



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

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EDITORIAL

Hey it's time for the soapbox session. So up I step, imbued with a glass of South African Chardonnay, caressed by the warmth of a perfect Middle East evening and seduced by the cicadas cricking in my lush garden. Life is good.... well it is for those of us lucky enough to sit in a garden heavily irrigated with desalinated water and able to afford some of what we think are 'essential' luxuries of life. I thank God for the blessing in my life. But is life so good? Is this development sustainable? Should I feel a tinsy winsy bit guilty. Do we live beyond our means? Last week I had a conversation with a well known banking expert who is frequently consulted for his views on finance by the regional media. We discussed the subject of the rapid development in the region and I commented that scant regard was paid to the long term sustainability of urban development. In particular with regard to environmentally friendly buildings, the pressure on fresh water resources, the pollution of the marine and terrestrial environment and the loss of biodiversity. He was interested and commented that it was the first time he had thought of these matters with regard to the ongoing development. But as he said, like most expats here in the financial and development industries, he was here to make as much money as possible and wasn't worried about the long term. I suspect this is not an uncommon view and that many of the architects and financiers of the uber-developments are motivated less by greater good and more by obscene short term gain. Look at the globe and see other countries in the same latitude with similar harsh climates and the future may be a little different from the artistic impressions on billboards next to new developments. Look around at your skyline dotted with illuminated and flashing spires - would these have left the Babel-Tower builders open-mouthed with envy. Billions have been spent here on construction, on bulldozing the desert until for the majority of people in most of the cities of the region, the desert is a remote and unfamiliar place.

Remote and unfamiliar. You only have to visit the mountains or deserts in the region to realise what fragile and sensitive places they are. All the cities should have visible reminders of the desert left within their boundaries as a reminder of the sensitivity of sand and as a warning of what all will return to should we fail to consider the environment in our daily lives. Already the UN are predicting that one of the first cities to be uninhabitable as a result of running out of fresh water will be in the Middle East. So off my soapbox and back to WME News. We have a diverse range of articles. On the technical front we have articles outlining methods that have been introduced to improve the survival of newborn ungulates at Al Wabra Wildlife Preservation in Qatar. The paper will be of interest to those of us managing and breeding wildlife in captivity and it clearly illustrates how interventions to improve animal health can sometimes have unexpected consequences.

On the bad news front we reprint an article from Birdlife on the loss of more Bald ibis because of indiscriminate hunting in Saudi Arabia. Likewise also appears that hunting is still a threat to gazelle populations in Saudi Arabia. There must be some good news? Boug and colleagues describe the establishment of a breeding project for Arabian leopard in Saudi Arabia while Papathanasopoulou describes the fantastic environmental work being done by the marine rescue team in Kuwait. Finally, tucked away at the end of the newsletter, Francis Baines describes how she and a group of enthusiasts have contributed to furthering our understanding of the importance of UV light in reptile husbandry.

The technical paper on blood parameters in hawksbill turtles from Hampel and colleagues provides useful information for biologists and vets involved in turtle rehabilitation. This leads on to another bugbear. It is amazing that such basic and important information on most of the species of the region is lacking. It is true that there are a few well resourced flagship projects that have increased our understanding of local species and the example that comes to mind is the Houbara Bustard research conducted in North Africa and locally in the UAE and sponsored mainly, to their credit, by the Abu

Dhabi government. However, in truth, wildlife work throughout the region and outside Abu Dhabi is generally under resourced and under funded and when it does occur it often appears to be little more than a cynical public relations opportunity for a company or government. Perhaps this is a harsh conclusion, but when you see the billions spent on concretification and the token crumbs that are spent on the environment it is hard to give anyone in positions of responsibility the benefit of the doubt. Where are the serious philanthropic zoological societies and charities promoting and funding work on the environment and its wildlife??? How can a region where so much has been invested in luxury developments have, with the exception of Sharjah Wildlife Park and Al Ain Zoo, no other zoos of note and in notable cases only zoos of shame? What message does this tell to the world? There are certainly beautiful images of wildlife and scenery in the glossy tourist PR brochures. However have the overpaid executives peddling these images stepped outside their offices into the 'real' environment, do they even know where the desert really is?? Have they seen the rubbish strewn across the desert, the sand dunes criss-crossed with thousands of car tracks, the dying ghaf trees whose roots no longer reach the water table because the desert is almost running on an empty water tank and the bloated carcasses of the cows and camels that have choked to death on our rubbish? I doubt it

So as my word count has mounted and my Chardonnay is depleted it is time to get off the pulpit and leave you to read the current issue!

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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.

CAPTIVE-BREEDING OF ARABIAN LEOPARD *PANTHERA PARDUS NIMR* IN THE KINGDOM OF SAUDI ARABIA

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The Arabian leopard (*Panthera pardus nimr*) occurs in all the mountain ranges from northern Arabia to the Asir mountains in southwestern Saudi Arabia and Yemen, into southern Oman, throughout the Hajar mountains and up into the Musandam peninsula. It is a nocturnal and secretive animal that is rarely seen, except by the mountain farmers, who hunt them when they eat their goats. The status of all cats inhabiting the peninsula was assessed in recent years, but the main focus has always been the Arabian leopard, listed as Critically Endangered in the IUCN Red List (IUCN 2009).

The population of leopard is not known, but a number of field surveys carried out by the National Wildlife Research Center (NWRC) and King Saud University found that leopards had disappeared from 153 sites in their former range in the Madina Mountains in northern Saudi Arabia. The species still survives in reasonable numbers in Hijaz and Sarawat Mountains (Judas et al. 2007). In spite of their rugged and arid locations, many sites were found to have shrubs, trees and waterholes. These sites provide habitat for the leopard's prey, such as hyrax, ibex and others. The leopard was seen from 65 sites between 1997 and 2002 (Al-Johany 2007). In 1992 one leopard was found dead in Al Fiqra 80 km west of Al Madina and two carcasses of leopard were found in Asir mountain in 2007 and a workshop was organized in Asir mountain by the NWRC/NCWCD where decision makers and general public participated in discussions to conserve and protect the leopard. NWRC has appointed a full time ranger to monitor leopards in the Asir region. It is believed that less than 100 individuals are left in the wild.

NWRC has started a captive-breeding programme to secure the Arabian leopard and provide animals for future restocking or reintroduction. The establishment of a captive breeding programme is an important step in preventing the extinction of the Arabian leopard, even though not all leopards held in captivity on the Arabian Peninsula have yet been integrated into the breeding programme. In the meantime, most remnant populations will probably continue to decline. We do not know how much time we have left to save the Arabian leopard from extinction in the wild.

Captive breeding and reintroduction

On 25th June 2007 a board meeting was held at the NCWCD to discuss the National strategy for Arabian Leopard conservation. The NWRC was identified as the most suitable place to conduct this project, because the research center already had facilities to house animals. At present, 5 individuals (3 males and 2 females) are kept in the Center and 3 (1:2) have been loaned for breeding to the Breeding Center for Endangered Arabian Wildlife (BCEAW) of Sharjah, UAE.



Fig 1. Arabian leopard cub (© O. Coupe/NWRC).

In order to develop the captive breeding unit in Taif new facilities with large enclosed area will be constructed. The Arabian leopards held in NWRC are in good health. The medical status of the leopards has been assessed paying attention to dentition condition, hematology, biochemistry and serology (FIV/ FeLV). All individuals are vaccinated and microchipped while blood and hair samples have been taken for genetics.

Breeding success

In 2008, a 10-16 month old female, Aicha, gave birth to a male cub, but after four days, the cub was killed and partially eaten by its mother. Cannibalism in felids is unusual. Lina, a captive bred female on loan from BCEAW gave birth to a female cub in 2008. Unfortunately, this cub died, possibly because it was abandoned by the mother.

In 2009 Lina and Aicha each gave birth to twins. We used CCTV to monitor the cubs, who were also regularly weighed to check the body development and growth. After 17 days Aicha started ignoring her cubs and it was necessary to remove them and hand rear them. These cubs are now almost four months old and are in good health. Lina kept her cubs, but one male died from pneumonia caused by *Aspergillus*.

Future plans

We aim to continue the captive-breeding programme until sufficient animals have been produced so that reintroduction can be initiated. New captive facilities will also be developed to house more individuals. Field studies will be carried out to assess the wild population in Saudi Arabia and identify potential habitat where reintroduction might be initiated.

A project proposal submitted in 2008 to fund the Arabian Leopard conservation programme has been approved. This project will focus on captive-breeding as well as initiating field studies of wild leopards.

Information generated from this project will be used to formulate effective conservation strategies for Arabian leopard. Education materials related to leopard conservation will be distributed in English and Arabic. A 15 minute film entitled 'Conservation of Big Predators a Nation's Challenge' has been made and DVDs are available for education work.

Acknowledgements

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References available on the version posted on the wmenews website.

HUNTING:

AN EXTINCTION THREAT TO MIDDLE EAST'S MOST THREATENED BIRD

BirdLife News Alert Fri Sep 25 12:00:00 2009http://www.birdlife.org/news/news/2009/09/nbi_shooting.html

Conservationists trying to prevent the extinction of Northern Bald Ibis *Geronticus eremita* are distraught that one of the last remaining wild birds in the Middle East has been shot by a hunter in Saudi Arabia, bringing the known wild Middle Eastern population of this Critically Endangered species to just four individuals. Formerly, the range of this species extended across parts of southern and central Europe, North Africa and the Middle East. It even features in the hieroglyphs of Ancient Egypt. Following a huge population and range decline, the bulk of the wild population of 210 birds now occurs in Morocco, but a tiny population was rediscovered in 2002, in Syria.

A satellite-tracking project led by BirdLife International and the International Union for Conservation of Nature (IUCN), in collaboration with the Desert Commission of the Syrian Government, established that the Syrian adults migrate to the Ethiopian highlands each winter, but the wintering area of younger birds remains a mystery. This migration across the deserts of the Middle East to north-east Africa puts these birds under threat from the region's many hunters. Researchers from BirdLife, the RSPB (BirdLife in the UK) and IUCN, trying to find out more about the movements of the young birds, fitted two birds with satellite tags, and it is one of these birds – a female – which was shot.

"We were excited that tagging a sub-adult ibis may have helped us to solve the mystery of where young ibises spend the winter, but now we may never know", said Eng. Ali Hamoud, of the Syrian Desert Commission. "The shooting of a young bird from such a tiny population is devastating news and it shows that hunting is a major threat to this species."

"It is essential for the future of this population that they have safe passage through the region during their migration" —Sharif Jbour, BirdLife

Dr Jeremy Lindsay, the RSPB scientist in charge of the ibis satellite-tracking project, said: "Recovery of the population from this frighteningly low level is going to be exceedingly difficult, but everyone involved in the project believes we must do everything we can to provide hope for this culturally-important icon of the Middle East. The tiny Syrian population has been breeding very well since its discovery, although it has suffered two poor years. The low rate of return of young birds to the colony shows that they are being lost somewhere on migration. We are starting to discover what the problem might be."

Three birds from a semi-captive population in Turkey were released last year to see if they would migrate. They flew south as far as Jordan, but subsequently were found dead. Initially, it was feared they had been poisoned, but later it was realised that the birds had been electrocuted, emphasising that other threats can have a devastating impact on the future of the Northern Bald Ibis in the Middle East.

More satellite-tagged birds released from Turkey this year, flew south as far as Saudi Arabia but they too disappeared not much more than 100 km from where the Syrian bird was shot. Although their fate has not been established, researchers believe these birds too may have succumbed to hunters.



Fig 1. A Northern Bald Ibis (©Jean Paul Tilly; www.rarebirdyearbook.com).

The hunting of Northern Bald Ibis is not allowed in Saudi Arabia. HH Prince Bandar Bin Saud the Secretary General of NCWCD (National Commission for Wildlife Conservation and Development) said: "Upon hearing the news of Northern Bald Ibises in Saudi Arabia, NCWCD immediately reacted and dispatched a team to search for the birds. Local people reported to the commission that an ibis had been shot illegally by hunters. "The NCWCD regrets this incident in the country and stands ready to support all concerned institutions – governments and NGOs to conserve wildlife at national, regional and global levels in accordance with instructions of the Custodian of the Two Holy Mosques, HRH the Crown Prince and the Second Premier", HH Prince Bandar Bin Saud continued.

On migration, the remaining ibises nesting in Syria pass through Jordan, Saudi Arabia, Yemen, Djibouti, Eritrea, finally wintering in Ethiopia. Sharif Jbour, of Birdlife in the Middle East, said "Now that the threats to this species are becoming clear we will be doing all we can to address them. It is essential for the future of this population that they have safe passage through the region during their migration. With so many countries involved this is a great challenge but we already have high level support in many of these countries, so we are hopeful of change."

As a response to the BirdLife Preventing Extinctions Programme, HSH Prince Albert II of Monaco became Species Champion for Northern Bald Ibis, earlier this year, providing crucial support to this challenging programme through the Prince Albert II of Monaco Foundation. BirdLife is more determined than ever to conserve this emblematic species that has braved the Middle East and north African deserts for millennia inspiring cultures and religions of the region.



Fig 2. A Northern Bald Ibis is fitted with a satellite transmitter in Syria (©Mahmoud Abdullah)

SUMMARY OF THE MONITORING THE EFFICACY OF NEWBORN TREATMENTS IN RUMINANTS AT AL WABRA WILDLIFE PRESERVATION (AWWP)



Fig 1. Injection of Heptavac® in a newborn gazelle (©Sven Hammer).

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Introduction

Al Wabra Wildlife Preservation (AWWP) manages many species of threatened ungulate species. In order to keep neonatal mortality as low as possible, AWWP has developed a comprehensive newborn treatment (NT) protocol consisting of paramunity inducers, vaccinations, and mineral and vitamin supplements. The purpose of this paper is to evaluate the efficacy of these NT.

Methods

In this retrospective study the neonatal mortality of 5 ruminant species have been evaluated - the Addax antelope (*Addax nasomaculatus*), the Beisa oryx (*Oryx beisa*), the Gerenuk (*Litocranius walleri*), the Nilgai (*Boselaphus tragocamelus*) and the Speke's gazelle (*Gazella spekei*).

Data of incidence and causes of newborn mortality was compared from before and after 2003, when routine NT (Table 1) was instigated. Results of the gross pathology were available for all dead animals (n=177). The effect of prophylactic neonatal medicine was considered evident until weaning (first 6 months of life). If neonates did not survive to this age, the cause of death was additionally evaluated by consulting the necropsy reports.

Table 1. Newborn treatment protocols at AWWP

Group 1 1-day newborn treatment				
Addax antelope, the Beisa oryx, the Nilgai and the Speke's gazelle				
Day 2 after birth	Biofakt® 1 ml/kg sc	Biofakt® 1 ml/kg, oral	Bio-Weyxin® 1 ml/kg oral	Heptavac® 2 ml/kg sc
	Vitaselen® 0.2 ml/kg sc			
Group 2 2-day newborn treatment				
Gerenuk				
Day 2 after birth	Biofakt® 1 ml/kg sc	Biofakt® 1 ml/kg, oral	Heptavac® 2 ml/kg sc	
Day 3 after birth	Biofakt® 1 ml/kg oral	Copavet® 0.1 ml/kg sc	Vitaselen® 0.2 ml/kg sc	Bio-Weyxin® 1 ml/kg oral

Biofakt® orinject (ALBRECHT, Aulendorf, Germany): colostral immunoglobuline for e.coli, rota and corona virus
 Bio-Weyxin® 700K (VEYX, Schwarzenborn, Germany) oral vitamin, microemulsion
 Copavet® Injection (C-VET, Lancashire, United Kingdom) injectable cooper suspension
 Heptavac® Ovilis P ad us. vet. (INTERVET, Zürich, Switzerland) active clostridium and pasteurilla vaccine
 Vitaselen® (SELECTAVET, Weyarn/Holzolling, Germany) injectable vitamin E and selenium suspension

Results

Addax antelope

The survival rate of Addax antelopes increased after the introduction of NT to 84% (75% prior to treatment introduction in 2003). One of the main causes of death remains bacterial infection (37% of all deaths) which decreased compared to before 2003 (58% of all deaths). Maternal neglect occurred more frequently (38% of all deaths) than before the treatment introduction (7% of all deaths).

Beisa oryx

The survival rate stagnated at 67% (69% before treatment introduction in 2003). The main cause of death of neonatal Beisa oryx remains bacterial infection with 30% of all deaths (compared to 45% before 2003). Maternal neglect has appeared as a new category (25% versus 0% before NT treatment).

Gerenuk

With 61% the survival rate has slightly increased compared to 57% before the introduction of NT. The main cause of death is still bacterial infection. Maternal neglect has appeared as a new category (18% versus (vs.) 0% before treatment).

Nilgai

77% of the treated neonatal Nilgais survived the first six months of life (84% before NTs were performed). The main cause of death has changed: 38% of the dead neonates were found to have bacterial infections. These have significantly decreased to 8%. New findings were death through trauma (17% vs 0%) and maternal neglect (42% vs 0%).

Speke's gazelle

The survival rate of the neonatal Speke's gazelles has slightly increased from 56% to 60%. The main cause of death is bacterial infection (52% vs. 20% before treatment). Pneumonia stayed the main type of infection (80% of all bacterial infections). Maternal neglect (30% vs. 33% before treatment) and

trauma (11% vs. 14% before treatment) as cause of death did not show a relevant change.

Discussion

The efficacy of prophylactic NT seems to be controversial and differs depending on the species. The survival rate increased markedly in only one species (Addax antelope) and slightly in two species (Gerenuk, Speke's gazelle), and even decreased in two other species (Nilgai, Beisa oryx). But even when overall survival hardly changed, a change in the causes of death was evident. Before treatment introduction in 2003, bacterial infections were the most important cause of mortality. The only exception to this pattern are the Speke's gazelles, therefore, this species needs to be considered separately.

Maternal neglect or trauma appears to be emerging as the main cause of death after the introduction of newborn treatment, which is most likely an effect of the human interference.

The zoo veterinarian must make individual decisions on whether, and what kind of treatment is indicated. From the epidemiological point of view it can be advisable to concentrate on reducing infections to a minimum while accepting the fact that possibly more neonates might be lost. Another approach to minimising stress due to human interference could be to focus on the development of alternative methods of drug administration such as herd-specific vaccines, so that antibodies will be passed on by colostrum. The improvement of the management has been shown to be sometimes more efficient than administering medications to newborns (Besselmann et. al., 2008).

Based on the results of this retrospective study, AWWP has made changes in the management. NTs are now administered earliest on the 3rd day post partum to allow the mother-calf-bond to strengthen. These measures are expected to lead to a reduction of the incidence of neglect and trauma. The efficacy of these management changes will have to be evaluated over the coming years.

References and Acknowledgments

For more detailed information, tables, references and acknowledgements please refer to the link below:
<http://awwp.alwabra.com/images/stories/awwp/scie ntific/SP.86/SP.86.pdf>



Fig 2. Oral newborn treatment with Bio-Weyxin® (©Sven Hammer).

CHANGES IN THE DISTRIBUTION, ABUNDANCE AND STATUS OF ARABIAN SAND GAZELLE (*GAZELLA SUBGUTTUROSA MARICA*) IN SAUDI ARABIA: A REVIEW

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Keywords (reem, distribution, status, Saudi Arabia)

Introduction

Since WWII motorised hunting and motorised water and artificial fodder supply for domestic stock have increased the range and numbers of domestic stock and consequently the competition for food with gazelle. Although reem were once widespread and even abundant throughout Saudi Arabia their future was already debated by Wilfred Thesiger during his epic trek through the Empty Quarter in Saudi Arabia in 1947-48. A dramatic decrease during the 1970's and 1980's was noted in the wild with the most recent total population estimated to be fewer than 10 000 individuals and estimates for Saudi Arabia ranging between 2650 and 3050 animals in four populations (Al-Khunfah, Harrat al-Harrah, Mahazat as-Sayd and Uruq Bani Ma'arid (IUCN 2008).

Materials and methods

Data on various survey results from 1989 for four Protected Areas were collected through a literature search and unpublished census reports. Due to the various techniques used and/or applied over the years by various surveyors no attempt was been made to describe all of these.

Results

Currently the distribution of reem in Saudi Arabia still includes the original wild stocks at Al-Khunfah, Harrat al-Harrah and the reintroduced populations in Mahazat as-Sayd and Uruq Bani Ma'arid. In addition there is an extensive array of captive groups. The most recent estimates of reem from Al-Khunfah are 21 individuals observed during November 2005. Only 1 individual was sighted during 10 flying hours during March 2005 and none observed during 21.5 flying hours during November 2005 in Harrat al-Harrah. The estimated figures for Uruq Bani Ma'arid and Mahazat as-Sayd are 380 and 500-650, respectively. Captive breeding populations have 700 animals while military areas have an estimated 200-300. Estimates from private collections are difficult to ascertain due to the lack of access, but may be 2000-5000 animals.

Discussion

Reem outside Protected Areas are almost certainly extinct in Saudi Arabia aside from reports of individuals occasionally encountered in the south eastern Rub Al Khali. The numbers in Harrat al-Harrah and Al-Khunfah have decreased alarmingly, and are currently perceived to be virtually extinct. The reintroduced populations in Mahazat As-Sayd and Uruq Bani Ma'arid persist although numbers fluctuate according to local environmental conditions. Little importance is placed on responsible management of the large numbers of reem in private collections thus decreasing their usefulness as a 'national herd' or for future reintroduction purposes.



Fig 1. *G. s. marica* mortalities due to drought in the Mahazat as-Sayd PA (©P Cunningham).

After the establishment of Al-Khunfah in 1988 the reem numbers remained relatively constant between 200 and 400 until the mid-late 1990's when competition for food with free ranging domestic stock was suggested as the main limiting factor. Further declines have occurred since 1995 when 150 reem were still estimated to be present and are mainly due to increased uncontrolled hunting. In Harrat al-Harrah reem increased after protection in the late 1980's with 1000 estimated during the mid-late 1990's. By 2002 an estimated 240-500 remained, but by 2005 numbers had declined dramatically. In Mahazat as-Sayd, reem have increased exponentially during good rainfall years with mass mortalities observed during periods of drought and the most recent extrapolations varying between 500-650. In Uruq Bani Ma'arid the numbers have remained relatively stable in the 300's with the Rub Al Khali expected to act as a sink for animals moving out of the core protected area.

The main reasons for the decrease of reem populations in Harrat al-Harrah and Al-Khunfah (excessive uncontrolled hunting and competition with domestic stock) should be urgently addressed to encourage the survival of the remaining pockets of gazelle or face a revision of the international status if this downward trend is not urgently addressed. Restocking would only succeed if the problems of uncontrolled hunting and competition with domestic stock is reduced and/or eliminated.

References

IUCN 2008. The IUCN Red List of Threatened Species. IUCN, Gland, Switzerland. A pdf including full list of references is available on request.

Acknowledgements: Our gratitude extends to H.H. Prince Bandar bin Saud bin Mohammed Al Saud, Secretary General, NCWCD for his continued support towards conservation efforts in Saudi Arabia.



Fig 2. Female *G. s. marica* from Mahazat as-Sayd PA (©P Cunningham).

HAEMATOLOGY AND BIOCHEMISTRY BLOOD PARAMETERS OF JUVENILE HAWKSBILL TURTLES (*Eretmochelys imbricata*)

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Introduction

The Hawksbill turtle (*Eretmochelys imbricata*) is classified as critically endangered¹ on the IUCN red list meaning it is at high risk of becoming extinct in the wild. The main causes for the decline hunting, egg collection, destruction of foraging and nesting habitats and oil pollution. Juvenile Hawksbill turtles wash up on the Gulf shores of the UAE coastline mainly in the winter months of December to February. These turtles are usually debilitated which is characterised by an above normal epibiont coverage (Figure 1 and 2). The Dubai Turtle Rehabilitation Project aims to restore these amazing animals to health and release them back into the environment. Following rehabilitation the animal is given a physical examination and a blood sample is taken to ensure the animal is fit for release.

Materials and Methods

From October 2008 until May 2009 blood samples of 57 rehabilitated juvenile Hawksbill turtles were examined. A minimum of 0.5ml of blood was obtained from the supravertebral sinus with a 23 gauge needle and 2.5 ml disposable syringe and placed in lithium heparin tubes. Prior to centrifuging, haemoglobin (Hb) was measured using the Hemocue® B-Hemoglobin analyzer. Packed cell volume (PCV) was measured with a micro-haematocrit reader and the remaining haematological parameters were differentiated and counted manually (Table 1).

In June 2009, 22 of the 57 juvenile Hawksbills were released into the off-shore waters of Dubai (Figure 3). In addition to haematology, biochemistry measurements were also assessed using the Abaxis® VetScan Classic Analyzer (Table 2). Normally, for economic reasons, biochemistry parameters are only measured in sick animals. Blood samples contaminated with lymph were discarded.

Results

Table 1. Average haematology values for rehabilitated juvenile turtles prior to release n=57

Hb (G/DL)	PCV (%)	WBC (10 ⁹ /L)	H (%)	L (%)	M (%)	E (%)	B (%)	A (%)
6.81	16.19±3	2.41	73.26	17.25	2.42	0.33	0.37	6.39
±1.74	50	±0.73	±5.29	±8.20	±2.46	±0.76	±0.96	±6.35
(3.6-11.7)	(10-24)	(1-4.5)	(56-90)	(4-43)	(0-7)	(0-4)	(0-4)	(0-20)

Table 2. Average biochemistry results for rehabilitated juvenile turtles prior to release n=22

AST (U/L)	CK (U/L)	UA (MG/DL)	GLU (MG/DL)	CA ⁺⁺ (MG/DL)	PHOS (MG/DL)	TP (G/DL)	ALB (G/DL)	GLOB (G/DL)	K (MMOL/L)	Na (MMOL/L)
105.86	1033.31	1.03	84.04	7.43	5.43±	2.25	1.19	1.06	4.72	145.18
±44.32	±406.24	±0.35	±16.34	±1.21	1.31	±0.53	±0.35	±0.42	±0.75	±5.45
(35-231)	(516-1982)	(0.5-2)	(67-145)	(5.4-9.6)	(3.5-8.0)	(12-3.6)	(0.5-2.0)	(0.5-1.9)	(2.1-5.7)	(135-163)

± = Standard Deviation (highest-lowest)

Discussion

As far as the authors are aware, there are currently no published blood parameters for juvenile Hawksbill from the Gulf region that can be used as baseline data. Previous blood-work studies from the region have focused on the Green sea turtle (*Chelonia mydas*)².

When interpreting this data, factors as species, sex, age, environment, diet, and health status need to be considered. We have tried to control these variables by including only juvenile turtles estimated to be between six months and eighteen months of age. The diet was similar for each animal during the rehabilitation period. Gender was not determined for any individual as this requires a time consuming and invasive procedure. The results are considered Arabian Gulf specific.

We concentrated on the Hb and PCV to give an indication of anaemia and so, for practical purposes the red blood cell count (RBC) was not determined. Animals with values 10% below our determined normal parameters are not included in release programs. The classification of the white blood cells (WBC) of juvenile Hawksbill turtles in our study was based on current haematology nomenclature and descriptions³. Increased WBC, heterophil, monocyte and eosinophil counts were investigated as these parameters may indicate inflammatory disease, parasitic infection or tissue injury.

Elevations in total protein (TP) combined with WBC abnormalities indicated chronic inflammation. Animals with TP levels under 2 g/dL were retained for further treatment. Frequently these individuals were obvious from visual examination alone, exhibiting poor body condition. Suspected starvation or parasitism cases were treated individually. For practical purposes we found the most relevant biochemical value to be creatine kinase (CK). CK is purely a muscle enzyme, so increased values may be related to muscle damage attributed to starvation, stranding or capture/handling for procedures.



Fig 1+2: (© Warren Baverstock) Juvenile Hawksbill turtle covered with epibiont (barnacles), and after treatment



The interpretation of parameters such as Potassium, Sodium and Phosphorus is not yet clear in this species and needs further investigation.

These results form the first set of data on physically healthy, captive, juvenile Hawksbill turtles in the United Arab Emirates. We hope that the above work will help to contribute the furthering our understanding of these wonderful animals.

References:

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Fig 3: (© Jerry Balloch) Latest release of 22 juvenile Hawksbill and 2 mature Green sea turtles.

SENYAR: A RESCUE TEAM FOR THE MARINE ENVIRONMENT OF KUWAIT



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Operating in Kuwait since July 2008 and sponsored by TOTAL Foundation and TOTAL Kuwait, the Kuwait Turtle Conservation Project (KTCP – www.kuwaitturtles.com) is attempting to explore and unravel the secrets of the Green and Hawksbill turtle populations nesting on the country's tiny atolls Qaru and Umm Al-Maradim. Two nesting seasons behind it and another two ahead, some conclusions are beginning to be drawn, including which is the fact that populations are small, fluctuating tremendously from year to year, and Hawksbills nest on both islets, whereas Greens only nest in Qaru.

Turtles are found elsewhere in Kuwait as well. They are encountered in several stages of life by fishermen and shrimp trawlers, most of which have been using Turtle Excluder Devices (TEDs) for a number of years now in order to spare turtles a pointless death. They are sometimes encountered swimming with people in the tourist resort of Khiran where some believe they can capture them and keep them as pets. They occasionally nest on southern beaches of the country, close to the beach of Zour, often close to chalets, which have reclaimed their nesting territory. Another type of accidental capture is that of electric power stations pulling in the animals through their pumps and into their water cisterns. Every time something like this happens, an emergency team, the Senyar team, is called to deal with the turtle and get it back into the sea.

Senyar means “together in the sea”. It is a project inaugurated by His Highness the Emir of Kuwait in May 2007 with the purpose of protecting the marine environment of Kuwait. Within the Voluntary Work Center (VWC) of Kuwait, one of the few voluntary organizations in the Arabian Gulf, a dive team was created with the purpose of planting artificial reefs, installing mooring buoys where they are needed, doing beach and sea bed cleanups, searching for gear lost underwater, taking notes of the gaps in environmental legislation regarding the marine environment and rescuing marine animals in distress around the country. In July 2009, the Senyar team, in cooperation with the Scientific Center of Kuwait and the Environmental Protection agency of Kuwait, rescued a whale shark trapped in one of the city's prestigious marinas. More often, however, turtles have to be rescued from accidental capture in industrial installations.

On the 10th of October 2009, the Senyar team was requested by the Shuaiba electricity power plant to visit the premises to see a trapped turtle and remove it from a twelve-meter deep cistern featuring heavily chlorinated sea water. It took nine days to obtain all relevant permits for the Senyar team in

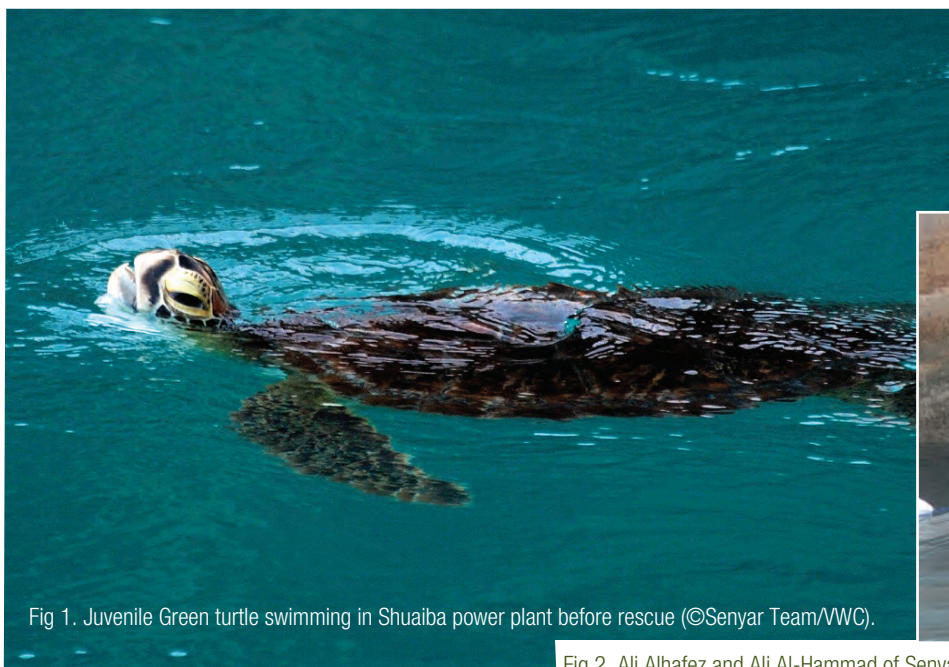


Fig 1. Juvenile Green turtle swimming in Shuaiba power plant before rescue (©Senyar Team/VWC).



Fig 3. Chief of Senyar, Husain Al-Qallaf, holding the rescued turtle (©Senyar Team/VWC).

order to enter these installations, and on the 19th of the month they were ready. Nine team members and two boats, nets, special hooks and tools as well as the determination to finally take the half meter long juvenile Green turtle out of captivity and into freedom set out at noon and had rescued the turtle three hours later. Strong “currents” almost forming a maelstrom were present in the cistern, making smooth movement of the boats difficult, but despite that the operation was successful. The animal was checked for signs of distress, was kept in a specially purchased water tank overnight at the VWC premises and the next day four team members took it away from the dangerous shores of Kuwait to the coastal waters of Kubbar island, where it was released successfully and swam away vigorously.

Several members of Senyar are dedicated members of KTCP and the two projects work closely together towards sea turtle conservation in Kuwait. Such cooperation is rare in the region, where conservationists are rare and usually work individually. Through the two projects' work, awareness about marine life and its fragility is beginning to be raised in Kuwait and it is hoped that this will benefit the coral reefs, turtles, fish and marine mammals which visit and live in the small Gulf nation's seas, possibly forming migration routes to and from several other countries' marine territories inside and outside the Gulf area as well.



Fig 2. Ali Alhafez and Ali Al-Hammad of Senyar preparing to capture the turtle for release (©Senyar Team/VWC).

PSITTACINE BEAK AND FEATHER DISEASE: TRIAL TREATMENT FOR AN ENDEMIC FATAL DISEASE OF PARROTS IN UAE



Fig 1. African grey parrot (©Giulio Russo).

Giulio Russo,

Nad Al Shiba Veterinary Hospital, PO Box 116345, Dubai, UAE.

Psittacine beak and feather disease (Pbfd) is caused by a circovirus belonging to the family Circoviridae. It is a small DNA virus very resistant to disinfectants and persistent in environment. The virus causes disease in New and Old World parrots. The Pbfd virus is extremely infectious and is spread horizontally via ingestion or inhalation of infected faeces, feather dust, crop secretion or fomites and vertically from hen to egg embryo.

Adult birds normally develop the "beak & feather" form: abnormal feather and beak growth with progressive immunosuppression. Young parrots tend to develop the acute/peracute form with severe immunosuppression, anaemia and death.

Nad Al Shiba Veterinary Hospital has seen an increasing incidence of this disease since opening in 2004. Pbfd has been identified in several parrot species but predominantly young African grey parrots (*Psittacus e. erithacus*). This typical patient presents at 3 to 10 months old having been purchased in a pet shop and is usually symptomatic (see above). Haematology shows severe leucopenia (low white blood cell count) and secondary infections signs/symptoms may be present.

While severe leucopenia is highly suggestive of Pbfd, haematology alone is not diagnostic. A normal haemogram in an asymptomatic young African grey parrot does not rule out Pbfd as the bird may be incubating the virus. The diagnosis is confirmed by PCR testing from blood or more reliably, bone marrow. Histopathology on post mortem tissue from the Bursa of Fabricius is also diagnostic.

There is currently no proven treatment for this fatal disease. Nad Al Shiba Veterinary Hospital is trialing avian interferon, a drug showing some promise in treating Pbfd positive young African greys, however a firm protocol has yet to be established. Birds accepted for the trial will receive the following diagnostics and therapy:

- A bone marrow aspirate and PCR test to confirm Pbfd status before and after trial.
- A course of one week of antibiotic and antifungal to prevent opportunistic infections.
- Multiple haematology tests run during trial to assess the response of the bird to the treatment.
- Daily interferon antiviral therapy.

The hospitalisation period will last for 3 months during which the parrot will receive a daily dose of gamma (or omega) avian interferon and an appropriate diet and management according to the species.

For veterinarians wishing to refer birds for trial therapy please contact Giulio Russo at above address or Nad Al Shiba Veterinary Hospital at info@nadvethosp.com



AZA Gruiformes TAG 2009. Kori Bustard (*Ardeotis kori*) Care Manual. Association of Zoos and Aquariums, Silver Spring, MD. pp.113.

The information contained within this Animal Care Manual (ACM) provides a compilation of animal care and management knowledge that has been gained from recognized species experts. This includes AZA (Association of Zoos and Aquariums) Taxon Advisory Groups (TAGs), Species Survival Plan® Programs (SSPs), biologists, veterinarians, nutritionists, reproduction physiologists, behaviorists and researchers. This ACM is based on the most current science, practices, and technologies used in animal care and management and are valuable resources that enhance animal welfare by providing information about the basic requirements needed and best practices known for caring for ex situ kori bustard populations. This ACM is considered a living document that is updated as new information becomes available and at a minimum of every five years.

Although the information presented is intended primarily for the education and training of zoo and aquarium personnel at AZA-accredited institutions, the manual provides valuable information for any organisation or project that manages kori and other species of bustards. The ultimate goal of this ACM is to facilitate excellent kori bustard management and care, which will ensure superior kori bustard welfare at AZA-accredited institutions. Ultimately, success in our kori bustard management and care will allow AZA-accredited institutions to contribute to kori bustard conservation, and ensure that kori bustards are preserved for future generations.

This manual is on the AZA website, but you need to be an AZA member to access it. Any non-AZA members interested in obtaining a copy of the pdf should contact Sara Hallager, Biologist, Smithsonian National Zoological Park, 3001 Connecticut Ave NW, Washington DC 20008, 202 633 3088. hallagers@si.edu

THE UV GUIDE UK – ENTHUSIASTS FURTHER SCIENTIFIC UNDERSTANDING OF THE ROLE OF UV LIGHT IN REPTILE HUSBANDRY

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The first reptiles to become part of our family, about 14 years ago, were family pets - leopard geckos and bearded dragons. When our first much-loved bearded dragon, named Pog, developed metabolic bone disorder despite use of a supposedly high-quality UV lamp, I was devastated. I realised I knew almost nothing about ultraviolet light and I had relied entirely upon the product advertisements. We had just got the internet, back then. So I started researching in earnest. I was astonished to discover how little good information on UV lighting was available - indeed, how little was even known. Many vertebrates, including humans, utilise some of the shortest ultraviolet wavelengths found in sunlight to enable the natural synthesis of vitamin D3 from cholesterol in the skin. This is UVB – which, with slightly longer wavelength UVA, also gives humans a sun-tan. Photobiosynthesis is the way most vitamin D is obtained, although small amounts can also be absorbed from the diet. Reptiles kept indoors will not be exposed to any natural UVB and are therefore extremely vulnerable to vitamin D3 deficiency. In its severest form this manifests itself as metabolic bone disorder although low levels of vitamin D3, associated with hypocalcaemia, may also lead to poor reproductive ability, reduced immunity to infection and failure to thrive. It was early in 2004 when I came across a new internet mailing list being set up by hobbyists in the USA, http://pets.groups.yahoo.com/group/UVB_Meter_Owners There, I heard for the first time about an affordable hand-held UVB meter, the Solarmeter 6.2 UVB meter (www.Solarmeter.com) available in the USA; and I also read about a member of that list, in the USA, who rehabilitates unwanted pet green iguanas taken in by a reptile rescue group. This man, Bob MacCargar, had personally designed a new mercury vapour lamp for reptiles, because he was dissatisfied with the products commercially available at that time.

I emailed him about his lamp (called a ReptileUV MegaRay) and to my amazement he offered to send me a sample, free of charge. It duly arrived, and Bob had even included a UK-to-USA voltage transformer in the parcel! But I didn't have a UVB meter. I needed one! Fortunately, also on the mailing list were two chameleon keepers from the UK - Andy Beveridge and Rob Lane. After much discussion, and a series of adventures, Rob imported two Solarmeters - the very first two - into the UK... and we began testing UV lamps, along with fellow reptile keeper Rachel Hitch.

UV Guide UK was born.

We launched the website www.uvguide.co.uk on 26th July 2005. It has had well over 100,000 visitors in the 4 years since then, from 146 countries. Recent involvement with a number of zoos and research groups worldwide has greatly broadened the scope of the project. Contacts include veterinarians, zoo keepers, herpetologists, conservationists, most of the major reptile lighting manufacturers and distributors, and many enthusiastic amateur keepers and hobbyists who are working with us to improve the lives of reptiles in captivity. One of the most important areas of research is the measurement of UVB levels in the native habitat. Research suggests that some species actively regulate their UVB exposure in addition to thermoregulation. Some reptiles increase their exposure to UVB if they are vitamin D3 deficient. Most reptiles, on the other hand, shelter from high levels of UVB, avoiding mid-day sun. Meteorological data from their countries of origin is not particularly useful per se, since these recordings are taken from exposed sites. Several exciting new projects are under way, in Australia and the USA, for example, using the little Solarmeters to record data from microhabitats – recording UV levels from "where the reptile actually sits".

Over the years we've come a long way from that first MegaRay lamp and our first Solarmeter. We now have a range of meters as well as the spectrometers, and it's not just UVB I'm measuring, but the whole solar spectrum and its artificial equivalents. Reptiles are quite literally "solar powered", and it's very exciting to be learning so much about so many different aspects of their lives.

We're looking forward to hearing the results, and are keen to assist, wherever possible, in any similar ventures. For further information on the role of UV light in reptile husbandry please visit our website.



Fig 1 Author with aldabra tortoise and UV meters (© Francis Baines)



Fig 2 Leopard gecko with metabolic bone disorder (©Chris Lloyd)

