

Wildlife Middle East



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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

One great benefit of editing this newsletter is how we editors learn more about the environment in the Middle East through the articles that we are sent and from correspondence we have with colleagues. We often hear about new species being discovered in tropical rainforests, so how unexpected and wonderful to hear from Dr Macdonald from Qatar about the possible discovery of a new species in the Gulf of Arabia – an incredibly photogenic sea slug belonging to the Genus *Chromodoris*.

It is hard not to be affected by the ‘concretification’ of the natural environment in the region. How many years before there is no desert to camp in? Impossible you say? But could any of us have imagined 10 years ago that in 2007 it would be impossible to camp on a beach in Dubai because every beach has been developed? We humans find this inconvenient but spare a thought for the natural animals and plants that have been pushed aside. Where have all the animals been relocated to and beyond the glossy Public Relations headlines does anyone know or care where the wildlife is now?

Humans with grievances can down tools and block highways. The voiceless inhabitants of the natural world have no choice but to rely on fickle humans to fight their corner? So thank goodness there are people who are aware of the serious issues facing the environment, who can articulate the concerns of their community and who are in positions of responsibility to affect change. In a recent interview with Gulf News, (September 08, 2007, Environmental abuse will kill our tomorrow. <http://archive.gulfnews.com/articles/07/09/09/10152422.html>) Mr Abdul Aziz Al Midfa, Director-General of Environmental and Protected Areas Authority in Sharjah warns the inhabitants of the Middle East region that they are on the brink of “an environmental disaster”. Mr Aziz considers that natural resources in the UAE and wider region are being used up in frenetic development projects and that these projects threaten the equilibrium of the environment. Mr Aziz asks the question - what is the use of sand dunes or deserts? He thinks, like we do, that the desert and the sea are necessary for our mental health and that living in a ‘concrete’ forest turns man into a machine. We need more people like Mr Aziz – who speak up for the environment - for the silent sea slugs buried beneath artificial islands and for the voiceless dhub lizards whose burrows have been scraped away to make room for luxury developments.

Diseases spreading from animals to humans are considered by scientists to be one of the biggest threats facing mankind. In this issue Dr Wernery and colleagues report the first case of West Nile Fever caused by West Nile Virus (WNV) in a horse in the UAE. This is a disease that after it was introduced into the USA in 1997 spread rapidly and caused deaths in humans, horses and many bird species. Migrating birds carry WNV in their blood and have a significant impact on the spread of WNV. Dr’s Lloyd and Stidworthy report on another disease with implications for human health, Q fever. This appears to be the first recorded cases of this disease in the UAE or Arabian Peninsula and one that zoological and domestic animal health professionals in the region should be aware of. Avian influenza is a well-known viral disease that affects birds worldwide. In recent years, highly pathogenic avian influenza (AI) has re-emerged worldwide, raising concern in human and veterinary health authorities. Dr’s Obon and colleagues report the results of a survey which showed antibodies for the H5 strain of AI in many species of wild and captive birds in the UAE. West Nile Fever, Q fever, and influenza are all diseases that can have serious impact on human health and regional agricultural industries. Within the UAE and, no doubt the region there is need for more

surveillance to monitor and understand the potential effects of these diseases on people, domestic animals and wildlife.

The local environment is blighted by litter. In places the desert is treated like an open-air dustbin. Over the past 15 years, the Central Veterinary Research Laboratory in Dubai has observed a tremendous increase in deaths of animals caused by plastic ingestion. However, this epidemic of ‘plastic bag disease’ could be a thing of the past as we report in our News section the development of biodegradable plastics that are now (according to their manufacturers) cheaper to produce than non-biodegradable bags. Contamination of the environment, in the form of veterinary medicines (diclofenac) given to cattle and whose residues in the meat kill scavenging vultures has caused a catastrophic decline of vulture populations in Pakistan and India. Campbell Murn and colleagues describe the efforts being made to conserve vulture populations. Worryingly BirdLife reports that diclofenac is available at veterinary practises in Tanzania representing a new threat for African vultures (http://www.birdlife.org/news/news/2007/10/africa_diclofenac.html).

The endangered Northern bald ibis was rediscovered in Syria in 2002 after it was believed to be extinct. Recent studies have shown the migration route and wintering grounds of this species, and Dr’s Bowden and Aljour highlight the need for better protection of roosting and breeding grounds to save this bird from disappearing from the Middle East again.

So lots of issues, some solutions and plenty for those of us concerned about the state of the environment to chew over in our latest issue. Happy reading and please keep the articles coming in.

The Editors

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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.

NEWSLETTER EDITORIAL TEAM

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WEST NILE FEVER IN THE UNITED ARAB EMIRATES

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Introduction

The West Nile virus (WNV) was first isolated in the West Nile district of Uganda in 1937 from the blood of a woman suffering from a mild febrile illness. Since then, outbreaks have been reported from all over the world. In 1999 the disease West Nile Fever (WNF) reached the United States, and has spread over the entire USA since then. West Nile Fever (WNF) has also reached the United Arab Emirates (UAE). We report here for the first time the results of a serological survey of WNV in the UAE.

Materials and Methods

Three different antibody tests have been used for the detection of antibodies in equine samples collected from different Emirates of the UAE. These included the WNV-specific IgM and the IgG capture ELISA tests as well as the serum neutralization test (SNT). The first and last tests were carried out on eleven equine samples at the Cornell Veterinary faculty, USA, whereas the IgG capture ELISA test was performed on 750 equine samples at CVRL, Dubai. The IDScreen® West Nile indirect test (IDVet, France, e-mail: idvet.info@id-vet.com) is a competitive ELISA which detects antibodies directed against PrME envelope WNV protein. This test can be used for different animal species.

Results and Discussion

In total 750 equine sera, originating from 6 Emirates (all except Umm Al Quwain) including Al Ain, were tested with the IgG capture ELISA. In total 144 horses (19.2%) had antibodies to WNV. This distribution is shown in Figure 1.

IgM antibodies appear early in the course of an infection and usually do not reappear after further exposure. Therefore a positive IgM response generally indicates a recent infection and the test has been used as a primary assay to identify equine WNV approximately 2-6 weeks after exposure. IgG antibodies are associated with the memory aspect of the immune response and appear after repeated exposure to the infection. They persist in the circulation for a long time, so a positive IgG test generally indicates an infection in the past.

SNT measures the amount of neutralizing antibodies to a particular micro organism in the serum, indicating an exposure to the micro organism. A positive IgM ELISA in combination with a positive SNT result is indicative of a recent infection. A positive SNT result with a negative IgM result would mean exposure to the virus, only.

The reason for this investigation was a horse from Ghantoot (Abu Dhabi) which demonstrated clinical signs consistent with WN encephalitis. This horse had IgM and SNT antibodies to WNV. The horse recovered. From Ghantoot area 69 sera were then tested of which 58 (84%) showed antibodies to WNV. However, when 11 of these horses were tested with the IgM and SNT in Cornell, only the SNT showed positive results indicating that the horses had been exposed to the virus sometime over 6 weeks prior to the sampling. Also blood samples from 3 feral pigeons from Ghantoot tested positive with the IgG capture ELISA. Efforts are currently being made to isolate the virus from mosquitoes and birds.

For the diagnosis of WNV, the following samples from any animal species should be submitted to CVRL (Steele et al., 2000):

- for virus isolation: pieces of kidney, frozen or fresh
- for PCR: pieces of kidney, frozen or fresh
- antibody test: 0.5ml of frozen serum (IgM and/or IgG)
- antigen test: frozen mosquitoes

Virus isolation is essential to elucidate if lineage 1 or 2 of WNV circulates in the UAE. Lineage 2 comprises viruses that have only been found to circulate in enzootic cycles in birds in

Africa with hardly any disease (Castillo-Olivares and Wood, 2004). Since only one horse with CNS signs has been reported so far, we believe that a very mild strain of WNF circulates in the UAE.

Migrating birds carrying WNV in their blood have a significant impact on the spread of WNV. More or less any bird species can carry the virus but some, like corvids (crow, raven) and robins are very susceptible. WNV surveillance should focus on these species.

Horses and humans are dead-end hosts and can therefore not transmit the virus. Their blood viral load is too low to infect biting mosquitoes. WNV can only be transmitted by mosquitoes, and they become infected when they take a blood meal from a bird carrying WNV.

Summary

West Nile Virus (WNV) has entered the UAE. A serological survey on 750 equines from the UAE showed a prevalence of 20%. The Ministry of Environment and Water has allowed the vaccination of horses against WNV.

References

References are available on the pdf version available on the [wmenews](http://wmenews.com) website.

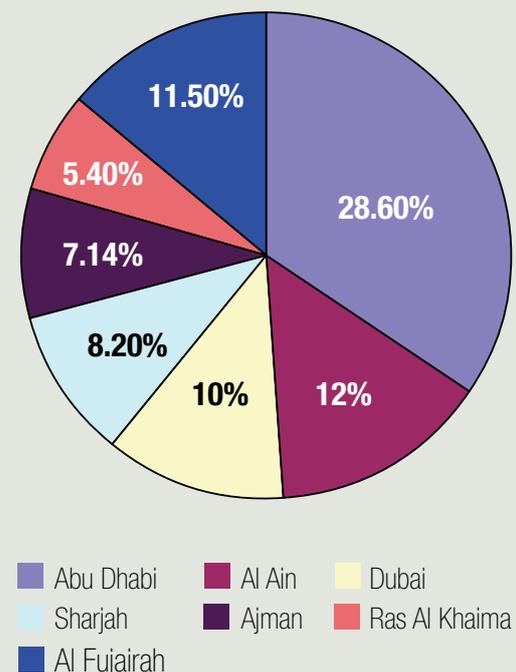


Figure 1. Serological prevalence of WNV antibodies in horses tested in the UAE.

PAKISTAN'S GYPS VULTURE RESTORATION PROJECT

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Introduction

Since the early 1990s, vulture populations in south Asia have crashed by more than 95%. The three species most affected are the Oriental White-backed Vulture *Gyps bengalensis*, Long-billed Vulture *G. indicus* and Slender-billed Vulture *G. tenuirostris*. The continuing declines are due primarily to veterinary diclofenac, a non-steroidal anti-inflammatory drug (Oaks et al. 2004).

Remedial conservation efforts include the development of conservation breeding centres, which aim to hold core populations of vultures until the environment is safe. They will then act as a source to reintroduce or supplement wild populations.

These centres must run successfully over many years, perhaps decades. The long term husbandry of the captive vultures, plus breeding and preparing vultures for release requires involvement from a wide range of organisations.

Two centres currently operate in India, whilst a third regional centre opened in Pakistan in 2007. Herein we provide information on vulture populations in Pakistan and outline the Gyps Vulture Restoration Project, launched by WWF-Pakistan in 2004. The centrepiece of this project is a vulture conservation centre at Changa Manga in the Punjab Province of Pakistan, approximately 80km southwest of Lahore.

Trends of Gyps vulture populations in Pakistan

Between 2001 and 2007 rates of decline across the three largest *Gyps bengalensis* colonies in Pakistan ranged from 11% to 61% per year (Gilbert et al. 2006). Two of these colonies, Changa Manga (southwest of Lahore) and Dholewala (northwest of Multan), were extinct by the 2003/2004 breeding season. They declined from 758 active nests and 412 active nests respectively in 2000/2001 (Gilbert et al. 2006). The third colony, Toawala (northeast of Multan) numbered 445 breeding pairs in 2000/2001 and declined to 84 pairs in 2005/2006 (Gilbert et al. 2006). By April 2007 only two active nests remained at Toawala.

In November and December 2006 surveys by WWF-Pakistan covered 23 known major and minor breeding colonies in 16 districts across the Punjab Province. In only five forestry plantations were vultures observed, and a total of only 37 breeding pairs were observed.

The Gyps Vulture Restoration Project (GVRP)

The key objective of the GVRP is to conserve and breed a viable population of *Gyps bengalensis*. Additional project objectives include continued monitoring of wild populations, lobbying for the complete removal of diclofenac from the environment and to build capacity for the eventual release of captive-bred vultures.

The project, run by WWF-Pakistan, is a partnership between WWF-Pakistan, the Punjab Wildlife and Parks Department, the Environment Agency, Abu Dhabi and the Hawk Conservancy Trust (UK). WWF-Pakistan is the project manager and staff provider, whilst the Hawk Conservancy Trust provides technical, training and funding support. The Environment Agency provided keystone funding for the facility and WWF-US provided funds for survey work.

There is currently one large aviary with a capacity of approximately 30 vultures, and an attached service building. Second phase building (late 2007) will include at least four breeding aviaries and additional infrastructure such as livestock paddocks, perimeter fencing and freezer rooms.

Facilities to keep livestock are essential. Purchased animals cannot be treated with diclofenac, and must also be kept for at least seven days prior to slaughter to ensure that there are no diclofenac residues in the carcasses.

Current population and future plans

In August 2007, there were eleven vultures in the facility. Future breeding potential with this small population is limited, and clearly there is a need to increase the number of vultures at the facility. To this end, trapping of wild vultures will take place in early 2008. Small populations and available food will undoubtedly make trapping attempts difficult; however the project aims to trap between 15 and 20 birds.

In the longer term, the construction of additional breeding aviaries is a primary goal. Only in this respect, is the time scale favourable. It is likely to be many years before the environment is safe for the release of vultures back to the wild. The project has a production capacity goal of at least 10-15 chicks per year.

Conclusions

There are no prospects for a rapid conclusion to the conservation of *Gyps* vultures in south Asia. Continuing the lines of communication and sharing information between Pakistan and India will be of benefit to all parties that are working together on this international conservation effort.

References and Acknowledgments

References and acknowledgments are available on the pdf version available on the [wmenews](http://www.womenews.org) website.



Figure 1. White-backed vulture (*Gyps bengalensis*) (©Ghulam Rasool)



Figure 2. The Gyps Vulture Restoration Project (©Campbell Murn)

COXIELLA BURNETII (Q-FEVER) INFECTION IN DAMA GAZELLE (*GAZELLA DAMA*)

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The Dama gazelle (*Gazella dama*) is a sub Saharan species listed as critically endangered on the 2007 IUCN red list due to uncontrolled hunting and habitat destruction (Newby et al 2006). These antelopes reach sexual maturity between 1.5 and 2 years and throughout their natural range normally give birth to a single calf during the winter or spring (Mallon and Kingswood 2001)

Twenty three Dama gazelle (4 males and 19 females) had been held in a private collection in the United Arab Emirates since March 2006. They were kept in a fenced, sand enclosure with direct contact and exposure to a mixed collection of non-domestic ungulates including Springbok (*Antidorcas marsupialis*), Fallow deer (*Dama dama*) and Nyala (*Tragelaphus angasii*). The enclosure had previously housed domestic goats that had been removed in September 2005 and was top-dressed with sand prior to introducing the Dama gazelles.

Between May and August 2007 five female gazelles from the herd aborted late in their gestation period. Foetuses were fully developed with no external signs of illness. Gross post mortems on all animals revealed no gross abnormalities. Full histopathological examination of foetal tissues from 2 cases (International Zoo Veterinary Group (IZVG), UK) revealed evidence of meconial aspiration in the lung of both foetuses consistent with foetal distress and an acute necrotising placentitis, with intralesional inclusions suspicious for *Coxiella burnetii*.

Samples of placental material, foetal spleen, lung and liver submitted for viral culture testing at the Central Veterinary Research Laboratory, Dubai failed to culture any viruses. Placental material submitted for PCR testing (Molecular Diagnostic Services, South Africa) for *C. burnetii*, *Brucella abortus*, *B. melitensis*, *Leptospiral* spp, *Toxoplasma gondii*, *Neospora caninum*, *Ureaplasma diversum*, Bovine Herpes virus, *Chlamydophila abortus* and Bovine viral diarrhoea virus revealed a positive result for the presence of *C. burnetii*. Following this result, placental material from all five cases was retrospectively submitted for histopathology (IZVG, UK) and immunohistochemistry (Moredun Institute, UK). All showed a necrotising placentitis with positive labelling for *C. burnetii* organisms.

C. burnetii is a zoonotic, obligate intracellular bacterium. Antibodies to this organism have been reported in a wide range of animals including mammals, reptiles, amphibians

and birds. It is a common cause of abortion in domestic ruminants and affected animals shed large numbers of the organism into the environment. *C. burnetii* is extremely resistant in the environment and may be transmitted via arthropods, direct contact, aerosol and ingestion. Few clinical cases of disease in non domestic species are recorded in the literature. A necrotising placentitis with abortion and still birth has been reported from captive Cuviers gazelles (*Gazella cuvieri*), greater Kudu (*Tragelaphus strepsiceros strepsiceros*) (Stalis 1996), Fallow deer (Simmert et al 1998) and some captive South American pinnepeds (Jurczynski et al 2005).

To the authors knowledge the seroprevalence of *C. burnetii* among domestic animals and humans in the U.A.E is largely unknown although an abortion storm in goats attributed to *C. burnetii* was reported in 2005 (Wernery pers comm.). A published serological survey of racing camels in Abu Dhabi showed a seroprevalence of 7.9% (Afzal and Sakkir 1994) while unpublished work from the UAE has revealed a seroprevalence in camels of 20-40% (Wernery, unpublished data). No abortions were reported in either study. It is possible that because of its geographical location, large population of domestic ungulates and confirmed occurrence of Q fever in surrounding countries (Scrimgeour et al 2000) that the bacterium is endemic in the U.A.E. In countries where *C. burnetii* is endemic, disease occurs sporadically and may be under-diagnosed and under reported (Marrie 1995). In Zimbabwe, where acute Q fever had never been reported *C. burnetii* antibodies were found in 37% of humans.

The authors propose that *C. burnetii* should be considered as a potential cause of late term abortion or still birth in non domestic ungulates in the UAE. The zoonotic potential of this bacterium and the apparent lack of screening within the UAE for this disease should also be considered by practitioners dealing with non domestic and domestic ungulates in the region.

Acknowledgements

The authors thank the staff at International Zoo Veterinary Group Pathology Service, Molecular Diagnostic Services, South Africa and Central Veterinary Laboratory for their assistance. We thank Ulie Wernery for his input.

References

References are available on the pdf version available on the wmenews website



Fig 1: Still born Dama gazelle foetus (©Chris Lloyd).

CONTINUING EFFORTS FOR THE SURVIVAL OF THE SYRIAN NORTHERN BALD IBIS COLONY

BirdLife International – Middle East Division and Royal Society for the Protection of Birds (BirdLife Partner -UK)

The Northern bald ibis *Geronticus eremita* is classified as Critically Endangered, the highest threat category according to IUCN criteria (BirdLife 2000), with the only remaining wild colonies known in Morocco (150 pairs) and Syria (2 pairs). The Morocco population is stable and under good conservation management. The Eastern race, formerly found throughout the Middle-East and latterly only in South-east Turkey, was re-discovered in Syria in 2002 having been believed to be extinct in the wild.

No observations of Northern bald ibis had been documented from Syria since 1928 (Aharoni 1929) despite attempts by ornithologists to search for them (Kumerloeve 1984, Heim de Balsac & Mayaud 1962, Hoyo Calduch 1989), leading to the conclusion that the species had gone extinct.

The discovery in April 2002 of one breeding colony in the Palmyra region was therefore arguably the most significant ornithological discovery in the Middle East for 30 years. A search for further colonies within the Syrian steppes in 2003 proved fruitless. The tiny colony consisted of three pairs, each with one chick. The following year, breeding performance doubled due to protection and monitoring efforts with the three pairs rearing seven chicks. In 2004, the colony declined to two breeding pairs, each with two chicks. The colony contained 5 individuals by 2005 when they had an unsuccessful breeding season. Encouragingly seven birds including three young returned in 2006 and the two pairs reared four young. The young returning birds were the first evidence of fledged birds successfully negotiating their unknown migration route.

The colony migrates after the breeding season to, until recently, unknown wintering grounds. Migration starts in mid July and they return to Palmyra around mid February. The BirdLife/RSPB (Royal Society for the Protection of Birds) project in cooperation with MAAR (Syrian Ministry of Agriculture and Agrarian Reform) managed to trap and satellite tag three adult birds in June 2006. This tagging initiative has revealed the wintering ground to be Ethiopia, with brief stop-offs in Yemen and Eritrea, via Jordan, Saudi Arabia and Sudan (Lindsell et al in press). An RSPB expedition was organized in winter 2006 to monitor and detect the wintering ibises in Ethiopia in cooperation with Ethiopian Wildlife and Natural History Society (EWNHS). The expedition was partly funded by Chester Zoo, and Ornithological Society of the Middle East (OSME). The expedition revealed that birds winter in the highlands of Ethiopia and there are no threats affecting the colony. Unfortunately, juveniles were not found with



Figure 1 Northern bald ibis (© BirdLife International)

adults during the expedition. A juvenile was subsequently tagged in 2007, and was shown to remain in Syria around the breeding grounds and further North. Unfortunately that tag stopped transmitting prematurely for unknown reasons. Further attempts to tag other juveniles are an urgent priority. This successful tagging initiative has enabled us to undertake conservation action for the species in the wintering grounds, countries on the migration route, as well as in the breeding grounds in Syria.

Conservation action to date has focused on reducing the negative influences on breeding success, but it is recognised that for such a long-lived bird adult survival is also likely to be an important limiting factor on the population size. We feel where the adults' winter is probably relatively safe. The wintering ground of the juveniles remains unknown, however, and further tracking data will complete this picture hopefully ensuring conservation of the bird throughout its range.

The Syrian bald Ibis has been in decline for several centuries. Therefore, ensuring the survival of the last wild colony is essential to the conservation of biodiversity not only on a national but also on a global scale. These few bald ibis survivors have become a symbol of the extreme degradation of the Syrian Al Badia (desertic steppe), a biodiversity rich landscape which is presently found in an advanced stage of desertification. There is a need for immediate action to address these wider ecosystem-scale land degradation problems if the bald ibis is to survive in the wild in the long-term. In Syria hunting is also a major threat to the tiny population, and overgrazing has reduced habitat quality in feeding areas. In 2005 breeding performance was zero; local rangers reported predation as the cause. We envisage the Ibis as a great flagship species whose preservation may lead to the conservation of other diverse wildlife and ecosystems.

The breeding area in Syria was declared a protected area in 2004 by MAAR and also an IBA by Birdlife in 2007. BirdLife and RSPB in cooperation with the Syrian authorities are currently looking to conduct research into feeding and breeding biology as well as its habitat requirements, and will continue to monitor numbers and breeding success. Protection of key breeding and roosting sites is an ongoing action in cooperation with local communities living in and around the colony.

References:

References are available on the pdf version available on the wmenews website.

SEROPREVALENCE OF H5 AVIAN INFLUENZA VIRUS IN BIRDS FROM THE UNITED ARAB EMIRATES

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Introduction

Avian influenza (AI) (Orthomyxoviridae) is a well-known viral disease that affects birds worldwide. In recent years, highly pathogenic avian influenza (HPAI) has re-emerged worldwide, raising concern in human and veterinary health authorities.

Avian influenza has been reported in many countries from the Middle East region. In Pakistan outbreaks of HPAI H7N3 subtype occurred in poultry in 1995 (Naeem 1998) and of H9N2 in 1998 (Naeem et al. 1999). In Iran five subtypes of avian influenza virus, H3N8, H7N3, H8N4, H9N2 and H10N7, were isolated from migratory ducks during a surveillance campaign in 2003-2004 (Fereidouni et al. 2005). In Kuwait two birds were found to be infected with avian influenza in 2005, a migratory flamingo tested positive for H5N1 and an imported falcon was confirmed to have H5N1 (PROMED 2005). However, the recent isolates of the HPAI H5N1 in falcons of Saudi Arabia (Samour et al, 2007) are of greater concern due to the proximity to UAE.

Influenza virus strains have also been isolated sporadically from birds in the UAE including H7N3, H7N1 and H9N2 (Wernery and Manvell 2003; Kent et al. 2006). Only the H7N3 strain, isolated from a peregrine falcon (*Falco peregrinus*) proved to be highly pathogenic for chickens (Manvell et al. 2000). Because there is little serological data concerning AI in birds in UAE (Bailey et al. 1996), we decided that a serological study would be beneficial to understand the epidemiology of the disease.

Materials and Methods

In total, 443 serum samples were obtained from birds showing no obvious signs of disease. Globally, 7 orders (Anseriformes, Charadriiformes, Ciconiiformes, Columbiformes, Falconiformes, Galliformes and Gruiformes) and 38 species (plus 4 hybrid species of falcons) were represented in this serological study. The population was formed mainly by captive birds, some receiving routine annual health checks in the Dubai Falcon Hospital (DFH) while others were part of a pre-vaccination serological investigation. Only 33 wild birds were included, 32 mallards (*Anas platyrhynchos*) and one black headed gull (*Larus ridibundus*). None of the animals had been previously vaccinated against AI. The serological technique used was the haemagglutination inhibition (HI) against the H5N2 antigen using 1% specific pathogen free chicken red blood cells as described elsewhere (OIE 2004). Titres greater or equal to 1/8 were considered positive.

Results

Out of 443 individual samples, 58 birds (13%) tested positive to the H5N2 antigen. Overall, individuals from 17 (19 if considering 2 hybrid species of falcons) of the 38 species examined, including representatives of all 7 orders were seropositive to the HI test used. Antibody titres ranged from 1/8 to 1/128. The highest titre, 1/128, was determined in one bird, a hybrid falcon (gyr x saker).

In reference to orders the seropositive proportion was as following: Anseriformes (15/76; 20%), Charadriiformes (1/34; 3%), Ciconiiformes (18/60; 30%), Columbiformes (1/4; 25%), Falconiformes (10/130; 7.7%), Galliformes (10/76; 13%) and Gruiformes (3/63; 4.7%).

Discussion

A prevalence of 13% was found in our serological study for H5 AI. Avian influenza antibodies were detected in representatives of all orders and in individuals of both, wild and captive bird populations. Our study cannot rule out the possibility of cross reaction between

the neuraminidase N2 antigen and birds seropositive to AI subtypes other than H5N2, e.g. H9N2 (a common strain in the Middle East). Future studies should use an H5 antigen with a different neuraminidase i.e. N9. Indeed some laboratories test suspected seropositive samples against at least two different antigens with different neuraminidase subtypes to be sure (Manvell, pers comm.).

Our data is revealing as no H5 AI serotypes have been isolated to date in the UAE, nor has any associated bird mortality been detected. The source of H5 AI exposure is unclear. However, some of the falcons included in the study travel regularly to other countries of the Middle East, where cases of H5 have been reported and therefore could have become exposed there to the virus. For captive birds maintained in open facilities a direct contact with migrant wild birds cannot be ruled out. Wild birds visit the different ponds where some captive waterfowl and flamingos are kept.

Only a small number of wild birds were involved in the study and therefore we were unable to draw any statistically supported conclusions about a possible difference in prevalence of H5 avian influenza between captive and wild populations and our results should be considered preliminary. Further studies using larger numbers of animals from a broader geographic area within the UAE and Middle East would be beneficial to understand the epidemiology of the disease.

References and Acknowledgements

References and acknowledgements are available on the pdf version available on the wmenews website



Fig 1 Collecting blood from the jugular vein of a flamingo (©Tom Bailey).

WHAT'S NEW IN THE LITERATURE

de Haas van Dorsser F.J., Green D.I., Holt W.V., and Pickard A.R. (2007). Ovarian activity in Arabian leopards (*Panthera pardus nimr*): sexual behaviour and faecal steroid monitoring during the follicular cycle, mating and pregnancy. *Reproduction, Fertility and Development* 19: 822-830.

The Arabian leopard is a critically endangered subspecies endemic to the Arabian Peninsula. A fundamental understanding of the ovarian activity of the leopard is important to enhance the success with which it breeds in captivity. The objective of the study was to characterise the endocrinology of the follicular cycle, ovulation and pregnancy in captive females using faecal steroid hormone analyses and observations of sexual behaviour. The follicular cycle of the leopard was shown to last 18-23 days based on the interval between consecutive peaks of faecal oestrogen conjugates, and the occurrence of silent heats was high. Puberty had commenced at 2 years of age, but faecal steroid profiles did not match those of the adult female until 3 years of age. No seasonal change in ovarian steroid excretion was observed, although behavioural oestrus was suppressed in summer. Significant rises in faecal progestagen concentrations were only recorded in mated leopards, indicating that these females were strictly induced ovulators. However, only 60% of these mating periods were ovulatory. Progestagen concentrations during pregnancy were significantly higher.



Arabian leopards (*Panthera pardus nimr*) mating
(© Florine de Haas van Dorsser).

Ostrowski, S., Blanvillain, C., Mésochina, P., Ismail, K., and Schwarzenberger, F. (2005) Monitoring reproductive steroids in feces of Arabian oryx: toward a non-invasive method to predict reproductive status in the wild. *Wildlife Society Bulletin* 33: 965-973.

We measured metabolites of progesterone (progestins) in faecal samples collected from captive Arabian oryx (*Oryx leucoryx*) females in postpartum (n=8), nonpregnant (n=9), and pregnant (n=8) reproductive stages between 1996 and 1998. We analysed progestins using enzyme-immunoassays for pregnanediol and 20-oxo-pregnanes, respectively. Progestin concentrations were elevated for 3 days after parturition and then decreased to basal anoestrous concentrations. Ovarian cyclicity resumed 25 plus or minus 2.4 days after parturition in 5 of the 8 females monitored. In nonpregnant females, excretion of faecal progestins followed a cyclic pattern increasing 6- to 12-fold from the follicular to the luteal phase. Faecal progestin concentrations allowed discrimination between pregnant and nonpregnant females after 3 months of gestation ($P < 0.01$), mean concentration of the tested hormone metabolites being at least 3 times higher during mid and later stages of gestation (>3 months) than during early pregnancy (0-3 months). These data were subsequently used to set criteria for designation of a cow as pregnant in 55 free-ranging Arabian oryx in the reserve of Mahazat as-Sayd, Saudi Arabia sampled in 1998-1999 and 2003. The proportion of pregnant and nonpregnant oryx correctly identified by the test was 81%.



Arabian oryx (*Oryx leucoryx*) (© Tom Bailey).

Rostami, A., Dehghan, M.M., Masoudifard, M., Memarian, I., Shahi Ferdous, M.M. (2007) A report of periapical abscess in a carnassial tooth of a Eurasian lynx (*Lynx lynx*). *Proceedings of the European Association of Zoo and Wildlife Veterinarians*. May 2007, Edinburgh. Pp 300-304.

The Eurasian Lynx (*Lynx lynx*), was once considered a subspecies of the bob-tailed cat complex. The Eurasian Lynx has been reported in different areas from North-west to North-east provinces of Iran. The scientific literature cites numerous types of pathological dental conditions that occur spontaneously in free-ranging populations. Abscessed teeth occur frequently. An adult female Eurasian Lynx was referred to the Faculty of Veterinary Medicine, University of Tehran. On examination a wound with purulent exudates on the face was observed. Also in the left upper carnassial tooth and molar, dental caries and severe gingivitis were determined. The radiographic evaluation was indicated of periodontal (periapical) abscess of the left upper carnassial tooth.



Eurasian Lynx (*Lynx lynx*) (© Iman Memarian).

A full version of this article is available for download as a pdf at the wmenews website.

NEWS AND EVENTS

THE LEBANON MOUNTAIN TRAIL

The Lebanon Mountain Trail (LMT) is a 400 km national hiking trail extending from Al-Qobaiyat in the north of Lebanon to Marjaayoun in the south, and is an example of the determination of Lebanon's mountain communities to conserve and showcase their unique natural and cultural heritage.

The LMT is divided into 26 sections, each section ranging from 10 to 20 km. In the spring of 2007, the ECODIT LMT team organized four regional thru-walks that covered the entire 400 km of the trail. These walks demonstrated that the LMT is a safe hiking trail, and allowed the team to verify information that will be included in the LMT guidebook and website. Recently, the Lebanon Mountain Trail Association was established and membership is open to everyone.

Core funding for the LMT project was provided by the American People through the US Agency for International Development (USAID). ECODIT, a US environmental and international development consulting firm, conceived and designed the LMT project, and is implementing it under a two-year (2005-2007) Cooperative Agreement with USAID.

Please visit the LMT website at www.lebanontrail.org



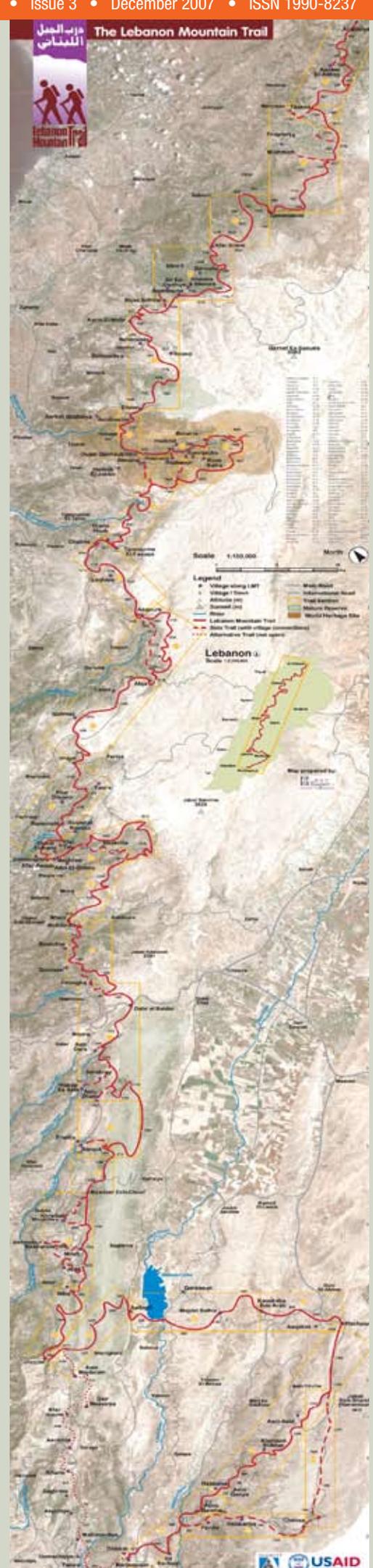
Figure 1. Qammouaa Plain (©Lebanon Mountain Trail).



Figure 2. Marj El Bakke (©Lebanon Mountain Trail).



Figure 3. Niha Fort (©Lebanon Mountain Trail).



NEWS AND EVENTS

FATAL POLLUTION IN THE UNITED ARAB EMIRATES

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In the past 15 years, the pathologist at CVRL has observed a tremendous increase in fatalities of animals caused by plastic ingestion. The victims of plastic pollution, in order of prevalence, are: cattle, adult camels, young camels, sheep, goats, ostriches, houbara bustards and gazelles. Even turtles and birds die from ingesting trash. These animals find plastic bags, ropes, bottles, bottle caps, and cutlery in their environment and eat them. Young animals are especially vulnerable to plastic pollution. They are curious animals because they start playing with plastic bags, nibble at them and finally swallow them.

In 2006, a total of 1300 animals autopsied at CVRL, more than 100 animals (around 10%) had plastic in their stomachs. Over the past year, plastic ingestion by animals has reached epidemic proportions. The worst case was a cow that had ingested 60kg of solid plastic, which took the shape of the cow's stomach.

PLASTIC POLLUTION – THE SOLUTION

- Because plastic can take over 400 years to breakdown, almost all the plastic that has ever been produced, is still somewhere on the planet!
- More than 60% of the litter on beaches is plastic
- Plastic kills significant numbers of land based as well as marine animals
- Plastic litters our streets and countryside and blocks our drains

THE SOLUTION

There is no viable alternative to plastic, so the solution to the problem is to use Symphony Environmental's d2w™ oxo-biodegradable additives which enable plastic to degrade totally, in an environmentally friendly way, in a short and predetermined time, at little or no extra cost, thereby significantly contributing to the reduction of the above mentioned problems. Visit Symphony's website at [HYPERLINK www.degradable.net](http://www.degradable.net) for more information or contact Winston Pryce at ipt@interplastuae.com.



Figure 1. Camels at a rubbish tip in the desert (©Ulie Wernery).

POSSIBLE NEW SPECIES OF SEA SLUG DISCOVERED

Iain Macdonald, Environmental Specialist, Qatargas Operating Company, PO Box 22666, Doha, Qatar

In March 2007 Qatar Natural History Group (QNHG) organized an intertidal marine ecology fieldtrip through Professor Roberternshaw of Cornell University. At one location Mrs Patterson found a sea slug, otherwise known as a *Nudibranch* (Latin Nudi = bare and Branch = lungs [or gills], as their gills are exposed to the environment unlike humans who have their lungs within their bodies). Dr Macdonald a marine scientist helped with an initial identification and knew roughly what group this sea slug belonged to within, but had never seen one with this particular type of colouration and pattern. Pictures of the slug were sent to Dr Rudman an expert at the Australian Museum who runs the "Sea Slug Forum". He replied that it may be a new species of *Nudibranch* belonging to the Genus *Chromodoris*. He also said that it resembles another species (*Chromodoris petechalis*) that was originally described from Pakistan in the early 20th Century, but the original specimen has been lost and only seen / photographed once since, in 1975 in Hawai'i of all places. Without a specimen to examine and confirm, Dr. Rudman tentatively suspected that this specimen was a new species to science.

There are between twenty and thirty sea slug species known to inhabit the marine environment of the Arabian Gulf. The species *Chromodoris cazae* is endemic to the area (this means it is only known from the UAE and Qatar), so this further supports the potential for a new species. In addition, there are interesting colour variations in the sea slugs found in local waters. Specimens of *Flabellina rubrolineata* have a purple colouration instead of usually being red. This species is also a suspected Lesipian Migrant, which means that it has been introduced into the Mediterranean from the Red Sea through the Suez Canal.

You can see more pictures of this beautiful creature, that would have perhaps been more appropriate to have been discovered in Bahrain due to its colouration being similar to their National Flag and get more information about sea slugs at <http://www.seaslugforum.net/display.cfm?id=19803>



Figure 1. A species new to science, *Chromodoris* sp. 16, yet to be described (© Mike Smith).