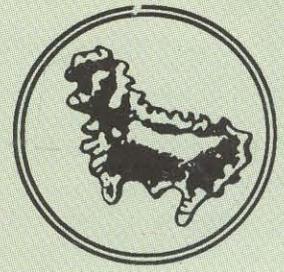


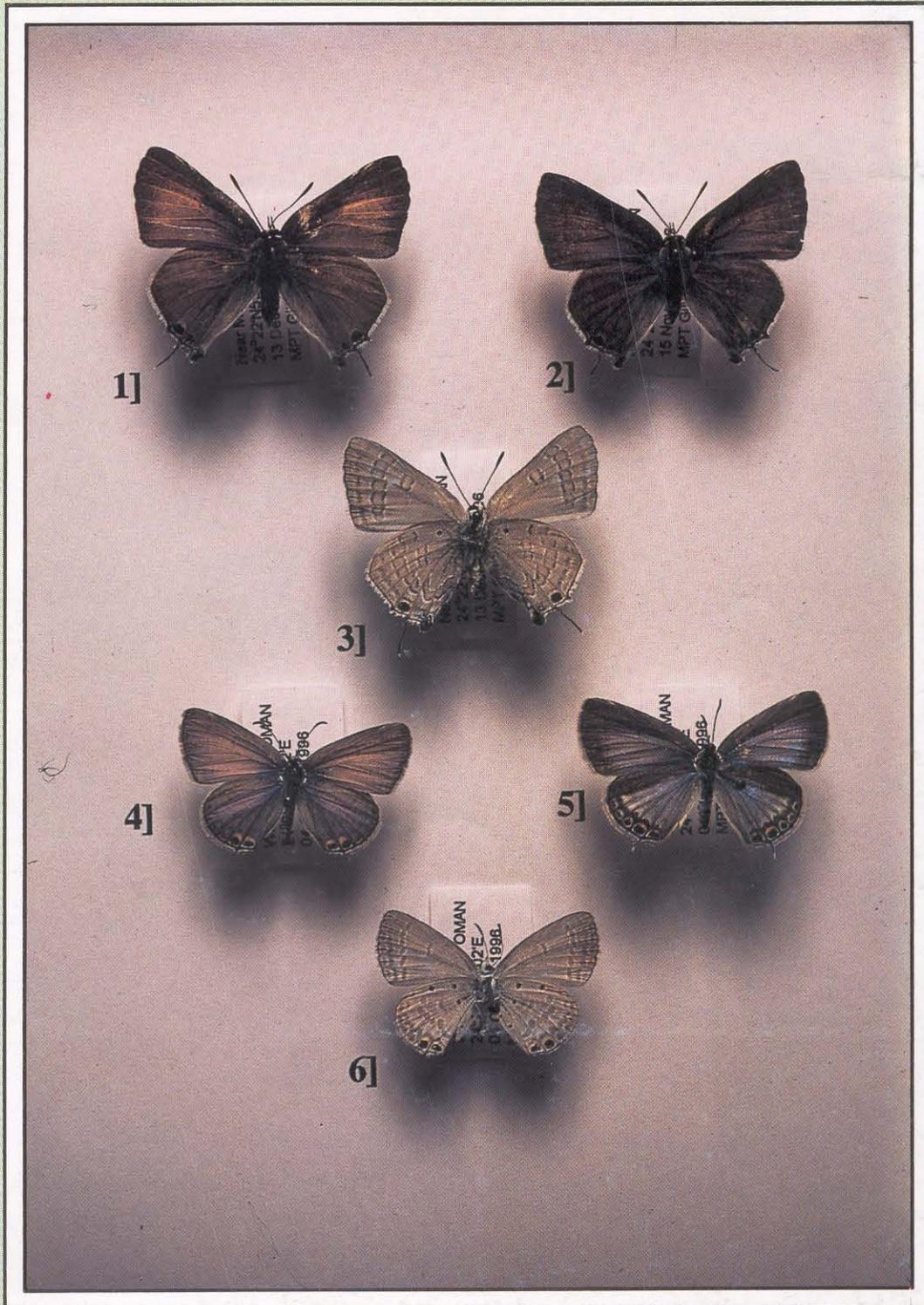
TRIBULUS



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NOTES FOR CONTRIBUTORS

TRIBULUS is the name of the Bulletin of the Emirates Natural History Group. The Group was founded in 1976, and over the next fourteen years, 42 issues of a duplicated Bulletin were published. The revised format of TRIBULUS, introduced in 1991, permits the inclusion of black and white and colour photographs, not previously possible.

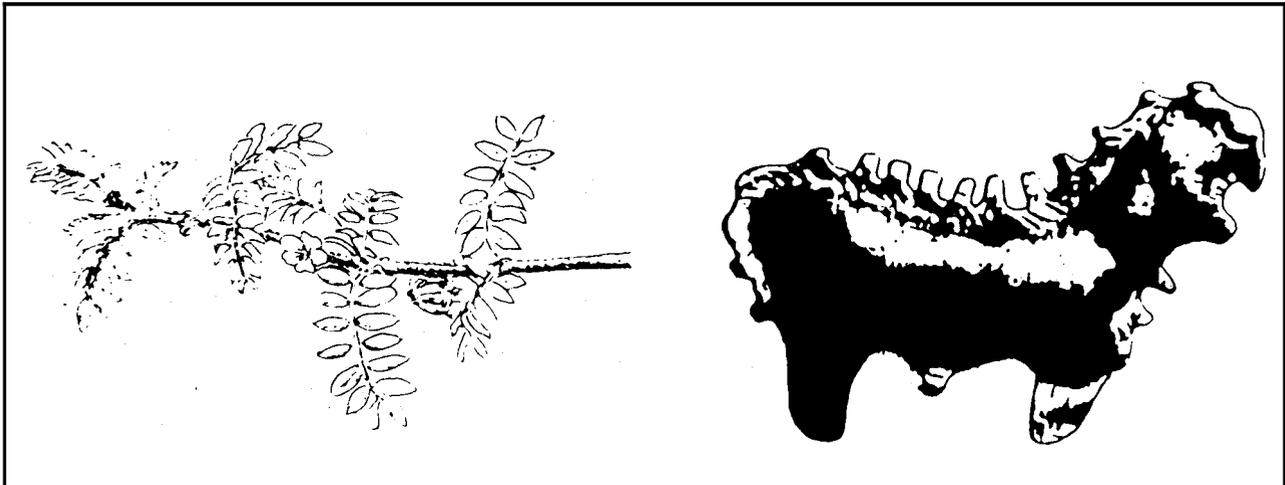
TRIBULUS is published twice a year, in April and October. The aim of the publication is to create and maintain in standard form a collection of recordings, articles and analysis on topics of regional archaeology and natural history, with the emphasis focussing on the United Arab Emirates and adjacent areas. Articles are welcomed from Group members and others, and guidelines are set out below. The information carried is as accurate as the Editorial Committee can determine, but opinions expressed are those of the authors alone.

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The plant motif above is of the genus *Tribulus*, of which there are six species in the UAE. They all have pinnate leaves, yellow flowers with free petals and distinctive five-segmented fruits. They are found throughout the country, except in coastal sabkha.

The animal motif above is of a tiny golden bull, excavated from the early Second Millennium grave at Qattarah, Al Ain. The original is on display in Al Ain Museum, and measures above 5 cm by 4 cm.

Manuscripts should be typed, on one side only, and double-spaced, and may be submitted in either English or Arabic. A short abstract should precede the article, with the address(es) of the author(s) at the end. For Arabic contributions, a short summary in English, of not more than 200 words, should also be supplied.

Photographs may be submitted and should be either glossy black-and-white prints or colour slides, which should be clearly captioned. Line drawings and maps should be in black ink on strong white or translucent paper.

References should give the author's name, with the year of publication in brackets, and with the list of articles, showing title and publisher, in date order.

Scientific names should follow customary nomenclature in Latin, while the English and, if appropriate, available Arabic names should also be supplied.

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TRIBULUS

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English: Newly recorded lycaenid butterflies from the Al Ain/Buraimi/Mahdah region of Eastern Arabia: 1) Brown Playboy, *Deudorix antalus* (Hopffer, 1855) male UPS; 2) female UPS; 3) male UNS; 4) African Cupid *Euchrysops osiris* (Hopffer, 1855) male UPS; 5) female UPS; 6) female UNS. (see P. 15).

Picture by Michael Gillett

Arabic: Bridled Terns: one of the commonest species of breeding seabird in the UAE.

Picture by Simon Aspinall

The Editorial Board of TRIBULUS and the Committee of the Emirates Natural History Group acknowledge, with thanks, the support of the Group's Corporate members, a full list of whom can be found on Page 14, without whom publication in this format would be impossible.

We also acknowledge the support and encouragement of our Patron, H.E. Sheikh Nahayan bin Mubarak Al Nahayan, the U.A.E. Minister of Higher Education and Scientific Research.

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Editorial

The debate on *ex situ* (off site) and *in situ* (on site) conservation continues as institutions throughout the world work on Millennium projects. Kew Gardens in London, for example, is developing a plan for the former by establishing a gene bank to conserve seeds in long term storage. *Ex situ* conservation is a standard strategy of all botanical gardens and zoos, whereby species are collected from the wild and brought to a synthetic location for study and breeding purposes.

Some organisations, like *Planta Europa*, are concerned with conservation of species on site by means of national parks, nature reserves or Sites of Special Scientific Interest. Kew itself does this with sites dotted around the world.

In fact, off site and on site conservation complement each other, as clearly some really threatened species can only be saved by off site means. The recent history of the Arabian Oryx is a good example on an off site followed by an on site conservation programme. The Conservatoire Botaniques Nationaux in France is particularly concerned about integrating the two strategies as far as plants are concerned.

The urgent need for on site conservation in the United Arab Emirates has been explored recently in *Tribulus*, most notably in the autumn issue of 1996, Vol. 6:2. Earlier this year, a herbarium was established at Sharjah Natural History Museum, based on collections made over the past twenty years, many of them by members of the Emirates Natural History Group. We have already stressed that the limited area of the UAE, compounded by rapid development of urbanisation, mechanised and expanding farming technology and by a huge investment in road and transport infrastructures, is putting a great strain on the capacity of this country to preserve diverse habitats for indigenous species of flora and fauna. While undoubtedly there are opportunist species that take advantage of new niches created by afforestation and the greening projects, other species are extremely vulnerable to those same influences, and may be disappearing already.

The Environmental Research and Wildlife Development Agency, ERWDA, is currently initiating research into certain species, such as turtles, where more information is needed before deciding on issues such as on site or off site conservation. As always, recording and monitoring is vital, and this aspect has always been one of the remits of the ENHG.

One creature that has not been in the limelight in the UAE in recent years is the bat, but in the mid-1990s, it seems that habitats are being extended into the country from Saudi Arabia and Oman because of the greening of the desert. Recently, ERWDA recorded seven species, but there could be others yet to be discovered.

It is interesting to recall bat recordings in old ENHG Bulletins (in pre-*Tribulus* days). In December 1986, a Naked-bellied Tomb Bat *Taphouzos nudiventris* was found dead in an old exhaust stack in the Das Island Power Station, and another the following month in Al Ghurair Centre in Dubai. In *Bulletin* 36, November 1988, Bish Brown wrote a general article on bats in the UAE, describing the two local sub orders. And in March 1990, Gary Feulner reported an unknown bat from Wadi Mayhah. Such observations and recordings help to fill in the gaps in the knowledge, and act as pointers to updated research. If any ENHG members or other readers have any bat records, please pass them on.

This issue of *Tribulus* highlights the conservation debate, with a leading article by Simon Aspinall and Peter Hellyer proposing a World Heritage Site for part of the Abu Dhabi coast and islands, arguably one of the very few areas of the UAE that has remained relatively unscathed by human pressure in recent decades.

Architecture features in *Tribulus* only rarely, so it is pleasing to see an article on a traditional building actually on Abu Dhabi island itself. No doubt most readers are surprised that any building more than fifty years old could survive in such a modern metropolis, but the old summer residence of Sheikh Shakhbut is one of but three (the others being the old fort and the tower at the Maqta bridge). Jakub Czastka, the author of the paper, makes a strong plea for the full restoration of this old building, which is near Bateen Airport.

Dr. Michael Gillett's article on butterflies continues the pioneering work of A.B. Pittaway and T.B. Larsen, both of whom worked in eastern Arabia in the late 1970s, and who have done so much to identify and classify the Lepidoptera of this region. With the increase in vegetation cover throughout the UAE, this is certainly a field that repays further scientific studies, as Dr. Gillett's discovery of species new to the area shows. He also contributes comments on lackey moths, chafer beetles and other topics to the Notes and Queries section.

Gary Feulner writes on the first recordings here of two trees, one an olive and the other a shrub of the Borage family. Just to show, by the way, that I am still recording, an unusual 'weed' has turned up this year on Das Island, presumably with a batch of garden fertiliser. According to Edinburgh Botanical Gardens, the plant, *Beta vulgaris* L. *maritima* (L.) *Arcang*, is one of only a handful of Arabian records, although it is found in scattered locations in Saudi Arabia and Qatar. It just goes to show that even in an unlikely spot in the middle of the Gulf, it pays to keep your eyes open for anything new!

A.R. WESTERN

A proposal for a Western Abu Dhabi Coast and Islands 'World Heritage Site'

Simon Aspinall & Peter Hellyer

Summary

It is proposed that much of the UAE coast and islands west from Sir Bani Yas and its satellites to the Saudi Arabian border is formally designated as a single World Heritage Site. This area holds numerous important archaeological sites and substantial populations of various Red Data species of endangered and threatened wildlife. Ecologically and culturally the area is without parallel in the UAE. Socio-economic and strategic considerations need to be included in the development of an all-embracing integrated development plan.

Introduction

The coast and islands of western Abu Dhabi are a haven for numerous endangered and vulnerable populations of mammals, turtles and birds, retaining important and largely intact marine and terrestrial communities as well as having a wealth of archaeological sites (most yet to be excavated) dating back to at least 7,000 years B.P. A summary of recent scientific findings is presented here, together with a designation proposal which fosters only non-damaging development. In the light of current increased human activities and pressure here, there is some urgency for adoption of a sustainable integrated development programme for the area.

What constitutes a 'World Heritage Site'

Much of the Abu Dhabi coast and islands has been proposed in the past as a World Heritage Site, although the original progenitor is unknown and any reference is now lost. Nonetheless the idea still stands as the area's attraction remains extant. A World Heritage Site, WHS, is a designation established under the 1972 World Heritage Convention concerning the protection of the world cultural and natural heritage. (The UAE has yet to ratify the convention). Sites are nominated for inclusion on the World Heritage List which contain areas considered of outstanding universal natural and cultural present day and/or historical value. The United Nations Educational, Scientific and Cultural Organisation, UNESCO, adjudicates on submissions received.

Following discussions in early 1996 between UAE President His Highness Sheikh Zayed bin Sultan Al Nahyan and the Secretary General of the United Nations Educational, Scientific and Cultural Organisation, UNESCO, Federico Mayor, a site of a pre-Islamic monastery complex in the Al Khor district of the island of Sir Bani Yas, is currently being evaluated for inscription on the UNESCO 'World Heritage Site' list.

This paper suggests, however, that consideration be given to the nomination of a much broader area.

Whether or not the western Abu Dhabi coast and islands are designated as a WHS or not is a moot point providing some formal mechanism is adopted that prevents its piecemeal destruction. Much has already been lost as a result of recent development, a significant amount of which has been undertaken without any thought being given to its environmental impact.

Now that the archaeology and natural history of Abu Dhabi emirate is better known and documented, the next stage is to introduce safeguards. As intimated

يقترح الكتاب أن يتم إعلان الشواطئ والجزر والمياه الواقعة بالمنطقة الغربية بأنه ظمى. مه اقع تراثية عالمية وذلك وفقاً لمقررات المؤتمر للتراث والذي نظمته اليونسكو.

above, a domestic rather than international designation would be satisfactory, providing the net result is much the same.

The area singled out easily qualifies as a Ramsar site which is a designation under the Ramsar Convention, initiated in Iran in 1971, concerned primarily with wetlands (including marine) 'especially as waterfowl habitat.' Since there is much of archaeological value in the area under discussion, designation as a World Heritage Site is that which is advocated.

The principle of the WHS is to allow non-damaging activities to continue and for potentially environmentally damaging activities to be curtailed or strictly regulated in order to minimise any adverse impact. It is realised that the strategic importance of this border zone will mean certain activities undertaken in the national interest may well be outside of restrictions introduced to safeguard the site. On the plus side, however, is the potential reduction of disturbance and other development in any security zone (see below).

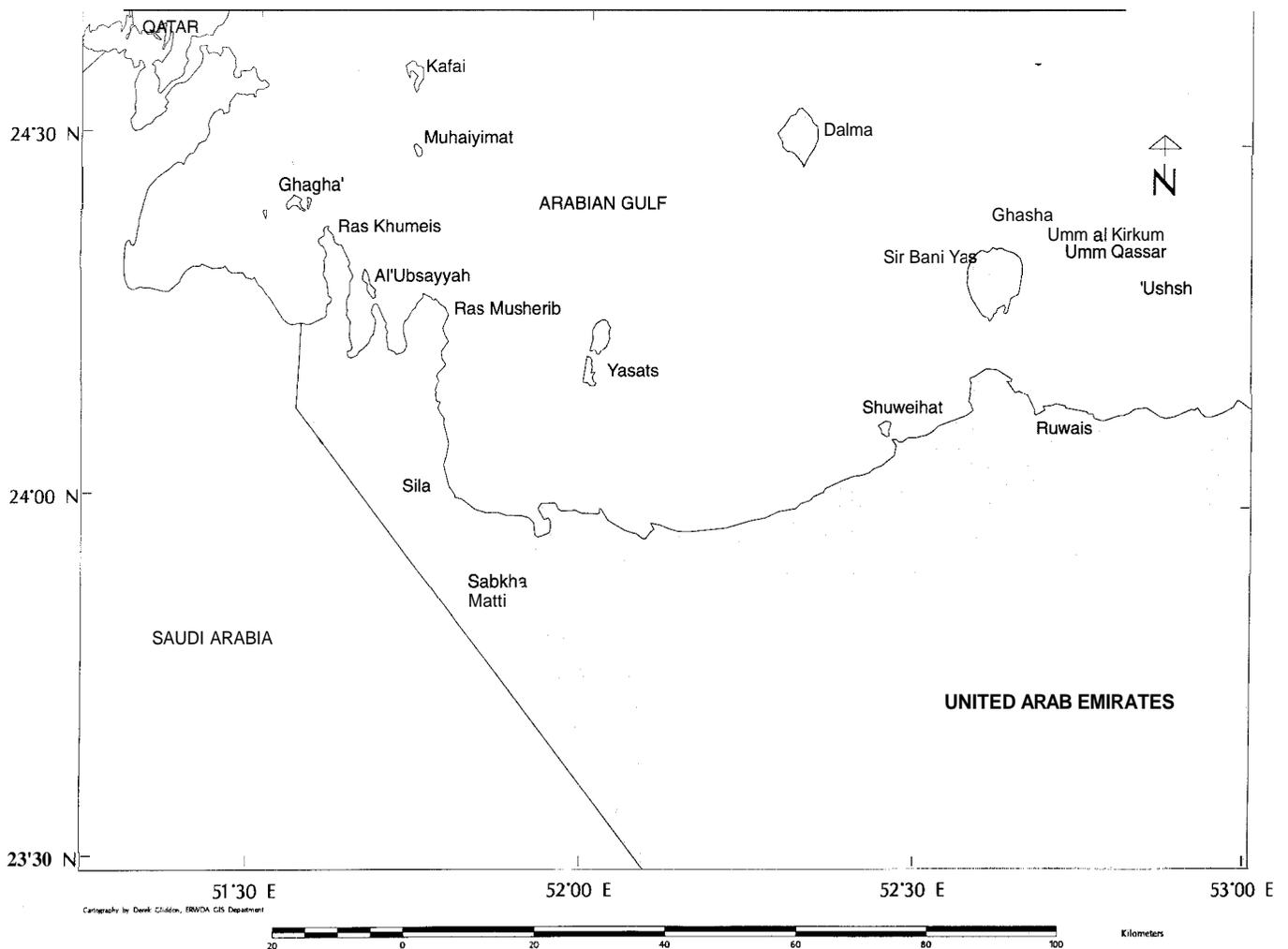
The proposed World Heritage Site (Map 1)

The map shows the area proposed for designation. Some fine tuning of boundaries and exclusion areas will be marked on a larger scale map if the proposal is accepted. There is even the possibility of the area being of a trans-frontier nature: the Meteorological & Environmental Protection Administration, MEPA, of the Kingdom of Saudi Arabia has already made calls for protection of the neighbouring waters, primarily on account of the dugong and turtle numbers present (see MEPA Technical Report No. 10 - Preen (1989)). Quite apart from the cultural and ecological importance of this area, it is also scenically attractive. The area has mostly a narrow rocky intertidal coast; the sea being for the most part shallow with abundant seagrass and coral development and numerous islands and islets present. Part of the coast is sabkha.

Research Findings

1. Geological and geomorphological studies

The geological and palaeontological history of western Abu Dhabi has been described separately, and to a considerable extent in earlier papers in *Tribulus*. Important references worth consulting, amongst others, are: Goodall (1994) - describing the development history of Sabkhat Matti; Whybrow et al. (1991) & Whybrow (1994) which give accounts of Miocene vertebrate and inverte-



nic importance of much of the area, it is necessary for some form of protection to be arranged. The related archaeology is also, of course, part and parcel of the overall picture.

The island of Shuweihat has already been earmarked for protection as a Site of Special Scientific Interest, SSSI, because of its outstanding geological and palaeontological importance, although what form this protection will take and how it will be implemented is at present unknown. A formal system needs now to be developed rather than relying on the *ad hoc* arrangements which currently exist.

2. Archaeological significance

Surveys and excavations carried out since 1991 by the Abu Dhabi Islands Archaeological Survey have already identified sites of very substantial significance on a number of the islands contained within the proposed area of the World Heritage Site.

The Ghagha' archipelago contains sites, as yet unexcavated, from the Late Stone Age and the First Millennium AD, as does the nearby island of Al Ufsaiyyah.

The island of Dalma has a site dating back to the 'Ubaid period, around 6,500 - 7,000 BP, which is not only the earliest settlement yet identified in the United Arab Emirates, but is also the largest site of the period known anywhere in eastern and south eastern Arabia.

On the island of Sir Bani Yas, a pre-Islamic monastic settlement has been identified, and partially excavated. Dating to the Sixth and Seventh Centuries AD, it is the largest site of its type known anywhere in eastern Arabia,

and offers important evidence of the belief prevailing in the Emirates before the coming of Islam.

The twin islands of Yasat al Ulya and Yasat Sufia have extensive evidence of occupation from the early First Millennium AD onwards, as yet unexcavated, while other archaeological sites have been identified both on other islands, such as Muhaiyimat, and on the Sila'a peninsula on the mainland.

An outline of some of the archaeological work can be found in earlier papers in *Tribulus*, (see Bibliography), while an overview of the work of the Abu Dhabi Islands Archaeological Survey is soon to be published elsewhere, (Hellyer, in prep.).

3. Wildlife importance

a. Marine mammals

A population of Dugong *Dugong dugon* still survives in the area around Ghagha and the Ras Ghumeis peninsula west of Sila'a. It is of unknown size but as our rarest regularly occurring marine mammal (and being considered globally 'endangered*') requires both safeguarding and further study. Individuals are still accidentally trapped by fishermen (3 reported drowned in nets here in the eighteen months up to September 1996) and 2 reported dead on the Yasat Islands and another on nearby Na'itah in March 1997. Apart from Dugong, there are large, apparently healthy, populations of both Bottlenosed Dolphin *Tursiops truncatus* and Indo-Pacific Humpback Dolphins *Sousa chinensis*, these being 'vulnerable' and 'near-threatened' respectively. The Ghagha'/Ghumeis area is once again a local hot spot. Re-

cently, two corpses of Finless Porpoise *Neophocaena phocaenoides* have been collected near Sila'a. This very poorly known cetacean is regarded as 'critically endangered' by the World Conservation Union, IUCN. 'IUCN' categories are defined in the appendix.

b. Marine reptiles (turtles)

Breeding populations of the 'vulnerable' Green Turtle *Chelonia mydas* are known from several of the islands, for example Muhaiyimat, 'Ushsh and Yasat al Ulya. Only provisional population estimates are available and once again further study is needed. Numbers appear, however, to be low, with fewer than ten or twenty nest pits in any one site (some islands may now be abandoned as nesting sites). Harvesting of eggs continues illegally in many sites; some adults are also accidentally or deliberately netted, again illegally. The large quantity of plastics and other litter washed up on many nesting beaches is physically preventing turtles from coming ashore to lay their eggs. Very little is known regarding the occurrence or abundance of the other species of turtle known to frequent this area. Most, however, are pelagic to a greater degree than Green Turtle and thus are found more often around the outer isles, although much less often recorded or reported.

c. Other marine flora and fauna

Seagrass beds and coral communities are known from many sites (see Scott 1996). Pristine examples of coral exist around many of the smaller islands, although dredging and perhaps other activities (e.g. sewage discharge) is adversely affecting some areas. This and other threats are likely to increase. Seagrass is possibly restricted to the Ghagha' area & around Yasat, hence the presence of Dugong, although this is partly inferred and in need of confirmation. For most lower forms, e.g. algae, nudibranches etc., documentation is rather sparse or limited, certainly so within UAE waters (and in English). Even vertebrates are little studied; seasnakes, for example, despite being relatively abundant, remain poorly known in western Abu Dhabi waters. Sheppard et al. 1992 gives a useful overview for the (Arabian) region but there is clearly a great need for concerted scientific study of the UAE's marine environment, beginning with adequate mapping of major ecosystems and submarine communities.

d. Birds

Birds are easily the best known of all the taxonomic groups. Most areas have been surveyed for breeding birds at least once in the last three years; wintering and visiting populations are less well documented. The Arabian Gulf islands support internationally important seabird colonies, and in this the Abu Dhabi islands are no exception. In this single area under description here are: 16,300+ pairs of Bridled Tern *Sterna anaethetus*; 11,350 pairs of White-cheeked Tern *S. repressa*; c4,500 pairs of Lesser-crested Tern *S. benghalensis*, 35 pairs of Sooty Falcon *Falco concolor*; over 40 pairs of Osprey *Pandion haliaetus* and c. 7,500 pairs of Socotra Cormorant *Phalacrocorax nigrogularis*. All species named here are on the Red Data List for the UAE (Hornby & Aspinall 1996), with Socotra Cormorant being regarded as 'globally' threatened.

e. Fish

The UAE Ministry of Agriculture and Fisheries has a continuing research programme concerning commercial fish and fisheries. Reef fish remain, very largely, the domain of divers and academics. Nonetheless one major key to the success of the World Heritage Site proposal is that it should provide for the fisheries (stocks and

spawning areas etc) to be protected, in order to allow continued exploitation and even increase the level of the sustainable harvest. The introduction of artificial reefs would be one way of improving yields. Much greater attention and applied research should be focussed on these and other aspects e.g. prevention of accidental netting of dugong.

Present day socio-economics

Commercial fishing fleets operate out of Dalma and Sila'a, with one or more dhows operating out of other ports or entering these waters from ports outside the area. There is no doubt that fisheries play an important socio-economic role providing employment and highly valuable fish such as the much sought after Hamour (Brown-spotted Grouper) *Epinephelus tauvina*.

Waters within an ill-defined area adjacent to the island of Sir Bani Yas have been declared off-limits to commercial fishermen for several years and there has apparently been a noticeable increase in the level of fish stocks (Ghassan *Al Ghussein*, pers. comm.).

The westernmost part of the area from Ghagha' north through Muhaiyimat to Kafai marks the UAE maritime border with Saudi Arabia and Qatar. Designation of areas on both sides of this maritime border as conservation areas, as already proposed by Saudi Arabia for its portion of the sea, may prove to be desirable.

Most development e.g. of housing, afforestation and so on is taking place on the mainland, around Sila'a and westwards toward the land border with Saudi Arabia. This is unlikely to be influenced or affected in any way by WHS designation. Oil and gas exploration and exploitation have considerable potential for an adverse environmental impact but fortunately the main operating company, ADNOC and its partners, employ the most stringent operational and technological safeguards and planning regulations and restrictions as well as undertaking thorough environmental assessment prior to development.

Geological surveys in the onshore areas adjacent to the proposed World Heritage Site over the past 45 years have not identified any significant hydrocarbon prospects, at least within the territory of the UAE. In plans for development of its Shaybah (Zarrarah) field south of the UAE, Saudi Arabia has opted for a pipeline route direct to the main eastern Saudi Arabian terminal north-west of Qatar, and has rejected a proposal for a pipeline, with associated terminal development, in the Khor Duwain, immediately to the west of UAE territory and adjoining the area proposed for the WHS.

Thus it currently seems unlikely that oil field development will impinge significantly upon the area, except, possibly, for the development of offshore fields.

Why a World Heritage Site?

The wildlife importance of many sites within the area proposed here have been documented in two internationally accredited works, namely, Evans (1994) & Scott (1995) and in official documents of the Federal Environmental Agency, in UAE journals, press and other works e.g. Anon (1994), Aspinall (1996a) & Baldwin (1995). Similarly, the results of archaeological and palaeontological examination to date have been published e.g. Hellyer (1993); King & Hellyer (1994); Whybrow et al. (1991). Based on historic and the most recent findings the boundary of the proposed WHS has been drawn to encompass, for example, previously unsurveyed islands when important biological or archaeological material is present, or sites previously recommended for protection but falling in another adjacent or nearby area. Thus the

presently proposed boundary incorporates part of two areas from the major inventory the 'Directory of Important Wetlands' in the Middle East, (three if Dalma is included). Four 'Important Bird Areas' (see Evans 1994) are recognised within this area, Yasat al Ulya, Dalma, Ghagha' and the satellite islands of Sir Bani Yas, although two other islands, Umm Al Hatab and Muhayimat would both have easily qualified for inclusion had data been available at the time of publication of that important work.

Housed in this one, admittedly large, area is the UAE's entire breeding population of Sooty Falcon *Falco concolor* (70% of those in the Arabian Gulf); >60% of the UAE's Ospreys *Pandion haliaetus* (c. 50% of those in the Gulf); close to 40 and 50% respectively of the national populations of Bridled Tern *Sterna anaethetus* and White-cheeked Tern *S. repressa* and 20% of both Lesser-crested Tern *S. bergii* and Socotra Cormorant *Phalacrocorax nigrogularis*. As stated earlier, all of these are formally recognised Red Data species of the UAE. The biogeographical significance of these populations is described in Aspinall (1996b). The area is of some importance for wintering and passage waterfowl and other species, but this field needs more attention.

Despite some degree of subjectivity in the IUCN Red Data species categories definition, and a degree of data deficiency especially regarding abundance and trends, there is already more than enough to satisfy even the most doubting mind that the area described is of the highest calibre, thus meriting designation as a World Heritage Site. If not that, then something approaching it is still required. Such a designation would contribute to the recognition of the cultural and social values and ecological uses of the area in the planning, development and policy-making process.

Any designation should involve the preparation of a detailed development plan, which identifies such activities as may be considered not to be damaging to the integrity of the WHS. These could include, for example, the preparation of a 'heritage trail,' including sites to visit, while there may also be some potential for the development of restricted amounts of tourism, particularly for UAE nationals, the people most likely to have access to boats in this area.

The importance of securing an appropriate designation for the area is underlined by the fact that parts of the area, and of its wildlife and archaeology, are already under threat from a variety of quarters. These include dredging, reclamation, development & disturbance, pollution, over-exploitation, the introduction of ground predators to islands and the proliferation of alien species. Action is needed rapidly to safeguard what is left. Once this position is consolidated then it is hoped that depressed populations may recover. Restoration of some seabird colonies, in particular, is one further goal. The cultural importance of the western Abu Dhabi coast and islands, in terms of the history of the country's people, is arguably greater than that of the wildlife although clearly they are not strictly comparable. Thus the proposal for protection is all-encompassing, hence the title heritage, and the suggestion that designation as a World Heritage Site is the most appropriate.

While further scientific research in the area is required, sufficient is already known to make its significance clear. It is to be hoped that the proposal will attract the necessary national and international support, in order to safeguard the archaeology, marine environment and wildlife that this important part of the United Arab Emi-

rates contains.

Acknowledgements

The authors acknowledge, with thanks, the assistance of Mohammed Al Bowardi, General Manager of the Office of HH Sheikh Mohammed bin Zayed Al Nahyan and Managing Director of the Environmental Research and Wildlife Development Agency, ERWDA, in facilitating visits both by the authors and by staff of the Abu Dhabi Islands Archaeological Survey, to many of the islands encompassed within the proposed World Heritage Site. They further acknowledge suggestions made in conversations with the UNESCO evaluation mission that visited the UAE in March/April 1997, Professor Mohammed Ayyad, Daniel Droccourt and Myriame Morel.

The proposals contained in the paper are, however, the sole responsibility of the authors.

References

- Anon (1994). The Biological Diversity of the United Arab Emirates. UAE Federal Environmental Agency submission to IUCN/GCC Biodiversity Workshop, Kuwait, September 1994.
- Aspinall, S.J. (1996a). Time for a protected area network in the UAE. *Tribulus* 6.1:5-9.
- Aspinall, S.J. (1996b). Status and Conservation of the Breeding Birds of the United Arab Emirates. Hobby, Dubai.
- Baldwin, R. (1995). Whales and Dolphins of the United Arab Emirates. Published privately.
- Evans, M.I. (1994). Important Bird Areas of the Middle East. BirdLife International.
- Goodall, T. (1994). The Sabkhat Matti - a forgotten wadi system? *Tribulus* 4.2:10-13.
- Hellyer, P. (1993). New discoveries on Dalma and Sir Bani Yas. *Tribulus* 4.2:5-7.
- Hellyer, P. (1997). Filling In The Blanks. In prep.
- Hornby, R. 1996. A Red List of Mammals for the UAE. *Tribulus* 6.1:13-14.
- Hornby R. & Aspinall S. (1996). Red Data List for Birds of the UAE. *Tribulus* 6.2: 13-17
- Preen, A. (1989). Dugongs: Status and conservation in the Arabian region. Coastal and Marine Management Series, Technical Report No. 10 (Vol.2) MEPA, Jeddah.
- Scott, D.A. (1995). A Directory of Wetlands in the Middle East. IUCN/IWRB.
- Sheppard, C., Price, A. & Roberts, C. (1992). Marine ecology of the Arabian Region. Patterns and processes in extreme tropical environments. Academic Press, London.
- Whybrow, P.J. (1994). Palaeontological Studies in the Western Region of Abu Dhabi. *Tribulus* 2.1:20.
- Whybrow, P.J.; Hill, A. & Al Tikriti, W.Y. (1991). Miocene fossils from Abu Dhabi. *Tribulus* 1.1:4-9.

APPENDIX

IUCN Red List categories and definitions

Critically Endangered: A taxon is considered critically endangered when it is facing an extremely high risk of extinction in the wild in the immediate future; **Endangered:** when a taxon is facing a very high risk of extinction in the wild in the near future; **Vulnerable:** when a taxon is facing a high risk of extinction in the wild in the medium-term future & **Near-threatened:** when a taxon is close to qualifying as vulnerable.

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Traditional Architecture of Abu Dhabi: The Summer House of Sheikh Shakhbut

by Jakub Czastka

Introduction

The island of Abu Dhabi, in its modern setting, has few monuments to its long and eventful history. The architecture of the 'arish, coral or stone built house has long since been superseded by that of the modern high rise. This change has gone hand-in-hand with that of a shift in the economic base of the Emirate. Forty or so years ago, the inhabitants of the islands and coastline of Abu Dhabi were mainly participants in a subsistence economy based on the bounty of the Gulf waters, namely fishing and pearling. Today, the economic base revolves around the bounty of the Emirate's oil and gas reserves. If one is fortunate enough to travel amongst the islands of Abu Dhabi, one can still catch glimpses of traditional architectural forms, from the sophisticated examples of the Pearl Merchant's House and Mosques on Dalma, to the simple but perfectly adapted wooden and stone domestic and religious structures on islands such as Merawah.

There remains, however, a single, but little known, example of traditional domestic architecture on the island of Abu Dhabi, between the Eastern Corniche road and Bateen Airport.

Most inhabitants of Abu Dhabi island are familiar with two architectural reminders of Abu Dhabi's past: the Watch Tower by the Maqta Bridge and the Old Fort (Qasr *al Hisn*), adjacent to the Cultural Foundation. Both these structures date from a time when life was very much less secure, as their defensive nature attests. But what of domestic architecture and everyday life? For a rare glimpse into this we must look to the Summer House of Abu Dhabi's former Ruler, Sheikh Shakhbut bin Sultan Al Nahyan.

The building remained little known until recently, since it lay within the security perimeter of Bateen Airport, and, consequently, could neither be seen by, nor visited by, members of the general public. As a result of the shrinking of the perimeter to permit the construction of the Eastern Corniche, however, the building became more easily visible, and both its survival and its significance was recognised by the Abu Dhabi Islands Archaeological Survey.

Location

The structure sits isolated, elevated by a metre or so, above the surrounding terrain on an outcrop of consolidated sandstone that once formed part of an elevated coastal ridge prior to recent land levelling. To the north east is the modern Eastern Corniche, to the south west the airport. Prior to the construction of the Bateen Airport, the building overlooked coastal bays with mangroves to the north east. Until very recently, scatters of oyster shells could still be identified below the building, in some cases accompanied by scatters of Late Islamic pottery, although these have now been covered by landfill. (P. Hellyer, pers. comm.).

تقدم الصحيفة وصفاً لفن العمارة التقليدية من خلال أحد المباني التراثية القليلة المتبقية بأبوظبي، وهو البيت الصيفي للشيخ شخبوط بن سلطان آل نهيان بقرب المقطع.

Today the shoreline has migrated several hundred metres to the north, and the old shoreline, visible until 1995, has disappeared.

Description

The building was identified to ADIAS by Sheikh Nahyan bin Mubarak Al Nahyan as a Summer House used by Sheikh Shakhbut and his family. It is a building consisting of three separate rooms, entered from doorways on the north side, which also opened onto a covered veranda, now gone (*Fig. 1*). Unfortunately, there are no direct exposures of the actual foundations of the structure. However, a low wall (the number of courses of which are obscured by rubble and sand deposits) runs the complete outline of the building (see *Fig. 1*: the unfilled line) and probably represents a foundation wall. All the subsequent columns and walls are built directly on top of this wall.

The building is a maximum of 19m long by 3.75m wide, where the walls stand on average to a height of 2.5m, moving up to 3m at the east and west facing walls (representing coursing which would have been laid over the walls and roof supports). Each room is approximately 6m long, while the thickness of the walls and columns is in the range of 0.40-0.45m.

None of the rooms are adjoining, all are separated by off-set columns placed perpendicular to the main walls (*Fig. 2a*) and roughly equidistant from the eastern- and western-most facing walls. Two of the doorways (to the easternmost rooms) are clearly distinguished because all other gaps between the columns have the upper half of their length blocked by plastered beachrock panels supported on wooden palm trunk lintels, both on the north and south facing walls. This is augmented by the fact the outward facing corners of these 'doorways' have been squared off by plaster as if to allow a large panel or doorway to be placed there. No grooves, however, are apparent at the top or bottom of these squared plaster corners from which permanent wooden door hinges could be placed, although this may be a product of poor preservation (only part of the plaster

work on these corners still survives).

The westernmost room is in the poorest condition, and presents a problem regarding the identification of the entrance (Fig. 2b). The columns at the south western corner of the room have fallen leaving only the bases, whilst the north facing wall columns are clearly unstable, visibly leaning southwards. Of the four gaps between the columns, only the easternmost example is blocked, by a wooden lintel supporting beachrock panels. The other three are open, with only recessed ruts either side of these gaps immediately below the upper door-frame lintels, some seven to eight centimetres square (not that both the other room's doorways have these squared recesses just below the door-frame lintel). The function of these recesses is probably similar to that of examples from summer houses in the mountains of Ras Al Khaimah where these recesses support-

ed the upper frame of the actual doorway and secured the door frame to the columns, the gap between these and the next lintel being left open to allow air to circulate (see for example Photo 4, p 53 in Dostal, 1983).

In addition to the room, the structure once exhibited a covered veranda on the north side. Although no longer clearly visible today, it reveals itself through several clues. Firstly, there is the fact that the north facing wall at its east and west ends has the remnants of a platform projecting some 2m outwards, although this platform is obscured within the central area. Secondly, the north facing columns have small recesses placed c.0.30m down from the top of the walls, all plaster lined, c.0.06-0.08m square (not present on the south facing wall). These were almost certainly placed there so wooden supports could be suspended from these recesses, allowing for roofing to be overlaid. Following on

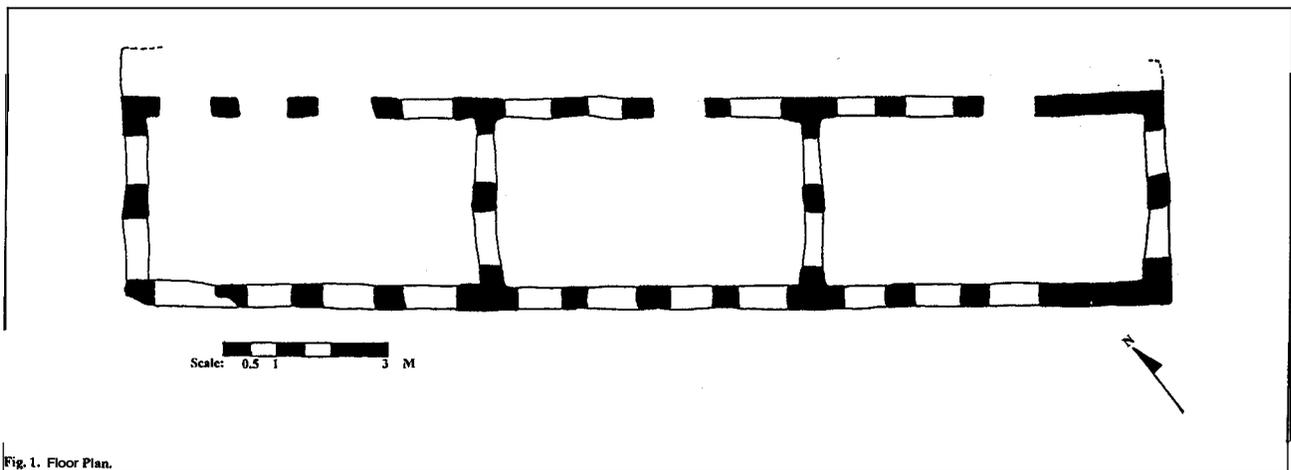


Fig. 1. Floor Plan.

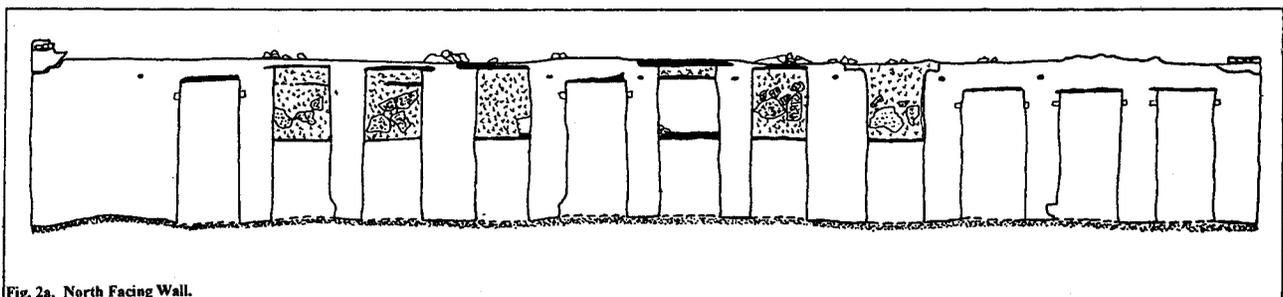
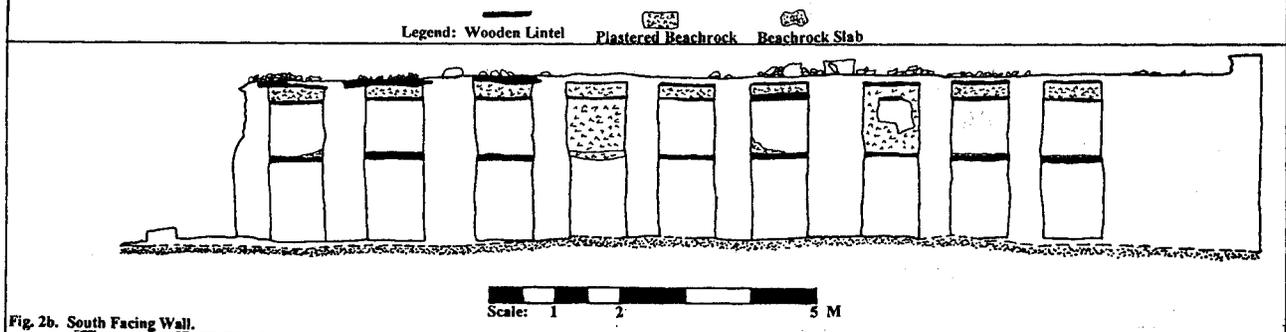


Fig. 2a. North Facing Wall.



from this is the observation that several fallen columns are found on the north facing side. All look as if they fell leaning towards the south, besides which there is no evidence that these columns were part of an additional room, suggesting these columns supported the wooden supports projecting from the still standing north facing wall. The north facing placement of a veranda would have made optimal use of the prevailing north to north westerly winds.

The standing walls and columns are constructed of roughly hewn blocks of sandstone coursing. These blocks form the face of the walls and the edges of the columns which have been 'squared' by using larger, more regular blocks. The facing and squaring blocks vary between 0.11-0.22m in length and 0.11-0.15m in width. The core of the walls and columns can be described as a rubble one, since far smaller and more irregular blocks are used, 0.05-0.10m long and wide. This primary constructional method reveals a line of blocks, regular on the outside, moving towards irregular and smaller forms within the core, perched on top of a light buff brown mortar.

All columns are free standing and are built directly on top of a 'foundation' wall running around the outline of the building. They stand to a height of c.2.5m, varying in width between 0.8-0.5m. These columns are linked together by wooden lintels placed on top of the coursing which was subsequently plastered. The only areas which can be described as walls are found at the corners of the building; except the south western one where this has fallen down. These walls square off the corners of the building and act as the first recipients of abutting lintels linking columns.

The mortar (or plaster) is an aggregate of ground gypsum and medium coarse sand acting as the basic matrix, plus very frequent inclusions of gypsum flecks through to fragments, with occasional medium to small fragments of charcoal. This mortar acts both as a foundation upon which blocks are placed, as well as a capping deposit upon which other courses are laid. The joints between blocks are very irregular in thickness, varying between 5-45 millimetres. Where it is still visible, the face of the walls and the coursing was evenly rendered with plaster. Courses are between 0.14-0.18m in thickness (measured from the base of the underlying plaster to the base of the overlying plaster).

At least two, or more usually three, wooden lintels are set directly into (and between) the walls of the columns at various heights. These occur mid-way up the columns on non-doorway columns, roughly 1.10m from the base of the columns. All gaps between columns have lintels at 0.40m below the top of the column walls, as well as overlying the columns at the very top. These uppermost lintels are directly overlain by plaster, over which the roofing is laid (see below). The wood used for these lintels is palm trunks sawed into fairly regular forms, usually 1.5m long by 0.12 metres wide. To allow for the thickness of the columns, three lintels are usually laid adjacent to one another, the overhang into the walls being incorporated into the coursing.

The lintels placed roughly halfway up the length of the columns all had beachrock panels set up between them and the next set of lintels above, although not all have

survived. These beachrock panels consist of four or five beachrock slabs selected for a close fit, filling a space c.0.90 by 0.80m. These slabs were bonded by gypsiferous plaster, later rendered by the same plaster, both on the inner and outer face. The gap between the bottom of this supporting lintel and the coursing running along the base of the columns seems to have been left open since no evidence exists of any constructional features to suggest any lining or panelling. However, the fact that these gaps may at one time have been lined with some form of cover cannot be discounted. Further north, in Ras Al Khaimah, summer houses are known to have had such open panels, but in reverse. Here, the lower part of these "windows are covered with a lattice-like wickerwork of sticks of date-palm branches above which further large, rectangular or square spaces are left in the walls (Dostal, 1983; p. 24)." This form of open construction allowed for the circulation of cooling winds during the hot summer months.

Only the east facing wall has any evidence of roof construction. This consists of a split bamboo frame (c.35 millimetres wide) laid in a criss-cross lattice pattern, over which a closely woven palm mat was laid. This roofing was laid directly over the uppermost plastered wooden lintels adjoining the columns and subsequently overlain by a coursing of rough hewn sandstone blocks, which was again plastered. This overlying coursing is only clearly visible at the east facing wall, although other areas of the columns and walls still show the remains of this roof coursing in the form of rubble.

Discussion

The structure as a whole is in need of urgent repairs to most areas. At the request of Sheikh Abdulla bin Zayed Al Nahyan, Minister of Information and Culture, an architectural / archaeological report on the building has been prepared by the author, on behalf of the Abu Dhabi Islands Archaeological Survey, for submission to the Abu Dhabi Municipality, which is responsible for the area in which the building is situated. The intention is that the building should be restored, although at the time of writing, work, other than a fencing of the site, had not been commenced.

The full extent of the distribution and the architectural variety of buildings on the island of Abu Dhabi from the pre-oil era is currently visible only through an examination of old photographs, which date primarily to the period from the 1940s to the 1960s. The fact that the Summer House of Sheikh Shakhbut is one of only three such buildings left on the island, (the others being the Maqta Tower and the Qasr al Hisn), is, alone, sufficient to justify its preservation.

References

Dostal, W. 1983. *The Traditional Architecture of Ras al Khaimah (North)*. Wiesbaden: Reichart.

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First observations of *Olea cf. europaea* (the Wild Olive) and *Ehretia obtusifolia* in the United Arab Emirates

by Gary R. Feulner

Two large plant species not previously known to occur naturally in the UAE have recently been found growing near the summits of high ridges on the East Coast. They are the wild olive tree, *Olea cf. europaea* [1], and *Ehretia obtusifolia*, a large shrub representing the borage family (Boraginaceae, which includes the genus *Heliotropium* among others) and a genus known primarily from the Old World tropics.

Both species have so far been found in the wild in the UAE only in the mountains south and west of Fujairah, where the tops of the tallest ridges slightly exceed 1000 metres. In this area most ridges trend E-W or SE-NW and the two species are restricted to ravines on moderate to steep north or northeast facing slopes at elevations above about 900 meters. Within these localities, however, the wild olive is the predominant large plant. The adjacent flatter ridgetops and the upper south facing slopes are barren of all trees, although there is generally no obvious difference in the topography of the southern slopes. A number of factors might account for this distribution, including greater protection from sunlight, wind, and soil desiccation on north facing slopes, as well as greater humidity on the slopes facing the Gulf of Oman. On one visit to these ridges, the author found the NE slopes enveloped in clouds rising from the coast, while the SW slopes were clear and swept by a westerly wind.

E. obtusifolia has been observed at only a single site in the UAE, near the summit of Jebel Qitab (c.1000m), where approximately a dozen specimens can be found. Several of these appear to have grown up in the shelter of larger olive trees. The largest *E. obtusifolia* is approximately two metres tall and was in flower in November 1994. A number of specimens had very sparse leaves and did not appear to be in 'good health' in January 1996, but the cause is unknown. Feral donkeys and goats are present in this area but browsing seems insufficient to explain the almost complete absence of leaves on some specimens.

The wild olive is found in association with *E. obtusifolia* at the summit of Jebel Qitab, but its range is more extensive and it has also been observed as much as 12 km to the northwest above Wadi Al-Iyeli, overlooking what is said to be the UAE's highest permanent village near Najd al-Abyad. At each of these localities approximately two dozen specimens are present in several adjacent ravines, and observations suggest that limited numbers are present in the intervening area. The largest individuals are almost four metres tall. The only other large plant in these localities is *Dodonaea*, which is common as a 1 to 1-1/2 metre shrub. Both *D. viscosa* and *D. angustifolia* are recognized in Eastern Arabia [2] but are not distinguished by the author.

The leaves of the wild olive are eaten by feral donkeys and/or goats, to which the tree responds by producing thin woody spikes and smaller, rounder, darker leaves on branches subject to browsing. The fruit of the wild

نوعان جديدان من النباتات، أحدهما الزيتون البري، وهي تنمو في
جبال حجر.

olive ripens from pale green to dark blue-black, and when ripe it has about the size and appearance of a slightly elongated blueberry. The fruit is suspected to be responsible for dark blue stains observed in bird faeces in the vicinity of fruiting trees.

Both the wild olive and *E. obtusifolia* are known to occur in the Jebel Akhdar region of Oman, which includes peaks up to 3000 metres. *E. obtusifolia* has been reported as a shrub reaching a height of two metres along water channels in plateau areas [3]. The wild olive is a major component of the floral community of the Jebel Akhdar between c.1300-2300 metres [4]. There it is known locally in Arabic as 'utm. It may form significant woodlands in protected wadis or ravines, but it is also known from plateau environments. Individual specimens may reach great age, and the author has observed trunks more than 30 cm in diameter. James Mandaville reports that in Oman the wild olive is not eaten but was used to make poultices to treat livestock sores and wounds [5]. Mandaville identified this olive as *O. africana* but more recent studies in Oman (and in the 'Asir region of Saudi Arabia) have instead recognized *O. europaea* [6].

The wild olive is also a common constituent of mountain vegetation in the Eastern Mediterranean (or was, prior to deforestation by humans -- it is mentioned in the poetry of Homer) as well as in the mountains of Iran and in the western Himalayas (possibly represented in the latter areas by a congeneric species or subspecies) [7]. This pattern of distribution is consistent with the well documented observation that the mountain flora of Eastern Arabia (i.e., the Hajar Mountains of the UAE and Oman) has close affinities with the flora of Iran and Central Asia, whereas the lowland flora shows greater affinity with African species [8]. Unlike the majority of shared mountain species, however, the wild olive has been recognized as an African species (it remains common in the mountains of South Arabia, including Yemen and the 'Asir) and is thought to have moved from Arabia to Asia [9]. *O. africana* has previously been reported to exist in the UAE as an ornamental plant, but specific examples are not currently known to the author or other knowledgeable local naturalists [10].

Altitude appears to be a limiting factor for both the olive and *E. obtusifolia* in the wild, and the isolated distribution of the UAE populations of these species may be largely explained by the fact that most of the surrounding peaks are not high enough. To the north and west of Wadi Al-Iyeli, the summits are generally below 900 metres and they also tend to form isolated peaks and nar-

row aretes rather than broad ridges. The hypothesis of control by altitude is supported by the fact that both the wild olive and *E. obtusifolia* are now known to occur at various high altitude locations between the Jebel Akhdar and the UAE occurrences. At the summit of Jebel Ghaweel (1131m), on the mountain front east of Al-Hayer, both species are present and 2-1/2 metre tree-like specimens of *E. obtusifolia* were in bud in November 1995. The wild olive is the dominant tree within the summit area of Jebel Muqayleet (1640m), east of Al-Ain, where it may reach heights of up to 6 metres in protected ravines. It was observed in fruit there in mid-October 1995.

Observations made in pursuit of this inquiry confirm that both species are also present at elevations above about 900 metres in the central Hajar Mountains, south of the UAE border at Hatta. Here the wild olive was by far the most abundant tree at higher elevations, and it is suggested that this is the general rule, but owing to the difficulty of ascents in this region, where summits exceed 1400 metres, it remains poorly explored. Both species tend to be concentrated in rocky ravines but, at least at higher elevations, the olive is not restricted to north facing slopes. *Ehretia obtusifolia* was seen as trees up to three metres, but only a half dozen specimens were seen and it must be considered uncommon. Curiously, both species appear to be absent from the slopes of Jebel Hatta (1311m), which otherwise appears to represent a suitable habitat within the borders of the UAE.

Geology per se does not appear to play a significant role in distribution, since both the wild olive and *E. obtusifolia* are found in the Jebel Akhdar on massive carbonates (limestones and dolomites), in the UAE on gabbro (a coarse-grained igneous rock of basaltic composition that is part of the ophiolite suite), and in most of the intervening area on serpentinized peridotite (altered igneous rock from the earth's mantle, the principal constituent of the ophiolite suite). The wild olives at Jebel Muqayleet are also found on gabbro, but at Jebel Ghaweel they are found on reef limestone and *E. obtusifolia* is found on limestone detritus over volcanic bedrock.

With respect to the wild olive, its broader regional distribution and its occurrence in the UAE at the margin of its customary altitude range make it likely that the UAE specimens and the populations in northern Oman are relicts rather than colonisers. This is perhaps consistent with the fact that the region is at present thought to be experiencing an era of relatively dry climate. The known occurrences of both the wild olive and *E. obtusifolia* in these areas are geographically discontinuous but locally coherent, which suggests that the individual populations are probably self-propagating. Conversely, no examples are yet known of isolated individual specimens requiring an explanation by long distance dispersal. One may question, however, the long term ability of these species to sustain populations at sites such as Jebel Ghaweel, where the number of individuals is very small. Only three wild olive trees were observed there, all in the shelter of large outcrops at the very summit, and the single grove of *E. obtusifolia* appears to consist of fewer than 10 individuals. Likewise on Jebel Jabsah, west of Fujairah, only two adjacent specimens of wild olive were observed.

Few discoveries fail to provoke further questions, and

so it is with the discovery of wild olive trees in the UAE. If one accepts the recognized affinity between the Eurasian and South Arabian distribution of the wild olive and its occurrence in the mountains of the UAE, the central Hajar Mountains and the Jebel Akhdar, and acknowledges control by altitude, the question must then be asked why the wild olive appears to be completely absent from the intervening Ru'us Al-Jibal (the high peaks of the Musandam Peninsula), where the elevations (up to 2000m) and geology (massive limestones and dolomites) are notoriously similar to the Jebel Akhdar. Despite extensive travel on foot throughout the Ru'us Al-Jibal, the author has never observed the wild olive there. It may be that rainfall in the Ru'us Al-Jibal is deficient relative to the Jebel Akhdar, or perhaps in particular that the summer drought is more severe in the Ru'us Al-Jibal. A comparison of reliable precipitation records might be instructive in this regard. In neither area, however, did there exist year-round village settlement at high altitudes in historical times [11], and this is presumably related in both cases to the insufficient water supply.

Another possible explanation is deforestation of the wild olive by domestic animals or humans occupying seasonal settlements in the Ru'us Al-Jibal. Several factors seem to make this explanation unlikely. First, evident browsing by feral and domestic animals does not seem to threaten the present day survival of the wild olive in the Jebel Akhdar. Second, it seems improbable that human inhabitants would have selectively eliminated the wild olive, which can be eaten by livestock, when they have selectively preserved and cultivated the edible fig, *Ficus carica*, and the sidr tree, *Zizyphus spina-cristi*, valuable both for its berries and as a source of lumber through coppicing. Third, seasonal habitation of the mountains is almost certainly more ancient in the Jebel Akhdar than in the Ru'us Al-Jibal, where the oldest settlement is estimated to be no more than several hundred years [12], so that if humans were responsible for the demise of the wild olive, we should expect to see a similar or greater effect in the Jebel Akhdar.

It is at least possible, however, that cultural differences between the Jebel Akhdar and the Shihuh tribes of the Ru'us Al-Jibal may have played a role in the demise of the wild olive in the latter region. In fact, the wild olive tree is well known to present-day Shihuh residents of the Ru'us Al-Jibal by the name 'utm (or 'itm), the same name used in the Jebel Akhdar [13]. According to Shihuh tradition, the wood of the 'itm protects the bearer against the *jinn* and evil spirits. For this reason, it is well-known even to younger individuals who admit they have never seen such a tree, and it is considered, at least in theory, the material most preferred for making the handle of the trademark Shihuh axe, the *jirz*. This permits the speculation that selective human cropping could have put significant pressure on this species, although the Shihuh seem generally to have been adapted to conserving scarce resources. On the other hand, this could be an example of a belief that has travelled farther than its cultural and environmental referents [14]. The numbers of olive trees present (if any) at the time of Shihuh settlement cannot be known, but it seems unlikely to have been very large and must have been substantially depleted even before the modern era. Older Shihuh residents of the Ru'us Al-Jibal cannot identify loca-

tions where the wild olive can be found, and believe that only "one or two" now exist[15]. Recent accounts uniformly refer to the almond (*Amygdalus arabicus*, locally called *mizi*) as the wood traditionally used for the handle of the *jirz* [16].

It should be noted that both the wild olive and *E. obtusifolia* were unknown to the author (who is not a trained botanist) when first observed in 1994. Thanks are due to Benno Boer, a botanist and habitat specialist at the National Avian Research Center, for suggesting the identification of the wild olive from photographs, based on his own field experience. Samples and photographs permitted confident identification of both species from Mandaville's Wild Flowers of Northern Oman (see references), and the author subsequently observed and compared undoubted *O. europaea* in the Jebel Akhdar. Identification of *E. obtusifolia* was greatly facilitated by the fact that specimens had been seen both in bud and in flower.

[Postscript: Following inspection of the author's photographs in connection with discussion of a draft of this paper, Benno Boer has reported a 1996 observation of a single tree-like specimen of probable *E. obtusifolia*, recognized at the time only as a member of the boraginaceae family, in Wadi Khabb Shamsi, at a relatively low altitude in the Ru'us Al-Jibal of Oman [17]. This leaves open the possibility that specimens of the wild olive could also be present in very small numbers in restricted localities in the Ru'us Al-Jibal.]

References

[1] The taxonomy of *Olea europaea*, the progenitor of the familiar, cultivated Mediterranean olive, is very complex and remains under study. Several species once given separate recognition are now considered to be only variants of *O. europaea* and new subspecies are being established to accommodate them. Boer, Benno B., 1996, personal communication, Sweihan.

[2] *Ibid.*

[3] Mandaville, James P., Jr., 1978, Wild Flowers of Northern Oman, John Batholomew & Son Ltd., London,

p. 45.

[4] *Ibid.*, p. 5; Mandaville, James P., Jr., 1977, "Plants", in The Scientific Results of the Oman Flora and Fauna Survey 1975, Special Report of The Journal of Oman Studies, Ministry of Information and Culture, Sultanate of Oman, Muscat pp. 233, 237.

[5] Mandaville 1978, *op. cit.*, p.39.

[6] Boer, *op. cit.*

[7] Mandaville 1977, *op. cit.*, p. 253.

[8] See, e.g., Mandaville 1977, *op. cit.*, at p. 252, Mandaville 1978, *op. cit.*, at pp. 5-6. See generally Western, A.R., 1989, The Flora of the United Arab Emirates: An Introduction, United Arab Emirates University, Al-Ain.

[9] Mandaville 1977, *op. cit.*, p.253; Mandaville 1978, *op. cit.*, p. 39.

[10] Jongbloed, Marijcke, 1992, "Herbarium Data " (unpublished) and 1996, personal communication, Dubai, UAE.

[11] For the Jebel Akhdar, see Mandaville 1977, *op. cit.*, p. 230.

[12] Kennet, Derek, 1995, personal communication, Ras Al Khaimah, UAE.

[13] Al-Shihi, Yusuf Al-Mazrou'i Al-Aqabi, 1996, personal communication, Dibba, Oman.

[14] According to Shihuh tradition, they migrated to the Ru'us al-Jibal from the "Bilad Al-Sham" (the Levant) via Iraq and Iran. Sawaf, Moaz, 1996, "The Mountains of the U.A.E. - People, Culture and Wild Animals," oral presentation to the Emirates Natural History Group on October 1, 1996, Abu Dhabi.

[15] Al-Shihi, *op. cit.*

[16] See, e.g., Vincent, Robert K., 1991, "The Jirz: The Unique Small Axe of Musandam," in Costa, Paolo M., 1991, Musandam, Immel Publishing, London, p.192.

[17] Boer, *op. cit.*

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The butterflies of the United Arab Emirates and neighbouring areas of northern Oman – three newly recognised species and some other interesting records (Lepidoptera: Rhopalocera)

Dr. Michael P.T. Gillett

The exceptional weather conditions and abundant rains experienced throughout the region in early 1996, besides having been beneficial to most living things, also provided excellent opportunities for biological recording. This was particularly true for butterflies, for which 1996 was a memorable year. Mass migrations of common species were observed; some uncommon species were present in profusion even in urban areas; rare species were rediscovered in new localities and lastly, but not least, two species were newly recorded from the region - *Deudorix antalus* (Hopffer, 1855) and *Euchrysops osiris* (Hopffer, 1855). To these are added a third new species - *Gegenes nostradamus* (Fabricius, 1793) noted as long ago as 1989, but which hitherto has not appeared on the regional butterfly list.

Introduction

In both his popular and his scientific accounts of the Arabian butterflies, Larsen (1983, 1984) listed a total of 151 species for the sub-continent. Two further species were added later by Pittaway (1985) and Wiltshire (1986). Large numbers of the Indian species *Tirumala limniace exoticus* Gmelin *Danaus genivitta genivitta* Cramer and *Hypolimnas bolina bolina* (Linnaeus) (all Nymphalidae) as well as several other unwilling visitors were recorded in Al Ain in 1983 as a result of freak weather conditions associated with Tropical Storm 'Aurora' (Larsen and Pedgley, 1985). However, these species cannot be accepted onto the lists. Nevertheless, besides the currently recognised 153 species, it is likely that a few other species, perhaps as many as 20, will be found to be resident in or elective migrants in Arabia (Larsen, 1983).

Butterfly biodiversity in Arabia is greatest in the south-western corner of the sub-continent, where over three quarters of the total number have been recorded. The south-eastern corner is, however, also well represented with well over 50 species being known from northern Oman and the United Arab Emirates (Gillett, 1995; Hitchings, no date). This number is slowly increasing as more and more interest is being shown in conserving natural habitats and recording their biodiversity. Butterfly records have benefitted greatly from the abundant rains which this region received in early 1996 and not only have there been observations of mass migrations of common species and population explosions amongst several uncommon species, but also several rare species have been rediscovered in new localities and two species have been newly recorded for the region. Records are also given for a further species that represents a new addition to the list of UAE butterflies.

Records

Mass migrations and dispersals of common species (Fam. Papilionidae, Peridae, Nymphalidae)

تصف الصحيفة اكتشاف نوعين جديدين من الفراشات بدولة الإمارات وكذلك منطقة مهددة بعمان.

The early months of 1996 saw population explosions of a number of species of common butterflies including Desert White [*Pontia glauconome* (Klug)], Caper White [*Anaphaeis aurota* (Fabricius)], African Migrant [*Catopsilia florella* (Fabricius)], Blue Pansy [*Junonia orithya* here (Lang)], Painted Lady [*Vanessa cardui cardui* (Linnaeus)] and Plain Tiger [*Danaeus chrysippus chrysippus* (Linnaeus)]. On a drive from Kalba to Al Ain during the afternoon of 19 February 1996, I was able to witness several butterfly migrations. The first species noted was the Common Swallowtail [*Papilio machaon muetingi* Seyer], several dozens of which were seen crossing the roads between Kalba and Fujairah city and between the city and the nearby International Airport. One struck the car and was recovered in slightly damaged condition. There was no apparent directionality to the movements of this species and the flights observed probably represent local dispersal rather than long distance migration. Continuing the journey to Masafi and Dhaid, large numbers of butterflies were observed flying across the road in roughly a northeast to southwest direction. The species observed were small groups of Blue Pansy and individual Plain Tiger and Desert White butterflies. Further along the journey, between Dhaid and Madam roundabout, thousands of Painted Ladies and smaller numbers of Blue Pansies were seen moving westwards from the lush green of the Dhaid Plain into open desert. The Painted Ladies were in groups of 3-4 to upwards of 50 individuals. So great was their traffic, that when I stopped the car to get a better look, I could see the mangled remains of butterflies lining each side of the road for as far as I could see. Whilst it would be impossible on the basis of my brief observations, to put any exact figure on the size of this migration, it must have involved millions of the butterflies. Even in dryer years such as 1997, the numbers of Painted Ladies that reach Al Ain around mid-February are noteworthy and probably indicate that the migration observed the previous year is an annual event, but one which varies in scale according to meteorological conditions.

To see how such large numbers of a single species can build up in such a short time, I will relate another obser-

vation made in March 1996 for the Caper White. Whilst investigating a colony of the Desert Orange Tip [*Colotis liagore* (Klug)] in the hills between Al Mahdah and Buraimi, I came across their presumed larval foodplant in the form of scattered *Maerua* trees near to the top of one of the hills. Even from a distance, the trees appeared largely defoliated and when I got near, I could see that every twig of each tree was covered in dozens of black and white chrysalides belonging to the Caper White. Elsewhere on the trees were a few larvae of the Caper White and also larvae of the Desert Orange Tip, but with very few leaves for them to feed on. Each tree must have contained several thousand Caper White chrysalides and the immediate area must have been home to hundreds of thousands of them. Strangely after this experience, I expected the colony of Desert Orange Tips to be severely reduced in numbers, but this has not proved to be the case and, if anything, sightings of this pretty and variable butterfly have increased over the last year.

A newly discovered colony of the Desert Blacktip (Fam. Pieridae)

The white Oman subspecies of the Desert Blacktip [*Elphinstonia charlona amseli* (Gross & Ebert)] is a rare insect that has been recorded in Arabia just a handful of times from the UAE and N. Oman. I have seen this butterfly once in 1993 in Wadi Aboule, but never since then. It was, therefore, quite a surprise to capture one in late February 1996 in the hills between Al Mahdah and Buraimi, since this has been a well worked area and I had no suspicion of its presence. A further specimen was captured there in early March 1996 and about another half dozen individuals were seen. It flies very fast about the slopes of the hills and is very difficult to catch. A further individual has been seen at the same spot in early March 1997 and two specimens were netted and others seen nearly on 21 March 1997, suggesting that a healthy colony exists permanently in this area. The foodplant in Arabia is not known, but is probably *Diplotaxis harra*, which grows abundantly in the region.

Population explosions of the Blue Spotted Arab and Small Salmon Arab (Fam. Pieridae)

I consider the Blue Spotted Arab [*Colotis phisadia phisadia* (Godart)] and the Small Salmon Arab [*Colotis calais amatus* (Fabricius)] to be generally uncommon butterflies, although the former can exist in good numbers where its foodplant [*Salvadora persica*] has been planted. One such spot is on Sir Bani Yas Island. In Al Ain and the surrounding country, the Blue Spotted Arab is seen infrequently, but can be found in gardens. The Small Salmon Arab was hitherto known to me only from Wadi Khutwa in Northern Oman. The abundant rains in early 1996 must have favoured both species which share the same foodplant mentioned above. In late April 1996, I began to notice two, three or more Blue Spotted Arabs each day in my garden in Al Ain and many others flying about the roadside vegetation in Al Ain. These were soon joined by similar numbers of Small Salmon Arabs. This phenomenon lasted throughout May and June in Al Ain, with the Blue Spotted Arabs disappearing first in early June. Both butterflies could be seen in considerable numbers along large stretches of the Al Ain-Dubai road over the same period. When I returned to Al Ain from leave at the beginning of September, both species had disappeared from the city, but the

Small Salmon Arab was still present in large numbers around Al Faqah. It is probable that I missed a second generation of Blue Spotted Arabs whilst on leave, but returned in time to catch the tail end of a new generation of Small Spotted Arabs. It seems that linked population explosions of these two species may be a common, but irregular phenomenon in the UAE. Some older records kindly sent to me by Len Reaney of the Emirates Natural History Group show both species as fairly common in most years at Asab with a definite population explosion of both butterflies being witnessed at Bu Hasa in July and August 1989. Interestingly, the same recorder has also noted the colonisation of Das Island by both species over the last two or three years. It will be of interest to see whether these species turn up together again in Al Ain this year and if so, in what sort of numbers.

The Common Grass Yellow flying under oasis conditions in N. Oman (Fam. Pieridae)

The Common Grass Yellow [*Eurema hecabe solifera* (Butler)] occurs from tropical Africa and Asia as far as the Solomon Islands. In Arabia, it is not really common and has a very disjunctive distribution. The main area of distribution in Arabia is in the south-west as far north as Medina and east into Dhofar, but there is an isolated population in coastal eastern Arabia. The latter is thought to have been an accidental introduction imported with agricultural produce and is linked with the cultivation of the imported pea tree (*Sebania sesban*). Brown (1992) first recorded the species from the UAE and whilst the locality is unknown, it is probably the Gulf coastal region. The Common Grass Yellow has some migratory powers, but one of the main arguments for supposing that the eastern records represent an introduced population is the total absence of the species from suitable areas of northern Oman (Larsen, 1983). This view can no longer be easily accepted since in April 1996, I took two specimens of this butterfly in the Khutwa oasis in northern Oman and the following week I saw several more. The butterflies were flying in the middle of the oasis, in a grassy area with date palms and lime trees. In a different part of the oasis, there are several pea trees. These have been examined several times for the larvae/pupae of this butterfly, but none have been found nor is there any evidence of their feeding on this plant. Within the oasis and its surroundings are several other known larval foodplants, including *Cassia* and Euphorbiaceae. If the Khutwa colony of this butterfly is not itself an introduction and if the Common Grass Yellow is found in other oases in the UAE and northern Oman, then it might be possible to offer an alternative explanation for the origins of the other eastern Arabian populations.

The spread of the Clouded Yellow within the United Arab Emirates (Fam. Pieridae)

The Clouded Yellow (*Colias croceus* Geoffroy) was formally first recorded from the UAE on the basis of sighting on Sir Bani Yas Island in November 1994 (Gillett, 1995). Since that publication, I have received some very detailed records from Len Reaney relating to sightings of this well known migrant on Das Island; they are, with numbers in parenthesis, 19/11/91 (1), 22/6/95 (1), 4/7/95 (2), 29/11/95 (1), 4/4/96 (1) and 18/4/96 (1). Of these, all were the usual dark form, except for the butterfly seen on 4/4/96 which was a very pale specimen. I have

two further records for the UAE for September 1996; one was seen in the grounds of the Sharjah Natural History Museum by Marycke Jongbloed and another by myself at Al Faqah on the border of Abu Dhabi and Dubai Emirates.

Taken together, these records suggest that the species is spreading southwards from its known haunts in eastern Saudi Arabia and Qatar. Since the foodplant is lucerne (alfalfa), which is widely cultivated in the UAE as a fodder plant, the butterfly is likely to breed here and might in time become a pest. It is interesting that to date, there are no records for the Al Ain region where there are a good number of lucerne farms. However, it must only be a question of time before it turns up in that region and in neighbouring parts of Oman.

The Brown Playboy newly recorded from the region (Fam. Lycaenidae)

On 14 November 1996, I spotted a butterfly "hill-topping" around a small outcrop of a rocky ridge in the country between Mahdah and Buraimi, I was unable to identify the butterfly, but it had the aggressive flight which is typical of the larger species of lycaenids. It proved impossible to get very near to it and eventually I descended the ridge coming down on the other side from where I had started. At the bottom is a dry wadi bed that I know well and which contained a few dozen mature flowering bushes of *Aerva javanica* and some *Tephrosia* bushes that had nearly finished flowering. The former were apparently very attractive to insects and around and on them were clouds of butterflies, bees and wasps as well as a few beetles and flies. The butterflies included Desert White, Caper White, Desert Orange Tip, Pea Blue [*Lampides boeticus* (Linnaeus)], Leaden Ciliate Blue [*Anthene amarah amarah* (Guerin)], Mediterranean Pierrot [*Tarucus rosaceus* (Austaut)], Small Cupid [*Chilades parrhasius* (Fabricius)], African Babul Blue [*Azanus jesous* (Guerin)], Asian Grass Blue [*Zizeeria karsandra karsandra* (Moore)], Painted Lady, Blue Pansy, Plain Tiger and one example of the Giant Skipper [*Coliades anchises jucunda* (Butler)]. Moreover, the mystery butterfly that I had seen earlier was also present in small numbers and I was able to net two specimens which were provisionally identified as large female examples of the Pomegranate Playboy [*Deudorix livia* (Klug)]. On subsequent visits to the same general area, including some sites almost within sight of the UAE border, a further six specimens were collected and many others seen. All were associated with flowering bushes of *Aerva javanica*. The data and numbers are as follows: 15/11/96 (2), 22/11/96 (3) and 13/12/96 (1). A visit to the same sites on 20 December 1996 failed to produce sightings of this butterfly. However, a single slightly worn example was taken on *Aerva javanica* in the Hili district of Al Ain on 6 December 1996, to provide a positive indication of its presence in UAE territory. This is important because critical examination of the series that were captured showed the species to be the Brown Playboy [*Deudorix antalus* (Hopffer, 1855)], a common Afrotropical species, but one thought to be confined in Arabia to the Yemen (Larsen, 1983). A previous record under this name of a single butterfly from Muscat was later sunk by Larsen (1983) who examined the specimen in the British Museum and declared it to be an example of the Pomegranate Playboy. Females of all three *Deudorix* species known from Arabia are simi-

lar, but the male butterflies in the series that I have obtained clearly lack the bright orange colouration of both the Pomegranate Playboy and the very rare Apricot Playboy [*Deudorix dinochares* Smith]. This is an exciting new record for the region, the more so because it was not one of the species expected to turn up (see Discussion) and because the nearest (Arabian) locality for the species is more than a thousand kilometres away, where the butterfly is found in well-watered valleys, not in the dry wadis where it has been seen in Northern Oman and the UAE. The Playboys have some migratory potential and the most likely explanation for the records given here is that the meteorological conditions in 1996 favoured expansion of the species' range, if perhaps only temporarily.

The African Cupid newly recorded from the region (Fam. Lycaenidae)

Another new lycaenid butterfly was taken in a plantation of beans (*Phaseolus*) in Wadi Aboule in October 1996. The small field measured about 20 by 50 metres and had a somewhat neglected appearance. Large numbers of Pea Blue butterflies were present together with a few Asian Grass Blues. Closer examination of the field, however, showed the presence of a third species similar in size to the Pea Blue, but with a much weaker flight. Several dozens of this butterfly were flying around and between the overgrown bean plants. A small series were collected and tentatively identified in the field as the Smoky Bean Cupid [*Euchrysops malathana* (Boisduval)] because of their colour and their association with cultivated beans. On a later examination, however, it was noted that most specimens had distinct tails on their hind wings and, therefore, could not be the Smoky Bean Cupid. There are two tailed-species of this genus of similar appearance to the Smoky Bean Cupid. They are the African Cupid [*E. Osiris* (Hopffer)] known from Africa and southwestern Arabia, where it is not known to be associated with cultivated beans and the Indian vicariant species [*E. cnejus* Fabricius] which is associated with beans (Zhang, 1994) and which, according to Larsen (1983), has been falsely recorded from Arabia on a number of occasions. He rejects any possibility of this species being found in Arabia and attributes to it a purely oriental distribution. The genus is a generally difficult one and the confusion extends to other species in other genera, such as the Small Cupid, but the latter, at least in the Al Ain region, is very distinct from the new butterfly in colour, size and underside markings. For the time being and for the reasons given above, it seems best to record here provisionally the new butterfly as *Euchrysops osiris* (Hopffer, 1855). On looking through some other material, I found a further specimen of this butterfly collected in November 1995 in Wadi Musah, Oman. It seems probable that the species is resident in the Hajar Mountains, in the oases of which beans are often cultivated on a small scale. The beanfield at Aboule has long since been cleared and the butterfly has not been seen again, but I would expect to find it again wherever beans are cultivated in the Al Ain and Mahdah regions.

The Mediterranean Skipper (Fam. Hesperidae)

The Mediterranean Skipper [*Gegenes nostradamus* (Fabricius, 1793)] is known from the Mediterranean region and from Eastern Saudi Arabia, but has not previously been on the list of UAE butterflies. However, Len

Reaney has sent me two records for Bu Hasa of this butterfly: Bu Hasa 14 July 1989 and Sahil (45 km north of Asab) 12 October 1989. The first mentioned butterfly was captured to allow positive identification and then later released. Many of the skippers are quite dingy butterflies and are easily overlooked in the field. Furthermore, their rapid flight makes identification rather difficult unless the insect is secured. However, having been found in the Western desert area, I am confident that this butterfly will eventually be found to have a wider distribution in the UAE.

Discussion

The latest list of butterflies from the United Arab Emirates, the Musandam Peninsula and the Buraimi-Al Mahdah region of Oman (Gillett, 1995) contained a total of 47 species belonging to five families: Papilionidae, Pieridae, Lycaenidae, Nymphalidae and Hesperidae. Of these, the largest representation in the region was by the Lycaenidae with 16 species. Therefore, it is not surprising that two of the butterflies newly recorded here, the Brown Playboy and the African Cupid, are also from this family. However, neither species was expected to occur in the region as to date they have both only been found in SW Arabia. There are other species not recorded for this region that occur elsewhere in Oman and these might have been more likely to have turned up. Some of these, such as the Black Bordered Babul Blue [*Azanus moriqua* (Wallengren)], will possibly be found eventually in the UAE and the neighbouring parts of Oman. The polyommata blues contain many similar species in Arabia as elsewhere and many species are quite variable, so there is a possibility of further new species being recognised. In the material that I have to hand, there are several specimens which I have so far been unable to place.

The other species newly recorded here, the Mediterranean Skipper, has probably been overlooked elsewhere in the UAE and, if looked for with purpose, it could be expected to occur under oasis conditions almost anywhere in the country. Although it has taken 8 years, it is now firmly established on the UAE butterfly list thanks to Len Reaney.

Amongst the other families of butterflies, there are a few species that must occur from time to time in the UAE. In the Pieridae, the Iranian subspecies of the Small Cabbage White [*Artogeia rapae iranica* (le Cerf)] is known from Kuwait, eastern Saudi Arabia and Qatar and must also penetrate the UAE, at least in some years. The Bath White [*Pontia daplidice daplidice* (Linnaeus)] occurs in mountainous parts of Oman and is a strong migrant which must surely reach the UAE when conditions are favourable. However, it has never been recorded here. It is very similar to the common Desert White, but differences in the underside characteristics would enable the two to be told apart in the field. Within the Nymphalidae, there are fewer possibilities, but in April 1996, I had a brief glimpse of a large butterfly at Khutwa which was unlike any other that I have seen in the region. I believe it possibly to have been a female Giant Eggfly [*Hypolimnas bolina bolina* (Linnaeus)]. This species occurs on the Island of Socotra and has been recorded once in Dhofar. Like so many Arabian butterflies, it is a powerful migrant which might have accounted for its occasional presence in Northern Oman. As already mentioned, the butterfly has been

seen in numbers in Al Ain, when it was blown in from India by meteorological conditions in August 1983, but it cannot be accepted onto the list for this freak occurrence.

Whilst finding new butterflies in the UAE region is always an exciting event, there are many other occurrences that are equally rewarding to the observant amateur naturalist. Whether these are just observations of new behaviour patterns in common species or the refinding of a rare species in a new locality, they all add appreciably to the body of knowledge concerning UAE butterflies. This article has noted some of these events, but there is little doubt that for every single species, more records are required from all over the region if we are to perfect our knowledge of these lovely and fascinating creatures and take active steps to ensure their conservation for future generations.

Acknowledgements

I would like to thank greatly Len Reaney for so generously making available his well kept records of butterflies from parts of the country that I have not been able to visit and also Dr. Marijke Jongbloed for her record of the Clouded Yellow in Sharjah. I also extend my gratitude to Dr. Norman Woolhouse and Paul Laurence and to my two sons, Conrad and James, for companionship in the field.

References

- Brown, J.N.B. (1992) Butterflies of the United Arab Emirates. **Tribulus** 2.1; 10-11.
- Gillett, M.P.T. (1995) An updated and annotated list of butterflies recorded from the UAE, the Musandam Peninsula and the Buraimi-Al Mahdah region of Oman. **Tribulus** 5.2; 16-20.
- Hitchings, V. (no date) Butterfly kaleidoscope. **Adventure Oman**; 76-81.
- Larsen, T.B. (1983) Insects of Saudi Arabia Lepidoptera; Rhopalocera (A monograph of the butterflies of the Arabian Peninsula). **Fauna of Saudi Arabia** 5; 333-478.
- Larsen, T.B. (1984) **Butterflies of Saudi Arabia and its Neighbours**. Stacey International, London.
- Larsen, T.B. and Pedgley, D.E. (1985) Indian migrant butterflies displaced to Arabia by monsoon storm 'Aurora' in August 1983. **Ecological Entomology** 10; 235-238.
- Pittaway, A.R. (1985) Lepidoptera: Rhopalocera of Western Saudi Arabia. **Fauna of Saudi Arabia** 7; 172-197.
- Wiltshire, E.P. (1986) Lepidoptera of Saudi Arabia: Fam. Cossidae, Sesiidae, Metarbelidae, Lasiocampidae, Sphingidae, Geometridae, Lymantriidae, Arctiidae, Nolidae, Noctuidae (Heterocera); Fam. Satyridae (Rhopalocera) (Part 5). **Fauna of Saudi Arabia** 8; 262-323.
- Zhang, B.C. (1994) **Index of Economically Important Lepidoptera**. CAB International, Wallingford.

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NOTES AND QUERIES

Brief notes on some species of micro-moths newly recorded from Al Ain (Lepidoptera: Micro-Heterocera: Pyralidae)

Butterflies and moths represent the best known group of insects in the United Arab Emirates but, nevertheless, current knowledge of the country's Lepidoptera is still in its infancy. The fauna probably includes upwards of 400 species of which about 50 are butterflies (Rhopalocera) (Gillett, 1995; Gillett, 1997) and about 250 are macro-moths (Macro-Heterocera) (LeGrain, 1996). The remainder are micro-moths which belong to a large number of separate families, most of which are poorly known for the region. The largest family is the Pyralidae with many thousands of species worldwide. These are small to quite large moths which are morphologically rather diverse, but are often strikingly coloured and marked (see accompanying plate). Over a hundred years ago, Hampson (1896) catalogued some 1,100 species for British India and of these, a dozen or so were noted as occurring at Aden. Many other species were known from Africa as well as India, suggesting that some at least, would occur in the Arabian sub-continent. Little recent information on Arabian Pyralid moths seems to be available and the family has not been dealt with to date in the **Fauna of Saudi Arabia** series. Wiltshire (1977) listed two species from northern Oman and in the same publication, Pelham-Clinton (1977) added 31 others from the same region. The present note is a preliminary attempt to document the family in the UAE and 14 species from 6 sub-families are recorded below from Al Ain. The numbers refer to the illustrations of the moths in the accompanying plate.

Family: Pyralidae

Sub-family: Crambinae

1. *Surattha soudanensis* Hampson

Sub-family: Glaphyriinae

2. *Hellula undalis* (Fabricius)

Sub-family: Pyraustinae

3. *Spoladea recurvalis* (Fabricius)
4. *Bocchoris onychinalis* Guenee
5. *Diaphania indica* (Saunders)
6. *Maruca testulatus* Geyer
7. *Nomophila noctuella* (D. & S.)
8. *Pachyzancla phaeopteralis* (Guenee)
9. *Heliothela ophideresana* (Walker)

Sub-family: Evergestiinae

10. ? *Evergestis desertalis* (Hubner)

Sub-family: Odontiinae

11. *Noorda blitealis* Walker
12. *Tegestoma comparalis* (Hübner)
13. *Aporodes floralis* (Hubner)

Sub-family: Galleriinae

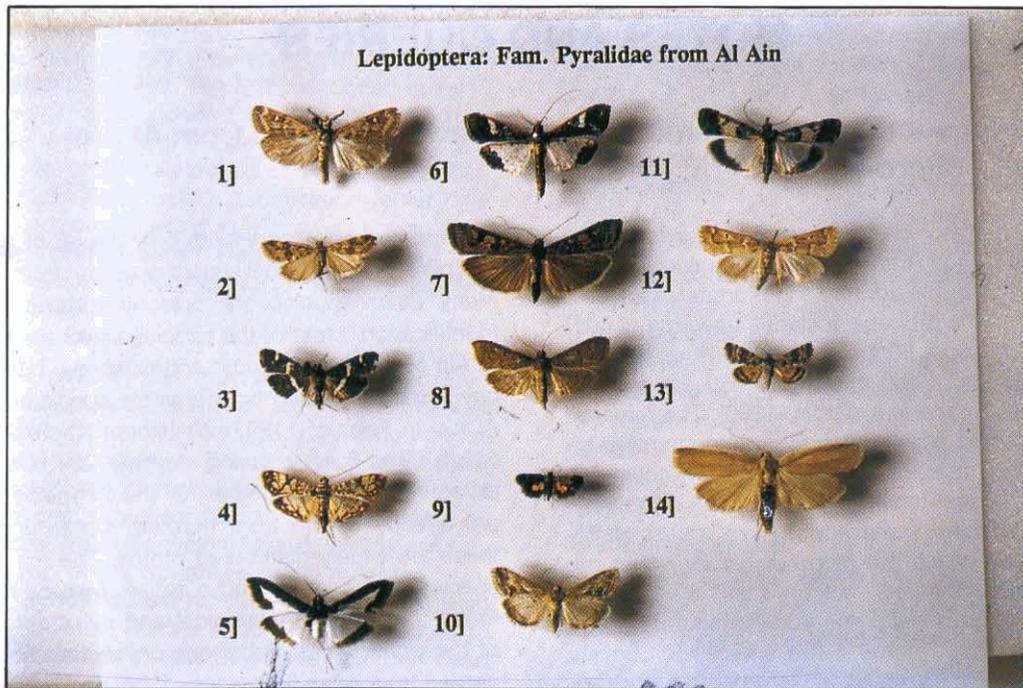
14. *Lamoria anella* (D. & S.)

This list probably represents only the tip of the iceberg for pyralids and other micro-species from the UAE. Many other species are present, but require expert identification. Most of the species listed are common in Al Ain occurring in autumn and/or spring, but *Bocchoris onychinalis* is known from a single specimen caught in Al Ain in February 1997. All except *Aporodes floralis*, which visits flowers during daytime, are nocturnal and attracted to domestic lights. Of the 14 species listed, 12 are already known from northern Oman and most of these are widely distributed moths. The remaining two species also come as no surprise. *Maruca testulatus* is found throughout the tropical and sub-tropical regions of the world, whilst *Bocchoris onychinalis* has been recorded from Aden (Hampson, 1896) and is found in Africa, the Oriental region and Australia.

References

- Gillett, M.P.T. (1995) An updated and annotated list of butterflies recorded from the UAE, the Musandam Peninsula and the Buraimi-Al Mahdah region of Oman. **Tribulus** 5.2; 16-20.
- Gillett M.P.T. (1997) The butterflies of the United Arab Emirates and neighbouring areas of northern Oman - Three newly recognised species and some other interesting records (Lepidoptera: Rhopalocera). **Tribulus** 7.1; 15-19.
- Hampson G.F. (1896) **The Fauna of British India Including Ceylon and Burma. Moths, Vol. IV.** Taylor and Francis, London.
- LeGrain A. (1996) Liste provisoire des Macro-Heteroceres observes aux UAE et N. Oman de 1988 a 1995. Privately circulated. Hermalle, Belgium.
- Pelham-Clinton E.C. (1977) Pyralidae from Oman: specimens in the Royal Scottish Museum, Edinburgh. **J. Oman Studies** Special Report. The Scientific Results of the Oman Flora and Fauna Survey 1975. Lepidoptera: Part III. pp 177-178.
- Wiltshire E.P. (1977) Lepidoptera: Part I Families Cossidae, Pyralidae, Geometridae, Sphingidae, Arctiidae, Lymantriidae and Noctuidae. **J. Oman Studies** Special Report. The Scientific Results of the Oman Flora and Fauna Survey 1975. Lepidoptera: Part I. pp 155-160.

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Pyralid micro-moths from Al Ain, including species from the sub-families Crambinae, Glaphyriinae, Pyraustinae, Evergestinae, Odontini and Galleriinae. Picture by Michael Gillett

Arabian Tahr rediscovered on Jebel Hafit

A second surviving population of one of the UAE's largest land mammals, the Arabian Tahr *Hemitragus jayakari* was identified in March 1997 on the isolated mountain of Jebel Hafit, just south of Abu Dhabi's inland oasis of Al Ain.

On March 10, a group of visiting birdwatchers, led by the Secretary of the Emirates Bird Records Committee, Colin Richardson, was on the UAE summit of the mountain shortly after dawn and saw a male adult tahr, which prodded good views through binoculars before running off.

The record was the first from Jebel Hafit since 1983, when a carcass was found adjacent to a pool on the mountain. A population of around twenty animals was then believed to exist. A single animal was reported near the summit in March 1986 (1), but surveys between 1986 and 1990 failed to find any further tahr, and the population was believed to have become extinct.

A recent summary of the status of the animal in the book *Desert Ecology of Abu Dhabi*, (reviewed elsewhere in this issue; see P. 25) states erroneously that recent development of the UAE portion of the summit of Jebel Hafit meant that conditions on the mountain were no longer suitable for tahr. (2).

The only other known population of Arabian tahr in the Emirates is in the Hajar Mountains, inland from Fujairah's coastal village of Dhadnah, where a female and single young were photographed in 1995 by a survey team commissioned by the Sharjah-based Arabian Leopard Trust (3). That population, endangered by continuing hunting (despite the extension of protection by Fujairah Ruler H.H. Sheikh Hamad bin Mohammed Al Sharqi), is also believed to comprise only a few animals.

The tahr was first described from two skins and two

skulls purchased around 1891 by Surgeon-Major A.S.G. Jayakar of the Indian Army, then based in Muscat.

The first European to see a live animal was traveller Sir Wilfred Thesiger, who found it in the 1940s on Jebel Hafit.

"I found it was not uncommon," he wrote in a subsequent paper in *The Geographical Journal*. "There they lie up under shallow overhangs among the stark, beetling cliffs, where they are difficult to locate or to approach... They frequent the mountain top and descend to drink at dawn from deep rock pools in the gorges along the foot of the mountain." (4).

The re-discovery of the tahr on Jebel Hafit is further confirmation of the fact that there is much still to be learned about the UAE's wildlife, and that non-specialists have a major role to play. The tahr is, however, one of the country's most endangered species, and, despite its success in clinging on to a foothold on Jebel Hafit, its continued survival there, at least on the UAE portion of the mountain, must be in doubt, given the impact of current development programmes in the area.

References:

1. Brook, G. (1987). Mammals, in Bulletin of the Emirates Natural History Group. No. 31. P. 7
2. Osborne, P.E. (ed.) (1996) *Desert Ecology of Abu Dhabi*, Pisces Publications, Newbury, in association with the National Avian Research Centre.
3. Jongbloed, M. (1995). *Bianford's Fox*, Arabian Tahr found in Fujairah, in *Tribulus* Vol.31 (April 1995), P. 25
4. Thesiger, W. (1949), A Further Journey Across the Empty Quarter, in *The Geographical Journal*, Vol. CXIII, June 1949. pp. 41-42.

Peter Hellyer

A new foodplant recognised for *Chilena laristana* Daniel, 1949, an eggar or lackey moth common in the UAE and N. Oman (Lepidoptera: Lasiocampidae)

Common English names for moths belonging to the family Lasiocampidae include eggars and lackey moths. The family is related to the silkworm moths (Family: Bombycidae) and its members are medium to large sized moths, whose larvae likewise spin silken cocoons prior to pupation. For the Lasiocampidae in general, the silk from which the cocoons are spun is of no economic value.

Current knowledge of Lepidoptera in Arabia shows the Lasiocampidae to be represented by less than twenty species; fewer still are known from the United Arab Emirates and neighbouring N. Oman. However, perhaps one of the best known and commonest of the lasiocampid moths in the UAE is *Chilena laristana* Daniel, 1949. This moth is reported to frequent areas of sandy desert where the recorded foodplant, *Calligonum comosum* (Polygonaceae) occurs (Walker and Pittaway, 1987; Wiltshire, 1990). The male and female moths together with the larva were illustrated in the latter reference. Le-grain (*Liste provisoire des Macro-Heteroceres observes aux UAE et N. Oman de 1988 a 1995* - unpublished) found the moth around Dhaid and in the Northern Emirates in October, December, April and May and noted the larvae as abundant on *Calligonum* in the former locality. Paradoxically, he found adult moths flying in biotopes completely lacking *Calligonum* and speculated on the species utilising an alternative foodplant in such regions. The following account hopefully resolves this paradox, showing as it does, that *C. laristana* successfully uses *Tavernia cuneifolia* (Leguminosae) as its larval foodplant in non-sandy areas where *Calligonum* is absent.

Tavernia cuneifolia is a reasonably common plant on gravel plains and foothills around Al Ain and Buraimi, but is usually found in ones and twos rather than in large groups. This is an admirable quality from the point of view of the entomologist as it facilitates the work of finding insects associated with the plant. Several times during the spring of 1996, caterpillars were noticed feeding on *Tavernia cuneifolia* and in late March, some of these were collected from plants near Mahdah in Oman and taken home for rearing. The material included three small grey caterpillars thought at the time to belong to the family Geometridae and six rather handsome, but hairy caterpillars of a predominant orange/yellow colour identified as belonging to the Lasiocampidae.

The two groups were reared separately on fresh sprigs of the foodplant. The grey caterpillars were found to be members of the extensive family Noctuidae and were seen to hide at the base of food material during the day and to feed mainly at night. By mid-April all three had disappeared into the soil where they formed very loose cocoons of silk and pupated. The moths which emerged on 30 April and 4 May (2 ex.) were identified as *Drasteria yerburyi* (Butler, 1892).

The lasiocampid caterpillars were diurnal in their feeding and although the sprigs of *Tavernia* on which they were placed were very large, when the time came for

pupation (13-15 April), the cocoons were formed all within a small space of each other. They were quite hard to the touch and grey in colour. Moths which emerged on 7 and 8 May were two females and four males of *Chilena laristana*.

Although the moths that were reared were from Omani stock, both *D. yerburyi* and *C. laristana* fly together in UAE territory in the rock-strewn areas around Jebel Hafit and probably in many other places. Plants of *Tavernia cuneifolia* are present in small numbers around Jebel Hafit and are presumably shared as the foodplant of these two moths. *Tavernia cuneifolia* has already been recorded as the foodplant of *D. yerburyi* and so the observations given above are purely confirmatory. However, the emergence of *C. laristana* from the cocoons was unexpected. Not only were the caterpillars feeding on a plant different from *Calligonum comosum*, but their appearance was totally different from that illustrated by Walker and Pittaway, 1987. In their figure, the caterpillar is shown as being predominantly white but with some red and blue markings along the back and it is clearly different from the ones mentioned here. The caterpillar of a related species (*C. strigula* Walker, 1861) from India is described as "black and yellow; a lateral tuft of long black hair tipped with white on each segment; short black and orange hair on the dorsum; long hair on the 2nd and 3rd somites and one on terminal somite" (Hampson, 1892) and is, therefore, similar to the ones from Mahdah. There are a number of possible explanations, one of which is that the larvae of *C. laristana* adopt different colouration on different foodplants, but it cannot be discounted that Walker and Pittaway have illustrated wrongly, the larva of a distinctly different species. A third possibility is that two forms (species or sub-species) of *Chilena* occur in Arabia and whilst the adults are very similar, the larvae are very different in appearance and in foodplants. Clearly some of these questions can only be answered by direct observations. One of these would be the location and rearing of *Chilena* caterpillars found on *Calligonum* in sandy areas of desert. Another would be to compare by dissection the genitalia of the moths from *Tavernia* and *Calligonum* areas to see if they are distinct.

References

- Hampson, G.F. (1892) The Fauna of British India including Ceylon and Burma. Moths-Vol. 1. Taylor and Francis, London, U.K.
- Walker, D.H. and Pittaway, A.R. (1987) Insects of Eastern Arabia. Macmillan, London, U.K.
- Wiltshire, E.P. (1990) An illustrated, annotated catalogue of the Macro-Heterocera of Saudi Arabia. Fauna of Saudi Arabia 11; 91-250.

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A solitary representative of the flower chafer beetles in the Al Ain region: *Stalagmosoma albella* (Pallas, 1781) (Coleoptera: Scarabaeidae)

Flower chafers are closely related to the scarab dung beetles and indeed constitute a subfamily, Cetoniinae*, of the Scarabaeidae. The habits of the flower chafers are clearly different from the dung beetles. Whilst their larvae feed on vegetable detritus, often in the nests of ants, the adult flower chafers frequent flowers and ripe fruit for their nourishment. They never feed on dung, although at least one European species, *Netocia morio* (F.), is often concealed beneath partially dried dung pats. Within the Cetoniinae, many beautiful metallic-coloured forms have evolved and these beetles have often inspired artists and poets. The type species is the European rose chafer, *Cetonia aurata* (L.), usually golden-green in colour, but almost infinitely variable in this respect. The subfamily reaches its greatest diversity in the Ethiopian region, not just in beautiful metallic species, but also with the velvet-textured and aptly named Goliath beetles.

Compared to well-watered tropical and temperate lands, desert regions are less favoured by flower chafers. In Arabia, the family is very poorly represented and only two species are so far known for the whole of the eastern half of the peninsula. In Kuwait and NE Saudi Arabia, the Mediterranean species *Tropinota squallida pilosa* Brulle, 1832 is found and is reported to visit flowers of *Astragalus* (Walker and Pittaway, 1987). As the specific and sub-specific names suggest, this species is not only unattractive, but also hairy. It is apparently not known from the UAE or N. Oman and indeed, in this region it seems to be replaced by another species, *Stalagmosoma albella* (Pallas, 1781). Again this is not a particularly beautiful insect, lacking as it does the metallic scheme of others. Indeed, this small (12mm) beetle is a shining black colour and is rather severely marked with white patches on the border of the thorax and on the wingcases. In some individuals, apparently newly emerged, the white markings appear cream or yellow in colour and this seems to be due to the adherence of soil particles as the insect digs itself out of the ground.

Our first recording of *S. albella* was in April 1992 on the flowers of *Aerva javanica* (Amaranthaceae) amongst the jebels near to Mahdah in Oman. Our first thoughts were that this might be a great rarity, but since then, we have seen countless thousands of these beetles on very many types of wild flower. Except that it seems to avoid gardens with introduced plants, this beetle seems to oc-

cur everywhere and at all times of the year.

We have records from January 1993, when the species was found on flowers of the Desert Hyacinth (*Cistanche tubulosa*- Orobanchaceae) in sand dunes near to Ain al Faydah, all the way through to September 1996, when the beetle was encountered on the yellow-flowered *Acacia arabica* (Leguminosae) in W. Aboule (Oman). In between these records are many others, but let it suffice to mention just three other favourite plants of this species. When flowering plants of *Echinops* sp. (Compositae) or *Ochradenus aucheri* (Resedaceae) are encountered, they never fail to produce *S. albella*, often in large numbers. These last mentioned flowers are attractive to many other species of insects, especially hymenoptera, but in June 1996, it was surprising to find at Jebel Huwayyah (Buraimi, Oman), countless specimens of *S. albella* on flowers of the large milkweed *Calotropis procera* (Asclepiadaceae), a plant largely avoided by diurnal insects.

S. albella is a Palaearctic element in the fauna of the UAE and Oman where its presence was not unexpected. It was already recorded as being found in Arabia by Arrow (1925) and its known range, according to Baraud (1992), is from Egypt and Armenia to Central Asia and the northern fringes of the Indian sub-continent.

*Often cited as a separate family, the Cetoniidae, by Continental coleopterists.

References

- Arrow, G.J. (1925) The Fauna of British India Including Ceylon and Burma. Coleoptera Lamellicornia (Cetoniinae and Dynastinae). Taylor and Francis, London, U.K.
Baraud, J. (1992) Faune de France -78- Coleopteres Scarabaeoidea d'Europe. Societe Linneenne de Lyon, Lyon, France.
Walker, D.H. and PITTAWAY, A.R. (1987) Insects of Eastern Arabia. Macmillan, London, U.K.

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New wetland plants in the UAE

A variety of different wetland systems occur in the Emirates, both freshwater and marine. Freshwater systems are generally rare in the Arabian peninsula, and little is known about their flora and vegetation. Among the important taxonomic groups are the plant families Potamogetonaceae and Najadaceae. All members of this families have to be submerged, emergent, or floating in fresh or brackish water.

Species of these families have been reported for the mountainous area in south-western Saudi Arabia (Collette 1985), for Bahrain (Cornes & Cornes 1989), for Eastern Saudi Arabia (Mandaville 1990) and for Oman (Ghazanfar 1992). To the knowledge of the author members of the Potamogetonaceae and Najadaceae have

not previously been reported for the UAE.

Large dominant stands of Potamogeton *lucens* L. were recently found in the freshwater dam west of Khor Fakkan. Another species of aquatic plant, identified as *Najas Marina* L., was found as a co-dominant vegetation element.

Other important wetland-systems of the UAE are the coastal wetlands, such as mangroves and salt marshes. The mangroves consist only of the well-known species *Avicennia marina* (Forssk.) Vierh., whereas a broad variety of dominant and associated plant species make up the salt marshes. The Chenopodiaceae is the most widespread salt marsh family, and is represented by various species, such as *Arthrocnemum macrosta-*

chyum (Moric.) Moric. et Delponce, *Biennertia cycloptera* Bge. ex Boiss, *Halocnemum strobilacum* (Pall.) M.B., *Halopeplis perfoliata* (Forssk.) Aschers. et Schweinf., *Suaeda aegyptiaca* (Hasselq.) Zoh., *Suaeda vermiculata* Forssk. and others. Freitag (1991) shows the geographical distribution of many *Chenopods* in SW Asia.

Small patches dominated by *Salicornia europaea* L. were found in the salt marshes of Ras Al Khaimah. The species has not previously been documented for the UAE. This is quite surprising, as it is a common component of the inter-tidal flora along the Arabian Gulf coast.

Dominant stands of *Salsola drummondii* Ulbrich were recently found in coastal areas of Abu Dhabi, and in the low saline water of the Ayn Al Faida ponds (Boer & Eschmann-Grupe 1996). It has now also been recorded on Ras al Khaimah beaches. Another species not previously reported, *Suaeda maritima* (L.) Dumert, was found at the beaches of Ras Al Khaimah and of the Abu Sharaj islands, east of Abu Al Abyadh.

Another ecosystem is the marine and semi-subhydryc seagrass beds. In 1996 two species of seagrasses were found close to Sadiyat island, east of Abu Dhabi. The records are again new records for the UAE flora: *Halodule uninervis* (Forssk.) Aschers. (syn. *Diplanthera uninervis* (Forssk.) Williams), of the family Cymodoceaceae, and *Halophila ovalis* (R. Br.) Hook.f., of the Hydrocharitaceae. These species, common in the waters of the Arabian Gulf, probably make up the majority of the UAE seagrass beds.

These new findings illustrate the lack of knowledge con-

cerning the UAE's wetlands flora and vegetation. The status of aquatic and semi-aquatic plants requires investigation and documentation.

My sincere thanks go to Professor Shaukhat Chaudary from the Saudi National Herbarium in Riyadh for his company during several field excursions throughout the UAE and for his expertise. I also express my thanks to Dr. Shahina Ghazanfar from the Sultan Qaboos University in Muscat, and to Professor Helmut Freitag from the University of Kassel for his kind and prompt help concerning plant identification.

References

- Boer, B. & G. Eschmann-Grupe 1996: A botanical excursion in the UAE. *Tribulus* Vol. 6.1. pp 22-25.
- Collenette, S. 1985: An illustrated guide to the flowers of Saudi Arabia. Scorpion Publishing Ltd., London. 514p.
- Cornes, M.D. & C.D. Cornes 1989: The wild flowering plants of Bahrain. An illustrated guide. Immel Publishing Ltd., London. 272 p.
- Ghazanfar, S.A. 1992: An annotated catalogue of the vascular plants of Oman. *Scripta Botanica Belgica* 2. 153p.
- Mandaville, J.P. 1990: Flora of Eastern Saudi Arabia. Kegan Paul International, London. 482p.

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Jebel Hafit 'Important Wildlife Site'

The whaleback outline of Jebel Hafit presents a familiar land mark south of Al Ain. Close examination over the years has revealed a remarkable natural history and substantial record of human occupation.

Gone may be the Arabian Leopard *Panthera pardus nimr*, but retained are a number of plant and animal species not found with the same frequency or abundance, or even at all, at other sitgs in the UAE. Pre-eminent amongst these is the recently resighted Arabian Tahr *Hemitragus jayakari*. Amongst birds this includes Egyptian Vulture *Neophron percnopterus*; Hooded Wheatear *Oenanthe monacha*; Barbary Falcon *Falcon pelegrinoides* and Trumpeter Finch *Bucanetes githagineus*. Even the most cursory glance at the distribution maps in Western (1989) shows many a plant occurring as an isolated blue or green spot that marks the position of Jebel Hafeet. One plant, *Anvillea garcinii*, a Composite, occurs only here in the UAE. Egyptian Spiny Mouse *Acomys cahirinus* was recently discovered on the mountain by ecologists from Abu Dhabi's Environmental Research and Wildlife Development Agency, ERWDA, (having been found live first in the UAE only in 1995) whilst a number of caves serve as hibernacula or nurseries for roosting, but as yet unidentified, bats. For other groups, for example reptiles, much less is known. Gillett has done much work on the Coleoptera of the Al Ain area (e.g. Gillett 1995a & 1995b) but other arthropods mostly remain poorly studied or documented. There is clearly a need for greater scientific observation. Against this we have witnessed an upsurge in recreational activities and the construction of the sweeping road to the summit.

For the wildlife of Jebel Hafit to remain secure, it is time for the assembly of an ecological advisory committee to ensure sensitive species and communities on the mountain receive a fair hearing at the planning stage of any future development proposals.

Formal recognition of the importance of Jebel Hafit, perhaps in its designation as a National or Country Park where recreation activities and wildlife coexist should receive serious consideration. A management body would oversee running of the site. The global conservation federation, BirdLife International, included Jebel Hafit as an Important Bird Area in the accredited 'IBAs of the Middle East' (Evans 1994) but in reality the jebel is actually an 'Important Wildlife Site', with, additionally, unique cultural values and as such should be treated with respect.

References

- Gillett, M.P.T. (1995a). Scarab dung beetles in the Al Ain region of the UAE and neighbouring areas of Oman. Coleoptera: Scarabaeidae). *Tribulus* Vol. 5.1 (April 1995) p14-23.
- Gillett, M.P.T. (1995b). An annotated and illustrated checklist of Tiger Beetles recorded from the al Ain/Buraimi region of Eastern Arabia (Coleoptera: Cicindelidae). *Tribulus* Vol.5.2 (October 1995) p13-16.
- Western, R.A. (1989). Flora of the United Arab Emirates. An Introduction. United Arab Emirates University, Al Ain.

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BOOK REVIEWS

Al Sufouh excavations

The fortuitous coincidence of an important excavation of the Third Millennium BC site at Al Sufouh, in Dubai, and the launching of a new series of academic monographs on recent archaeological work in the Arabian peninsula comes together in the latest publication on UAE archaeology.

The report, *Excavations at Al Sufouh: a Third Millennium site in the Emirate of Dubai*, is edited by Jodie Benton of Australia's University of Sydney, who was field director of the excavation, and is the first in a new series of monographs entitled *Ab'iel*, issued by Belgian publisher Brepols.

The Al Sufouh site, dated to the Umm an Nar period in the late Third Millennium BC, was first discovered by Dubai resident and ENHG member Carolyn Lehmann in 1988. Extensive development in the Al Sufouh area led the Dubai Museum to commence excavations on the site in the spring of 1994, following which the University of Sydney archaeological team, under the direction of Professor Dan Potts, was invited to complete excavation of the site in January and February 1995.

Four groups of burials were found during work at the site, the centrepiece of which was a typical Umm an Nar circular collective grave, in which remains of at least 13 individuals were found, as well as a number of pottery vessels from the Umm an Nar period.

Perhaps the most intriguing aspect of the excavations, however, was the discovery outside the collective tomb of three further graves, simple pits dug into the sand. Of these two were oval pits of a type known nowhere else in the Oman peninsula or, indeed, in the whole of Western Asia, according to Benton. One contained the burnt remains of a minimum of 57 people, and the other a minimum of 48.

The fourth tomb, another pit, much smaller, contained remains of at least three further individuals, suggesting

that a minimum of 121 individuals had been buried at the site, although the fragmentary nature of the remains from the circular tomb suggests that more may originally have been interred there.

Of particular interest, says Benton, is the fact that around 85 per cent of the burials, primarily those from outside the circular tomb, showed signs of having been cremated, a quantity without precedent in any period in the Oman peninsula, and thus offering an important new insight into the burial practices of the Umm an Nar period.

The burning, says Benton, may have taken place on a pyre, going on to suggest that the initial pattern of burial was probably the simple interment of uncremated individuals inside the tomb. When, probably at a later date, the inhabitants of the Al Sufouh area began to practise cremation, they did so outside the tomb. The three pits, she suggests, probably represented three separate episodes of cremation.

In a cautious effort to explain what may have happened to require, in the cases of tombs 2 and 3, multiple cremations at the same time, she suggests that disease may have been responsible, no evidence of warfare being found on any of the surviving bones.

Making use of an exhaustive analysis of the pottery, softstone vessels, copper implements and other finds from the tomb, Benton suggests that the most likely date for the Al Sufouh site is in the period between 2,450 BC and 2,300 BC.

Benton's 245 page report, one of the most detailed scientific studies on an excavation in the UAE to have been published for several years, will be too specialist to appeal to the general reader, but represents an important addition to the corpus of published material on Emirates archaeology.

Peter Hellyer

Emirates Bird Report

The long-awaited Emirates Bird Report (EBR19) is finally with us. Running to 136 pages it details bird sightings and other observations made in 1994. The systematic list accounts for 66 pages while a central theme to many of the articles and notes contributed surrounds seabirds, islands and conservation.

There is a distinct emphasis toward rare birds in the early pages (best of which is a list of 44 species added to the UAE list between 1990 & 1996) but this is soon dispensed with and supplanted by a healthily unadulterated systematic list detailing the occurrence of a record 324 species recorded during the year, albeit rather a faded memory now. However, it is nice to be reminded of your own sightings and gnash your teeth or scoff at those of others. Black and white vignettes, mostly of vagrants, by John Busby, Bill Morton and Andy Roadhouse enliven the text, although the skuas (p.50) certainly needed to be drawn further away to be named as

Long-tails. There is liberal use of histograms, which may be a newly acquired skill as some score zero points even if the joker is played. What use is splitting numbers of species month by month into grebes to terns and sandgrouse to buntings, clever though it may be?

Autumn and winter waterfowl census (IWC) data are tabulated in the text, Inclusion of the 1995 IWC results later on is prudent and shows the importance of the UAE for seabirds and shorebirds, this, incidentally, being the only place to find the data in full.

There are eight pages of excellent colour photographs (27 plates in all), excluding the front cover shot of Lesser Noddy, which achieve, to my mind, a suitable balance of rare bird shots and record shots of 'events', with four pages devoted to illustrating a major paper on 'large white-headed gulls' [in the UAE] by Martin Garner. This paper which attempts to make order out of chaos is certainly not going to be the 'last word' in large

gull identification, and, as Garner himself admits, is a 'first step', although not helped by (so I'm told) incorrect labelling of more than one plate (plates 18 & 24 both actually show *heuglini*; 21 *barabensis* not *taimyrensis* & 20 shows a subadult not adult and so on) not to mention the still uncertain taxonomy of the complex.

Four accounts by a variety of local birders describe different Abu Dhabi islands and their birds. Some such sites surveyed were being visited for the first time and publication of the findings thus represents a valuable written record. Further shorter notes then follow. The finders of three of the ten species new to the UAE in 1994 describe the circumstances at the time and, just for good measure, Mediterranean Gull, new in 1995, also finds its way into print. Steve Madge adds a note on subspecies of House Crow in the UAE and Darren Frost pens some interesting ideas about Purple Sunbird hierarchy and territoriality in Kentish Plover. Refreshing to get away from rarity alone. Yours truly speculates on population sizes of some of our wintering passerines. Next comes publication, modesty permitting, of something some of us may live to regret, this being the post-300 lists of the 'UAE's top listers'. At least this gives an idea of how easy/difficult some species are to see in the UAE (or alternatively questions our credibility). That, the former of course, was our intention all along.

The final three pages review an unexplained miscellany of 'journals and books received'.

Although it is natural for birders to value rarity highly, and at risk of falling out with a good friend (the editor), I've never been a fan of rarity round-ups (p. 12-18, even though many non-rarities are mentioned) especially when it duplicates information published in a different form elsewhere in the same document (ditto 'first and last dates'). Personally I'd rather see a condensed account of seasonal comings and goings and annual fluctuations. Rarity information is far easier to assimilate from the systematic list than is collation in your own mind the dates and scale of separate falls, for example. A description of weather patterns with which specific

spring and autumn falls occur and of the numbers of the different species (including rarities!) involved, of cold weather arrivals, major seabird movements, breeding season summaries and similar phenomena would be better use of space. Of course, not everyone shares the same penchant for migration or island breeding birds and twitchers may overrule this suggestion.

There are other quibbles and personal preferences of style and content but none of any great consequence and there is no doubt that EBR 19 fills the niche it is designed to, providing a valuable, relatively comprehensive ornithological record and reference document, of increasing usefulness to environmental agencies in the UAE as well as appealing to recreational birders of any level - novice to expert. Some questionmarks concerning accuracy inevitably creep in, for example the correct apportioning of swift species in mixed flocks of pallid and common swifts. Certainly, informed readers can make their own judgments, and this simply serves to show that there is much still to learn and clarify concerning the avifauna of the UAE.

The **Emirates Bird Report** improves annually and is partly responsible for the upsurge in interest in the country, particularly amongst European birders. For that reason there is no question that it serves the national interests of the country well and it now remains for some of the effort that goes into its production to be rewarded by the safeguarding of some of the key sites, as well as an improvement of facilities to cater for visiting and resident birders alike. EBR19 is a valuable document no serious birdwatcher, conservationist or environmentalist can afford to be without. The editor rightly deserves a pat on the back for the thankless task of single-handedly producing this extraordinarily time-consuming (when he should have been birding) quality publication.

EBR19 can be obtained from Colin Richardson, P.O. Box 50394, Dubai by remitting Dh 35 (incl. p&p).

Simon Aspinnall

Desert Ecology of Abu Dhabi

Written for the National Avian Research Centre, part of the Environmental Research and Wildlife Development Agency, ERWDA, **Desert Ecology of Abu Dhabi** offers the results of the first detailed baseline scientific studies into the plants and wildlife of Abu Dhabi's deserts. According to ERWDA Patron, Sheikh Mohammed bin Zayed Al Nahyan, it represents "an important contribution towards the understanding of our desert."

In his Foreword, Sheikh Mohammed notes that the development of recent years has done "much to further the well-being of our people." At the same time, however, he adds "the desert and the wild places that have characterised the area for so long" have also changed, "and not always for the better."

"The growth of the towns and the cities have often been at the expense of the desert. Animals and plants, many of them exquisitely well adapted to life in the desert, have come under threat... But all is not lost, and our deserts still provide a home to a myriad of mammals, birds, reptiles and invertebrates."

Desert Ecology of Abu Dhabi includes chapters on geology, climate, plants, birds, mammals, reptiles and in-

vertebrates, all written by top experts in their fields, and which also draw upon the results of field work by other specialists. As shown by the extensive and useful bibliography, the studies have also drawn on the results of previous work, both published and unpublished, by visiting scientists, as well as by local UAE residents, many of them well-known names in local amateur natural history circles.

There is also, as one would expect, a chapter dealing with the houbara, which not only provides the first published detailed records of houbara wintering in the Emirates, but also looks at the international range of this enigmatic bird.

Lavishly illustrated with colour pictures of many of the species of plants, birds and animals identified in the text, this book is primarily a work of scientific reference. It will prove to be of great value both to scientists and to amateur natural historians as a basis for future work.

Desert Ecology of Abu Dhabi is available from ERWDA, P.O.Box 45553, Abu Dhabi, UAE (E-mail: narc@emirates.net.ae) at a price of 120 UAE dirhams.

ROUND-UP

Archaeology Review

Further work on Balghelam

A second season of work on Late Islamic sites on the island of Balghelam, east of Abu Dhabi, was undertaken by a team from the Abu Dhabi Islands Archaeological Survey, ADIAS, in January and February 1997, yielding further useful information about patterns of life in the Late Islamic period.

The first season, undertaken with the support of Presidential Court Chamberlain Sheikh Surour bin Mohammed Al Nahyan, took place in early 1996, with results appearing in an earlier issue of *Tribulus* (1).

The work involved the completion of a detailed survey and mapping of archaeological sites on the island, during which a number of previously unidentified sites were located. Test excavations were also undertaken on a midden of Late Islamic date, which produced substantial quantities of fish and of turtle bones, providing evidence of the diet of the island's former inhabitants.

A controlled pick-up of pottery from selected sites was also carried out, with a provisional assessment suggesting that the bulk of the material dates to the Late Islamic period, from the Sixteenth Century onwards.

The season also permitted ADIAS to refine a number of its field methodologies, developed during the course of work on islands in the far west of Abu Dhabi.

Merawah focus for ADIAS main season

The main spring season of the ADIAS, focussed in March on the island of Merawah, around 100 kilometres due west of Abu Dhabi, with facilities being provided by the Office of Chief of Staff Lieut. General Sheikh Mohammed bin Zayed Al Nahyan.

Merawah was first visited during the first ADIAS season in 1992, when an important site from the Late Stone Age was identified on a headland at the south-western end of the island. Lithics typical of the Arabian Bifacial Tradition obtained from the site, were subsequently published in an earlier issue of *Tribulus* (2), while a further examination of the site took place in 1994.

The 1997 season, led by ADIAS Director Dr. Geoffrey King, involved detailed mapping and drawing of the Late Stone Age complex, yielding evidence of structures that suggest that it may be the first major site of its type so far identified on Abu Dhabi's islands. Preliminary studies were also undertaken of some cairns near the site.

Elsewhere on the island, further investigation was undertaken of Late Islamic occupation on and above relict shorelines, making use of methodologies refined during work on Balghelam, while, with the assistance of Professor Graham Evans, who carried out the first investigations of Abu Dhabi's sabkhas (salt flats) in 1961-1962, work began on studying the physical evidence of relict shorelines and of possible changes in sea level in the last few thousand years.

South eastern Arabia's largest Iron Age fort

A second season of study of the Iron Age fortress identified at Fujairah's village of Awhala in early 1996 by a team from Australia's University of Sydney has shown it to be the largest such fortified structure of its period

anywhere in south eastern Arabia.

Work under the supervision of Professor Dan Potts, showed the fortress to cover an area of over 100 metres by 50 metres, with walls up to 2.4 metres thick.

"No other fortified Iron Age building of the same size has been found anywhere in the UAE and northern Oman", according to Potts, who described the site as being "of great significance for the understanding of the Iron Age period in south eastern Arabia."

The work by the Australian team, lasting from early December 1996 to mid-February 1997, also involved the excavation of a collective tomb in just outside the village of Sharm, near Dibba. The tomb, around 17 metres long and partially subterranean in construction, has been dated to the later centuries of the Wadi Suq period, around 1,400 BC, with use continuing into the Iron Age.

From the several hundred potsherds and softstone vessel fragments recovered from the tomb, it will be possible for the first time to draw a detailed picture of the types of pottery and other vessels used in the UAE's East Coast during the Wadi Suq period.

The excavations prompted a welcome endorsement from Fujairah Ruler and Supreme Council member Sheikh Hamad bin Mohammed Al Sharqi of the importance of archaeological research.

"By learning more about our past, we are better equipped to face the challenges of the present and the future," he was quoted by the daily Emirates News as telling the Australian team.

"Our ancestors learned to survive and to thrive in conditions that are much harsher than those we face today," the Ruler said. "Archaeological research into our past can help us to understand how our forebears tackled the challenges of the past. That, in turn, equips us better for today and tomorrow, and such studies are a vital part of our development process." (3)

Abu Dhabi Archaeology at Paris Fair

On the instructions of Minister of Information and Culture Sheikh Abdulla bin Zayed Al Nahyan, the UAE pavilion at the 1997 Foire Internationale de Paris included a display devoted to the archaeology of Abu Dhabi.

Cases covering the Late Stone Age, the pre-Islamic Christian monastic site on Sir Bani Yas and evidence of Late Islamic settlement on the Emirate's offshore islands were contributed by ADIAS, while cases featuring material from Third Millennium BC settlements at Umm an Nar and Al Ain and the Iron Age, again from Al Ain, were provided by the Department of Antiquities and Tourism in Abu Dhabi's Eastern Region.

References:

- 1: Garfi, S. (1996). Excavations on Balghelam island - a preliminary report. *Tribulus* Vol. 6.2. P. 5-10
- 2: Anon. (1993). Neolithic Flints from Merawah. *Tribulus* Vol. 3:1, P. 20
- 3: quoted in *Emirates News*, 16 February 1997

Peter Hellyer,
ADIAS.

Active winter season in RAK

The Ras Al Khaimah Department of Antiquities and Museums had a busy winter season, with a number of research projects and rescue excavations under way, as well as a number of visiting scholars conducting their own research or helping with the collections of the National Museum of Ras Al Khaimah.

The second season of excavations at Kush took place in November and December with a 9-strong team from Britain. They excavated deeper into the 12th and 13th century layers of the site, which seems increasingly likely to be that of ancient (i.e. pre-14th century) Julfar.

Important finds included imported Chinese pottery of types previously unknown in the region, as well as wares from India, Iran and Iraq. Two coffee beans recovered during the extensive flotation programme turned out to be the oldest yet found in the Arabian peninsula, pushing back the date of the first use of coffee among the Arabs of the region by 200 years. Work on the bone assemblage and pottery is continuing, and a third season is planned for October 1997. The work is funded by Shell and the National Bank of Ras Al Khaimah.

Work on a new road in the Shimal area uncovered three new tombs, two of which were excavated. SH602 is a mid-Wadi Suq (probably 1,500 BC) semi-subterranean long tomb, 25 metres long, with a fairly poor assemblage and around 16 interments. Of a type not previously identified at Shimal, it will be of interest because of the opportunity to associate objects with bodies within the tomb. Another large Umm an Nar tomb was uncovered nearby, the largest yet found. This, together with the Umm an Nar tomb excavated nearby by a German team eight years ago and a number of nearby mounds, puts Shimal on a par with major Umm an Nar sites elsewhere, such as at Umm an Nar and Hili.

More discoveries in Sharjah

The local archaeological team of Sharjah's Directorate of Antiquities, part of the Department of Culture and Information, completed during the winter months a third season of excavations at the Second Millennium BC cemetery at Jebel Buhays, excavating 19 burials, and bringing the total number to 68.

Burial site 50-59, located on the southern edge of Jebel Buhays, contained a group of 10 graves on the summit of the mountain. Oval in shape, and of differing sizes, they contained pottery, softstone utensils and bronze weapons, ascribed a date of around 1,000 BC, in the Iron Age.

Burials 60-68, on the northern edge of the jebel, were large subterranean chambers, containing in some cases numerous skeletons, the maximum number being 32, while they also included a large quantity of grave goods, including decorated pottery and softstone vessels.

The most important discovery was grave no. 66. Of a design not previously known from sites in the Emirates, it had an eastern entrance leading to a subterranean corridor, off which were four circular burial chambers in the pattern of a clover leaf.

In April, a team from Japan's University of Kanazawa under the direction of Professor Tatsuo Sasaki worked at Hulayla on an early Islamic site, dating to the 7th/8th century. This is an important and exciting site, and, together with Kush, adds much to our knowledge of the early Islamic period in the northern emirates.

The Department has also arranged for Christian Velde to be employed to finalise the publication of the excavations carried out at Shimal by a team from the University of Göttingen, now pending for seven years. The publication, due in around 16 months, will provide information on this important site to scholars worldwide.

Visits from Beatrice de Cardi (London), Regina Wienands (Aachen), Soren Blau, Jodie Benton, Nadia Iacolino and Diana Barker (Sydney), Mark Beech (York/ADIAS), and Didier Willems (Nivelles) in order to undertake research on various aspects of the collections of the National Museums, from human bones to animal bones and softstone vessels, made it a lively and exciting season, with progress being made on many fronts.

Finally, the computerisation of the Museum collection, commenced in 1994 by Department Director and Ras Al Khaimah Deputy Ruler Sheikh Sultan bin Saqr Al Qasim, is now nearly two thirds complete, with close to 8,000 objects having been catalogued, measured, photographed and databased. Plans are under way to upgrade the Museum display in order to mark the 10th anniversary of the National Museum of Ras Al Khaimah in November 1997.

*by Derek Kennet,
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and Museums.*

A total of 30 skeletons were found in the chambers, and one possibility is that the tomb as a whole was for a tribe or extended family, with each chamber for individual family use.

Among the burials was that of a young woman, aged between 25 to 30, holding in her arms two children, one around five years old and the other only a few months. Examination of the skull of the younger child suggested that it had suffered from malnutrition.

Another skeleton, of a male aged between 30-35, had damage to the skull suggesting that the individual had suffered a violent death.

The tomb appeared to have been built in the Wadi Suq period, between 2,000 BC and 1,300 BC, and to have been re-used during the Iron Age, in around 1,000 BC.

The cemetery as a whole is the first known example in the UAE of an extensive Wadi Suq cemetery.

Elsewhere on Jebel Buhays, the German anthropological Mission, led by Dr. Hans-Peter Uerpmann, continued, in association with the local Sharjah team, its investigation of Site 18.

During the one month long season, a total of 180 skeletons were excavated. All of the female skeletons were

adorned with the remains of necklaces, bracelets and other jewellery made of beads and stones, while in some cases, pearls were found. All of the skeletons were buried facing towards the East.

Nearby, evidence of a settlement was identified, where hearths and stone tools were found, as well as bones of goats, sheep, camels and wild asses, indicating that the inhabitants had herds of domestic animals.

Dating obtained from environmental remains on the site suggest that it was occupied around 5,000 BC, or the beginning of the Sixth Millennium BC, making it the oldest site yet identified in the Emirates.

In Khor Fakkan, the local archaeological team concluded work on sites adjacent to the port during a two month season.

Excavations on Hill 3 uncovered evidence of buildings and settlement dated, from ceramic evidence, to the early Wadi Suq period, at the beginning of the Second Millennium BC.

The tops and slopes of other adjacent hills also had evidence of settlement, as well as graves. The buildings, some of whose walls still stood to a height of more than a metre, were built of local stone, with rectangular and spacious rooms. Roofing appeared to have been of poles over which vegetal material was laid.

Finds from the settlement included grindstones, pottery and other domestic items, while tanks for the collection of water and stores were also identified.

The local Sharjah team also completed a first season of excavations at an Iron Age settlement identified on the top of Jebel Faiya, south of Dhald and adjacent to Jebel Buhays.

During the two month season, a stone wall surrounding the settlement was identified, within which were a number of buildings. A date of around 500 BC, in the local Iron Age III period, was ascribed to the settlement, on the basis of ceramic and other evidence.

Among artefacts found during the excavations were a number of beads and children's toys of clay, copper rings, and part of a clay toy in the shape of a tiger's head.

The Australian Archaeological Mission, led by Dr. Peter Magee of the University of Sydney, conducted a third season of excavations at the Iron Age site at Muwailah, near Sharjah Airport, dated to the end of the Iron Age II period.

Finally, the British Archaeological Expedition headed by Carl Phillips, of London University's Institute of Archaeology, conducted a short season, (the fifth) at Kalba on the Emirate's East Coast, where more architectural features dating to the Third Millennium BC were exposed.

*by Dr. Sabah Jassim Abboud,
Directorate of Antiquities,
Government of Sharjah.*



A view of the Wadi Suq settlement at Khor Fakkan.

Bird Report

OCTOBER

The heat continued to mid-month, with humid days in the first three weeks accompanied by temperatures in the 33-38 C range, making it pretty uncomfortable. There was an easterly blow on the 20th, becoming airless and hot again from 22nd with daily temperatures reaching 35 C on the coast. By the last few days of the month, daily temperatures had eased to 30 C.

A good selection of rare raptors was reported, including two **Honey Buzzards** at Bateen Gardens in Abu Dhabi on the 18th, a **Lesser Spotted Eagle** at Ramtha Lagoons from the 25th (9th record) and seven **Lesser Kestrels** at Al Wathba on the 25th, good numbers for autumn. 20+ **Sooty Falcon** nests were found during a visit to islands off the Sila'a peninsula from the 7th-9th.

Of the shyer species, a **Little Crake** was at the Emirates golf course, EGC, on the 29th, with a **Spotted Crake** on the 4th, and a **Water Rail** at Al Ghar marsh from the 31st. Four **Common Cranes** (7th record) turned up at the Al Ain Camel Track from the 12th, and would remain until the following March, (although one would be hit by a farm vehicle in the interim!) A **Black-winged Pratincole** was at Dibba on the 23rd (4th record), a **Caspian Plover** was at the EGC, on the 12th and 18th, and three **Long-toed Stints** were at Mafraq sewage works on the 24th (10th record). Odd records were a **Great Black-headed Gull** at Das Island on the 14th (10 weeks early), an **Indian Roller** at Al Wathba on the 4th (80 km south of its rather sedentary range in the northern emirates) and a **Pied Kingfisher**, probably an exile from the Euphrates delta, was found on the 25th at Safa Park in Dubai, where it would remain until about the 22nd January (11th record).

Two **Bimaculated Larks** were on Das on the 27th with a **Crag Martin** also there on the 12th, while **Blyth's Pipits** started occurring in Abu Dhabi from the 13th, with up to four at the horse racing track, and two at the Al Wathba Camel Track from the 25th. Two personata **'Masked' White Wagtails** were at Fujairah National Dairy Farm from the 23rd, where they over-wintered, while on Das, a scarce **Whinchat** was seen on the 1st and a female **Hooded Wheatear** on the 28th. A few rare warblers included a **Great Reed** at the EGC on the 18th, a **Barred Warbler** on Das on the 4th and 8th, and single **Wood Warblers** there on 1st and 10th and in Bateen Gardens on the 13th. A **Greenish Warbler** (3rd record) was at the EGC on the 4th. A male **Red-breasted Flycatcher** was on Das from 8th October to 1st November, with up to four **Common Rosefinches** also there from the 6th to the end of the month, with one at the EGC on the 18th. Also on Das, a **Little Bunting** was present from 6th - 22nd (10th record).

NOVEMBER

November started pleasantly, with temperatures barely reaching 30 C during the whole month. A sharp shamal (north westerly wind) hit the Arabian Gulf coast on the 10th, with scattered clouds over Masafi on the 13th. Storms threatened on the 18th (with some local showers recorded), and it became noticeably cool with daily temperatures of only about 25 C from the 21st. More local thunderstorms were reported on the 28th.

A **Great Crested Grebe** was at Khor Dubai on the 28th

(9th record) and a **Bittern** at Zabeel on the 9th (17th record). The cool northerly stream brought in an influx of geese, with over 20 **Greylag Geese** reported from at least five locations from the 14th and two **White-fronted Geese** at Al Ghar lake on the 14th and three at the EGC on the 21st (6th and 7th records). A **Lesser White-fronted Goose** was a real surprise when found at Umm Al Qaiwain on the 20th (1st record). **Refound** at Ramtha in early December, it stayed there into March. A **Ruddy Shelduck** was at Khor Dubai on the 28th (16th record), single **Cotton Teal** at Al Ghar on the 14th and at Khatt from the 30th (5th and 6th records) and a **Red-crested Pochard** was at Khatt Lake from the 25th (7th record). A **Merlin** was at Al Wathba on the 25th (13th record).

A **Demoiselle Crane**, which did not hang around, was at Khor Dubai on the 9th (4th record). Amongst other wetland sightings, a **Caspian Plover** was at Al Ghar on the 29th, a **Golden Plover** was reported at Abu Dhabi on the 30th (possible 6th record), two **Sociable Plovers** at Dibba on the 30th (9th record), eight **Great Knot** at Khor Al Beida on the 17th and a **Long-toed Stint** was at Al Ain Compost Plant on the 25th (11th record). Three **Lapwing** were at the EGC on the 28th.

Another **Pied Kingfisher** was found at Abu Dhabi's Eastern Lagoon in mid-November (11th record), and stayed for several weeks. A **Long-eared Owl** was in the Jebel Ali Hotel gardens on 22nd (6th record), and single **Egyptian Nightjars** were on Abu Dhabi Corniche on the 4th and at Umm an Nar on the 23rd. The season's first **Oriental Skylark** was at Al Wathba on the 14th, and one **Olive-backed Pipit** was at the EGC on the 16th (17th record). A **Blyth's Pipit** was at Al Wathba on the 26th, with two more at Al Ain camel track on the 27th.

A spectacular 1622 **Short-toed Larks** were on passage at Seih Al Miyah, north of Al Ain, on the 20th, while two **Hypocolius** were found at the EGC on the 4th (seen again on the 21st), with up to 35 at Ghantut from the end of the month. A **Red-breasted Flycatcher** was at Bateen Park on the 20th, a **Robin** at Jebel Ali on the 23rd, and a **Little Crake**, a **Hume's Yellow-browed Warbler** and a **Rustic Bunting** (6th record) were at the EGC on the 22nd.

DECEMBER

Pleasant, with temperatures remaining around the average 22-25 C for the most of the month. Scattered clouds were present on several days, the weather becoming unsettled with some rain from the 23rd-25th.

More **Greylag Geese** turned up, including one at Ramtha from the 5th, one at Al Wathba from the 13th and three over Ras Al Khaimah Airport on the 14th. Single **Ruddy Shelducks** were at Al Ghar lake 19th-26th and at Al Ain pumping station on the 30th (16th & 17th records), while a **Common Shelduck** was at Ramtha on the 20th, the only record for the autumn. The **Cotton Teal** and **Red-crested Pochard** remained at Khatt Lake until the 3rd, eventually being pushed off by hunters. A **Golden Eagle** was over Dhayah on the 5th (5th or 6th recent record) and two **Imperial Eagles** were at Dhayah and Hamraniyah from the 4th, with one at Ramtha on the 9th. Also at Ramtha, a **Shikra** was reported in mid-December (2nd record if accepted). Probably

Bird of the Month (if not Bird of a Lifetime for many lucky Abu Dhabi birders) was a Little Bustard (1st record) in Mushrif Palace Gardens for a few hours on the 17th. Rare in December, five Cream-coloured Coursers were at the Al Ain Camel Track fields on the 18th, while reports of White-tailed Plovers included up to five at Al Ghar marsh from 19th-26th and four at Al Ain compost plant on 26th. Numbers of Great Knot had increased to 15 at Khor Al Beida from the 27th, while a Red-necked Phalarope at the EGC on the 28th was a late surprise.

A Mediterranean Gull reported at Ramtha lagoons on the 27th would be a 2nd or 3rd record, if accepted. 230 Saunders' Little Terns at Dhabbayah on the 20th was a high winter number. At least one Oriental Skylark was found at Al Ain camel track fields on the 13th, with three at Fujairah National Dairy Farm on the 14th and one at Al Wathba on the 19th. A flock of 24 Lesser Short-toed Larks were at Al Wathba on the 13th, while two Red-rumped Swallows at Al Ain camel track, also on the 13th, were rare winter records. Even rarer, a Buff-bellied Pipit was at Al Ghar lake on the 26th, later moving to the Al Wathba camel track grandstand lawn on the 28th, while another was at Ruwais from 26th-27th: full details of both are awaited as 1st and 2nd records. More mundane, but rare in the UAE, another Robin was found on the 7th, this time at the EGC. A migrating Hooded **Wheatear** was on Das on the 7th and 8th, while in Abu Dhabi the regular wintering Masked Shrike appeared at Mushrif Palace Gardens on the 26th. Meanwhile, on Das two Brown-necked Ravens were present from the 28th (1st record for the island), a Brambling on the 4th and up to five Spanish Sparrows were there from the 4th -17th.

JANUARY

Average temperatures of 22-25 C prevailed in January, with a few days of below average temperature and unsettled weather on the 3rd, 4th, 8th and 17th, but with no measurable rainfall. The thermometer barely reached 19 C on the 15th, with a thundery, warm day following on the 16th. Some local rain fell on the 22nd, a cold day, (maximum temperature 17 C), with severe storms on the 25th and 26th, when 25mm of rain fell in Dubai.

However, bird movement was not stimulated by the weather, in a month when migration is only localised anyway. Single Golden Eagles were at Sir Bani Yas on the 4th and still at Dhayah (probably wintering) on the 9th (6th and 7th recent records). A Long-legged **Buzzard** was found during a trip to Balghelam island on the 28th, while on the same day, two Honey Buzzards (probably including one Crested Honey Buzzard reported there on the 23rd) were flying over Bateen Gardens in the centre of Abu Dhabi. A Merlin was reported at Al Wathba on the 16th (possible 14th record).

An early **Spotted** Crane was at Ramtha on the 20th, along with two Jack Snipes (probably regular, but rarely seen). A Sociable Plover was well watched at the new Umm an Nar golf course from the 13th (11th record), while numbers of Great Knot were up to 34 at Khor Al Beidah on the 24th. A Woodcock was reported at the EGC on the 28th (11th record, if accepted), and an exceptional flock of 335 Red-necked Phalaropes was bobbing off Ras Dibba on the 31st, when two Lapwings were seen at Sharjah. A remarkable five wintering Short-eared Owls were hunting the plague of mice

on Qarnein Island on New Year's Day.

12 Lesser Short-toed Larks were in Baynunah on the 22nd and 12 Bar-tailed Desert Larks were found east of Jebel Ali on the 24th during a gazelle survey. A **Buff-bellied** Pipit was at Al Wathba on the 3rd (probably the same as reported in December) with another at Umm an Nar golf course on the 22nd (possible 3rd record). Three Olive-backed Pipits were at Fujairah National Dairy Farm on the 31st (18th record) in a flock of Tree Pipits, itself remarkable for the time of year, and a Mourning **Wheatear** was at Ras Al Khaimah from the 24th January to 2nd February. A real 'rarity', a White-crowned Black **Wheatear** was on Das on the 26th (3rd record).

A Moustached Warbler was at Ain Al Faidah on the 26th (only the 7th record), and a Hume's **Yellow-browed** Warbler was at Ras Al Khaimah on the 9th (26th record, if accepted). A fine Red-breasted Flycatcher appeared to be over-wintering in the shelter-break on Khalidiya Spit in Abu Dhabi from the 24th, and, finally, another (wintering?) Spanish Sparrow was reported on Balghelam on the 28th.

FEBRUARY

The month was exceptionally cool, with average day-time temperatures of only around 20 C. A *shamal* set in from the 6th-8th and there were some hot calm days of 28+ C from the 19th, reaching a sweltering 32 C on the 23rd.

Some of the memorable birds of the month included, at Al Ghar lake, a massive count of 141 Black-necked Grebe on the 17th, four Ruddy Shelduck from the 2nd (19th record) and a Golden Plover from the 1st (7th record). An Intermediate Egret (possible 2nd record) was claimed at Umm an Nar on the 11th.-A late, secondhand report of a Black-shouldered Kite near Jebel Ali sailing club would be only the 5th record, but was unlikely to get into the records without first-hand confirmation. In contrast, a fairly twitchable Mediterranean Gull made itself available for several days from the 17th along Abu Dhabi's Eastern Corniche (possible 2nd or 3rd record). 57 Great Knot were at Khor Al Beidah on the 4th. 17 Bimaculated Larks were at Al Wathba on the 11th, with 13 more and one Oriental Skylark on the 17th, while two **Blyth's** Pipits were at Al Wathba on the 2nd and up to six were at Al Habab from 19th February - 2nd March (probably wintering and overlooked):

A Hypocolius on Das on the 24th was a good record, and a possible indication of the beginning of movement throughout the UAE. A Cuckoo at the EGC on the 7th was the earliest ever UAE record. A Finsch's **Wheatear** was reported in Liwa on the 9th and three more at Ras Al Khaimah on the 10th (14th and 15th records, if accepted). The Moustached Warbler at Ain Al Faidah was in song on the 24th. A Purple **Sunbird** on Das on the 13th was an island first and a sign of possible range extension.

MARCH

Temperatures started to rise during the first week, with unsettled weather from the 3rd-4th and hot southerly winds from the 5th-8th. The unsettled weather continued, with temperatures averaging 26 C until showers predominated between the 14th-17th. The rest of the month was calm, with showers on 25th and 26th and a rain storm on the night of the 28th.

A Great Crested Grebe was at the EGC on the 20th

(10th record). Up to three **Ruddy Shelduck** were at Ramtha from 2nd-14th, with one more at Al Ain pumping station on the 22nd. This has been a boom winter for this species, with a record number seen. A **Golden Eagle** was seen again at Rams on the 26th, while a **Shikra** seen at Zabeel on the 18th was probably the same bird recorded in the autumn (or possibly the UAE's 3rd record). A **Black-bellied Sandgrouse** heard over Al Ain camel track on the 3rd would be the 2nd record, if accepted. A **Short-eared Owl** was on Das on the 6th and the **Pied Kingfisher** (11th record) remained at Zabeel until at least the 18th.

One **Blyth's Pipit** was at Dibba from 7th-13th, a **Finsch's Wheatear** at Qarn Nazwa on the 7th (possible 16th record), and a **White-crowned Black Wheatear** was on Das, also on the 7th (4th record). The **Red-breasted Flycatcher** was last seen on Khalidiya Spit in the middle of the month. A **Little Swift** was at Shimal, Ras Al Khaimah (13th record), and a **Cinereous Bunting** was at Al Jazeerah Khor, both on the 21st. Finally, a **Reed Bunting**, seen on an Umm Al Qaiwain roundabout on the 20th, was only the 5th record.

All records are subject to confirmation by the EBRC.

Observers: Simon Aspinall, **Birdquest**, Dave Bradford, **Mark Finn Birdwatching Breaks**, *Phil Brett*, Brian Curtis, Neil Curtis, Hanne & Jens Eriksen, *Gary Feulner*, Darren Frost, *Colin & Joy Glendenning*, Nick & Claudia Gosse, Geoff & Joan Gunson, Abdul Hakim, Peter Hellyer, Jenny Hollingworth, *Dick Hornby*, Kevin Hyland, Steve James, Inger Larsson, Carolyn Lehmann, **Limosa Holidays**, Malcolm McDonald, **Naturetrek**, Brynley Newman, Dieter Oelkers, **Ornitour**, Rob Quested, Len Reaney, *Colin Richardson*, Pekka Rusanen, David Sheldon, **Sunbird**, Markku Tunturi, Andrew Twyman, Markku Vakiola, Matts Waem, Mike Wood and Andrew Ward. (And, of course, thanks to all those who submitted records but whose names have been omitted - our apologies).

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خلاصة بنتائج الموسم الأول للتنقيبات الأثرية في جبل فاية

تمكنت بعثة التنقيب الأثرية المحلية برئاسة د. صباح عبود جاسم خلال المسوحات الأثرية التي أجرتها على امتداد سفوح جبل فاية جنوب مدينة الذيد في إمارة الشارقة من العثور على مستوطن كبير يمتد على مساحة واسعة على سفوح جبل فاية. وقد استهلّت البعثة التنقيب الأول بإجراء تنقيبات في أجزاء معينة من الموقع استمرت لمدة شهرين واستطاعت من التعرف على ملامح سور حجري كبير يضم داخله تشكيلات بنائية وأرضيات عديدة. وقد تم العثور على كمية من كسر الأواني الفخارية والأدوات المصنوعة من الحجر الناعم إضافة إلى أدوات حجرية كانت تستعمل في جرش وطحن الحبوب. وتم العثور أيضاً على مجموعة كبيرة من اللقى الأثرية المتنوعة مثل الخرز والدبابيس وأقراص المغازل والدمي الطينية ولعل أجمل هذه القطع رأس لدمية تمثل نمراً عربياً يحمل زخارف مصبوغة، وكذلك تشكيلات متنوعة من الخواتم النحاسية الجميلة. هذا وتأمل البعثة في مواصلة التنقيب خلال المواسم القادمة من أجل كشف المزيد من التفاصيل التي يحتويها هذا المستوطن الذي يعود في تاريخه إلى فترة النصف الأول من الألف الأول ق.م.

انتهاء أعمال التنقيبات الأثرية في خورفكان

يسرنا أن نبارك لكم شهر رمضان المبارك، أعاده الله عليكم وعلى الأمة العربية والإسلامية باليمن والخير والبركات. لقد أنهيت بعثة التنقيب الأثرية المحلية أعمال تنقيباتها الأثرية والتي أجرتها للموسم الثالث على التوالي في ميناء خورفكان، وقد استمر الموسم الأخير لفترة شهرين تم خلالهما مواصلة التنقيب في الجبل رقم (٣)، وكانت نتائج التنقيبات على جانب كبير من الأهمية إذ تمكنت البعثة من الكشف عن المزيد من الملامح المعمارية وتحديد المساحات التي كان المستوطن ينتشر فوقها، ونستطيع الآن رسم صورة جيدة عن شكل المستوطن وأنواع البيوت وأساليب العمارة وطرق المعيشة التي كانت سائدة هناك قبل حوالي أربعة آلاف سنة خلت.

ولعل أهم اكتشاف توصلت إليه البعثة من خلال عملياتها التنقيبية هو أن هذا المستوطن كان يمتد على مساحة واسعة. تحتل سفوح ثلاثة جبال كبيرة متجاورة، ويتضح جلياً بأن السكان بذلوا جهوداً جماعية مكثفة لتسوية مدرجات السفوح وجعلها تتلائم لأغراض البناء والسكن وقد استخدموا الحجارة المتوفرة في الجبال لتشييد دورهم التي سقّفوها بالأخشاب وأغصان الأشجار المحمولة على أعمدة خشبية لازالت قواعدها تنتشر في جميع أرجاء المستوطن، ولقد اعتمدوا أسلوب التخطيط المستطيل الشكل وكانت غرفهم تمتاز بالاتساع، وذات مداخل منتظمة، وقد احتوت الغرف على دلائل تشير إلى ممارسة النشاط البشري اليومي مثل أحجار الطحن وأدوات حجرية أخرى وأوعية فخارية متنوعة، واحتوت الدور على أحواض لخزن الماء ومواقع لخزن المواد.

عرض لآثار الشارقة

بقلم: د. صباح جاسم العبود

خلاصة بأعمال الموسم الثالث للتنقيبات الأثرية في منطقة جبل البحيص

استأنفت بعثة التنقيب الأثرية المحلية برئاسة د. صباح عبود جاسم تنقيباتها الأثرية في منطقة جبل البحيص للموسم الثالث على التوالي، وتم تنقيب مجموعة جديدة من المدافن بلغ مجموعها (١٩) مدفناً، وبذلك يرتفع عدد المدافن والمواقع المنقبة في منطقة جبل البحيص حتى الآن إلى (٦٨) مدفناً وموقعاً، تعود إلى الألفين الثاني والأول ق.م.

لقد تم بناء المدافن ٥٠ - ٥٩ على قمة الجبل في الطرف الجنوبي من سلسلة جبل البحيص وكانت جميع هذه المدافن العشرة مشيدة فوق سطح الجبل وتراوحت أحجامها بين الكبيرة والصغيرة، وقد بنيت وفق تخطيط بيضوي الشكل تقريبا، وقد احتوت هذه المدافن على آثار يعود معظمها إلى فترة الألف الأول ق.م، وكانت الأواني الفخارية والحجرية والأسلحة البرونزية تشكل جزءاً مهماً من اللقى الأثرية.

أما سلسلة المدافن ٦٠ - ٦٨ فقد احتلت موضعاً في الطرف الشمالي من سلسلة جبل البحيص، وتميزت بضخامتها وكبر حجمها، وقد شيد معظمها تحت الأرض واحتوى البعض منها على حجرات دفن عديدة ضمت العشرات من الهياكل العظمية البشرية المصحوبة مع هدايا دفنية غنية تدل على ثراء ووجاهة المدفونين.

لقد تم العثور على مجموعة من الأواني الفخارية الكاملة ذات الزخارف المصبوغة والأشكال المتنوعة إضافة إلى الأوعية المصنوعة من الحجر الناعم وذات زخارف متميزة.

ولعل من أبرز مكتشفات هذا الموسم هو المدفن رقم (٦٦) الذي ينطوي على أهمية خاصة من حيث طرازه المعماري والمواد الأثرية التي وجدت في داخله. لقد شيد هذا المدفن الواسع تحت سطح الأرض ويؤدي مدخله الواقع في الجهة الشرقية إلى مجاز داخلي يقضي إلى حجرات الدفن البالغ عددها أربعة حجرات ذات تخطيط دائري الشكل وقد رتبت هذه الحجرات الأربعة على شكل ورقة البرسيم Clover-shaped بصورة هندسية متناظرة.

لقد وزع الموتى على هذه الحجرات الأربعة وبلغ مجموع الهياكل العظمية المكتشفة في هذا المدفن ثلاثون هيكلًا. ويُعتقد أن هذا المدفن كان يعود إلى قبيلة واحدة، وتم تخصيص كل حجرة فيه إلى عائلة معينة، فقد ضمت إحدى الحجرات امرأة شابة يتراوح عمرها بين ٢٥ - ٣٠ عاماً كانت تحتضن طفلها، ويبلغ عمر أحدهما ٥ سنوات، في حين يبلغ عمر الأصغر بضعة شهور فقط، ويتضح من جمجمة الطفل تعرضه لسوء التغذية.

وتشير جمجمة أحد الأشخاص المدفونين في حجرة أخرى إلى أن موته كان بسبب حادثة عنف وأن عمره وقت الوفاة كان يبلغ ٣٠ - ٣٥ عاماً. تعود محتويات هذا المدفن إلى الألف الثاني ق.م، وكان قد أعيد استعماله خلال فترة الألف ق.م. ويعتبر من المدافن النادرة التي تعود إلى فترة وادي سوق حيث أنه الأول من نوعه الذي يتم اكتشافه حتى الآن في جنوب شرق الجزيرة العربية.

هذا وقد أنهت البعثة تنقيباتها لهذا الموسم بعد أعمال استمرت على مدى ستة شهور متوالية.

البعثة الأثرية الألمانية

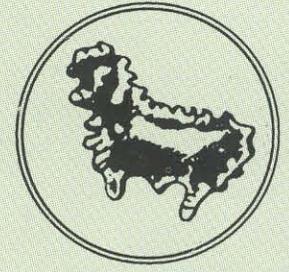
استأنفت البعثة الأثرية الألمانية برئاسة الأستاذ الدكتور/ هانس بيتر إيربمان من جامعة توبجن وبمشاركة بعثة التنقيب الأثرية المحلية برئاسة الدكتور/ صباح عبود جاسم أعمالها المشتركة للموسم الثاني بتنقيب الموقع رقم (١٨) في منطقة جبل البحيص.

وقد أسفرت التنقيبات التي استمرت على مدى شهر واحد عن كشف المزيد من الهياكل العظمية البشرية والتي بلغ مجموعها حتى الآن (١٨٠) مائة وثمانون هيكلًا عظيمًا، تم دفنها في موضع واحد، وقد لوحظ أن جميع هياكل النسوة تحتوي على مئات القلائد المصنوعة من أحجار شبه كريمة متنوعة وبعضها من اللؤلؤ مما يدل على أن الإناث كن قد دفن بكامل زينتهن وقد صفت جميع الهياكل العظمية باتجاه واحد ونحو جهة الشرق.

ومن الأمور المهمة التي تم كشفها خلال هذا الموسم هو العثور على بقايا مستوطن يعود على ما يبدو إلى ذوي الموتى المذكورين أعلاه والذين دفنوا على مقربة منه ووجد في هذا المستوطن العديد من موائد النار وبقايا تركيبات حجرية بسيطة. وتشير البقايا الحيوانية التي وجدت داخل هذا المستوطن إلى أن الإنسان كان قد مارس صيد الحيوانات البرية مثل الجمال والحمر الوحشية والماعز والأغنام، وقد أظهرت نتائج تحليل عينات عضوية من هذا الموقع إلى أنه يعود إلى حوالي سبعة آلاف سنة مضت.

ويعتبر هذا الموقع من أهم المواقع الأثرية التي تعود إلى حقبة العصر الحجري القديم في جنوب شرق الجزيرة العربية. هذا وقد حظي السيد رئيس البعثة الألمانية بشرف مقابلة حضرة صاحب السمو الشيخ الدكتور سلطان بن محمد القاسمي، وقدم الشكر وامتنان البعثة الألمانية للرعاية وحسن الضيافة والدعم الذي تلقت البعثة خلال فترة عملها في الشارقة وقد أثنى صاحب السمو حاكم البلاد على نتائج أعمال البعثة ووعد بمواصلة الدعم وتهئية السبل الكفيلة بانجاح أعمال التنقيب من أجل الكشف عن المزيد عن المعلومات والحقائق التاريخية وتوثيق الماضي المجيد لهذه الأمة.

تريپلوس



جمعية الإمارات للتاريخ الطبيعي

أبريل ١٩٩٧م

العدد: (٧١)

