Bahrain Natural History Sociey

N E W S L E T T E R

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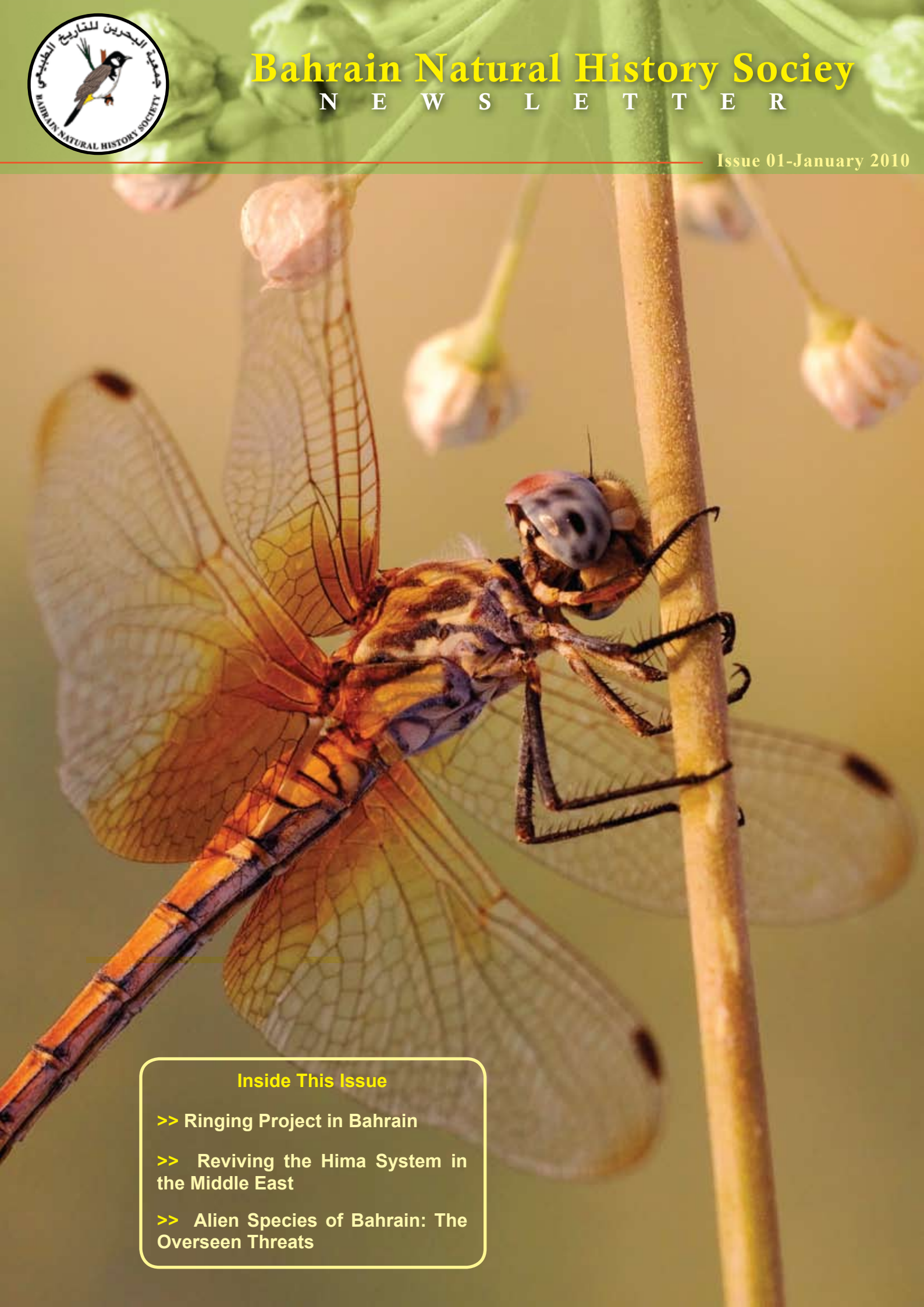

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Forward

Prof. Brendan Kavanagh

It gives me great pleasure to write this address for the Bahrain Natural History Society Newsletter. The Newsletter ran monthly for three years from January 1998 to December 2000. Copies of same can be downloaded from our website at http://bahrainwildlife.com/Publications/publications.htm . Technology has moved on since then and, with the development of the digital camera, amateur photographers can now capture images of wild animals and plants cheaply. With almost everybody nowadays having access to email and the internet, it is timely to reestablish the Newsletter to enable us to keep in contact and disseminate information.

The Bahrain environment has changed dramatically over the past ten years. The economic boom of the first decade of the new millennium has brought rapid urban sprawl to the main island of the kingdom. Threats to coastal ecosystems have never been greater and the ever increasing size of the human population has resulted in increased pollution, habitat destruction and disturbance to natural habitats.

The need to document and preserve Bahrain's wildlife has never been more urgent. The use of the desert areas by campers with quad bikes threatens the ecology of the central plain while the Jebel is overrun by people climbing through every wadi and over the rim rock. Much of the desert wildlife is now confined to the southwestern quarter of the island where access is restricted.

The Newsletter belongs to you, the members. We need your feedback and your help to make it grow from issue to issue. Is there a topic, a species or a habitat you would like to discuss then please contact the Newsletter panel. Or better still, write an article on your observations. I hope you enjoy this issue and the subjects raised therein. Bahrain is a beautiful place, let's try to keep it and its wildlife in good stead for future generations to enjoy.


Bird Ringing Project
– 4 years on
Brendan Kavanagh

Photographing Wildlife of Arabian Gulf

On the 7th October 2009 BNHS had its first talk for the 2009-2010 season. Mr. Adrian Drummond-Hill delivered a delightful account of his experiences as an amateur photographer in the Arabian Gulf. The talk was accompanied by some of the most beautiful images of birds and other wildlife, taken both here in Bahrain and to a lesser extent in Saudi's Eastern Province.

Adrian gave the audience tips on how to take good photographs, showed them his own equipment and finally finished the night with a selection of his photographs set to music. With the advent of the digital camera good photography is within the reach of most people. No more do you have to wait for the developers to give you slides or prints weeks after the event only to be disappointed at that missed rarity or over exposed shot of your favourite bird. However its more than just point and click. The skills required need to be mastered and Adrian convinced the audience that anybody can, with practice, produce high quality photographs with affordable equipment. The last advise he provided the audience was "*join a photography club where you can learn from the experiences of the other photographers*".

Adrian Drummond-Hill is based in Saudi Arabia but has been working in the Middle East for over 37 years. He has been taking pictures since the 1960's but did not get into serious wildlife photography until six years ago when he purchased his first digital camera. His favourate subjects are birds, but he takes phtotos of other taxa also. He has had several pictures published in wildlife magazines and interest from website designers and visual museum creators. He uses Nikon equipment and his present camera bodies are a D300 and a D3.

Ringing Project: Four Years On

On the 16th February 2010 Prof. Brendan Kavanagh and Mr. Abdulla Al-Kaabi presented an update on the ringing project in Bahrain. The meeting was well attended thanks to good networking by the honorary secretary Betty Rajab. The audience was given an account of the value of ringing as a research tool in Ornithology which was illustrated by maps showing the migratory routes of birds in western Europe based on 100 years of ringing data. The absence of similar knowledge about the birds in the Middle East was highlighted and the role of the ringing project in helping to build our knowledge base in the region was clearly explained. To date, 16 species have had over 100 individuals ringed and another 14 have more than 40 individuals caught and ringed. Brendan pointed out that the data gathered on these species will soon be published in scientific journals. One member of the audience asked if any birds were killed for further analysis, a practice sometimes seen in the past. Brendan responded saying that this would be unethical and against the very principals of the ringing scheme. Brendan's talk concluded by highlighting the importance of the man-made is-

Prof. Brendan Kavanagh conducted his PhD on the "Population Dynamics of the Magpie *Pica pica* in an Urban Environment" at Trinity College Dublin in the 1980's. While completing his thesis he was appointed as a lecturer in Biology in the Royal College of Surgeons in Ireland, a post he has held for over 25 years. His primary research interest is in birds and environment. Since coming to Bahrain in 2004 he has set up a ringing project. To date over 5,500 birds have been ringed and important morphological data gathered.

lands at Fasht Al-Jarrim for breeding terns and the need to declare them as an Important Bird Area for Bahrain and for the Gulf region.

The second part of the evening was filled by a presentation by Abdulla Al Kaabi on the timing of migration of the seven wheatears found in Bahrain. This was based on his experience as a trained ringer with the British Trust for Ornithology which he acquired since the ringing scheme was established in Bahrain. His knowledge of wheatears, the changes in plumage patterns with the seasons and the differences in the sexes was beautifully presented to a receptive audience. Many people were surprised at the wealth and diversity of birds in the region. The migration routes of birds through the Gulf region were beautifully illustrated, showing a movement down the east and west sides of the Gulf then crossing over the Empty Quarter towards Yemen. The irrigation of the Saudi desert is changing the route in recent times as birds can now pass through the Empty Quarter instead of hugging the coast line on route to Eastern Africa. Migration hotspots in Saudi were also discussed. This informative meeting was adjourned at 9.45 pm.

Abdulla Al Khaabi has been interested in birds since he was a child. He was raised in Zallaq Village, where he remembers catching wheatears and shrikes using local traps. The migration patterns of birds have always interested him. Since 2006 he has been trained as a ringer with the British Trust for Ornithology and is now the first locally qualified bird ringer in the Middle East. His local knowledge of birds in Bahrain and the Arabian Gulf region is unsurpassed. At present, he is studying the species composition and migration patters of wheatears in Bahrain.

Photo © Birdlife International Middle East

BNHS in the Birdlife Middle East Partnership Meeting

Prof. Brendan Kavanagh

On the 15th and 16th November 2009, the BNHS was invited to attend a Birdlife Middle East Partnership Meeting in Riyadh, KSA. This meeting was sponsored and arranged by the Saudi National Commission for Wildlife Conservation and Development (NCWCD). Dr Saeed Abdulla Al-Khuzai (Vice President and Birdlife representative) and Prof. Brendan Kavanagh (President) attended the meeting on behalf of BNHS. The meeting was officially opened by His Highness Prince Bandar Ben Saud, after which we were shown a publicity film from Birdlife International.

The first presentation was from the Regional Chairman who emphasized the need to focus our efforts on the 36 Globally Threatened species recorded in the Middle east region. It was hoped to set up a fund to help carry out research on those species. This was followed by a speech from Marco Lambertini, the current CEO of Birdlife, who impressed on the NGO's (Non-Governmental Organisations) the significance of the Important Bird Areas (IBA) network for the protection of species regionally. He highlighted the recent publication from Birdlife Middle East "Species, Sites, Habitats, People' Middle East Programme 2009-2012". While there are 36 threatened species in our region, globally there are 189 species which are the focus of Birdlife International efforts.

After the coffee break three countries (Saudi Arabia, Lebanon and Jordan) outlined their progress since the previous meeting two years earlier. KSA discussed the Houbara Bustard release programme, the Northern Bald Ibis migration through western Saudi, the Sociable Plover migration route, the estimated 4,000 Eastern Imperial Eagles wintering in KSA, the current work on the assessment of the status of Saker Falcon and the work on the Lappet-faced Vulture. They also

listed 39 IBAs in the Kingdom.

Lebanon followed with a talk from the Society for the Protection of Nature in Lebanon. They acknowledged the funding from the MAVA Trust to carry out surveys of the 31 IBA sites in Lebanon. This is a three year project which resulted in 320 site visits to gather up-to-date data for each site. They have also produced an updated Bird List for the country which now has 376 species recorded. They highlighted the existence of the Hima programme to support traditional practices which help protect the environment. They briefly discussed the conservation programme for the Syrian Serin and the promotion of 'Sustainable Hunting' in the region.

The Jordanian Royal Society for the Conservation of Nature (RSCN) followed with a discussion of the conservation of habitats and sites in Jordan. They currently manage 16 Protected Areas and have a ringing and a species monitoring programme. They conduct a National Waterbird Census and work on law enforcement in Jordan in particular on the issues of hunting and implementing the provisions of CITES convention. After much lively discussion on issues including hunting, species and habitat protection and funding we were ready for lunch!

The afternoon session continued with presentations from Qatar, Yemen, Bahrain and Kuwait. Friends of the Environment Society Qatar highlighted 4 sites which have been identified for protection, Yemen discussed the importance of raptor migration in and out of Africa through Yemen and the success of the eradication programme of the Indian House Crow on Socotra. The Kuwait Environment Protection Society listed 6 IBAs and 3 further sites pending for protection. Dr Saeed and myself gave a joint presentation. We highlighted the IBAs and the work conducted by the society in updating the list. We also discussed the bird ringing project and the identification of Al Jarrim islands as a future candidate IBA for the Kingdom. We listed the number of lectures and fieldtrips organized and additional projects including the encyclopedia for kids project and the redesign of our website.

The last session of day one was given over to the Saker Falcon. It was pointed out that the 2003 figures for the number of birds in the population are suspect and that the significance of smuggling and illegal trade in birds is difficult to quantify. How these problems might be addressed for the future was debated. Day 1 finished at 5.45pm with everybody ready to network for the evening.

The second day of the Partnership meeting was devoted to themes. The morning session, chaired by Osama from the Syrian Society, began with a review of the current situation in that country. He highlighted the 27 IBAs and explained that they are managed by a variety of societies and government agencies. He specifically referred to the much publicized Syrian Bald Ibis Conservation Project and the collaborative work with Turkey in trying to secure the future of the Bald Ibis in both countries through a cooperative captive breeding and release project. Unfortunately, there was little cause for optimism as the number of birds in the wild in Syria has dropped to less than 10. He showed us maps of the migration routes of Ibises from both the Turkish and Syrian populations emphasizing the

Photo © Adrian Drummond-Hill

importance of safe passage through Saudi Arabia and Yemen on their route to NE Africa. Hunting of Sociable plovers in Syria was identified as a major threat to the species. Spring stopover areas have high concentrations of Sociable Plovers which are traditionally hunted in this locality. He underpinned the need to work with the hunters to try to educate them to the serious need to protect and conserve the remaining birds on their staging grounds. Osama finished up by announcing his desire to establish a ringing project in Syria and to develop Hima as a tool for the conservation of natural habitats.

This was followed by a Regional Review of initiatives currently ongoing in the Partner countries. The brochure of the "Birdlife International Middle East Programme" was distributed to the Partner Societies (all Bahrain Natural History Society Members have received a copy recently!). Threatened species programmes for Bald Ibis, Sociable Plover, Syrian Serin and Saker Falcon were acknowledged and the need for further study of other threatened species in the region was acknowledged. The current state of the IBAs database was discussed, with 95% of IBAs now mapped and digitized, the push is on to continually update the information.

Other topics aired in this session were the production and translation of field guides for each country in the region, the status of the Hima fund in Qatar, the soaring birds project update, the Wings over Wetlands Project update and the Born to travel Campaign (launched in March 2009). Much emphasis was on the need to train field personnel in survey methodology for breeding seabirds and the conservation and wise use of waterbirds and wetlands in the region.

Photo © Abdulqader Khamis

Sharif from Birdlife Middle East Office (based in Jordan) followed with detailed presentations on the Northern Bald Ibis and Sociable Plover Projects. He clearly articulated the successes and difficulties faced by the birds and the people on the ground. The sociable Plovers breed on the plains (saiga) of Khazakstan which is now threatened by the decline in grazing in recent times.

After the coffee break each country tried to identify the main problems facing birds in their region. Uncontrolled hunting came out as the single most serious threat to the birdlife in the Middle East. Poor legislation, lack of implementation and lack of knowledge of conservation concerns, were specifically identified. Coming from Bahrain where habitat destruction, coastal reclamation and lack of funding for projects are high on our agenda, it was interesting to see the variety of issues faced elsewhere.

The meeting concluded with a business meeting of the Partners where boring but (other) important issues such as money and administration were debated. Thankfully, Dr. Saeed was privy to this and defended our financial inability to support the regional coffers in any significant way.

The take home message from the meeting was that we need to work together and to pool resources if we are to secure the future of our birds and habitats in the region. The challenges are great but Birdlife International will continue to support our efforts in whatever way it can. Much is done but there is a lot to do.

Hats off to the Saudi National Commission for Wildlife Conservation and Development for organizing and funding the regional meeting.

RINGING PROJECT

Photo © Mahmood Khamis

IN BAHRAIN

Prof. Brendan Kavanagh

The technique of bird ringing or banding involves catching wild birds and fitting a metal ring on their legs. This would appear to be a strange activity to the uninitiated but it is a significant research tool which has been practiced for 100 years this year. Why would you want to do that I hear you ask!

I must preface this article by saying that the bird is never harmed by ringing and the ring is extremely light relative to the weight of the bird. The metal ring is a tag with a unique identification number and an address. Anybody finding the bird either alive or dead can send the information to the address on the ring and get information on when and where the bird was ringed in return.

Bird ringing has enabled us to gain a fantastic amount of knowledge of bird movement, mortality and survival over many years. The migration routes of swallows from Northern Europe, through the Mediterranean, down the western side of Africa to Southern Africa, has been mapped out piece by piece thanks to bird ringing. When a bird is identifiable as an individual, one can elucidate the lifelong movements, longevity and reproductive success thus enabling us to understand the effects of weather, food availability and human disturbance on their life histories. This is fundamental to the conservation of bird populations.

Much is known about the birds of Europe, Australia and North America, much less however is known about the birds in the Middle East and Asia. While we can make assumptions based on our knowledge in other parts of the world, there are major gaps in our understanding of the processes operating in this re-

Photo © Adrian Drummond-Hill

gion. With the rapid expansion of human populations and the creation of new urban and industrial zones, it is imperative that we help preserve the natural environment for future generations to enjoy. To do this we need a better understanding of the impact of development on natural populations, a view shared by many planners and Government Agencies throughout the Gulf.

The Bahrain Natural History Society has been supporting bird ringing in Bahrain since 2005. 2,550 birds of 130 species have been caught and ringed over the past 4 years. Many of these species such as Bee-eaters, Golden Orioles and most warblers, pass through here on migration between their breeding grounds in central Europe and Asia to and from their wintering grounds in East Africa. Others such as Bluethroats and many waders, come here to spend the winter months while another group of species including Rufous Bush Robins, Sooty Falcons and Terns come to Bahrain to breed. The ringing project is helping to build a picture of the movement patterns and life histories of these and other species.

The warm, productive waters of the gulf are attractive to many terns. They breed during the hot summer months on offshore islands. The man-made islands at Fasht Al Jarrim, north of Manama hold internationally important numbers of Lesser Crested, Bridled and white Cheeked Terns. Between June and August each year a ringing party visits these islands and rings hundreds of chicks before they can fly. To date 2 birds have been recovered, both in Mumbai in India. So we now know that our Bahrain birds are wintering along the Indian coast. In addition to this we have photographic records of Bahrain birds nesting on an island off the Kuwait coast suggesting movement between colonies throughout the Gulf.

Bahrain is host to a wintering population of the Grey Hypocolius, a bird species only found in the gulf. It breeds in Iraq and Iran and moves south to winter in Saudi Arabia and Bahrain. 60 of these birds have been caught and ringed in Bahrain. We have recovered the same individuals at the same roost from year to year indicating that the individuals are not only faithful to their wintering in Bahrain but even faithful to their roosting site from year to year. The data gathered on this species in Bahrain is unique and invaluable to the

Table-1: Bird species with more than 100 individuals ringed.

No.	Species	Adult	Pulli	Retrap	Total
1	Indian Silverbill	133	0	1	134
2	Lesser Crested Tern	0	1003	0	1003
3	White-cheeked Tern	0	255	0	255
4	Bridled Tern	0	340	0	340
5	Crested Lark	96	3	6	105
6	Swallow	534	0	0	534
7	Water Pipit	115	0	0	115
8	White-cheeked Bulbul	178	0	18	196
9	Rufous Bush Chat	95	0	17	112
10	Isabelline Wheatear	159	0	1	160
11	Pied Wheatear	104	0	2	106
12	Chiffchaff	104	0	6	110
13	Willow Warbler	305	0	21	326
14	Isabelline Shrike	93	0	10	103
15	House Sparrow	105	0	3	108
16	Ortolan Bunting	154	0	5	159

Table-1: Bird species with 41-99 individuals ringed.

No.	Species	Adult	Pulli	Retrap	Total
1	Pale Rockfinch	93	0	4	97
2	Kentish Plover	4	63	3	70
3	Sand Martin	90	0	0	90
4	Grey Hypocolius	64	0	4	68
5	Desert Wheatear	79	0	0	79
6	Graceful Prinia	44	0	10	54
7	Reed Warbler	49	0	2	51
8	Eastern Olivaceous Warbler	58	0	38	96
9	Spanish Sparrow	58	0	0	58
10	Meadow Pipit	47	0	1	48
11	Yellow Wagtail	48	0	0	48
12	Redstart	39	0	5	44
13	Lesser Whitethroat	39	0	5	44
14	Whitethroat	39	0	2	41

international scientific community. Many birdwatchers come here from all over the globe just to see the hypocolius, which is virtually impossible to see in other Gulf countries.

Apart from these specifics we gather large quantities of morphological data on every bird caught. Age, sex, weight, wing, tail, tarsus and bill length and bill depth are measured routinely and measures of body condition including fat and muscle score are recorded. These data help us to understand how birds use Bahrain on their travels. Some species get here tired and exhausted after long flights and take a two week stopover to fatten up and refuel. Some species come here in the autumn to shed their old feathers and grow a new set (about 6 weeks) then move on to Africa for the rest of the winter. Quite a few species overfly the Gulf in autumn to greener pastures south of the equator. But in spring the same birds overfly the southern deserts and land here where the desert is greener after the winter rains.

Professor Kavanagh, who is responsible for the ringing project is a qualified ringer and trainer. He has trained a local ringer Abdulla Al Kaabi, who is the first qualified ringer in the Middle East. His skills and knowledge of local birds combined with his training is resulting in a dramatic increase in the numbers of birds processed by the project. This is establishing a solid base of skills knowledge which can be deployed both locally and regionally for the future.

This project is helping us to understand the birds of the Middle Eastern region and to add to the jigsaw piece by piece as happened in other regions in the last century. It is the only current ringing project in the region and is providing essential information to enable us to conserve the natural beauty of the Gulf for future generations.

The ringing scheme operating in Bahrain is administered by the British Trust for Ornithology in the UK. All data is centralized and stored at their head office in Norfolk and the address on the rings is ‘British Museum, London. We wish to acknowledge the support of the BTO and the Bahrain Natural History Society who have made this work possible. Our society is helping to push our knowledge of the natural history of Bahrain and the gulf region to new heights.

For further information on the ringing project contact Professor Kavanagh at bkavanagh@rcsi-mub..com.

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REVIVING THE HIMA SYSTEM IN THE MIDDLE EAST

Dr. Saeed Al-Khuzai

Hima is a traditional protected area system involving the sustainable use of natural resources by and for the local communities surrounding the Hima. It is a traditional way in conserving biodiversity as well as natural and cultural heritage of the area and to be used and managed in a sustainable manner by the local community.

The Arabic word "Hima" means the land which is protected from grazing and tree-cutting. It is a system that aims to preserve particular areas for grazing where grass and trees are left untouched for a period of time during which grazing is prohibited, except under severe climatic conditions, such as draught.

The Hima was established within Arabian Peninsula and other adjacent areas before Islam; However, Islam introduced more equity within Hima management and resource sharing. Prophet Mohammed declared that Hima belongs only to God and his messenger. The prophet laid down general guidelines that transformed Hima to become one of the essential instruments of conservation in Islamic Law. Therefore, he abolished pre-islamic practice of making private reserves for the exclusive use of powerful individuals and changed it to be used for the public welfare.

In Islamic Law, a valid Hima should meet the following four conditions:

1. Constituted by the Imam, the legitimate governing authority.

2. Established in the way of God for public welfare.

3. Should not cause hardship to local people or deprive them from resources.

4. Realize more benefits to society than damage.

CATEGORIES OF HIMA SYSTEM

In the literature, many types of Himas have been rec-

ognized and dated even before Islam. The main categories are:

1- “Himas” in which grazing is absolutely prohibited. It may be permitted, however, to gather or cut grass on condition that this is done only during specified seasons. Moreover, certain days may be allocated for men and other days for women.

2- “Himas” where grazing may be permitted during particular seasons or where grazing is permitted only for certain domestic animals, such as cattle (particularly burden cattle), and forbidden for sheep, goats and camels.

3- “Himas” whose basic objective is to protect bees and honey production for a certain period, alternated with a period for grazing cattle.

4- “Himas” designated for a specific village or one individual. In this case the Himas are called “Kasd” or “Special Himas”.

5- “Himas” for trees, particularly the juniper and acacia species. These Himas would be the common property of everyone in the village and no trees may be cut unless an emergency situation arises such as a calamity or disaster that befalls the village, like a fire or other sudden event. In such a case, cutting is only permitted for the benefit of the common interest of the whole village.

REVIVING HIMA SYSTEM

Since 2004, the Society for the Protection of Nature in Lebanon (SPNL) has taken the lead in this important initiative in the region. SPNL was working on the revival of the Hima concept for the conservation of Important Bird Areas (IBAs) in collaboration with municipalities – locally elected authorities. So far, six sites, in the whole of Lebanon have been declared as Himas. Traditional Himas already exist in Saudi Arabia and Oman. Recently, Syria and Yemen have proposed more areas as Himas.

In 2009, a Hima Fund was established in Qatar under the patronage of Her Highness Shaikha Jawaher Al Thani to support and encourage local communities in the Arab countries to revive Hima in Important Bird Areas.

Photos © SPNL

Abdulqader Khamis

ALIEN SPECIE

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ES IN BAHRAIN

een Threats

Over thousands of years, deserts, oceans, rivers and mountains have acted as natural barriers, hindering the migration of species between distant bio-geographical zones. During the past five centuries, however, these barriers have been breached by means of trade, tourism and transportation allowing an increasing number of species to reach new environments. Without doubt, humans have played a key role in promoting the wide dispersal of species across the globe. The introduction of species to new environments by humans could be intentional (such as through biological control, scientific research, agriculture and fisheries programs) or unintentional (such as escaping from zoos, aquaria, gardens and laboratories).

Surviving outside their natural geographical range, the introduced species are known as “Alien Species”. Some Alien Species (AS) appear to fit well within the new environments without causing environmental or economic damage. Indeed, many AS are beneficial to the human being. For example, many introduced crops, fisheries and livestock species have provided valuable resources and services for humans societies without evidently harming the environment, human health or the economy.

In the absence of their natural competitors and predators, however, some AS may threaten the new environment or human welfare where they are usually known as “Invasive Alien Species”. An Invasive Alien Species (IAS) is a species that has established and spread –or has the potential to do so- outside its natural distribution range and which threatens –or has the potential to do so- the environment, economies or

human health. In a simpler language, IAS is a non-indigenous species representing a threat to the environment or the human being. Some IAS may show noticeable invasion signs upon arrival to the new environment while others may undergo a "Lag Phase" before they turn into harmful species. Subject to the species ecology and local environmental conditions, the lag phase may extend from weeks to centuries.

Biological invasion is recognized as the second threat to biodiversity (after physical destruction of habitats) and it currently impacts all biodiversity levels (i.e. habitats, species and genes). For instance, some IAS interfere with the natural ecosystem processes (e.g. hydrology, fire regime and nutrient cycling). Also, IAS may attack, prey upon, transfer diseases to or hybridize and compete with indigenous species leading -in some cases- to serious decline in their population size or even extinction.

The subtle impacts of IAS on biodiversity may be catastrophically reflected on the health and welfare of the human being. For example, IAS are responsible for annual economic losses of billions of dollars in the form of declined agricultural and fisheries production, increased flooding, accelerated erosion and sedimentation as well as degraded water and air quality. In many cases, the ecological and economic impacts of IAS are irreversible which makes IAS a serious challenge not just to the scientific community but, also, to human communities.

The rate, nature, scope, and magnitude of biological invasion differs from one place to another. The vulnerability of the Kingdom of Bahrain to biological invasion could be considered high. Thousands of years of trading have definitely allowed some AS to step on the islands. The rapid pace of urbanization creates new environments with vacant niches encouraging AS to establish themselves. Similarly, the increasing human-induced stresses (such as wastewater and industrial discharge, deforestation of palm grooves and overfishing) may create vacant niches that may be easily filled by AS. Additionally, small island states –like Bahrain- are known to be highly susceptible to biological invasion due to their small geographical area and fragile environment. Unsurprisingly, therefore, the numbers of AS in Bahrain are steadily increasing and their populations are expanding. Belonging to various taxonomic groups, AS, also, appear to colonize a range of habitat types in Bahrain. For example, several inland water fish AS have succeeded to main-

Photos © Abdulqader Khamis

tain sizeable breeding populations in the agricultural drainage ditches. First recorded in Bahrain in 1966, the Collared Dove *Streptopelia decaocto* is at present a common bird colonizing palm grooves, desert and residential areas. Of particular reference, recording alien crocodiles and giant snakes in the wild in a small country such as Bahrain is really alarming. Also, in several recent incidents stray dogs attacked livestock in sanctuaries and killed a number of goats.

Attributed to inadequate public awareness, humans have played a key role in promoting biological invasion in Bahrain. For example, in 1981 free-flying Grey Francolin *Francolinus pondicerianus* was intentionally introduced to the island. Since then, the bird has colonized many desert and agricultural areas and it presently maintains a sizeable wild population. Similarly, the Red-eared Slider Terrapin and Goldfish had been intentionally introduced by locals to Adhari freshwater spring.

It appears that there is a sufficient reason to ring the bells and to raise the concerns about AS that may potentially turn into IAS. However, addressing the implications associated with biological invasion in Bahrain is challenging due to the extreme shortage of scientific investigation and statistics relevant to the species checklist, population size and local distribution of AS. For that reason, it is appreciated that recognizing AS as IAS is not a straight-forward process and should be treated with some caution. This article focuses on selected AS that have shown evident environmental, health and/or economic impacts in Bahrain so that they could be confidently recognized as IAS.

Indian House Crow *Corvus splendens*

First recorded in Bahrain in 1961, it is likely that the crow had reached the island by hitching rides on ships. The first nest was discovered in 1983 although breeding was suspected since 1970. The bird maintained a small population in 1970s and 1980s before its numbers dramatically increased in early 1990s. At present, a sizeable population inhabits urban, semi-urban and agricultural areas particularly in the northern half of the country. In many cases, the crow was observed attacking the nests of resident bird species (such as the House Sparrow *Passer domesticus* and the White-cheeked Bulbul *Pycnonotus leucogenys*) and preying upon their chicks. Flocks comprising

Photos © Mahmood Khamis

of over 100 crows were also seen along the northern coastline attacking crops and free-flying birds in palm grooves. Once described in the prehistoric Sumerian records "At Dilmun, no crow cawed", the noisy calls of the crows have become a norm in the once called "Dilmun"; Bahrain. For these reasons, locals have started to complain and to call for the adoption of effective measures to control this invader. In response the wildlife authority established an eradication program that has included shooting crows at their roosting sites and offering a bounty to encourage youths to catch adult birds and to collect chicks. Despite the efforts, however, the wild population of the crow in Bahrain is still sizeable and, indeed, it is expanding.

Common Mynah *Acridotheres tristis*

First recorded in Bahrain in 1977, it is believed that this bird escaped from captivity. Currently, a large number of the mynah inhabit urban, semi-urban and agricultural areas in the northern half of the country. The birds now nest on tall lamp posts and in holes found in buildings. The Common Mynah was recorded to attack the nests and to prey upon the chicks of the House Sparrow *P.domesticus* and the White-cheeked Bulbul *P.leucogenys*. Of particular note, a major incident was recorded on 7th July 2007 in Saddad Village (south west Bahrain) in which the victim was human. Mr. Hassan Isa, 31, was leaving home, when he heard abnormally loud calls coming from mynahs roosting on electricity wires. Suddenly a group of 3 mynahs attacked him, pecking at his eyes, managing to damage one eye before he was able to return to the house. It appeared that a mynah chick was removed from a nest in a nearby building the day before the incident and the birds remained in the area to retaliate. Mr. Hassan said that it was noticed that a flock of more than 30 birds remained in the area after the incident and they were attempting to attack people. For this reason, the area was closed by the locals and the police were called to clear the roofs of houses. Although Mr. Hassan underwent surgery, he has not recovered full use of his injured eye. Despite its steadily-expanding population and evident impacts on resident birds and humans, the invasion of the Common Mynah has not noticeably bothered the public or authorities (like the case with the Indian House Crow). Indeed, the passion of locals for breeding the mynah has continued to increase even after Mr. Hassan's incident. Driven by the rising price of the mynah in local markets, bird catchers started to return free-flying mynahs into the

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cages. However, they do not seem to impose significant impact on the still increasing numbers of wild mynah.

Red-vented Bulbul *Pycnonotus cafer*

First recorded in Bahrain in 1986, it is thought that the free-flying Red-vented Bulbul originated from escapes. At present, the bird maintains a self-sustaining population, but it has not yet outnumbered the Indian House Crow *C.splendens* or the Common Mynah *A.tristis*. Although recognized amongst the 100 Worst World Invaders by the IUCN, the Red-vented Bulbul has not yet evidently shown aggressive behavior against native species. However, two local bird ringers (namely; Prof. Brendan Kavanagh and Mr. Abdulla Al-Khaabi) recorded a cross-breeding incident between the Red-vented Bulbul *P.cafer* and the White-cheeked Bulbul *P.leucogenys* where they observed hybrid chicks in a nest. A culturally-important species, the local population of the White-cheeked Bulbul is under the continuous threat of habitat degradation and poaching. Hence, any additional stresses caused by cross-breeding is likely to lead to sterile offspring and should be considered seriously.

Buttonwood *Conocarpus erectus*

This large tree was imported from the neighboring Saudi Arabia (likely in mid 1990s). The locals were impressed with the evergreen foliage and the high growth rate of the Conocarpus. Accordingly, the Conocarpus has been widely planted around the country in many areas including farms, private gardens, parks as well as roadsides. Seedlings were also introduced by campers into the desert to add greenery to their temporary camps. To date, the Conocarpus has not established a self-sustaining population in the wild. However, not too long after the Conocarpus was introduced to Bahrain, it caused a considerable economic loss to individuals and authorities. For example it has become clear to many people that the roots of the Conocarpus can dig deep into the soil and cross long distances in search for water. There are many recorded cases of the roots penetrating and blocking sewerage pipes. Similarly, the roots have been blamed for blocking potable water distribution network in some residential areas. They have also damaged the foundations and even broken tiles of bathrooms in houses. People have therefore started to uproot the Conocarpus from their yards. Additionally,


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the Conocarpus is being substituted by the authorities with the native date palms along the roadside. Despite its evident economic impact the Conocarpus is still widely spread in the country and is still sold in the local market.

In conclusion, these selected examples reveal that IAS have evidently caused ecological, health and economic harms in the Kingdom of Bahrain. Until recently the threats associated with IAS had been overseen by the public and did not noticeably attract the attention of local scientists or authorities. It could be the Indian House Crow that first caught the attention of the public highlighting the ecological and health impacts of IAS. The Common Mynah followed providing a clear example of the threats of IAS to the Bahraini society. This was further supported by the Conocarpus highlighting the economic implications associated with IAS.

Owing to the prevailing harsh environment and the increasing human pressures many local species in Bahrain survive close to their maximum tolerant limits. It is feared that native biota may not tolerate further stresses caused by IAS. In a small country like Bahrain, imposing control at the ports and regulating the local trade of pets is vital for effective and efficient management of IAS. Raising public awareness is equally important. People should be aware that no one shall intentionally facilitate the introduction and/or the dispersal of AS in the wild unless it is intended for a beneficial purpose and provided that the associated risks have been adequately assessed and considered.

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Feedback and Contribution

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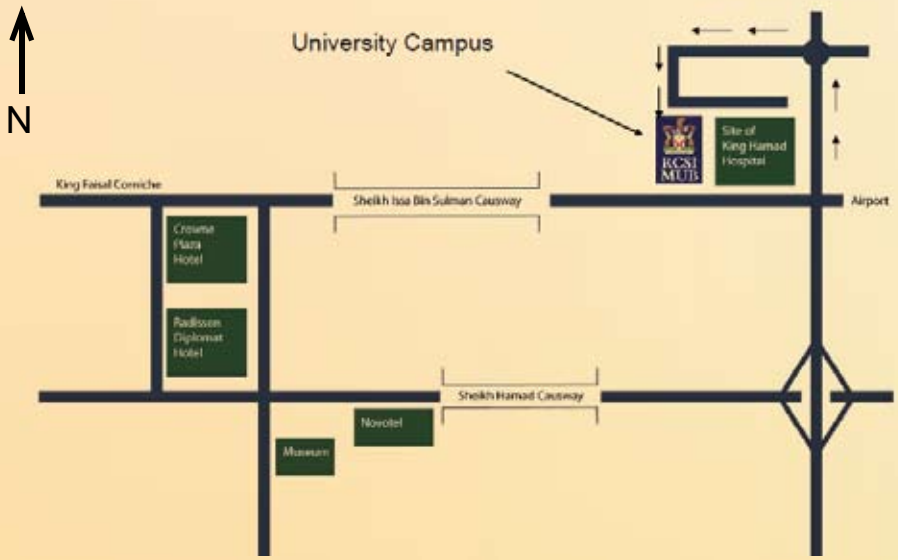
Where We Are Located

The **Royal College of Surgeons in Ireland, Medical University of Bahrain (RCSI)** thankfully hosts the meetings of BNHS. RCSI is located in Busaiteen Area on Muharraq Island:



Bahrain Natural History Society (BNHS) was established in 1976 and has long been considered one of the leading voluntary organizations concerned with the conservation of nature; not only in Bahrain but throughout the Arabian Gulf.

The main objectives of BNHS are to encourage interest and promote knowledge of all aspects of the natural history of Bahrain and to increase the awareness of its importance.

The society promotes its objectives by various activities, such as talks, newsletters, field trips, publications, and participation in local environmental initiatives and events. Surveys and research are of great interest for many members who continue to publish and to present outstanding books and articles in natural history journals and conferences.

Through its activities and the dedication of its active members, Bahrain Natural History Society (BNHS) continues to document and to conserve various aspects of the wildlife of Bahrain.

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