morning and evening and the oryx were least active in the afternoon, when they were observed to be sitting, standing, ruminating, and occasionally sleeping. Standing was the major activity that formed 28% of overall inactive behaviours, followed by sitting (12%) and ruminating (8%). Walking accounted for 19%, feeding from container 12%, while other behaviours were recorded <10% of the time (e.g. scratching, grazing, alert, running etc.). Standing and sitting are regarded as initial responses to thermal stress the increase in these behaviours and decline in walking in the afternoon may have been due to heat stress. We did not observe drinking in adults during the study although water was abundant in the enclosures and this could be because the Arabian Oryx meets its entire water requirement by eating plants with high water content. There are limited studies on time activity budgets in the wild. Oryx seem to allocate less time during the day for active behaviours, especially in the summer, with grazing activities being limited to the night. In winter, more time is allocated to finding food during the day. Whether limited activity associated with grazing has measurable health implications (like overgrown hooves) is not known.

Fig. 1: Arabian Oryx. (©Tom Bailey)

Females were apparently more active than males. Males were seen sitting (23%) more often than females (3%). When male oryx became active, they exhibited many behaviours over a short time. Males spent less time standing (27%), feeding (7%), or grazing (1%) compared to females (37%, 16% and 6% respectively). Males were seen urinating more frequently (5%) than females (0%). Both sexes showed similar levels of ruminating, alert, running, and intra-specific agonistic display.

Two new-born oryx observed in this study were seen remaining motionless and often hidden. The activity of an older calf (born before the study started), however, showed that they were very active and playful (often with gazelles and with adult oryx; 9% of all behaviours) compared to adults. In young oryx, standing (27%), sitting (23%), and walking (18%) were important activities. Young oryx were seen suckling and were generally curious. We also observed one instance where the mother consistently refused to suckle the calf, a behaviour often reported in inexperienced captive mothers.

This study reports preliminary data on the behaviour of oryx at AAWPR. The authors plan to expand this study by incorporating more individuals over two years to obtain a better understanding of behavioural ecology such as group dynamics, courtship, mother-young interactions in this endangered ungulate.

**Acknowledgments**

The authors would like to thank AAWPR authorities: Farshid Mehrdadfar, Kirk Duthler, Michael Maunder, Azhar Abbas, and Muna Al Dhaheri for their constant support during this project.

**References:**

A full referenced version with tables and figures is available on website

# 2010: A YEAR FOR THE ENDANGERED PERSIAN LEOPARD

***Ehsan M. Moqanaki, Elmira Shaerbafi, Saba Sohrabinia and Mohammad S. Farhadinia***

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**Keywords:** Year of leopard, Persian leopard, newsletter, 2010, conservation

The leopard has lost most of its' historical range throughout Asia with at least five subspecies of Asian leopards on the verge of extinction. The Middle East is home to two endangered and critically endangered subspecies, namely the Persian leopard (*Panthera pardus saxicolor*) and the Arabian leopard (*P. p. nimr*).

The Persian leopard meta-population, which once covered the Iranian plateau, Caucasus and Central Asia, is now reduced to a few fragmented areas. This is due in part, to anthropological activity in recent decades. It is known that Iran is the stronghold of the Persian leopard containing almost 65% of the total 871-1290 estimated population, despite this fact this glorious cat has not received any appropriate attention (Kiabi et al. 2002, Khorozyan 2008). Unfortunately the Iranian population is under growing pressure within the country's borders and this is leading the animal closer to extinction. The dependence of adjacent small populations on the Iran's leopard population highlights the necessity of immediate national and international conservation efforts.

Historically Persian leopards existed in most parts of Iran, except along the shores of the Sea of Oman and the Persian Gulf in the south as well as the Caspian Sea in north. They avoid the centrally located hot deserts of Lut and Kavir. Presently, their range is confined to less-disturbed areas where prey is still available. Based on the latest status assessment of the Persian leopard in Iran, they are confirmed to roam at least 130 areas throughout the country. Their habitats are less fragmented in the northern half of Iran, particularly along the Hyrcanian forests and Khorasan in the northeast. They also occur in patchy habitats in the south which is a serious concern for the species long-term survival. Additionally, the annual mortality rate has increased considerably with at least 30-50 individuals dying each year because of human-animal conflicts (Farhadinia 2010).

Traditionally Iranian culture has had a long association with wildlife which is evident within many traditional rituals. The "12-animals calendar", inherited from the Mongol invasion of the 13th century, is just an example of this relationship. Although this calendar has now been replaced by Jalali (solar) calendars the animal signs are still thriving as a symbol of the annual ceremonies. Leopard, as the twelfth animal, is the symbol of Iranian New Year (1389) which began in the spring of 2010.

Fig. 1: A male Persian leopard poached at vicinity of Yasuj, Iran. Paws, tail, moustache and eyes are removed probably for traditional medical purposes. © A. Shafaeipour 2009

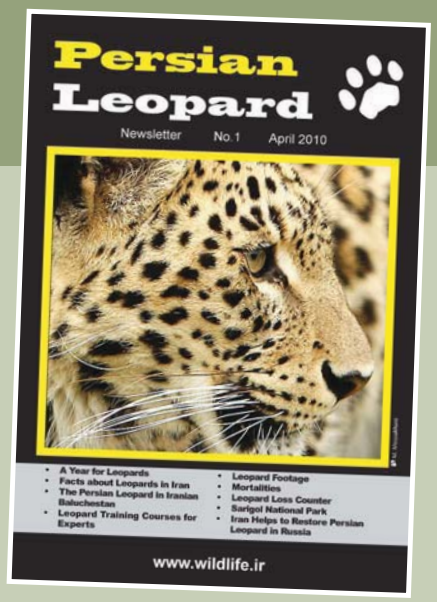


Fig. 2: Persian Leopard Newsletter. Cover Page.

With a history of nearly one decade of big cat conservation in Iran, the Iranian Cheetah Society (ICS) has enhanced its efforts to celebrate this year for the Persian leopard in order to help to save this vanishing creature. We consider this year to be a great opportunity to increase research efforts on this elusive cat, and deal more significantly with the conservation needs of the species to ensure its survival within the country. In support of this the electronic Persian Leopard Newsletter (PLN) is published to reflect the latest research, news, education, conservation activities and achievements about the species in Iran. PLN is also a network linking experts around the world to provide ideas for standardising schedules and programs which define the priorities of Persian leopard conservation. It is published every two months and will cover all leopard related activities throughout the Year of the Leopard in Iran. The newsletter is available on www.wildlife.ir

*References: Full references can be found on website www.wmenews.com*

Fig. 3: Female Persian leopard (probably) poisoned by local people in Pol Dokhtar, Lorestan. Carcass of her two cubs found some kilometers away at Golgol. © Lorestan Department of the Environment 2009.

# THREE HAWKSBILL TURTLES SATELLITE TAGGED IN KUWAIT FOR THE FIRST TIME

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*Sea Turtles, Hawksbill Turtles, Kuwait, Garooh, Umm Al-Maradim, satellite telemetry, satellite tagging*

Sponsored by TOTAL Foundation and TOTAL Kuwait and in cooperation with the Voluntary Work Center and the Scientific Center, the Kuwait Turtle Conservation Project (KTCP – www.kuwaitturtles.com) has been studying sea turtle populations on islets Garooh and Umm Al-Maradim since June 2008. In addition to night and morning surveys for nesting females, diving and snorkeling expeditions in search for foraging and mating individuals from April to October, KTCP also planned a satellite telemetry project. This was in order to establish migratory routes of both nesting species, Hawksbill and Green turtles. As Hawksbills are the first to nest in the season (May and June), KTCP team members, in cooperation with Mr Alan F. Rees of the University of Exeter, UK, traveled to islands Umm Al-Maradim and Garooh with the purpose of attaching satellite transmitters on turtles encountered there.

Within a few hours, on the night of the 24th of May, two Hawksbill females crawled out of the water on to the south beach of the island with the purpose of digging a nest in which to lay eggs. Despite a fierce sandstorm, which made things difficult, KTCP team members successfully attached satellite transmitters on both turtles and released them back into the sea in the late hours of the night. The first turtle, which they named Nada, measured about a meter in length and the second one, Dareen, was smaller measuring about 80 centimeters in total.

Dareen had not nested when intercepted by the tagging team, but came out to nest successfully the following night, her transmitter safely on her carapace.

In Garouh a few days later, on the quiet evening of June 29th and at very low tide, another small Hawksbill turtle crawled out of the water in front of the Coast Guard station and looked for an appropriate place to nest. She changed her mind and as she was returning to the water, the KTCP team encountered her and attached a third satellite transmitter on her. Najat, this third turtle, was seen attempting to nest the night after she was tagged and finally came and laid her eggs in a shallow nest in front of the Coast Guard Station.


Fig. 1: Alan Rees of KTCP and the team attaching a satellite transmitter on a Hawksbill turtle in Umm Al-Maradim in May 2010.


Fig. 2: Nada, the first ever turtle satellite tagged in Kuwait.

A fourth turtle was encountered on Garouh the night before Najat was tagged, but the team only attached flipper tags on her and not a satellite transmitter, as the animal had a large crack on her shell, most likely due to an unpleasant encounter with a fast moving vessel (boat or jet ski).

Satellite tracking is one of the most important and significant tools for researchers to acquire knowledge on these animals' migrations. Tracking the movements of turtles throughout the planet's seas and oceans contributes to improving conservation strategies and understanding characteristics of the ocean itself wherever turtles go. This invaluable information may not only improve turtle conservation but also the conservation of fisheries and coral reefs.

KTCP shall continue its missions on islets Garooh and Umm Al-Maradim throughout the summer, flipper and satellite tagging the turtles it encounters. For more updates on this action, please visit http://www.seaturtle.org/tracking/?project_id=503 in order to obtain more detailed information and maps of the three Kuwaiti Hawksbill turtles' movements in the last few days. If you wish, you can also "adopt" the animal of your choice, thus contributing actively to satellite tracking efforts in Kuwait. As observed on the maps on this tracking page, the first two turtles tagged in Umm al-Maradim have left the perimeter of the island and seem to have begun migrating away. Is this accurate? Or is the inter-nesting period not finished? Where will they go? If all goes according to plan and the transmitters stay on, these secrets may be revealed for the first time in the course of the next few weeks and months.

Apart from the dedication and expert skills of the KTCP team, a very special thanks should be attributed to His Excellency the Assistant Undersecretary of Border Security Affairs, Major General Mohammed Yousef Al-Sabah for his enthusiastic and precious support as well as to all Coast Guard Officers and personnel in Khairan, Garooh and Umm Al-Maradim for their friendship and help. Without them, the project would never be able to achieve its goals.

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# DIVING FOR A CAUSE: TURNING DIVERS AND THE SEA FARING COMMUNITY INTO 'CITIZEN SCIENTISTS'

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Sharkwatch Arabia is a research and conservation initiative that aims to collect information on whale sharks in the region. The work will also form the basis of a post-graduate study being run through the Heriot-Watt University based in the UK and Dubai and supported by the Sultan Qaboos University, Oman.

This is the first true community based research project in the region that aims to utilize the regional diving and sea faring community to collect information on sightings and behaviour of whale sharks found within the Arabian Gulf and Gulf of Oman. The aims of the project include determining the population dynamics, movements and areas of importance for the whale sharks as well as attempt to determine why they visit our region.

Diving and in particular underwater photography are part of a growing industry within the region. Given a small amount of training, any diver can become a researcher, turning each and every dive into a potential data collection experience. Many photographers are willing to participate in research activities and we have frequently used dive sites that support important marine life. Collectively, our regional divers and dive operators spend more time underwater and cover more area than any dedicated research project could ever hope to achieve. We are therefore hoping to turn our Gulf wide diving community into a powerful data collection tool.

The project is being run in association with the Emirates Diving Association based in the UAE; who are helping to spread the word by getting the local dive community involved and providing logistical support for data collection. One very important part of the project is to feed the sightings back into the community and so there will be quarterly updates sightings within the gulf for EDA members via their quarterly magazine and you can get frequent updates of news and sightings by joining www.facebook.com/sharkwatcharabia. If a new animal is identified then the person who took the photo will be given the chance to name that individual.

If you have encountered a whale shark in the waters of Kuwait, Iraq, Saudi Arabia (Gulf coast), Qatar, Bahrain, Iran, Pakistan, UAE or Oman in the past three years then we would like to hear from you. A website has been launched as the primary data collection tool of the project, this is: www.sharkwatcharabia.com. Anyone who sights any species of shark is invited to log onto the site and submit their data.

Sharkwatch Arabia was born from the decision to create a regional database taken during last year's 2009 Arabian Seas Whale Shark Research Symposium & Workshop. Sharkwatch Arabia is being run in association with the Sharkquest Arabia Initiative and under the umbrella of Jonathan Ali Khan's Arabian Whale Shark Research Program; a project that aims to study all aspects of whale shark ecology throughout the region. The ability to identify individuals within a population is an important aspect of any ecological or conservation based study. Information about correct photography for the identification of individual whale sharks can be found on the website. The goal of the project is to better understand the ecology of the study animals with a view to providing increased conservation in the face of environmental impacts and climate.

Each and every person who ventures into our regional waters has the ability to help by simply sending in their photographs and sightings. We hope that by establishing this research project that we will be able to provide information that will help with the conservation of whale sharks throughout the Arabian Gulf and Gulf of Oman.

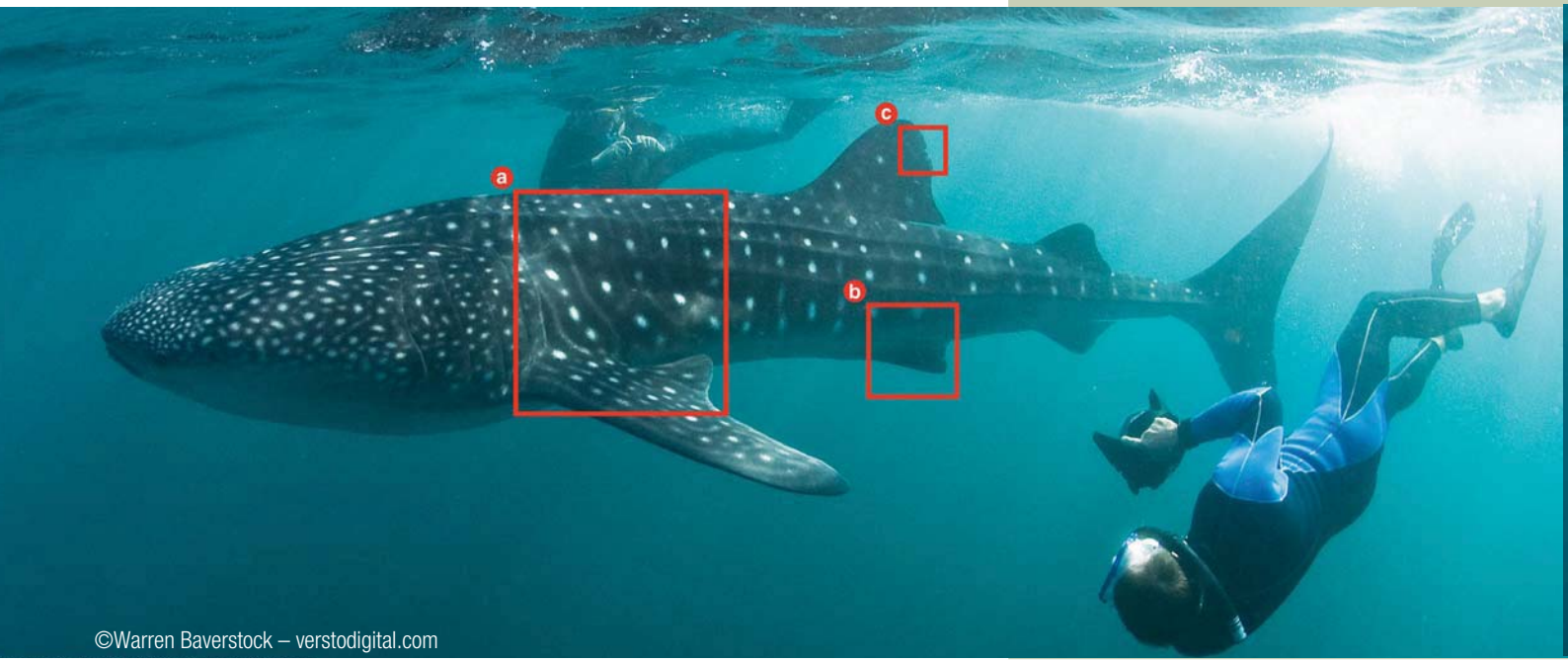


Fig. 1: Whale shark ID tips: (a) the spot pattern on a whale shark is unique to every individual just like a human fingerprint. Try to take photos of the areas behind the gill slits on the left and right flank to help with identification. (b) make a note of the shark's sex (male = claspers) if you are unsure take a photo of this area to check later. (c) take photographs of any unique markings or scars on any part of the body.

# MUGGER CROCODILE (*CROCODYLUS PALUSTRIS*) STUDY IN IRAN

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Fig. 1: Hatching Mugger crocodile

**Mugger crocodile and its distribution:** Mugger or Marsh crocodile (*Crocodylus palustris*) is a medium to large crocodile (max. length ca. 4-5 m) and has the broadest snout of any living member of the genus *Crocodylus*. Mugger crocodiles range includes Bangladesh, India, Nepal, Pakistan, Sri Lanka and Iran. The fresh water habitats of Sistan & Baluchestan province (South-eastern Iran, near the Pakistan border) are the most western range for the Mugger crocodile and this small, scattered population is the only one in Iran.

Muggers occupy both natural and manmade water bodies. The natural habitats include the ponds along the main rivers of the Kaju, Sarbaz and Bahukalat areas. Generally, crocodiles avoid shallow, running rivers and prefer deeper and calm water with suitable plant cover and sandy banks. Manmade, artificial water bodies also provide essential support for the crocodile populations. Village ponds constructed for rain water storage as well as dams constructed along the rivers have become important habitats for crocodiles. In particular, Pishin dam reservoir, covering an area of 3800 sq km, has been designated as a 'Protected area" and named 'Gandou"(local name for the crocodiles) due to its importance as a crocodile habitat. The reservoir is also a Ramsar site and hosts large numbers of migratory birds.

**Reproduction:** Female crocodiles reach sexual maturity at 6 years old, at a length of 1.8-2M, while the males mature at about 10 years (Whitaker 1989). Mugger crocodiles dig burrows for nesting in the dry season. Nesting in Iran takes place in April-May (Mobaraki 2006, 2002). The nests are under thick vegetation and close to water. Average number of eggs per clutch is 25-30 (Whitaker 1989). The mean size of the eggs in 2 nests discovered by the authors was 8cm length by 4 cm width and 95 grams in weight (Mobaraki 1998). Eggs hatch in June-July after an incubation period of 50-60 days. The mean size for 10 hatchlings (fig 1) in five different nests was 29.97 cm length and 85.52 grams of bodyweight (Mobaraki and et al 2006).

**Behaviour:** Similar to other crocodile species, activity patterns include basking (fig 2), swimming and diving, however, a unique and important behaviour of Mugger is burrowing. The burrows are used to thermo-regulate during hot and cold hours of the day. The crocodiles leave the tunnels at night in search of food (Mobaraki 1999). The movement of crocodiles between habitats is another quite usual recorded behaviour in the area. This behaviour seems to be more usual amongst juvenile crocodiles and may be due to animals searching for a new habitat. Unfortunately these movements also result in road casualties and the authors have recorded several dead crocodiles of different ages on the roads (Mobaraki & Abtin 2007). In addition, as most of the crocodile habitats are close to villages, there are reports of crocodile/human conflict as they pass close to the village houses.

**Feeding:** Crocodiles feed in bodies of water and are adaptive feeders within that environment. While studying its feeding habits, faecal samples composed of beetle elytra and legs, fish remains, kingfisher or other birds' feathers as well as a snake were collected. However, the crocodiles rely mainly on fish. In most habitats the crocodiles have close contact with local people and occasionally attack livestock causing some problems amongst villagers. (Mobaraki1999).

**Conservation and population status:** Mugger crocodile is listed as "Vulnerable" on the IUCN Redlist and habitat destruction is the main threat to this species. Natural disasters such as drought and flooding are the main threats for the crocodiles especially during the nesting season as the nests and hatchlings are particularly vulnerable.

Reported numbers of crocodiles vary; 50-100 (Tuck 1975) 118 (Kami 1994), 200-300 (Mobaraki 2000) but in the last census program in Feb 2008 in which about the 80% of the area was covered, 150 crocodiles were directly counted. Crocodiles are listed as an "Endangered Species" in Iran and are legally protected. There is a fine of US$3,200 for killing a crocodile. Fortunately there is high potential for the conservation of crocodiles in Iran as the local people respect them as culturally important and never hunt or harm them. The Iranian national management plan for the Mugger crocodile population includes research work, the conservation of crocodile habitats, captive breeding, public awareness / education and ecotourism.

***References will be available on the website: www.wmenews.com***

Fig. 2: Basking is a common behaviour for Mugger crocodiles: Credit Asghar Mobaraki

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# MORTALITY PATTERNS AND HUSBANDRY MANAGEMENT IN IDMI (*GAZELLA GAZELLA*) AND "YEMENI" (*GAZELLA GAZELLA CORA*) GAZELLES AT AWWP

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## INTRODUCTION

In the wild the Mountain gazelle (*Gazella gazella)* is widely but unevenly distributed across the Arabian Peninsula. On the IUCN Red List it is classified as "vulnerable" (IUCN Red List of Threatened Species, 2008). Idmi (*Gazella gazella*) and "Yemeni" (*Gazella gazella cora*) are two very closely related subspecies. In the literature no obvious differences in behaviour and biology are described. "Yemeni" gazelles can be found in Yemen and the south of Saudi Arabia, Idmi gazelles in the west of Saudi Arabia, Oman, UAE and Israel. Mountain gazelles live in different social units. Female herds count up to 16 adults with their offspring. Young males (>6 months) build their own herds with up to 40 individuals. The aim of this study was to evaluate the main causes of death of Idmi and "Yemeni" gazelles in Al Wabra Wildlife Preservation (AWWP) from 2001 to 2008 according to their frequency, and to detect potential variation in mortality over the years, between sexes and age groups.

## MATERIALS AND METHODS

At AWWP Idmi and "Yemeni" gazelles are kept in groups consisting of one adult male and up to ten females with offspring. Since 2004 males are removed from groups with 4-5 months of age. Groups are split when more than ten mature females live in one group. Until 2003 all females were used for breeding. In 2004 gender-segregated groups were established to limit breeding because of space reasons. In 2006 about half of the population of "Yemeni" gazelles were shipped to another facility. Before 2006, groups of Idmi gazelles had temporarily grown up to 25 to 30 individuals.

227 Idmi and 82 "Yemeni" gazelles died between 2001 to 2008. All findings of the necropsy reports were evaluated according to their frequency. Causes of death were investigated and compared between age classes and sexes. Based on stocklist data the population development over the years was evaluated.

## RESULTS

Populations of Idmi and "Yemeni" gazelles increased continuously from 2001 to 2008, whereas mortality either stagnated or decreased. The population of "Yemeni" gazelles declined towards 2007 because 31 were moved to another facility in 2006.

In both species the predominant causes of death were pneumonia, trauma and maternal neglect.

In neonates maternal neglect was the most important cause of death. Most animals which died due to trauma were juveniles (77%) in Idmi but adults (64%) in "Yemeni" gazelles. In "Yemeni" gazelles males and females were equally affected, whereas in Idmi traumatic injuries occurred more often in males (62%).

Juveniles suffered from pneumonia more often than adults (18% adult and 36% juvenile Idmi; 14% adult and 56% juvenile "Yemeni").

## DISCUSSION

As expected due to the close relation and the mostly identical management of the two subspecies, causes of death were similar in both populations. Because of the small data set of "Yemeni" gazelles an interpretation of a single cause of death is not very meaningful. Therefore most of the following interpretations only bear on Idmi gazelles.

Until 2003 all females were used for breeding. Due to space reasons gender-segregated groups were established to limit breeding in 2004. If the incidence of traumas in Idmi gazelles was followed over the years, it can be seen, that in 2004 the number of animals which died due to a trauma was noticeable high, particularly in males. This might be a consequence of the new gender-segregated groups. The new group constellations did probably lead to more social stress and therefore more traumas due to fights.

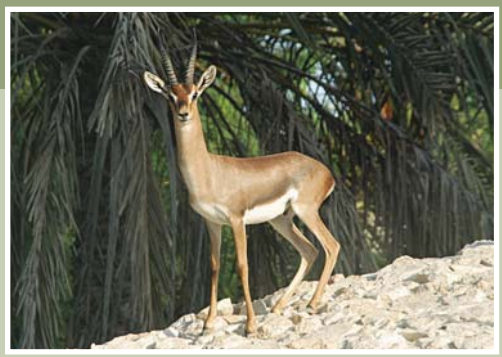

Fig. 1: Idmi gazelle

In 2008 the number of trauma cases were higher than before and more than half of the concerned animals were females. It might be a consequence of the use of all females for breeding again and the resulting stress due to transportations and new group constellations. To decide whether this high incidence was only a temporarily phenomenon further data from future years needs to be collected. The fact that in Idmi, trauma occurred mainly in juveniles but in "Yemeni's" amongst adults, might be explained by the higher number of animals in the Idmi population and therefore larger breeding groups meaning more young animals were affected.

The very low mortality in "Yemeni's" in 2007 could be explained by less crowding effects due to the reduction of population in 2006 as more space was available. This dramatic reduction in mortality in this year is a good example that in other years crowding effects most likely contributed to the observed mortality. There is an increasing trend of pneumonia in Idmi gazelles from 2001 to 2008 which might be correlated to the population size.

In conclusion management measures that decrease crowding effects such as the creation of breeding groups with only one adult male, allow an increasing of the population while mortality and especially newborn mortality can be kept on a low level. On the other hand, changes in the group constellations might lead initially to a higher mortality and especially to an increased incidence of traumas.

### References and Acknowledgments

For more detailed information, tables, references and acknowledgements please refer to the link below:

http://awwp.alwabra.com/images/stories/awwp/scientific/SP.106/Mortality%20Patterns%20and%20husbandry%20managament%20in%20IDMI.pdf

Fig. 2: Yemeni gazelle

# AVIAN REARING RESOURCE WEBSITE

For generations people have been hand-rearing birds, over the years protocols have been refined and improved however this information is not always easily accessible. Limited work has been done to measure the success rate of protocols or the long term affects of said protocols to health and breeding success of species; and at a time when it is vitally important to work together towards achieving sustainability of captive populations it is more important than ever to ensure that if the decision is made to intervene and hand-rear it is done with the knowledge that the resulting individuals will be healthy & valuable additions to the captive populations.

A new website has been created to compile protocols, measure success rates, highlight problems and potentially research into improving protocols, look into long term survival/breeding success of hand reared species.

The Avian Rearing Resource can be found at www.avianrearingresource.co.uk . The site is accessible to all and is simple to navigate. Over time it is hoped that by sharing information we can work towards minimizing mortality rates and improving quality of hand-reared individuals.

Aims of the site:

- To compile all current hand rearing protocols for all avian species.
- Highlight any problems with rearing individual species.

Using a rating system the success rate of each protocol is measured; stars are awarded for;

- Success rate
- If the protocol has been used successfully by two or more institutions/individuals.
- Points on minimizing imprinting.
- If the birds go on to produce fertile eggs.
- If the birds go on to successfully parent rear.

Each species can have as many as 4-5 protocols, giving people a better idea as to which may be the best option for them. A protocol template can be found on the home page along with a contact e-mail for any feedback. (All are encouraged to submit protocols). A hand-rearing decision tree is included on the homepage to encourage aviculturists to take the decision to hand-rear responsibly.
Addition information is also included, such as general species information, hand-rearing articles & husbandry guidelines.

The site is still in its infancy and will continue to evolve with your help and input, please feel free to e-mail any protocols, information or comments to me at avianrearing@googlemail.com


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# REVIEW: CITY & GUILDS CERTIFICATE IN VETERINARY NURSING OF EXOTIC SPECIES

*Sarah Gough; Dubai Falcon hospital, PO Box 23919, Dubai*

The course is provided by Edinburgh's Telford College on an open learning basis. The species covered are extensive and I was amazed at the level of information on each species.

Avian – Parrots, raptors, owls, perching birds, pigeons, ducks, swans, toucans.
Reptile & Amphibians – snakes, lizards, tortoises, terrapins, turtles, even the crocodile species and amphibians.

Small mammals – rabbits, rats, mice, hamsters, gerbils, guinea pigs, chinchillas, chipmunks, ferrets.
Wildlife - Red foxes, badgers, hedgehogs, bats, deer, wild mustelids, otters, squirrels, hares, seals and wild birds.

Each species group are each split into 5 categories:

1. Biology / Husbandry / Reproduction.
2. Nutrition.
3. Handling / Anaesthesia.
4. Fluid therapy
5. Common diseases and their treatments.

The course material is very well laid out, and the majority of the information that is needed is within the packs, so no extra books are required. Self assessment questions ensure you are grasping the studies. At the end of each pack there is an assignment of short answer and multiple choice questions which require completing and posting or emailing to your UK tutor.

You have 18 months to complete the course. At the end if you so wish you can sit the City and Guilds examination to obtain the certificate component, currently held in September annually in Edinburgh, UK.

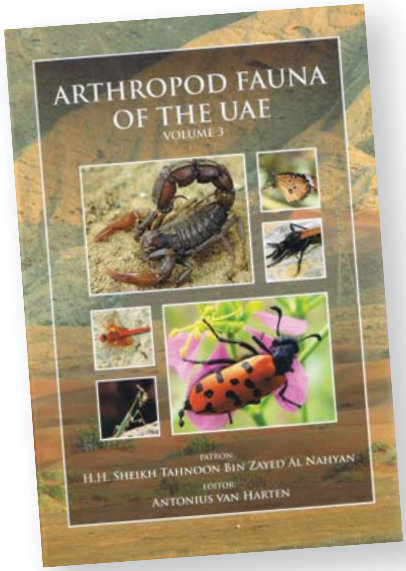
To be able to undertake the course you must be a qualified veterinary nurse and provide written evidence you deal with at least 10-15% exotic species.

Follow this link to find out more information about the course enrollment: http://www.ed-coll.ac.uk/content.asp?ArticleCode=30&ID=592

# ARTHROPOD FAUNA OF THE UNITED ARAB EMIRATES, VOLUME 3

**Antonius van Harten (Ed.), Dar Al Ummah Printing, Publishing, Distributing & Advertising, 700 pp., ISBN 948-15-616-1**

*Reviewed by Prof. Dr. R.K. Schuster, DipEVPC, FTA Parasitology, FTA Tropical Veterinary Medicine, Central Veterinary Research Laboratory, PO Box 597, Dubai, United Arab Emirates*




The 3rd volume of the arthropod fauna of the UAE was delivered in April 2010. An international team of forty-six scientists contributed to the 45 systematic chapters. Representatives of spiders (2 families), beetles (10 families), flies (9 families), bugs (3 families), wasps (12 families), moths (8 families), net winged insects (1 family), grasshoppers, crickets and locusts (7 families) recorded in the UAE were characterized in the current book. Together with the two previous volumes more than 170 families are covered.

It is not surprising that in a country with a relatively young arachno-entomological science quite a number of species have been found and described for the first time. Among nearly 540 arthropods in almost 340 genera 72 new species were described and one new genus was found. With species names like harteni and vanharteni the collector and editor was honored 11 times in this volume.

The family of darkening beetles with 65 species in 47 genera in 4 subfamilies is the group with the biggest variety of species. This family has been studied extensively in Arabia by different authors before. Contrary to this, 7 out of the 10 small aquatic beetles found in the UAE were new species. The jumping spiders were studied for the first time in the UAE and resulted in the description of 11 new species.

Although chapters were structured in a similar way the systematic account shows a broad heterogeneity. While some authors presented their material as an illustrated checklist others included determination keys and provided data on biology and distribution of the species in other countries.

Since many of the treated groups contain representatives known as vermin and others include useful species like pollinators, parasitoids and predators this book is recommended to be in the bookshelf of experts in the field of applied zoology like pest control and agriculture. Representatives of the orthoptera, coleoptera and diptera can act as intermediate hosts for cestodes, trematodes, nematodes and acanthocephalans. Therefore it might also be of interest for parasitologists.

The book impresses with its illustrations, high quality colour photographs, line drawings and SEM pictures.

## Transmissible Diseases Handbook

Editor: Jacques Kaandorp (j.kaandorp@beeksebergen.nl);
Co-editors: Norin Chai, Ayla Bayens
http://www.eaza.net/activities/Pages/Transmissible%20Diseases%20Handbook.aspx

The fourth edition of the Transmissible Diseases Handbook, compiled by the Infectious Diseases Working Group (IDWG) was published in February 2010 by the European Association of Zoo and Wildlife Veterinarians (EAZWV). EAZA strongly supported the release and distributed the handbook as a CD-ROM to all of its members. It has also been made available to the authorities of SANCO in Brussels, members of the EU Animal Health Strategy Committee, the CVOs (Central Veterinary Officers) of all 27 EU Member States and the OIE.

The handbook summarises information on various diseases: susceptible animals, zoonotic potential, clinical symptoms, pathology, diagnostic methods, qualified laboratories, treatment, prevention, experts who may be consulted, legislation (especially European laws) and relevant literature. From this page you can download the individual chapters of the handbook, the relevant European decisions, directives and regulations, and 133 fact sheets in a standardised format.