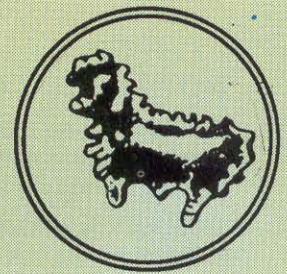


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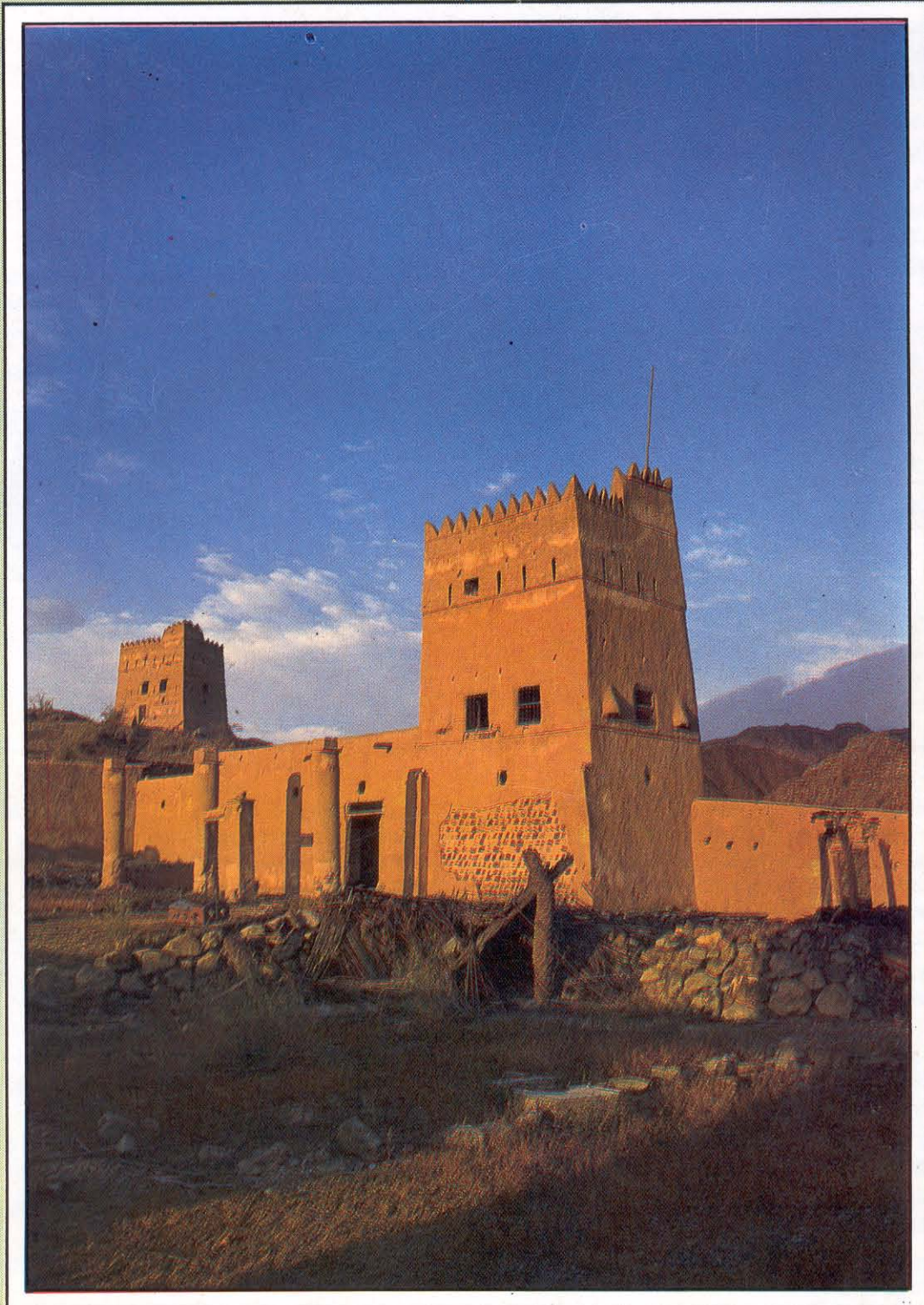


Bulletin of the Emirates Natural History Group

Vol. 4.1

APRIL 1994

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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.

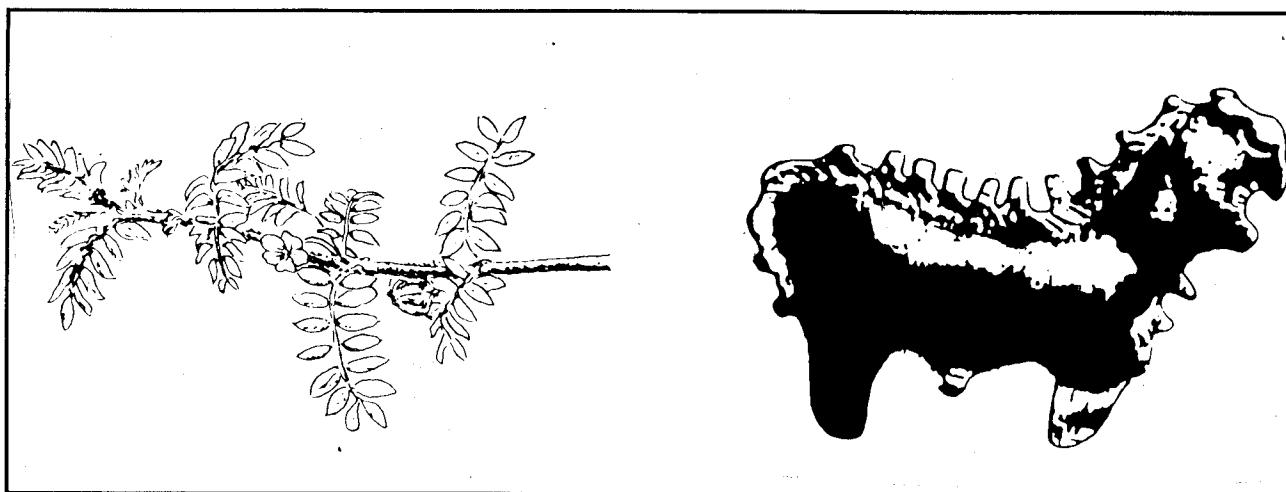
TRIBULUS is published twice a year, in April and October. The aim of the publication is to create and maintain in standard form a collection of recordings, articles and analysis on topics of regional archaeology and natural history, with the emphasis focussing on the United Arab Emirates and adjacent 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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A.R. Western, Chief Editor,
Dr. Patrick Osborne,
Dr. Michael Gillett,
P. Hellyer, Managing Editor



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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Cover illustrations:

English : The old palace at Wadi Hail, Fujairah (A.R. Western)

Arabic : A view of Qarnein Island, Abu Dhabi (S.J. 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 27, without whom publication in this format would be impossible.

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

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Editorial

As this issue of *Tribulus* went to press, the major environmental focus in the country was the massive oil spill off the Fujairah coast. Having been threatened by the huge slicks in the Northern Gulf in 1991, it is now the turn of the East Coast to face littoral degradation.

This time, the key problem seems to be not so much the amount of oil spilt as a result of the collision between the tankers 'Seki' and 'Baynuna,' but rather the inadequacy of the response.

By initially relying on the representatives appointed by the owners of the two tankers, it appears that the problem was allowed to intensify due to the limited amount of available equipment, poor advance planning and problems of co-ordination between the bodies involved, all being exacerbated due to a lack of proper management of the crisis.

A slow response to a major oil spill is simply not good enough, especially when experience in rapid reaction has been gained in similar disasters elsewhere around the world. One should, though, pay credit to ADNOC, who offered both experts and expertise immediately.

Once the problem is under control, it is to be hoped that the Federal Environmental Agency and the Government of Fujairah will take into account all the ramifications of the disaster for drawing up future contingency plans, at a local and national level.

While on the topic of marine pollution, another form of oil contamination has also recently come to light, that of the dumping of tanker sludge onshore. The latest case involves 165 tonnes buried on a Khor Fakkan fruit farm, with, it appears, little thought being given to the environmental impact.

When analysed, the oil was found to be highly toxic, with high percentages of lead, zinc and cadmium leaking from supposedly secure bags into the soil.

Once again, this should be a case for the FEA to take up, with the introduction of legislation to cover all seven Emirates, instead of the present haphazard system of individual rules and responsibility.

It is easy to point a finger at companies or individuals who dump large amounts, sometimes illegally, but each of us has a responsibility when it comes to domestic litter. While the various municipalities have cracked down on litter in city streets, the same is not true of the open countryside. Everywhere the impact of litter is to be seen. How many millions of metal, glass and plastic drinks containers and plastic bags are there to be seen, blighting roadsides, deserts and mountains?

I remember a few years ago being so appalled by this visual eyesore that I took a number of slides to illustrate the sheer extent of the problem. One of my most poignant slides is one of a donkey hobbling in a wadi with a tin can firmly wedged on to one foot, and badly cutting into the flesh of the ankle.

Much of this synthetic material does not decompose, and even when collected in municipal garbage, most of it is still dumped in landfill sites.

Old habits die hard, and the law itself is ineffective outside the cities. Everyone needs to be educated

about litter, and to try to use less litter-producing items like plastic bags, (the average Dubai family is said to use twelve a day!).

Given the climate and open landscape of most of the UAE, a lot of this litter is a permanent reminder of our lack of care for the environment.

Moving to happier topics, the first issue of the glossy quarterly magazine *Arabian Wildlife* was recently published in London. Dealing with wildlife issues throughout the peninsula, the issue contains a number of items specific to the UAE, including an article on the breeding Greater Flamingos on the late-lamented Al Ghar Lake, by Peter Hellyer, one on the background and aims of our own ENHG, and a special feature on conservation in the Emirates.

The quality of writing, photography and presentation is first class, and the magazine should rapidly become a foremost publication of its genre. Those interested may subscribe for Dh 70 per year, (four issues), via 'Arabian Wildlife,' P.O.Box 12119, Dubai. Twenty per cent of the subscription money goes to the Arabian Leopard Trust, whose founder Marijcke Jongbloed is the first winner of the Sheikh Mubarak bin Mohammed al Nahyan Annual Prize, created by our Patron to supersede the earlier Jashanmal Annual Award.

Marijcke is a well-deserved winner, for her years of efforts in promoting environmental awareness, capped by the recent ground-breaking ceremony for the planned National Heritage Breeding Centre near Fili in Sharjah.

Another addition to the spate of publications to have appeared recently on the country's history and archaeology is *'Asimah: An Account of a Two Month Rescue Excavation in the Mountains of Ras al Khaimah,'* by Dr. Burkhard Vogt.

Published at the expense of our Corporate sponsor, Shell, through its Dubai associate, the book yields important evidence of occupation in the Third Millennium BC, while Vogt adds a timely reminder of the threat to archaeological sites in the UAE from development, neglect and vandalism.

This issue of *Tribulus* commences our fourth year of publication, and the Editorial Board would like to thank all contributors past, present and (hopefully) future. A glance at the Contents page shows the usual cross section of topics, some familiar, some less so. Michael Gillett's article on insect orders in Al Ain is an introduction to a subject that has hitherto received scant attention in our pages. The superb photographic spread of a cannibalistic toad, (see also *Notes and Queries*) must surely rank as one of the most unusual illustrations ever to come the way of the Group, and just goes to show what careful observation can turn up.

We trust that members and readers will continue to observe and to record, and, of course, to advise us of their findings.

ROB WESTERN

The Birds of Yasat, Ghaghah and Kafai, United Arab Emirates

by Simon Aspinall

Introduction

The Abu Dhabi Islands Archaeological Survey Project team visited islands of western Abu Dhabi, close to the Qatar and Saudi borders, between March 30 and April 11, 1993, courtesy of Lieutenant General Sheikh Mohammed bin Zayed al Nahyan, Chief of Staff of the UAE Armed Forces who provided the use of his private dhow and crew. The Science Department of the National Avian Research Centre was invited to send an ornithologist to record the natural history and specifically the bird populations of these islands in the almost complete absence of any previous surveys or data.

The Yasat island group is uninhabited except for a police/border post with two staff on South Yasat. Ghaghah also has a similar but more sophisticated post and at least one cat. On Kafai, there is a larger population. This island is overrun with feral cats.

The following account provides a detailed summary of breeding and visiting birds and other wildlife recorded between 31 March and 11 April 1993.

The island of Yasat (North Yasat) is in Map Square SA 25 of the Atlas of Breeding Birds of Arabia, ABBA. South Yasat (Yasat as Sufla), Al Yasat as Saghirah and the outcrop of Juderah are in ABBA Square RB 25. Ghaghah and the surrounding islands mentioned in the text and illustrated on the map at the end of this paper are also in ABBA Square RB 25, while Kafai is in Square RB 26.

BREEDING SPECIES

Western Reef Heron (*Egretta gularis*)

A number of individuals were seen at all sites. The only breeding record was a colony of seven nesting pairs on Juderah (3 April), part of the Yasat group. The nests were situated in low flat vegetation (*Arthrocnemum salsola*). Clutch size varied from 2-4 with broods from two days to two weeks old. The ratio of white to dark phase adult birds was approximately 2:1.

Socotra Cormorant (*Phalacrocorax nigrogularis*)

North Yasat

About 150 nests were still in use on 31 March out of a total colony of about 2000 nests in the northeast of the island. It is not known how many of the 2000 nests had been used this season. There was a remarkable degree of asynchrony among still active nests, with individual nests containing eggs or young from one day to near fledging age. A roost of 10,000+ birds assembled at the colony late each afternoon.

"Cormorant Island" north of Ghaghah (see map)

About 1900 nests were still active (5 April) out of a colony maximum of 2500 nests. Egg-laying both here and on North Yasat must have continued at least until early March. This is considerably later than previously recorded in UAE (or Saudi Arabian) colonies. A roost count estimated 44,000 birds on 8 April. Shotgun cartridges were found here and on "Shot Island" to the

● الطيور في جزر ياسات وغاغاه وقافية في المنطقة الغربية لامارة أبوظبي وهو المسح الأول من نوعه في المنطقة.

southwest of Ghaghah. A number of dead birds were seen including young from this season (starved). Some harvesting of young birds takes place from these colonies. There is certainly a sizeable sustainable yield to be had, and this is preferable to the shooting that occurs.

Prey at both colonies was "sardines" which the boat crew referred to as "uma" (transcribed phonetically).

Osprey (*Pandion hallaetus*)

A large number of osprey nests was recorded (Table 1), although the breeding season had clearly finished for most pairs in late February or soon after. One pair still had young in the nest and there were many recently fledged young still loosely attached to individual nest territories or with adults still in attendance (this is normally for two weeks or more after young fledge).

As an apparently resident population and due to the high density of pairs, defence of the nest territory is likely to have to be continuous throughout the year. This does not mean that an accurate survey of breeding pairs is possible in the post-breeding season as at the time of the present visit (some nests were apparently 'occupied' some days but not on others). Various definitions were used to describe nests: 1. **Nest**, this was any identifiable construction even if derelict; 2. **Active**, when a nest was in a good state of repair or had material freshly added or had recent food remains or recently lost feathers or fresh 'splash' or this season's addled egg; 3. **Occupied** when there were still young birds on or adjacent to the nest in the air or on the ground, or an adult on the nest or showing alarm nearby or overhead of observer and circling.

It is possible that some breeding pairs were absent (although unlikely as nests would be lost to other birds?) or that the population was formerly larger (also probably unlikely as nests would not necessarily be in a good state of repair unless taken over by birds still present). More likely is that each current pair maintains more than one nest; the overall percentage of occupied to active nests suggests an average of 1.8 nests/pair.

The overall mean distance between nesting pairs was 1.7 - 1.86 km (as the crow flies), the closest recorded distance between two active nests being about 60m, where both clearly belonged to the same pair. The minimum tolerated distance between different pairs appears to be approximately 500m.

One possibility is that the breeding strategy here may involve bigamy and this would then allow the high density of breeding pairs as was observed. 'Alternative'

nests may remain unused each season or there may be a degree of sequential breeding. The last would also allow a large number of pairs at high density but there was no evidence of asynchrony, all young having apparently fledged at much the same time. Bigamy is known in ospreys but sequential breeding, as far as I know, is not. A number of unused but active (i.e. maintained) nests in any one season perhaps combined with an element of bigamy is probably the most likely picture.

The breeding population of ospreys in the Arabian Gulf is not known accurately and the suggestion of a non-breeding season population of about 1000 is itself a 'best estimate' in probable need of revision upward. The population of these islands alone represents over 10% of this current figure. No adults were recorded with more than two young. The breeding productivity of ospreys in the Arabian Gulf, based on this small sample, would average up to about 1.5 young per successful pair compared with nearer 2.5 per successful pair in north-west Europe and the USA. This is probably to be expected in a resident population close to the tropics, where clutches can be smaller because post-fledging survival is almost certainly higher than in a migratory northern population.

On Kafai, active and occupied nests were only found on islets, all those on the main island being derelict. The presence of feral cats may have brought this about. The higher percentage of derelict nests on Kafai, 45%, compared with a mean of 20% on the Yasat group and Ghaghah, combined, may provide supporting evidence of some recent adverse effect. Human disturbance may also be contributory.

Table 1. Breeding osprey numbers on Yasat, Ghaghah and Kafai islands, Abu Dhabi.

Island	Nests	Active	Occupied	Occupied/ Active (%)	Area (sq.km)	*Coast length	km/ pair
N. Yasat	22	17	9-12	53-70	9.56	12.5	1.0-1.4
S. Yasat	10	9	6	67	4.41	10.0	1.67
Al Yasat							
As Saghira	1	1	1	100	0.15	2.5	2.5
Judarah	2	2	1	50	0.03	0.9	0.9
TOTAL	35	29	17-20	59-69	14.15	25.9	1.3-1.5
Ghaghah	21	16	7	44	3.5	19.5	2.8
Um Ghamaghin							
*Cormorant	2	2	1	50	0.4	4.5	4.5
Qassar Harm	1	1	1	100	1.0	1.2	1.2
Jazirat Al							
Khuwasat	6	4	3	75	c1.5	2.0	0.67
TOTAL	30	23	12	52	6.4	27.2	2.27
Kafai	20	11	5+	45+	c3	c10	2.0
GRAND TOTAL	85	63	34-37	54-59	23.55	63.1	1.7-1.86

* Coast length is the approximate smoothed or rounded perimeter distance.

Osprey nests were also recorded on and around the Sila peninsula. On islands off Ras Ghumeis, 5 nests were located of which 4 were active and 3 occupied (8 &

10-11 April) with a single derelict nest on the mainland itself. The island of Al Fazaiyah had 9+ nests, of which 4-5 were active and 3-4 occupied.

It seems that while ospreys prefer and are more successful on islands, successful breeding on the mainland may often be prevented by human disturbance, mammalian predators or other factors. This may be a relatively recent phenomenon. The presence of feral cat populations on some islands may also be causing a problem and an eradication programme should perhaps be considered.

Prey recorded at nests included dogfish, barracuda, needlefish, 'jesh' (black-tip trevally) and several unidentifiable remains. Man-made fishtraps of stone dams crossing bays draining at low tide were successfully taken advantage of by fishing ospreys.

Kentish Plover (*Charadrius alexandrinus*)

Small numbers were paired up and territorial in all sites visited. Clutches were found on North and South Yasat 30 March+ and on Ghaghah 8 April. The very small eastern islet of Qassar Harm also held a pair (with a nest scrape).

Saunders' Little Tern (*Sterna saundersi*)

Breeding pairs on eggs (clutches of 1 and 2) were recorded on North and South Yasat (laying date of 31 March or before) but not apparently on Ghaghah or Kafai.

Larks

Small numbers of various species of lark were recorded as confirmed or probable breeding species as shown in the table below.

	N. Yasat	S. Yasat	Ghaghah	*Cormorant Island	Kafai	Ras Ghumeis
Black-crowned Finch-lark (<i>Eremopterix nigriceps</i>)	Y	N	Y	Y	N	Y
Hoopoe Lark (<i>Alaemon alaudipes</i>)	Y	Y	N	N	N	Y
Crested Lark (<i>Galerida cristata</i>)	N	N	Y	N	N	N
Y = probable/confirmed N = none recorded						

Seabird species

A number of seabird species may also be expected to breed slightly later in the year either on the main islands visited or on satellite islands, although large colonies of terns are more likely to favour the sandy shoals. **Bridled** (*Sterna anaethetus*) and **White-cheeked terns** (*S. repressa*) are two such species and which were seen in large numbers (1000+) daily. The sandy island chain south of Kafai known as Muhaiyat (ABBA Square RB 26) and an island north-east of Ras Musheirib (ABBA Square RB 25) looked particularly promising and would be worth a visit at a later date if at all possible. Up to 100 **Lesser Crested Terns** (*S. bengalensis*) and ten or more **Caspian Terns** (*S. caspia*) were also recorded; both may breed. **Sooty Gulls** (*Larus hemprichii*) apparently do not breed on the islands of westernmost Abu Dhabi (no birds were seen), although they have previously been recorded breeding on the island of Qarnein (ABBA Square SB 26), some fifty kilometres to the north-west (I).

MIGRANT SPECIES

Waders

Wader numbers were low at all sites. The highest counts for each species are tabulated below.

Species	Yasat	Ghaghah	Kafai
Oystercatcher (<i>Ostralegus haematopus</i>)	3	11	0
Kentish Plover (<i>Charadrius alexandrinus</i>)	100	20+	+
Lesser Sand Plover (<i>C. mongolus</i>)	5	6+	2+
Greater Sand Plover (<i>C. leschenaultii</i>)	0	1	5
Grey Plover (<i>Pluvialis squatarola</i>)	5	5+	4
Sanderling (<i>Calidris alba</i>)	8	0	0
Little Stint (<i>C. minuta</i>)	0	6+	0
Curlew Sandpiper (<i>C. ferruginea</i>)	0	0	0
Dunlin (<i>C. alpina</i>)	50	30+	6+
Bar-tailed Godwit (<i>Limosa lapponica</i>)	3	9	9
Whimbrel (<i>Numenius phaeopus</i>)	6	6+	5
Curlew (<i>N. arquata</i>)	7	5+	4+
Redshank (<i>Tringa totanus</i>)	2	1	2
Greenshank (<i>T. nebularia</i>)	1	1	0
Terek Sandpiper (<i>Xenus cinereus</i>)	0	5	5
Common Sandpiper (<i>Actitis hypoleucos</i>)	1	0	1
Turnstone (<i>Arenaria interpres</i>)	8	10	0

Both Ghaghah and Kafai possess a large sheltered inlet with a sand and mud substrate of some value for feeding waders. No estimate of invertebrate prey density was made but a superficial survey and the low number of waders present suggest that it is low. The coralline perimeter to all of the islands visited would not be expected to hold more than a few waders at any time of year.

Few waders were found around the Sila peninsulas but several immature **Greater Flamingo** (*Phoenicopterus ruber*) and a single **Crab Plover** (*Dromas ardeola*) were noted.

Gulls

A few immature **Great Black-headed Gulls** (*Larus ichthyaetus*) (max. day total 5) and **Yellow Legged Gulls** (*L. cachinnans*) (max. 50) were recorded, most being associated with the **Socotra Cormorant** colonies. **Slender-billed gulls** (*L. genei*) (max. 30) were mostly recorded feeding offshore in association with **Socotra Cormorants** and **White cheeked Terns**.

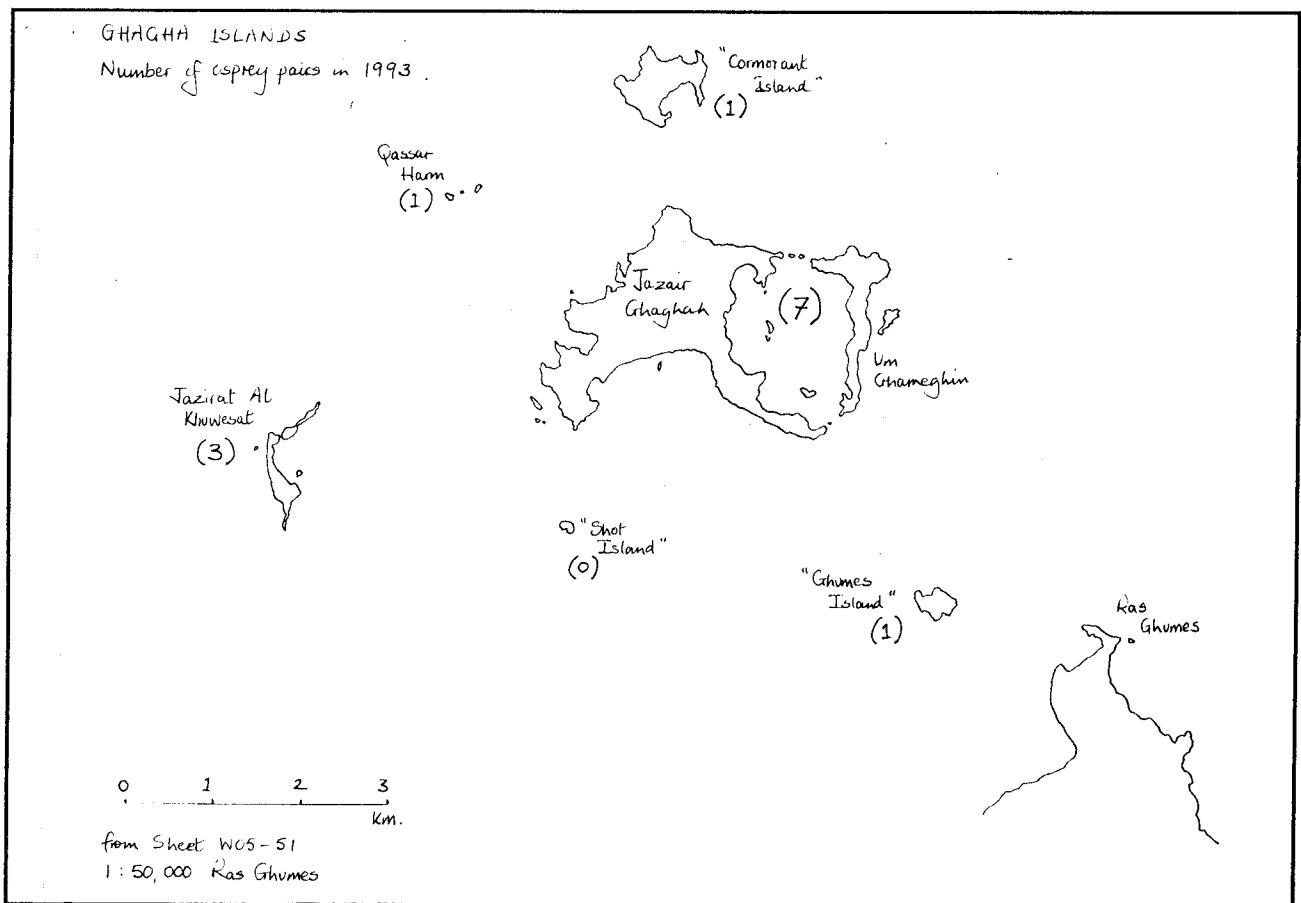
Passerines

Moderate numbers of small passerines were recorded on all islands (Table 2). No distinct fall of birds occurred and the residence time of many birds appeared to be less than a day, presumably due to the lack of fresh water. Mostly only those species adapted for steppe or stony desert (e.g. wheatears, larks and pipits) remained for longer.

Table 2. *Migrant passerines recorded on offshore islands and the Sila peninsulae, 31 March - 11 April 1993.*

	Yasat			Ghaghah				Kafai			Sila	
Species & date	31	1	2	4	5	6	7	8	9	10	11	
Short-toed Lark (<i>Calandrella brachydactyla</i>)	40+	0	0	1	0	0	0	0	0	0	0	0
Tawny Pipit (<i>Anthus campestris</i>)	10	+	+	3	5+	2+	4	1	1	0	0	0
Tree Pipit (<i>A. trivialis</i>)	1	2	1+	1	3	0	1	0	0	0	0	0
Red-throated Pipit (<i>A. cervinus</i>)	16	20	10+	3	5+	2+	8+	3	9	4	0	0
Yellow Wagtail (<i>Motacilla flava</i>)	0	1	1	1	1	1	2	0	0	3+	1	1
Rufous Bushchat (<i>Cercotrichas galactotes</i>)	0	0	0	0	2	1	1	0	0	0	0	0
Redstart (<i>Phoenicurus phoenicurus</i>)	0	1	1	0	2	1	1	0	0	0	0	0
Isabelline Wheatear (<i>Oenanthe isabellina</i>)	16	5	6	2	3	6	11	5	3	8+	1	1
Wheatear (<i>O. oenanthe</i>)	1	0	0	0	0	0	0	0	0	1	1	1
Pied Wheatear (<i>O. pleschanka</i>)	13	10	12	1	2	2	2	2	6	8	0	0
Black-eared Wheatear (<i>O. hispanica</i>)	9	3	2+	0	0	0	0	0	0	1	0	0
Desert Wheatear (<i>O. deserti</i>)	2	0	0	0	0	1	1	0	0	2	0	0
Rock Thrush (<i>Monticola saxatilis</i>)	0	1	0	2	0	0	1	1	2	5	0	0
Desert Warbler (<i>Sylvia nana</i>)	0	2	1	0	1	1	1	0	0	0	0	0
"Lesser Whitethroats" (<i>S. curruca/minula/albaea</i>)	1	4	4	1	1	1	1	1	1	1	1	1
Chiffchaff (<i>Phylloscopus collybita</i>)	9	3+	1	1	1	1	0	0	4	8	0	0
Isabelline Shrike (<i>Lanius isabellinus</i>)	1	1+	2	3	1	1	1	1	2	5	1	1
Ortolan (<i>Emberiza hortulana</i>)	0	0	0	1	1	4	2+	0	8	1+	0	0

Other species recorded, including non-passerines, were: **Lesser Kestrel** (*Falco naumanni*), **Pallid Harrier** (*Circus macrourus*), **Turtle Dove** (*Streptopelia turtur*), **Pallid Swift** (*Apus pallidus*), **Bee-eater** (*Merops aplaster*), **Hoopoe** (*Upupa epops*), **Wryneck** (*Jynx torquilla*), **Swallow** (*Hirundo rustica*), **Nightingale** (*Luscinia megarhynchos*), **White-throated Robin** (*Irania gutturalis*), **Stonechat** (*Saxicola torquata*), **Marsh** (*Acrocephalus palustris*), **Reed** (*A. scirpaceus*), **Upcher's** (*Hippolais languida*), **Willow** (*Phylloscopus trochilus*) and **Barred** (*Sylvia nisoria*) **Warblers**, **Whitethroat** (*S. communis*), **Blackcap** (*S. atricapilla*) **Spotted Flycatcher** (*Muscicapa striata*) and **Woodchat Shrike** (*Lanius senator*). Notable by their complete absence were **Collared Dove** (*Streptopelia decaocto*), **Palm Dove** (*S. senegalensis*) and **House Sparrow** (*Passer domesticus*).



OTHER TAXA

Green turtle (*Chelonia mydas*)

5+ between Ghaghah and Sila 6 April and one off North Yasat 31 March. No evidence of any having come ashore on any of the islands visited. Remains found close to former seasonal habitation at several sites, where they had presumably been butchered to eat.

Dugong (*Dugong dugon*)

Single animal found dead in lagoon on Ghaghah, death perhaps due to natural causes. The bleached bones of animals probably slaughtered in the past were found at all sites visited.

Bottle-nosed Dolphin (*Tursiops truncatus*)

1-2+ off North Yasat 31 March and 2 April, 2+ off Ghaghah 4 April, 5-6 off Kafai 10 April, probably this species, 6 off Al Fazaiyah near Ras Ghumeis 11 April, with two Humpback Dolphins.

Humpback Dolphin (*Sousa chinensis*)

2 with a group of Bottle-nosed Dolphins off Al Fazaiyah 11 April.

Domestic cat (*Felis sylvestris*)

A single individual was at the police post on Ghaghah.

Feral cat (*F. sylvestris*)

At least five well fed feral cats were seen on Kafai with tracks noted around most of the island. Comments about cats have already been made in the account on osprey. All nesting species on these islands are threatened by predation from feral cats.

The results of this brief survey show that every opportunity to travel to offshore islands should be taken. The different breeding season for different birds means that more than one visit should be made to each island

and in different months. Once between late December and early/mid-March for ospreys, Socotra and? Caspian tern and again between late May and late July or August for other seabirds (terns and gulls) and Sooty Falcons is recommended.

Cats should be removed from the islands altogether, with a rat (*Rattus spp.*) poisoning programme being carried out simultaneously. Both cats and rats prey on seabird colonies, particularly those of terns. There is some evidence that cats are also affecting breeding ospreys on Kafai.

Acknowledgements

I would like to thank the following persons to whom I am particularly indebted: His Highness Sheikh Mohammed bin Zayed al Nahyan for the generous use of his dhow, Captains Hammad and Zayed and their crew for their help and assistance and good humour at all times; Peter Hellyer for arranging for NARC to send an ornithologist; Ezzat in Ba'aya Sila for organising transport to and from Sila; the many border police and coastguards who also assisted in transferring personnel (even if we did run aground in the dark); and last but not least, the following members of the Archaeological Survey team for an entertaining time, David Dunlop, Angus Stephenson, Emily Whitehead and Beatrice de Cardi.

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An archaeological survey of the Mantakha As'sirra area in Abu Dhabi's Western Region

by Jakub Czastka and Peter Hellyer

Introduction

On April 30th 1994, at the request of Sheikh Mohammed bin Butti Al Hamed, Chairman of the Abu Dhabi Municipality and Ruler's Representative in the Western Region of Abu Dhabi, a team from the Abu Dhabi Islands Archaeological Survey Project visited an area known as Mantakha As'sirra, approximately thirty kilometres due east of Medinat Zayed, (Bida Zayed), the capital of the Western Region.

With the assistance of Murshid Ali Murshid, Assistant Under Secretary of the Ruler's Diwan for the Western Region, a short visit was paid to Mantakha As'sirra and a nearby site, approximately ten kilometres due south, known as Mantakha Mu'assiri Sahel. The two-member team comprised Jakub Czastka, archaeologist, and Peter Hellyer, Project Co-ordinator.

During the course of the visit, the team was accompanied by Rashid Atij Khalfan Al Mansouri, of the Ruler's Diwan, who provided directions to the sites, and also supplied extensive oral information about the sites and about the area in which they were located.

The visit would have been impossible without the assistance of Rashid Al Mansouri, as a guide, as an experienced desert driver, and as a source of information on usage of the areas concerned during the course of the past forty five years.

Methodology

The location of the sites is known to the team's guide, Rashid Al Mansouri. In the absence of any Global Positioning System, GPS, equipment, notes of approximate location were taken. A precise GPS position for each site will be taken at a later date. Measurement of sites was done by pacing. A small collection of surface potsherds was made at each site.

Site One:

MANTAKHA AS'SIRRA

(MEDINAT ZAYED: AS'SIRRA = MZ:S)

MZ:S-1: Well field

The site lies in a low-lying depression of thin gravel with the occasional small mobile dune, in which there is a substantial amount of salt-tolerant vegetation, indicating the presence of brackish or saline water supply relatively close to the surface.

Scattered around over an area covering at least 75 metres by 75 metres, are a number (exceeding thirty) of raised circular structures standing to a height of up to twenty centimetres above the surrounding land surface. Some structures were single, while there are others in groups of two or three. The centres of the structures were filled with sand. At a depth of approximately ten centimetres, the sand in one of the structures was found to be compacted and slightly moist.

We were informed by Rashid Al Mansouri that the structures represented the remains of old wells. He indicated that the roughly circular stone surroundings represented crystallised salts formed by the spilling of water being drawn from the wells.

The features show the characteristics of evaporite deposits formed by crystal growth. This would be consistent

● هذه الورقة عبارة عن تقرير عن نتائج المسح الأثري الذي تم إجراؤه في منطقة السرة في المنطقة الغربية من أبوظبي حيث تم اكتشاف آثار قلعة ضخمة يحتمل أن يعود تاريخها إلى القرن السادس عشر أو السابع عشر بعد الميلاد.

tent with the evaporation of the water from the wells releasing salts and associated minerals, promoting crystal growth which would, in turn, form the circular crusts visible today. Al Mansouri said that the wells had not been in use in his lifetime, and that neither his father nor grandfather had any knowledge of the people who might have used them.

There was a considerable amount of pottery scattered around the area of the well-field, a small amount of which was collected. All appeared to be of typical local manufacture and was unglazed. It appeared to be of Late Islamic date, of the typical 'Julfar-type' known from other sites throughout the Emirates. The pottery will be submitted to experts for identification.

A single piece of worked flint was recovered from the surface of the site, a flake tool fragment, of which the description is as follows:

Orientation: ventral up, Proximal top.

Predominantly direct retouch around complete periphery of flake. Retouch is continuous, causing convex side on right, and concavity on left, (caused by notch). Piece broken at distal end.

Ridges dulled, and edges display damage due to crushing.

With regard to general form, especially considering the notch, the working end, (distal), is the one broken off, probably making the piece the remains of a borer.

Site MZ: S-2 Fortress (?)

Approximately five hundred metres east of the well-field, (Site MZ:S-1), the ground rises gently to a crest, surrounded by low mobile dunes. The site MZ:S-2 is on the peak of the crest.

The site is a roughly square enclosure, approximately 80 metres by 80 metres, of eroded walls made of locally-obtained material, partly obscured by small dunes.

The material is geologically different from the surrounding sand, and appears to have been formed into rough 'bricks' that have subsequently decomposed into their original material when subjected to erosion through wind and rain. The 'bricks' may have been made of a material similar to that visible beneath the surface of the sand in nearby areas which have been bulldozed to provide the raw material for the Municipality tracks through the desert. More precise geological study is required.

The north east corner of the structure is occupied by a smaller structure, of approximately fifteen metres square, with what appears to be a much smaller, roughly square, corner buttress of approximately 2 metres by 2 metres at the south western corner.

The eroded walls have been cut through on a line running roughly east to west in the southern half of the enclosure. We were informed that this cut marked the passage several years ago of a seismic vehicle. The line of the walls thereby removed can, however, be traced on the exposed ground surface.

In the main enclosure, the walls still stand, partially masked by small sand dunes and by collapse due to erosion, to a height of at least 1.50 metres. In the smaller enclosure to the north east corner of the main enclosure, where the underlying ground level appears slightly higher, the walls appear to stand to a height of at least a metre, although without excavation it is impossible to be precise.

Some sand was removed from one of the walls in the north-eastern enclosure, exposing several courses of the roughly-made local 'bricks,' although the sand was not removed to the underlying ground level.

In the north eastern corner of the main enclosure, which also comprises the north-eastern corner of the smaller enclosure, some fragments of heavily corroded iron were seen lying on the surface.

We were informed by Rashid Al Mansouri that these fragments were the remains of a cannon which had once stood on the spot, but which had been removed to Liwa, "on camel, before the first vehicles arrived in the area." We were further informed that the cannon had since been taken to the Diwan of the Ruler's Representative in the Western Region at Medinat Zayed.

Scattered on the current land surface, (excluding that of the mobile sand), within the enclosure were a number of pottery sherds, a few examples of which were collected for further study. Like those found at the well-field, (Site MZ:S-1), they did not include any imported glazed pottery, and appeared to be of Late Islamic date, probably of Julfar type.

A single piece of worked flint was recovered from the surface of the site, a flake fragment.

There were also a small number of pieces of oyster shell, one of which was collected.

We were informed by Rashid Al Mansouri that the structure had originally been a small fortress, but that it had not been used in his lifetime. He also said that his father and grandfather also knew the site as a place of 'Athar,' (antiquities), but that they knew no stories relating to the people who might have occupied it, and that they knew it simply as being of considerable age.

Preliminary assessment of Sites MZ:S-1 and MZ:S-2

The site MZ:S-2 is clearly that of a building of considerable size, built on a commanding rise in the natural landscape, and with walls of a height and thickness that suggest that it must have had a defensive purpose. The reported presence of a cannon on one corner of the structure within relatively recent times tends to confirm such a conclusion.

The presence nearby of site MZ:S-1, the well-field, suggests that the fortification may have been used in part to defend the water supplies, and suggests further that there may be evidence of a settlement nearby, together possibly with associated evidence of agriculture. An aerial photograph of the site may provide some indications.

The Late Islamic pottery is in itself no indication of age, since it could have been deposited as natural breakage by visiting nomadic *Bedu*. (Rashid Al Mansouri indicated that he and his father had camped in the area when he was a child).

Likewise, the flint fragment is undatable. Flint implements were used in the area until relatively recent times.

Cannon are likely to have arrived in the region some time after the arrival of the Portuguese in the early sixteenth century, although there is no information on when they became available to local tribal leaders.

The fortress, however, was clearly in use some time after the arrival of cannon, although it cannot be determined from the preliminary survey whether it existed prior to that.

Mantakha As'sirra lies approximately fifty five kilometres due south of the present day coastline, and in a remote area where the presence of substantial settlements has not previously been suspected.

A clearing of the surface sand and planning of the fortress site, accompanied by the excavation of some sectors of the fortress, and of one or more of the dried up wells in the well-field should yield a clearer picture of the size of the fortress and its remaining walls, as well as yielding stratified artefacts that would permit a more precise dating of the site.

The archaeological objectives with relation to the site can be summarised as follows:

1. A basic aim of a first season of work would be to aim to answer questions at two levels. The first objective would relate specifically to the site, and primarily concerns the acquisition of archaeological data. The second objective would be to place the site into a broader environmental context. Only the integration of these two objectives would answer questions regarding why the locality was chosen in the first place, how widespread the occupation was, and why it was abandoned.
2. These objectives would be achieved by:
 - a) establishing the exact dimensions of the site
 - b) placing trial trenches across the site to identify phases of occupation and subsequent abandonment
 - c) instigating a detailed archaeological and geomorphological survey of the immediate vicinity.

An approach will also be made to the holders of the oil concession, the Abu Dhabi Company for Onshore Oil Operations, ADCO, to obtain access to seismic data from the site, to see whether such data could provide information on immediate sub-surface geology.

Overall, the site has the potential to yield a considerable amount of information about Late Islamic settlement in the middle of the desert from a period beyond the memories of local tribesmen.

Site Two :

MANTAKHA MU'ASSIRI SAHEL (Medinat Zayed: Mu'assiri Sahel = MZ:MS-1).

Approximately ten kilometres to the south of Mantakha As'sirra is a small oasis, (*nakhl*), known as Mantakha Mu'assiri Sahel, to which the team were guided by Rashid Al Mansouri.

The oasis comprises a small fenced palm grove belonging to a number of UAE citizens, mainly of the Al Manasir tribe, together with a small plantation belonging to the Diwan of the Ruler's Representative.

Approximately 150 metres to the south east of the palm trees is a ridge rising above the surrounding mobile dunes, which stretches approximately seventy five metres from east to west, and has a width of around fifteen metres at its base, rising to a height of four to five metres.

Although overlain partly by drifted sand, on which typical desert salt-tolerant vegetation is growing, the ridge appears to be composed primarily of degraded and eroded material similar to that used in the construction of the

fortress at Mantakha As'sirra. Further study is required. We were informed by our guide that the ridge was the site of a cemetery. He indicated a number of small scatters of stones which he said were the remains of graves. They did not seem to be aligned in the direction of the 'qibla,' suggesting possible pre-Islamic origin, although the state of erosion and degradation of the scatters was such that precise alignments were unclear.

One single piece of pottery was collected from the surface of Late Islamic date, comparable to the Julfar type.

As with Mantakha As'sirra, (above), we were informed by Rashid Al Mansouri that he had known of the site since childhood, and that neither his father nor his grandfather knew of any stories linked to people who might have been buried on the site, simply that it was known to be a graveyard. Asked about dating, he said that they could be either Islamic or pre-Islamic graves.

He said that more graves had been visible during his youth, but that many were now covered as a result of the southward movement of sand over the past forty years.

He further added that the oasis of Mu'assiri had been known and used by nomadic Bedouin tribesmen "for perhaps five hundred years."

Preliminary assessment

The site at Mantakha Mu'assiri Sahel is much less distinct than that of Mantakha As'sirra, while no conclusions can be drawn from the presence of a single Late Islamic pottery fragment, since the oasis has been in use for many centuries.

If, as suggested, the site is an early graveyard, it should be protected, although its location is sufficiently remote to render it relatively safe.

Only through a trial clearance of at least part of the area will it be possible to determine for sure, however, whether it is a graveyard. Moreover, in the absence of any clear alignment to the scatters of stones that are said to be graves, whether or not they are pre-Islamic cannot be determined without a trial excavation of at least one.

If, however, it is a graveyard, its size suggests, as for Mantakha As'sirra, the presence in the past of a significant settlement in the area, which in turn would suggest the previous presence of greater water supplies.

Also requiring investigation is the size and composition of the ridge upon which the 'graves' stand, since it is too large and stands too high above the surrounding land surface to be comprised purely of graves. Although significantly more degraded than the site at Mantakha As'sirra, that at Mantakha Mu'assiri Sahel appears to include the same kind of friable and easily eroded 'bricks,' suggesting at least the possibility that it dates from a similar period.

In view of that, and of the possibility that it is an Islamic graveyard, it is therefore suggested that further work at this site should commence only with a more detailed surface survey, without excavation, apart, possibly, from a trial trench to determine the nature of the composition of the ridge itself, which could possibly contain either a natural or remains of a man-made feature. A survey of the whole area surrounding the oasis of Mu'assiri may also yield additional information on the possible extent of former occupation from which the graves (?) derive.

Additional site information

To the west of Mantakha Mu'assiri Sahel and Mantakha As'sirra, and approximately half way between them, is a low hill named by Rashid Al Mansouri as Jebel Simmer.

He told us that there was evidence of now-ruined hous-

es on the Jebel, although without appropriate transport it was impossible to approach the Jebel.

It is recommended that the Jebel be examined at a later date. There are also said to be sites with flints on the surface in the area though these were not examined.

Historical background

No evidence can be found in the Portuguese or Dutch archives dealing with the existence of a fort or fortress inland from the Abu Dhabi coastline.

However, an Omani source, 'A History of the Imams and Seyyids of Oman,' provides a possible clue in a section dealing with an Omani civil war at the beginning of the seventeenth century, between partisans of the first Ya'aruba Imam, Nasser bin Murshid, and opponents led by the Hilali tribe, under by one Nasser bin Qahtan al Hilali.

Some time shortly after 1633, (the date is unclear in the history), Nasser bin Murshid instructed his Governor in Al Ain, Mohammed bin Saif al Haukani, 'to lie in wait for Nasser bin Qahtan on the confines of Oman.'

It continues "*The Governor accordingly selected a band of renowned warriors and on hearing of Nasser's approach, concealed them beneath the sand which forms part of the boundary of Ezh-Zhafrah. On learning this, Nasser retired into the fort of Ezh-Zhafrah, where he was joined by the Benu Yas, and sent one of his followers to Mohammed bin Saif soliciting peace.*" (1)

The passage is the only historical reference to a presence of a fort in the area of Mantakha As'sirra, and is also the first time that the Bani Yas confederation is mentioned in the literature.

There is a tradition among one section of the Manasir, (not known to Rashid Al Mansouri), that a Portuguese force once landed at Mirfa and marched inland, being defeated and annihilated in the desert. No evidence of such an expedition exists in the Portuguese archives. However Nasser bin Qahtan al Hilali, a leader of the Sunni Muslim resistance to the resurgent Ibadhis in Oman led by Imam Nasser bin Murshid, was at times allied with the Portuguese in the area, themselves under attack by the Ibadhi forces, and the tradition may derive from this.

Further investigation of the Mantakha As'sirra site may provide evidence of its occupation at the time of the conflict between Imam Nasser bin Murshid and Nasser bin Qahtan, and of any Portuguese connection.

Conclusion

Although limited, the survey produced valuable information, in particular the identification of the previously unknown site of Mantakha As'sirra, which was clearly once an important settlement, complete with extensive supplies of water.

From the available information, it is possible to suggest a tentative dating of between the seventeenth and late eighteenth centuries AD, although it should be stressed that this may be open to reinterpretation after excavation.

Lying just to the south of the division between the coastal Taff plain and the interior Sahel area, with better water, in the general area known as Dhafra (Ezh-Zhafrah), and near the route from Mirfa to Liwa, the site, if that of a major settlement and fortress, would have played a significant role in the political structure of the region in the period before local history was recorded.

Excavation could yield important evidence not only about the precise extent of the site and the size of its buildings, but also about the people who lived there, and during which period, adding significantly to our knowledge of the history of the people of the Western

Region, and of the Emirate of Abu Dhabi as a whole.

Acknowledgements

The authors wish to thank the Chairman of the Abu Dhabi Municipality and Ruler's Representative in the Western Region, Sheikh Mohammed bin Butti Al Hamed, for suggesting a visit to the sites. They also thank Murshid Ali Murshid, Assistant Under Secretary in the Diwan of the Ruler's Representative, for providing a guide, and, in particular, the guide, Rashid Atij Khalfan Al Mansouri, for taking them to the sites, and for sharing his knowledge.

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Excavations at Jebel Al Emalah

by Jodie Benton

The archaeological site of Jebel al Emalah is situated in the interior of Sharjah, halfway between Mileiha and Madam along the Dhaid-Madam highway. The site consists of four circular stone built tombs, three of which are large 7 - 12m diameter mounds, all situated at the base of the eastern slope of Jebel al Emalah.

The site was discovered several years ago when two ceramic and one softstone vessel dating to the Umm an Nar period (2500 - 2000 BC) were found near the smallest of the three large tombs. These were presented to the Sharjah Museum, but it was not until 1993 that Nassir al Abboudi, Director of Antiquities and Heritage of the Sharjah Culture & Information Department, invited Professor D.T. Potts of the University of Sydney to carry out full scale excavations at the site. By the end of November 1993 an Australian-American team consisting of 15 students and professionals had arrived in Sharjah ready to begin work on the tombs of Jebel al Emalah.

One of the main reasons for wanting to excavate at the site of Jebel al Emalah was the excavation of the previous year at the site of Tell Abraq in Umm al Qaiwain. Here a tomb of the Umm an Nar period was excavated which provided an excellent sample of human remains and good evidence of ancient burial practices. As Tell Abraq is a coastal site it was considered important to attempt to find an inland site from a totally different environmental zone so as to have contemporary comparative material to work with. In this respect Jebel al Emalah provides just the data needed for comparative analysis.

The three larger tombs from the site proved to be of an earlier construction date than had been originally anticipated, based on the surface finds from the Umm an Nar period. Structurally the tombs are unique, conforming to none of the types previously excavated in the UAE, and each very different from the other. Despite being very diverse in construction, size and appearance, the tombs have each yielded one ceramic vessel that dates to the so-called 'Hafit' period, c. 3000-2500 BC. This is the first time that traces of Hafit-period occupation have been found in the Emirate of Sharjah. The Emalah vessels are as early as the earliest ceramic sites known anywhere in the entire Oman Peninsula.

The largest, and possibly the earliest, of the tombs is 11.5m in diameter and consists of a low external ring wall surrounding a second wall which is preserved to a height of c.1.4m - a very good state of structural preservation. Entry to the tomb is through a doorway in both walls, oriented slightly south of west, which leads to a

● عمليات التنقيب عن الآثار في منطقة جبل عمالة بالقرب من الزيد - إمارة الشارقة - قادت الى اكتشاف أربع حفريات هامة يعود عمرها الى أكثر من ٤٥٠٠ سنة.

passageway into the burial chamber. As the tomb was badly disturbed in the millennia following its construction, and as the human remains were in poor and fragmentary condition, it is difficult to estimate the original number of individuals that would have occupied the half of the tomb excavated this season. Nevertheless, the skeletal remains indicate that the tomb was used over a period of time for the successive and multiple burial of women, men, children and infants. Grave goods include the 'Hafit' style ceramic vessel mentioned above as well as hundreds of beads. The two main types were long (c. 1.2cm) tubes of a now degraded whitish stone, which may be talcose steatite or baked steatite, and micro-beads of black or grey soft-stone. It has been suggested that these may have been ornamentation sewn onto clothing rather than part of jewellery, and the disposition of some of the beads whilst 'in situ' certainly supports this idea. Also found were a number of carnelian beads, most of which are squat in appearance and range from pale orange to very deep red in colour. The origin of these beads remains obscure at present, but examples of each type have been sent to the USA for mineralogical analysis, in an attempt to determine whether they were imported items — possibly from the Indus Valley? — or whether they were locally produced.

During the Iron Age, perhaps two thousand years after the original construction and use of the tomb, a small squarish structure was built up against the exterior wall. Two decorated bronze bracelets, each weighing 750 grams, were recovered here. These represent a type that is typical of the Iron Age in the UAE and Oman. Surprisingly, no human remains were encountered in this chamber, but this may be an accident of bone preservation rather than a lack of original burial.

Later still, by a minimum of 500 years (some time between the Hellenistic and the Sassanian period), the entryway into the tomb was opened and a male, 25-29 years in age, clasp an iron spear, was interred. An iron pike was driven into the ground behind his left shoulder, and the remains of the wooden shafts are still present in the sockets of these two weapons. The re-use



Tomb 3 at Jebel Emalah from the west.

(J. Benton)

of tombs in later times is a fairly common occurrence throughout the Oman Peninsula and all three of the main tombs at Jebel al Emalah bear evidence of quite extensive re-use.

The second largest of the tombs consists of a corbelled inner chamber, half of which was excavated this season, surrounded by a cairn of packed stones c. 11 metres in diameter. Set into the floor of the interior chamber was a large vessel dating again to the Hafit period which provides a date for the original construction of the tomb. Re-use in this tomb began in the Umm an Nar period, and to date three vessels have been reconstructed from the sherds found in the tomb fill. Again many beads were found, although of a different nature to those from the other tombs, large brown beads possibly of jasper; reddish soft-stone microbeads; and shell beads of *Dentalium* and *Engina mendicaria*. There is no evidence for the later re-use of this tomb as a burial place, but several arrowheads from the 2nd and 1st millennium were found scattered on the surface of this and the other tombs attesting some sort of activity at the site at this time.

The third and smallest tomb is 6.5m in diameter. Structurally it appears to be the latest, and consists of a circular ring wall with the internal space divided into 4 chambers by two wide wall butts running north-south. The entry into this tomb again lies slightly south of west. Two factors provide evidence for this tomb being of a later date. Firstly, the internal space of the tomb has been divided into rough chambers. All Hafit period tombs seem to have undivided spaces within them, whereas the later Umm an Nar period tombs are characterised by their internal divisions. This tomb may provide a structural link between the tombs of the two different periods. Secondly, the earliest burial found within this tomb had with it a vessel which appears to be of late Hafit date, and a further vessel which may be very early Umm an Nar in date.

This tomb, like the first, was also re-used between the Hellenistic and Sassanian period. A pit was dug into the centre of the tomb and a male aged 34 - 39 years was

buried along with a long iron sword. This burial may be contemporary with that of the male with the iron spear described in the first of the three tombs.

The fourth tomb of Jebel al Emalah consists of a rough oval, c. 2.5m in diameter, structure of stones placed in concentric circles. Inside this structure was a pit containing the skeleton of a camel. The only finds were fragments of iron, which date the burial to some time in or after the Hellenistic period. It is likely that this camel burial is contemporary with the two warriors buried with their iron weapons. The burial of camels is not a commonplace practice, but examples have been found from as far afield as Petra during the Nabatean period. Closer examples have been found from Dhahran, Qatar, Bahrain and Ad Door on the coast of Umm al Qaiwain. The latter example consists of two camels ritually slaughtered, one with the iron sword presumably used to kill it still in its scabbard lying next to the beast.

After only one season of excavation, Jebel al Emalah has already provided a wealth of new archaeological information both for the Emirate of Sharjah and for the UAE as a whole. Analysis of the finds is under way. Human bone will be analysed for diet, nutrition and radiocarbon dating, while the beads are being studied to determine precisely the materials of which they were made and the manufacturing techniques used. This will provide more detailed information about the ancient population that was buried at Jebel al Emalah – how they lived, what they ate and with whom they traded. The next season of excavation will begin in November of 1994 when the team will return to complete the excavation of the two largest tombs, thus adding more detail to an already fascinating picture of the past.

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The vegetation of Das Island, UAE — an update

by Rob Western

In ENHG Bulletin No. 20 (July 1983) I described the main characteristics of the vegetation of three offshore islands, Sir Abu Nuair, Qarnein and Das. The main conclusion was that a few species were common to all three islands, but because of differing localised habitats and the effects of human activity, each island also harboured some species that the others did not.

In the article, Das Island was described as being extensively built over, so much so that the landscape of the mid twentieth century was not easily recognisable apart from one or two patches of coastline. Some of the existing natural vegetation was described and a few imported plant species mentioned. The aim of this article is to reassess the vegetation cover of Das ten years on and to provide a checklist.

Das Island (centred on 25°09'N and 52°52'E) lies some 160 kms northwest of Abu Dhabi, just beyond the islands of Zirku and Qarnain; it is thus the most remote from the mainland of all Abu Dhabi's islands. Consisting essentially of a pre-Cambrian outcrop, it is highest in the north centre (about 30 metres now) and has a total land area of a little under 4km². The central outcrop trends rapidly downwards and the southern two thirds of the island is relatively flat and just a metre or two above mean sea level. This southern section is much more recent geologically, comprising deposits of Pleistocene carbonates, with some small reefs and a thin layer of mixed carbonates and a little aeolian sand. There is no source of fresh water and originally no trees at all. Rainfall is limited to winter months but is very sporadic and unpredictable. In some years there are showers and storms from early December through March (1990-1993 were all 'wet' years), while in others rainfall may be minimal (the 1993-1994 winter, said to be the driest for thirty years, had by mid February seen less than 1 mm). The late winter season is frequently associated with strong 'shamals' or north winds lasting several days. When these occur, imported trees and shrubs on the exposed side of the island suffer severe salt 'burning' which can kill all leaves and shoots on the windward side. Regeneration of the burnt side can take weeks. The island's natural vegetation is not affected.

Das has been continuously developed as an industrial base since the mid 1950's, and there are very few pockets where the natural (i.e. non-imported) vegetation has been allowed to survive. These are limited mostly to shoreline communities around the south, since most of the rest of the island has been graded or built upon. As with any large scale development, however, there are always niches where plants can get a foothold and even thrive in some cases, despite the efforts of cleanup parties who occasionally root out and clear patches of what is perceived by some as waste scrub. In addition, there have been intensive attempts in recent years to beautify the accommodation and administration areas by introducing amenity plants. Mature date palms *Phoenix dactylifera* have done well around the house of the Ruler's Representative on Das for at least 20 years. Eucalyptus trees were planted many years ago around the accommodation areas and many now tower well

● المقال يتحدث عن الزهور البرية في جزيرة داس في أعقاب مسح الحياة النباتية للجزيرة لأول مرة في عام ١٩٨٣ م.

above the two-storey blocks. *Prosopis juliflora* thrives in sheltered areas and needs no watering once established; the largest island specimen next to the airport car park is so top-heavy now that many of the lower branches have to be supported. This is a particularly heavy leafing and fruiting species, and the dense foliage is a haven for migrant and resident birds. **Palm doves** (*Streptopelia senegalensis*), have bred here since 1990, and **White-cheeked Bulbuls** (*Pycnonotus lencogenys*), since 1993.

Elsewhere in the southern part of Das there are single specimens or small groups of *Ziziphus spina-christi*, *Lawsonia inermis* (henna), *Casuarina* spp., *Terminalia caddaba* (Indian almond) and a few *Washingtonia robusta* palms near the cemetery. On the east side of the Main Stores is a row of ten *Albizia lebbek* trees, which suffer from periodical wind-blasting but always recover to flower and fruit each year.

Amenity shrubs include *Nerium oleander* to three metres in height, *Tecomella stans*, *Opuntia engelmannii* (prickly pear), *Ipomoea biloba* (a ground-hugging convolvulus with pale purple flowers that forms huge mats also in the Process Plant areas), *Bougainvillea spectabilis* (planted especially along high fences), *Jasminum sambac* (hedge-forming), *Hibiscus rosa-sinensis*, *Lantana camara* and *Clitoria ternata*.

The vast majority of these imported species were planted in special holes filled with sweet sand and fertiliser, and are watered regularly. These tiny patches of sweet soil provide also a niche for seedlings from species already extant on Das and occasionally for new species introduced unwittingly in the fertiliser itself. In recent years some larger areas in the centre of the Island have been turned into garden walkways complete with trellises, boulders and a variety of amenity shrubs, all constantly watered. Grass species, in particular, flourish in these conditions.

Apart from imported species, there are few perennials and most are of the *Chenopodiaceae* and *Gramineae* families. Halophytes such as *Arthrocnemum* and *Halocnemum*, common along the mainland coast, are missing because a muddy intertidal habitat does not exist on Das. Several grass species have colonised small niches but tend to remain in these nooks unless windblown seed is fortunate to settle on a patch where conditions are favourable for germination. Because of the relatively flat and open aspect of much of Das, a lot of seed must be blown into the sea or on to industrial ground surfaces inconducive to growth.

Ephemerals appear from December onwards, often much earlier than the same species is spotted on the mainland. Despite winds, temperatures on these

offshore islands do not drop to the winter lows witnessed on the mainland, which might be a contributing factor. This trend of early season annuals was noticeable during the earlier survey of Sir Abu Nuair and Qarnein.

The following checklist consists of species that were not deliberately introduced to Das Island, and which can be described as natural or semi-natural (accidentally introduced and have bred).

Family Aizoaceae

1. *Aizoon canariense* – A single specimen first appeared in March 1992 outside a Portakabin near the Main Office block. The soil here is fairly sterile and compact and normally supports just a few *Amaranthus graecizans* and the odd *Launaea capitata*. The only source of water is a dripping air conditioner. Four extra plants appeared in close proximity in 1993, clearly offspring from the single parent. In February 1994 only the original parent plant survives. How this species, normally associated with piedmont terrain in Fujairah, got to Das is a complete mystery.
2. *Mesembryanthemum nodiflorum* – This is a prolific annual, particularly on sand around the accommodation area on the south-west side of the Island. In some exposed spots it is monospecific. Most specimens start with green foliage, but as the plants mature the leaves turn dark red, indicating water stress and high salinity. Largest specimens are up to 15 cms high with a 20cm spread. Large numbers turn up in some years in disturbed ground in the Process Plant area. This species was not recorded on Sir Abu Nuair or Qarnein but that survey might have been too early. The first seedlings on Das do not appear until February.

Family Amaranthaceae

1. *Amaranthus graecizans* – A prolific early annual. Seedlings are invariably present by the very end of December but the majority only survive a few weeks and some do not flower. Where overcrowding occurs, mature individuals may be just a few centimetres tall. In more favourable habitats, specimens are biennial and even perennial and can reach a height of 50+ cms, often with reddish leaves and stems.

Family Caryophyllaceae

1. *Polycarpea repens* – A few scattered communities exist among the Portakabins in the office area and around the Main Stores. They turn up each year, sometimes numerous, sometimes hard to find and difficult to detect among *Sporobolus spicatus* in sandy areas. The tiny pink or mauve flowers with yellow stamens are conspicuous only close up. Maximum height on Das is 20 cms.

Family Chenopodiaceae

1. *Anabasis setifera* – A few individuals exist on the south-east coast on sand above high water mark with *Suaeda vermiculata* shrubs. Some also occur among pipelines on disturbed ground on the east side of the Process Plant area. Flowering August - September. The largest specimens are on sand near the Telecoms Building, up to 65 cms. high. Here the leaves and stems are bright green; in the Process Plant they are darker.
2. *Chenopodium murale* – Individuals occur only in sheltered niches where there is a good water supply, otherwise they die off quickly. Occasional individuals

grow to over a metre but a more typical height is 30 - 50 cms.

3. *Salsola baryosma* – Dominating the Island's natural vegetation, this perennial is very well-established along sheltered coastline areas and inland on sand south of the main rocky outcrop. It fruits prolifically and every spring sees hundreds of seedlings around each parent plant, but the majority do not survive the first summer. Flowering is August - September, when they are attractive to ants. Despite efforts to eradicate this species from around the runway, it continues to thrive and is unaffected by salt-burning and apparent lack of water. Also common on Qarnein and Sir Abu Nuair.
4. *Suaeda aegyptiaca* – Up to 12 small specimens appeared in February 1989 and April 1990 but have not been recorded since. These occurred among *Salsola baryosma* on sand near the house of the Ruler's Representative. Maximum height was 25 cms.
5. *Suaeda vermiculata* – Several large, spreading plants exist on high sand along a 100 metre stretch of east coast beach north of the Telecoms Building. This is the least disturbed part of the beach, despite a single pipeline running the length of the habitat. Largest specimens are up to 1 metre tall with a 4 metre spread. Older leaves and shoots die back black and wizened. A favourite haunt of Chiffchaffs (*Phylloscopus collybita*).

Family Compositae

1. *Flaveria trinerva* – Among flower beds with liberal doses of fertiliser, many small specimens up to 40 cms appear each spring and summer, usually in close clumps. In flower March - June. Presumably introduced with fertiliser and now self-seeding.
2. *Launaea capitata* – Probably part of the natural vegetation as it also occurs on other offshore islands in numbers. Individuals are scattered throughout the southern part of Das from January till May, wherever there is a veneer of sand a few cms. deep. Some individuals are just 2 - 4 cms. high with very depressed basal leaf rosettes; in sheltered niches where water is available specimens are up to 20 cms. tall. Earliest flowers are mid-January.
3. *Sonchus oleraceus* – Presumably an accidental introduction. Single plants occur in damp patches beneath dripping air conditioners and any other water outlet. Never prolific, but easily recognised by aspect and height, up to 70 cms. Flowering February - April.

Family Cyperaceae

1. *Cyperus rotundus* – An uncommon species, usually associated with *Cynodon dactylon* on sand on the higher beach area at the southern tip of Das. Maximum height is 25 cms, but in some years it is almost non-existent.

Family Euphorbiaceae

1. *Euphorbia hirta* – Only recorded once, in April 1982, as an import in a small garden area between two Sahel accommodation blocks, along with *Echinochloa colona*.
2. *Euphorbia serpens* – A common weed of any regularly-watered area, this mat-forming perennial spreads to up to a metre across, though it is rarely

more than 2 - 3 cms. high. Leaf colour varies from bright green to brownish, depending on soil and water conditions. Once the water supply is cut off, the species dies off within a month. **Palm Doves** are often seen searching for seeds.

Family Gramineae

1. *Cynodon dactylon* – A common perennial grass, in small clumps in garden areas and in more exposed habitats. Possibly a component of the natural vegetation. A very persistent species, seemingly impossible to eradicate.
2. *Dactyloctenium aegyptium* – Only found in shaded garden areas, mostly around the accommodation. This is an 'imported' annual grass, to 70 cms, with (usually) four distinctive terminal spikes arranged in a cross. Very occasionally rooting at the nodes.
3. *Digitaria sanguinalis* – An annual grass, presumably imported in fertiliser and associated with *Dactyloctenium*.
4. *Echinochloa colona* – A persistent annual grass in some niches but needs constant watering to thrive. Never found in fully exposed habitats. Some specimens are large and dense and may possibly be *E. frumentacea*.
5. *Polypogon monspeliensis* – Recorded only in 1986 (March - early May) on the south side of the old Laloo Laundry, since demolished. Four specimens were together in a small garden. An easily recognised species with its large flat leaves and conspicuous solitary panicle.
6. *Setaria verticillata* – This tufted annual grass is another import recorded only in 1986 in the same patch as *Polypogon monspeliensis*. The downward-facing bristles feel sticky and easily attach themselves to clothing.
7. *Sporobolus spicatus* – Previously far more common than at present, though very persistent on upper beach sand along the southern rim of the Island; also occasional among *Salsola baryosma* around the runway, and odd clumps here and there in exposed areas all over the south. It is easily recognised when in flower, but sometimes a plant spreads via stolons without flowering. It would appear to be well-established on Das, though the species is reckoned by Mandaville to be a recent arrival in the Eastern Region of Saudi Arabia (first recorded in Dhahran in 1974). Its origin on Das is not known.

Family Leguminosae

1. *Alhagi maurorum* – Though very common along some outer streets of Abu Dhabi town, this colourful and distinctive legume first appeared on Das in the late spring of 1988, outside the new Power Station among palm trees and *Ipomoea biloba*. Several plants colonised the same year and a few survive despite repeated attempts to clear the area of undergrowth. Specimens were in a very poor state in February 1994. Two individuals turned up outside the ADMA-OPCO Safety Office in March 1990 but were removed later the same year before fruiting. Their means of arrival remains a mystery.

2. *Lotononis platycarpa* – This small annual with white flowers appears each spring in at least four locations within 200 metres of the Airport Terminal. There is evidence that the species is natural to Das as it occurs in relatively undisturbed areas in numbers.

3. *Melilotus indica* – This imported species probably arrived with a consignment of fertiliser and is found only in sheltered and well-watered garden areas as a weed. It is locally common, flowering from early January through to March.

Family Malvaceae

1. *Malva parviflora* – Another natural species, this dwarf mallow appears from early February onwards among the shrubbery around the airport car park, under the palms of the house of the Ruler's Representative and around Sahel accommodation, almost always on sand. Mature plants rarely exceed 12 cms. in height, with flowers as low as 1 cm. above ground level. Locally common and free-seeding.

Family Portulacaceae

1. *Portulaca oleracea* – A common plant, presumably originally an imported weed but now well-established all over the Island where there is any source of water. Some specimens are old perennials and have a spread up to 65 cms. Leaves are shiny, waxy green to reddish-brown, depending on soil and water conditions. The black seeds are conspicuous close up, as are the yellow flowers which bring a welcome splash of colour to Das even on the driest, hottest summer days.

Family Zygothallaceae

1. *Zygothallum simplex* – A distinctive, low, compact annual, once common around the higher beach areas on the south of Das but has now colonised the bunds in the Tank Farm in large numbers. The leaves vary from yellowish to very dark green. Very prolific in some years (1992, 1993), much less so in others. This species is also found throughout the other offshore islands and all along the mainland west of Tarif.

I would like to acknowledge the help and advice given over the years by Ian Hedge of the Royal Botanical Garden at Edinburgh, who has been responsible for the majority of identifications.

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Discovery of insects belonging to the orders Ephemeroptera and Embioptera at Al Ain

by Michael Gillett

Recently specimens of a mayfly (order Ephemeroptera) and a web-spinner (order Embioptera) have been taken at Al Ain, allowing these two orders of insects to be added to the 15 already known to occur in the region. A checklist of insect orders recorded from the region is presented along with an assessment of the other 12 orders so far unrecorded from the region.

Present day insects belong to a score or more different orders, but there is no consensus between individual authors as to the exact number. However, a widely accepted classification is that of Imms (1957) which recognises 29 distinct orders of insects. Such a system seems to have been adopted by Walker and Pittaway (1987) in their popular book dealing with the insects of the eastern Arabian region. The scope of this work excludes the more minute members of the class Insecta, but 15 orders of mostly medium to large-sized insects are recognised as occurring in the region. I would like to add two further orders to that list to bring the currently recognised total to 17 orders. These additions result from the recent and somewhat fortuitous capture at Al Ain of insects belonging to the orders Ephemeroptera (mayflies) and Embioptera (web-spinners) as described below.

Ephemeroptera

On the evening of 18th April 1993 I took a single insect at light in the hallway of an apartment block in the Muwajji district of Al Ain. The insect was immediately recognisable as a mayfly on the basis of the following characters: vertical position of wings above body at rest; wing shape and venation; absence of a pair of hind wings (family Caenidae?); very short antennae and long forelegs in relation to the other two pairs. One distinctive character was missing; the insect had no 'tails' (these consist of a pair of filamentous cerci with or without a central filament). However, these structures are delicate and can easily be detached (Chinery, 1973) and this would appear to be the case for the insect in question. The insect had a pale brown body and transparent, unmarked wings with a span of about 1 cm. The small size is another indication of its possible affinity with the Caenidae. Mayfly development takes place in clean water habitats, so that, apart from identification, another problem exists with this insect. That is how to explain its presence at Muwajji, which is relatively distant from permanent freshwater sites such as Ain Al Faydah or the Omani wadis.

Embioptera

On 16th September 1993, after removing several

● دراسة حول الحشرات في منطقة العين وقائمة بأنواع الحشرات في دولة الامارات العربية المتحدة.

accumulations of dead leaves from the garden of my new house in Muwajji, I noticed a curious black insect on the wall above where I had been working. I captured the insect and was able to recognise it as a web-spinner belonging to the order Embioptera, a little known group of insects living in colonies in leaf litter and under debris, where they are known to spin interconnecting tunnels from a silk-like material. It seems that my gardening efforts may have disturbed (destroyed?) a colony of these insects but, despite searches made in other parts of the area, I have been unable to find other examples. The captured insect is about 7mm. long with a cylindrical and completely black body. Two pairs of similarly shaped wings are present and folded flat along the length of the body, which immediately identifies the specimen as a male since, for all species, the females are always wingless, as are the males of some groups.

Both insects have been preserved and will be deposited in the UAE University Museum of Natural History. Other records of mayflies and web-spinners from the UAE would be gratefully received, as too would be descriptions or actual specimens of insects not readily identified to the level of order or family from Walker and Pittaway (1987).

In the accompanying checklist (Table 1), those insect orders recorded as present in eastern Arabia (Walker and Pittaway, 1987) and in the Al Ain region by the author are indicated and the status of the other 12 orders, together with the possibility of finding them in the UAE, is briefly reviewed.

Further Records added In Press

Since this article was written, I have been fortunate to secure two more examples of web-spinners (both males) from the outside walls of my house on October 1st and 9th, 1993. By coincidence, on the second occasion and on the same wall (to which it might have been attracted by electric light during the previous night) I found a second example of a mayfly, apparently of the same species and complete with 'tails.' All examples have been preserved in 70% alcohol for eventual identification.

Sub-class/Division	Order (common names)	Eastern Arabia	Al Ain
Apterygota	1. Thysanura (silver-fish, bristle tails)	+	+
	2. Diplura ^a	-	-
	3. Protura ^a	-	-
	4. Collembola ^b (springtails)	-	-
Pterygota/Exopterygota	5. Ephemeroptera (mayflies)	-	+
	6. Odonata (dragonflies)	+	+
	7. Plecoptera ^c (stoneflies)	-	-
	8. Grylloblattodea ^d	-	-
	9. Orthoptera (crickets & locusts)	+	+



Cannibalism in the Arabian Toad : The sequence of pictures above, which should be viewed from left to right, is the first known photographic evidence locally of cannibalism in the Arabian Toad, *Bufo arabicus*, one of two species of toads to be found in the mountain wadis of the United Arab Emirates and northern Oman.

The sequence was shot on video by Mike Shepley and Christian Gross, during work on a film on the wildlife of the UAE. See *Notes and Queries* on Page 21.



A young Osprey, *Pandion haliaetus*, in the nest on South Yasat island, Abu Dhabi. (See Page 5)

(S.J. Aspinall/NARC)



The cast of the specimen of *Mola ramsayi* at the Emirates University. (See Page 22)

(Dr. Saif al Ghais)

	10. Phasmida ^a (stick & leaf insects)	-	-
	11. Dermaptera (earwigs)	+	+
	12. Embioptera (web-spinners)	-	+
	13. Dictyoptera (cockroaches & mantids)	+	+
	14. Isoptera (termites)	+	+
	15. Zoraptera ^f	-	-
	16. Psocoptera ^g (booklice)	-	-
	17. Mallaphaga ^h (biting lice)	-	-
	18. Anoplura (sucking lice)	+	+
	19. Hemiptera (true bugs)	+	+
	20. Thysanoptera (thrips)	+	+
Pterygota/Endopterygota	21. Neuroptera (ant lions, lacewings etc.)	+	+
	22. Mecoptera ⁱ (scorpion flies)	-	-
	23. Lepidoptera (butterflies & moths)	+	+
	24. Trichoptera ^j (caddis flies)	-	-
	25. Diptera (true flies)	+	+
	26. Siphonaptera (fleas)	+	+
	27. Hymenoptera (ants, bees & wasps)	+	+
	28. Coleoptera (beetles)	+	+
	29. Strepsiptera ^k (stylops)	-	-

Table 1. Checklist of insect orders (Imms, 1957) and their occurrence in eastern Arabic (Walker and Pittaway, 1987) and Al Ain with notes on the orders not currently recognised from these localities.

Notes: Orders are listed as recorded (+) or unrecorded (-). The 9 orders marked in bold type (e.g. **28. Coleoptera**) are well represented in the region and contain the majority of insect species likely to be encountered.

^a Insects in these two orders have no common names and are uncommon, wingless, minute, soil-inhabiting organisms requiring conditions of high humidity. They have not been searched for in the UAE and their regional status is unknown.

^b Springtails are small to tiny insects living in soil and are relatively common throughout the world. They have not been searched for in the UAE, but some species might be expected to occur in the more damp areas.

^c Stoneflies are medium-sized species and the early life stages are passed in fresh water. They have not been encountered in the region, but given the presence of other aquatic insects such as water beetles and bugs, dragonflies and mayflies, the presence of stoneflies might be expected in those wadis with permanent water.

^d These very rare insects have no common name and are restricted to mountain regions in northern Asia and North America. They are unlikely to occur in the Arabian region.

^e Stick insects are not mentioned in Walker and Pittaway (1987) and I have not encountered them in the Al Ain region. However, one was figured in Jongbloed (1991), so there is presumably at least one species in the region. (Since compiling this list, I have been informed by my colleague, Dr N. Woolhouse, of a sighting in late September 1993 of a small stick insect in the Hajar Mountains close to Al Ain, but the insect was not brought home.)

^f Minute insects with no common name, there are about 20 species known from the Americas and SE Asia. They are unlikely to occur in the UAE.

^g The Psocoptera are generally small to minute insects containing cosmopolitan domestic pests as well as free-living species found on plants. Whilst they have not been looked for in this region, there is a high probability of some species occurring.

^h Biting lice are parasites mainly of birds, including the domestic chicken. They have not been looked for in the UAE but are probably present in numbers (e.g. the Egyptian vultures to be found on Jebel Hafit and other birds of prey).

ⁱ Scorpion flies are medium-sized insects characteristic of cool, shady habitats in the northern hemisphere. They have not been encountered in the UAE and their status in this region is unknown.

^j Caddis flies are another group of medium-sized insects with aquatic immature stages. They have not yet been found in the Al Ain region, but the comments given above (^c) for the Plecoptera apply equally well to the Trichoptera.

^k The name 'twisted wing parasites' refers to the male insects, which are active fliers able to seek out the wingless females in host insects. The insects are small and are mainly associated with hymenopterous species, including the honey bee. Although not yet looked for in the UAE, the order is probably present with individual species as parasites of bees and wasps and possibly also with grasshoppers, bugs and bristle tails.

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NOTES AND QUERIES

Cannibalism in the Arabian Toad (*Bufo arabicus*)

(This Note has been submitted to provide a background to the photographs included in our centre spread section showing cannibalism in the Arabian Toad, *Bufo arabicus*. The pictures were originally taken on video by cameraman Mike Shepley, during work with Christian Gross on filming for a forthcoming film on UAE wildlife. The eating habits shown are not known to have been photographed previously).

The Toad family, to which the Arabian Toad, (*Bufo arabicus*), common in the UAE mountains, belongs, have relatively little developed and rather simple skulls, with a very small brain chamber and jaws that cannot be used for chewing.

They, therefore, have to swallow their prey whole, which does not seem to be such a difficult task as many other animals do the same.

However evolution did not make life easy for the toads, and they have had to adapt, and then re-adapt, and re-adapt, until this rather odd-looking eating machine, which we find in every wadi with water, was completed and had reached the form which we know today.

Firstly, the toads decided to pounce upon their prey, which, despite their fat and ungainly appearance, they do very well.

Since their prey consists mainly of very fast-moving small insects, it then proved to be a great advantage to possess a large trap in which to catch these small, agile flying, jumping and even diving animals.

Therefore the mouth of the toads, through the evolutionary process, became steadily larger, and today a toad can easily take the whole head of a toad of the same size into its mouth.

A further adaptation was the huge, laterally-directed eyes. Set right on top of the head, they give an enormous field of vision that has proved instrumental both in detecting prey and in avoiding predators.

These superb adaptations, however, also had their drawbacks.

The large eyes left so little space for the brain that every little movement in the surroundings of a toad triggers its hunting instinct, which may be an explanation of the cannibalistic behaviour shown in our centre spread pictures.

The large mouth, instrumental in catching small fast-moving insects, also enables the toads to take larger prey which they find difficult to swallow.

Since their brain is too small to tell them the message that something should not be caught, and the mouth is so big that there is no place for the muscles necessary for chewing, the toad evolved in yet another different way.

While swallowing the prey, special muscles draw the eyes into the cranium, and it is the back of the toad's eyeballs that actually push the food to be digested through the narrow gap of the throat.

The pictures show the process of a large toad catching and then swallowing a smaller one.

They were taken, on video-camera, in a small wadi near the Wadi Fay, close to Hatta, in the Hajar Mountains, in early 1994.

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* ♦ * ♦ *

Arabian Toad is a prey species of Carpet Viper

For the amateur naturalist, data on the feeding habits of Arabian snakes is probably not too easy to obtain, except perhaps by dissection of road casualties. I must, therefore, consider myself very lucky that on my very first wadi trip, I should see my first Arabian snake, and a venomous one at that, in the process of feeding on an unlikely prey. The occasion was the Al Ain ENHG hike held on 12th February 1993 in Wadi Masah, Sultanate of Oman about 40 km NE of Al Ain (Abba Square WA26).

I spotted the snake, a Carpet viper (*Echis coloratus*), on bare shingle just a few metres from the water's edge, some 1 km above the oasis and village of Masah. Only as I fumbled for my camera did I realise that the viper's jaws were firmly clamped on the hindquarters of a plump Arabian Toad (*Bufo arabicus*). As I approached, the snake began to back off into the cover of a hollow beneath a small rock, but I was able to take several photographs before it eventually disappeared dragging the subdued toad with it.

The incident seemed unlikely to me for a number of

reasons. Firstly, size – the snake was estimated to be only about 20 cm long, whilst the toad was about 4 cm long and at least twice as broad as the viper. To swallow it, the snake would have to reverse its hold and probably dislocate its own jaws to take it in head first. Secondly, in most books, amphibians are not generally listed as prey species of any type of viper – small mammals, reptiles and invertebrates such as grasshoppers and worms are more usually mentioned. Finally, not only is this a poisonous snake, but also a poisonous meal – most species of *Bufo* produce copious amounts of venom from glands in the skin including the large parotid gland. Toad venom is quite different from snake venom and contains a mixture of poisonous components including bufotoxin, bufotenines and bufogenins. Is the snake immune to the action of these? If so, then the wadi certainly contained many more potential viper meals, as toads of all sizes were present in large numbers!

MICHAEL GILLETT

* ♦ * ♦ *

A first record of *Mola ramsayi*, (Osteichthyes: Molidae), for the United Arab Emirates

A single specimen of *Mola ramsayi* (Giglioli, 1883), was caught by fishermen off the East Coast of the United Arab Emirates in March 1993, *Mola ramsayi* has not previously been recorded from this region, and is known otherwise only from New Zealand, Australia and South Africa, (Smith and Heemstra, 1986).

Key words: *Mola ramsayi*, first record, UAE East Coast, Gulf of Oman.

The coastal waters of the United Arab Emirates cover a considerable area in the north west of the Indian Ocean. On the western side of the country, there are over 700 kilometres of coastline in the south western Arabian Gulf, with a further 100 km to the East, on the Gulf of Oman. The fish species of both the Arabian Gulf and the Gulf of Oman have been subjects of a number of studies, (1), but little work has been specifically undertaken on identifying fish species from the waters of the UAE.

Work is nearing completion on a full listing and classification of all species recorded, (2).

As a result, new recordings of fish species are being made frequently as more work in this field is undertaken.

During the course of March 1993, a fisherman from the port of Dibba, in the Emirate of Fujairah on the East Coast of the United Arab Emirates, caught a large fish, of a species unknown to him, in a commercial gill net set for mackerel a short distance from the coast.

The fish was towed to Dibba, and officials of the UAE Ministry of Agriculture and Fisheries at the port contacted the Desert and Marine Environment Centre of the Emirates University to notify the catch.

Upon examination, it was identified as being *Mola ramsayi*, with the following details:

Total length: 1215 mm.

Standard length: 995 mm

Length of dorsal fin: 610 mm

Length of anal fin: 585 mm

Length of pectoral fin: 145 mm.

Measurements were taken from a plaster cast of the fish. No accurate description of colouration was possible, because the fish was not examined when freshly caught, while weight can only be estimated, at around 500 kg.

Only three species of sunfish are known to occur worldwide, including the Western Indian Ocean, *Mola mola* (Linnaeus, 1758), *Masturus lanceolatus* (Lienard, 1841), and *Ranzania laevis* (Pennant, 1776), although no descriptions of known distribution are available. (3).

The occurrence of *Mola ramsayi* adds a fourth species of sunfish to those known to occur in the region.

Notes:

1. e.g. Smith, M.M. and Heemstra, P.C. (1986) Smith's sea fishes. Smith Institute of Ichthyology, Grahamstown, South Africa. Springer-Verlag, p.908.

2. Al Ghais, S.M. forthcoming.

3. Fisher, W. and Bianchi, G. (eds.) (1984). FAO species identification sheets for fishery purposes. Western Indian Ocean (Fishing Area 51). prepared and printed with the support of the Danish International Development Agency, DANIDA. Food and Agriculture Organisation of the United Nations, Rome. Vols 1-6, pag. var.

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Amphisbaenian (*Diplometopon zarudnyi*)

In October 1992, staff of the Abu Dhabi Company for Onshore Oil Operations, ADCO, working at the Asab oil field, south west of Abu Dhabi, (Abba Square UA 23), collected one of the UAE's more peculiar reptiles, an Amphisbaenian, described commonly but inaccurately, as a 'worm lizard.'

Similar to a worm, pink with small purple spots, distinctive annular rings bearing square scales, and with a spade-like snout and a pointed tail used to provide leverage when moving across the sand, this reptile is actually neither lizard nor snake, though related to both, but is one of the Trogonophidae family. Called in Arabic 'Duud,' 'Bidifan,' 'Nadus,' and Zuwahaf,' it is found occasionally in the UAE in sandy areas at night, although you are more likely to see its trails — peculiar curved marks on the surface or a raised trail when just beneath the surface.

The specimen found was about 35 cm. long and nearly a centimetre in width, was sent by ADCO to Abu Dhabi, where its behaviour was studied in captivity for a few days before it was released in a sandy area.

According to Michael Gallagher, it feeds on insects found on or just beneath the surface. It was not seen to eat while in captivity, however, although it permitted ants to wander

past its nose, and was released partly for this reason.

Gallagher, (*pers. comm.*) reports that little is known of the habits of the local Amphisbaenian, although species from the family found in other parts of the world have been better studied. All have backward-facing nostrils, and eyes sunk beneath the translucent skin. It is not even known whether it lays eggs or bears live young, although most species lay eggs or retain them in the body, giving birth to live young.

My thanks to Field Staff of ADCO, one of the ENHG's Corporate members, for collecting the specimen and to Michael Gallagher for his comments on a first draft of this note.

PETER HELLYER

Patrick Osborne, Reptile Recorder, adds that there are six records of *Diplometopon zarudnyi* on the NARC database. The most recent refers to two animals found along the Dubai/Abu Dhabi border on 3 February 1994 under a sheet of wood. Amphisbaenians are often found under debris in the desert and there is plenty of this at old Bedu camps. Wood provides suitable cover because it is often infested with termites and the amphisbaenians almost certainly feed on these.

***Teratoscincus scincus* – the gecko with large reflective eyes**

Although lizards are frequently seen by many people, few are recorded and even fewer are studied. Indeed, the ecology of lizards in Arabia is very poorly known and yet they are easier to study than many other animals, including birds. For example, lizards have smaller home ranges, are easy to observe and usually straightforward to catch and then release. If I had to choose one candidate for research, my first choice would be the gecko *Teratoscincus scincus*. This delightful species lives close to the most populated areas in the Emirates and yet few people have seen it. The following account describes some features of this gecko, based on observations from Abu Dhabi.

Teratoscincus scincus was first described from Turkestan about 150 years ago. Its range lies largely north of the UAE, including Central Asia, Iran Afghanistan and Pakistan. So far as is known, its presence in Arabia is limited to the Emirates, but it may also live in neighbouring Oman. It probably occurs throughout the northern Emirates, Dubai and the extreme north-west of Abu Dhabi, although actual records are few.

Teratoscincus scincus is a large, nocturnal gecko, similar in appearance to *Stenodactylus* geckos but larger. Distinctive features are the large, almost round scales which cover the body, quite different from the much smaller scales of other geckos in the UAE. The adults examined so far in Abu Dhabi measured up to 180mm in total length and weighted up to 48g, making them the largest night-active lizard in the country. The adults and juveniles are quite different in appearance. The young geckos are marked from the back of the head to the end of the tail with broad dark bands which presumably break up the body shape, so aiding concealment. Adults are predominately pink with splashes of yellow and dark brown down the back. Animals intermediate in age show some features of both adults and juveniles.

In Abu Dhabi, *Teratoscincus scincus* prefers low, undulating sands dominated by *Pennisetum divisum*. Burrows are often made under this grass which grows in large clumps, trapping wind-blown sand to form hummocks. The roots may stabilise the sands allowing deeper burrows to be made. This, however, is not the only habitat used. Indeed, some burrows in Abu Dhabi are found on gravel plains almost devoid of vegetation except for the occasional *Fagonia*. Whether individuals on gravel plains are disadvantaged is not known but they could be subdominant animals excluded from the sands through intraspecific competition.

The animals first appear about thirty minutes after sunset, emerging from their burrows in sand or gravel. Surprisingly, animals in Abu Dhabi are active on both the warmest nights of summer and the coldest nights of winter. This, however, is probably not true further north, in Kazakhstan, for example, where winter temperatures fall below zero. Exit from the burrow is cautious at first and animals surprised while still emerging will retreat backwards down the burrow. How long they are active during the night is unknown.

Although nocturnal, *Teratoscincus scincus* is one of the easiest geckos to find, as its large eyes reflect back a considerable amount of light from a spotlight. Sweeping a halogen spotlight over suitable habitat will reveal

animals up to 150m away. The eye colour is usually red but changes to green when the animal turns its head. There is little to confuse it with in the desert: small active spiders reflect back far less light and cannot be seen further than 30m away, while the eyes of hares reflect a dimmer glow. Presumably *Teratoscincus scincus* has excellent night vision.

Ordinarily, *Teratoscincus scincus* walks slowly with the body raised from the ground, but it runs rapidly when surprised and has two defence mechanisms. Firstly, the large scales that cover the body can be rubbed together to produce a warning hiss. If this fails to work and the gecko is captured, it has the remarkable ability to shed skin from large areas of its body and so slip free. This process has drawn the attention of medical researchers studying severe burns who presumably saw potential for skin grafts.

Teratoscincus scincus is an active hunter and may cover some distance each night in search of prey. Once an insect is seen, it is stalked rather in the manner a cat closes in on its prey. Keeping its eyes fixed on the target, the gecko moves slowly forward, one limb at a time, until it is close enough for the final strike. In captivity, *Teratoscincus scincus* takes grasshoppers and appears to prefer them to beetles, but this may not apply to animals in the wild. A preference for grasshoppers would, however, explain why its occurrence is centred on well-vegetated areas. Its ability to take large prey probably reduces competition with other night-active geckos. Only *Stenodactylus doriae* comes close in size to the juveniles, but this species almost certainly takes smaller invertebrate prey. Interestingly, I have never seen *S. doriae* in the same areas as *Teratoscincus scincus* but this probably reflects habitat preferences more than direct competition.

Anyone interested in looking for *Teratoscincus scincus* should follow these simple guidelines. Borrow or buy a halogen spotlight (cheapest about Dh 45) that plugs into the cigarette lighter socket. Drive along desert tracks after sunset, scanning the light across well-vegetated areas of sand. Once the red eyes of the gecko are sighted, stop the car, hold the spotlight on the animal and allow a companion to run to the spot. It is quite easy to run along the beam of the spotlight, keeping the eyes in sight all the time. Often *Teratoscincus scincus* will be found hiding under vegetation and a little searching will be needed to find it. Ironically, it is easier to pinpoint it from 150m away than from 1-2 metres because of those large, reflective eyes. Once found, observe the gecko with a weaker torch or red lamp. Do not touch it because without care you will cause the gecko to shed its skin. Of course, the ENHG would be very interested to hear of any sightings of this fascinating gecko. Does it live in your local patch? Happy spotlighting!

I would like to thank Sherif Baha El Din for first introducing me to Arabian lizards, and Barbara Tigar for her help in the field.

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Palaeontological studies in the Western Region of Abu Dhabi

The paleontological studies in the Bainuna area are being carried out under the sponsorship of our Corporate Member, the Abu Dhabi Company for Onshore Oil Operations, ADCO.

Studies of the fossil mammal fauna from the Bainuna area of western Abu Dhabi using the comparative collections in the Natural History Museum in London and elsewhere are, with difficulty, proceeding. The difficulty is that parts of the Abu Dhabi Late Miocene (6-8 million years old) fauna (bovids – cattle-like mammals, hippos and primitive horses) are not exact taxonomic matches to similar fossil mammals previously described from rocks of the same, or similar, age found in East Africa or in Asia. Another difficulty is that all of our fossils are fragmented bones, a fact that does not easily help comparison. We had hoped that if a certain mammal was an exact taxonomic match from, say, a dated East African locality, then we would be able to state that the Abu Dhabi fossils were, say, 7.5 million years old – about! Because of the subtle dissimilarities of the Abu Dhabi fossils, African and Asian collections of Miocene mammals in the Natural History Museum have had to be thoroughly searched on the off-chance that an exact comparison could be made.

We have succeeded, however, with the primitive horse fossils. Dr Vera Eisenmann, Museum National d'Histoire, Paris, who collected more horse specimens from Abu Dhabi in 1991/92, will, jointly with Peter Whybrow, who first found Abu Dhabi horse fossils in 1979, publish a paper describing some of the horse fossils as a new species. The generic name for these fossils is *Hipparion* and the new species will be named after the Emirate of Abu Dhabi. Because of the Code for International Zoological Nomenclature, we cannot name the species here without its description otherwise the species name would become a *nomen nudum* – not valid.

Dr Alan Gentry is describing the artiodactyls (bovids and hippos) and one of his preliminary conclusions is that the Abu Dhabi hippos may be more closely related to Miocene hippos found in the Far East (Burma) than to hippos from Africa. Further studies may show that the Abu Dhabi hippo is also a new species. Similarly, the partial skull of a bovid (though not related to today's two Indian species, nor to cattle and buffaloes) originally found by Dr Ken Glennie's Ph.D students and now at the NHM, is an important discovery. It has diverging and graceful horn cores and appears similar, but not the same as, specimens of *Tragoportax* known from the Greek and Libyan Late Miocene. Again, when Alan has finished his laborious measurements and comparisons, it too may turn out to be a new species.

The geological analysis of the Western Region Baynunah Formation sediments by Dr Peter Ditchfield is progressing. Peter has been making thin sections of the rocks he collected last year and looking at their crystal structure – or the lack of it. His ideas at present indicate that all the Miocene sediments now exposed as jebels in the Western Region, now some 60 metres above sea level, were consolidated beneath a land surface with a very high water table. This means, if Peter is correct, that there has been uplift of parts of the Western Region over the last 6 million years of some 60 metres. We studied this idea further during the Spring 1994 field

season.

Diana Clements (Peter Whybrow's Research Assistant) has been cataloguing and curating all of the Western Region collection and we now have in excess of 500 identifiable fossils. This material has been incorporated using a Paradox 3.5 database, and together with accurate locality information using a Trimble Global Positioning Satellite System (GPS) we can now have print out of all the fossils found from any one of our 38 main sites. Similarly, we can find out from which sites hippos or crocodiles predominate in the collection. Using this information and linking it with the information given by our sedimentological colleagues, we may be able to get an idea of the extent of the habitats surrounding the Miocene river that once flowed through Abu Dhabi.

Late Miocene fauna and flora from the Bainuna Formation, February 1993.

PLANTAE

Algae
spp. indet
Leguminosae
? *Acacia* sp.

INVERTEBRATA

Ostracoda
? *Cyprideis* sp.
Gastropoda
? *Mastus* sp.
Bivalvia
? *Anodonta* sp.

PISCES

Siluroidea
? *Clarias* sp.
? *Bagrus* sp.
Cyprinoidea
? *Barbus* sp.

REPTILIA

Crocodylia
? *Crocodylus* sp.
aff. *Asiatosuchus* sp.
? *Gavialis gangeticus*
Chelononia
? *Pelomedusidae*
? *Podocnemis* sp.
Testudinidae
? *Trionyx* sp.

AVES

Struthionidae
? *Struthio* sp.
Ardeidae
? *Egretta alba*

Peter J. Whybrow

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U.K.

MAMMALIA

Rodentia, gen. & spp. indet.
Primates
? *Papio* sp.
Carnivora
Mustelidae
? *Plesiogulo* sp.
Felidae
? *Maichairodus* sp.
Hyaenodontidae
? *Lycyaena* sp.
Proboscidea
Deinotheriidae, gen & spp.
indet.
Gomphotheriidae
? *Stegotetrabelodon* sp.

Perissodactyla
Hipparioninae, gen. & sp.
indet.
Rhinocerotidae, gen. & sp.
indet.
Artiodactyla
Suidae
? *Nyanzochoeerus cf. devauxi*
Hippopotamidae
? *Hexaprotodon af. iravaticus*
Giraffidae
? *Palaeotragus/injanatherium*
? *Bramatherium* sp.
? *Palaeotragus* sp.
Bovidae
? *Pachyportax latidens*
? *Tragoportax* sp.
? *Prostrepsiceros libycus*

RECORDERS' REPORTS

Archaeology and Palaeontology

As usual the winter season has seen a substantial amount of field work being done by visiting archaeologists and palaeontologists, as well as by teams from local Departments of Antiquities.

On the palaeontological front, the team led by Peter Whybrow of the Natural History Museum in London completed two months of work in the Western Region of Abu Dhabi in late April, with the support of our corporate member the Abu Dhabi Company for Onshore Oil Operations, ADCO. Their work concentrated on the Miocene outcrops of the Bainuna Formation. Work included the excavation of more fragments of the fossil elephant uncovered at Shuweihat in 1993.

Under the sponsorship of Fujairah Ruler and Supreme Council member Sheikh Hamad bin Mohammed al Sharqi, the team also conducted a preliminary investigation of Lower Cretaceous rocks to be found at the Dibba Marble Quarry in Fujairah, where fossil corals and molluscs and micro-fossils were located, which were taken to London for identification.

Archaeologically, the winter of 1993-1994 has been perhaps the most active ever, with at least fifteen separate excavations and surveys being undertaken by foreign teams.

The Belgian team from the University of Ghent, under the direction of Professor Ernie Haerinck continued work at the settlement site of Ad Door in Umm al Qaiwain, although planned excavations at the Tell Abraq site by a University of Sydney, Australia team under Professor Dan Potts were halted as a by-product of a border demarcation dispute between Sharjah and Umm al Qaiwain.

In Ras al Khaimah, a British team under Derek Kennet carried out surveys in the Khatt area, locating a number of additional 'tells,' containing material from the pre-Islamic period up to early Islamic times, while a trial trench at the newly-discovered mound of Qush, near Shimal, produced finds ranging from the late Iron Age up until the Thirteenth or Fourteenth centuries AD, the longest sequence of early Islamic material yet found in the Emirates.

Also in Ras al Khaimah, a French team under Dr. Claire Hardy-Guilbert concluded excavations at the site of the Islamic port-city at Julfar, uncovering the remains of a fortress, while a German team concluded excavations of a section of city wall, as well as carrying out surveys in the mountains.

A team from Japan's Kanazawa University completed a study of a settlement area of Julfar, before moving to the East Coast enclaves of Sharjah, in search of material from the Islamic period, particularly Far Eastern porcelain.

A team from Britain's Institute of Archaeology continued excavations on a Third and Second Millennium BC site in the Sharjah enclave of Kalba, while on the Madam Plain, also in Sharjah, a French team headed by Michel Mou-

ton and a joint Franco-Spanish expedition continued work at the site of the fort at Mileiha, dated to the first centuries of the Christian era.

Sharjah's own Department of Antiquities and Heritage carried out excavations near Mileiha, with discoveries of particular interest including a graveyard from around the early centuries of the Christian era.

The Australian excavations at Jebel Emalah are covered elsewhere, (See Page 12).

In Fujairah, the Swiss-Liechtenstein Foundation for Archaeological Research Abroad completed a second season of work at the Iron Age hill-top fortress of Husn Madhab, and carried out excavations on Iron Age sites near Bithna, while a British team carried out a preliminary survey of sites in the Wadi Safad, just north of Fujairah.

In Dubai, excavations by Dr. Hassan Qandeel of the Municipality focussed on the pre-Islamic site in Jumeirah, where an extensive settlement dating from the late Sassanian/early Islamic period, including extensive walls and pillars, was identified.

In the Emirate of Abu Dhabi, the Department of Antiquities and Tourism in Al Ain carried out conservation work at the Third Millennium site at Umm an Nar, as well as undertaking work in the Hili area, while a French team completed a sondage at the Iron Age village at Rumeilah first excavated in the early 1980s, prior to preparation of a publication.

The third season of the Abu Dhabi Islands Archaeological Survey Project, directed by Dr. Geoffrey King, and including many of our Corporate members amongst its sponsors, carried out further work on the Late Stone Age site at Merawah, (see Vol 3.1., April 1993), and on the 'Ubaid site at Dalma, (see Vol. 3.2., October 1993), and also extended excavations at the late pre-Islamic/early Islamic site on Sir Bani Yas, as well as continuing surveys on islands in the Western Region, including Ghaghah, Yasat and Al F'zaiyyah, on each of which sites from the early centuries of the Christian era were identified.

A survey was also made of a late Islamic fortress in the Western Region. (See page 9)

The extent of the work this winter precludes detailed reports on each excavation, but subsequent issues of the magazine will report on some sites.

Group members paid a visit to the Sir Bani Yas site in April 1994, while member Kate Bonner assisted in excavations under Derek Kennet in Ras al Khaimah and Michel Mouton in Mileiha.

The archaeology of the Emirates is now one of the fastest-growing areas of scientific research within the country. There is room for Group members, and others, to become more closely involved.

PETER HELLYER
Archaeology Recorder



Birds

The winter has, as usual, seen a flurry of interesting rarities passing through the Emirates, including a couple of first records and several other birds turning up for only the second, third and fourth times, although some of the new sightings are almost certainly due to the increased coverage by both local and visiting birdwatchers.

From 30th October until at least late December a **Golden Plover**, a UAE 1st record, was in residence at the Al Wathba sewage outlet, giving Abu Dhabi birders plenty of chances to tick it off, and making a fine start to the season. A 2nd Golden Plover turned up at the Emirates Golf Course in March to give Dubai-based birders a chance to catch up.

Late November was highlighted by a female **Cotton Teal** at the Emirates Golf Course on 26th November, only the 3rd record. Unfortunately it flew off again the same day and was never seen again, much to the frustration of the local twitching community.

On Das Island, a number of interesting records were made, including a possible 1st record of **Pallas's Warbler** on 9th November, and the country's second record of **Greenish Warbler** from 9th November to 7th December. Up to five **Red-billed Tropic-Birds** were also seen around the island between November 14-19, with two **Hypocolius** on 27th November, a very late **Scarlet Rosefinch** from December 4-7, an **Eversmann's Redstart** from December 5-9 and 2 **Oriental Skylarks** from December 12-16th.

Cold north-easterlies over central Asia blew in a smattering of temperate rarities across the country from November 9th, including up to three **Robins**, a **Little Bunting**, six **Brambling** and 13 **Lapwing**. Four **White-fronted Geese** arrived in Abu Dhabi in late November, the first records since 1986. They stayed until early January despite the temptation they offered to local residents planning a fine Christmas dinner. On 8th December, six **Mute Swans** were seen flying near Bahrani Island, a 2nd UAE record, while these (or other?) swans were seen around Abu Dhabi, though not properly reported, until early January. The Mute Swans were photographed by an official of Group Corporate sponsor British Petroleum, who didn't realise the importance of the record until he read a story in the local press in January, and promptly offered his pictures, which were clear enough to accept. How many other rarities are overlooked just because they don't seem rare to European eyes?

An influx of visiting birdwatchers from Britain and the rest of Europe contributed some exciting observations over the Christmas and New Year period. Always stunning, a flock of 10,000 **Socotra Cormorants** filled the horizon off Al Jazeera Khor on 27th December, while later the same day a selection of raptors, including five **Lesser Kestrels** and a **Lesser Spotted Eagle**, (3rd UAE record), provided interest at the Hamraniyyah fodder fields near Digdagga. The Eagle wintered until at least early March. Thirteen **White-tailed Plovers** at Ramtha on 26th December and 28 **Stone Curlews** at Dibba on 28th December were probably the largest flocks of their species ever recorded in the Emirates.

On 2nd January, to start off the New Year, a **Woodpigeon** was in Dubai, (3rd UAE record), while a

Hume's Yellow-browed Warbler was at the Emirates Golf Course from 25th December until late February. At Al Jazeera Khor, a delightful selection of **Sylvia** warblers were found on the dunes in a single hour on 27th December, including **Menetries'** **Desert** and **Orphean** and **Desert Lesser Whitethroat**. The elusive **Plain Leaf Warbler** was also in evidence, with at least twenty seen in the mountains since mid-December.

At the Al Ain Camel Track, attracting increasing recognition as an important site, a **Common Crane**, (4th UAE record), arriving by 3rd January, and staying until mid-March, while up to forty **Bimaculated Larks** were also present until early March.. Another area of greenery providing good records is the dairy farm at Wamm, near Dibba, where **Quail** were found displaying last summer. At least three **Oriental Skylarks** were there on 4th January, with another **Common Crane**, (5th UAE record), on 8th February.

Early January saw the annual mid-winter Asian Waterfowl Census take place in the UAE, the fifth year the country has participated. Coverage was easily the most comprehensive to date, with over twenty observers taking part and twenty two sites being counted. The overall totals were 9,200 for grebes, cormorants, herons and wildfowl and over 42,000 waders. Counts of gulls and terns stood at 13,500 and nearly 2,000 respectively, although these were undoubtedly under-estimates. The grand total came to over 66,500, excluding the **Socotra Cormorant** colony at Siniyah in Umm al Qaiwain, which unfortunately could not be counted at the same time.

At least twenty five species were found in sufficient numbers to qualify as being regionally important, of particular significance being **Socotra Cormorant**, **Western Reef Heron**, **Crab Plover**, **Kentish**, **Grey** and **Lesser Sand Plovers**, **Bar-tailed Godwit** and **Redshank**. Apart from those well-known and important venues such as Khor Dubai, (14,307), and Khor Al Beidah, (11,744, including 360 Crab Plovers), the islands of Abu Al Abyadh and Merawah, both new count sites for the census, produced significant totals, 6,631 and 10,588 respectively. The figures underline how increasingly important the UAE coast actually is for waterfowl.

Our UAE Gulf coast matches the importance of that of the Eastern Province of Saudi Arabia. Together something in the order of 300,000 to 350,000 waterfowl are present along the southern Gulf coast in mid-winter, with the total number of such species utilising this area throughout the year undoubtedly (and conservatively) numbering several million individuals.

Despite the atrocious winter in Central Asia, the UAE enjoyed mild sunny weather in January and February, (with, sadly, the lowest rainfall for at least thirty years). On 25th January, a report from the Nad Al Shiba golf course in Dubai of large birds on the ponds proved to be that of two **Bewick's Swans**, a 1st UAE record, along with an exceptional flock of six **Ferruginous Duck**. To add to the excitement, there was also a **Little Pratincole**, (4th UAE record), hawking insects over the lake.

A **Great Crested Grebe** turned up on Ramtha Tip from 31st January, clearly enjoying the company of 127

Black-necked Grebe, the largest flock on record, for it was still around in March. Other good numbers of uncommon birds included eight **Pintail Snipe** at the Emirates Golf Course on 20th February, together with a **Great Snipe**, while up to eleven **Great Knot** were at Khor Al Beidah from 11th February. Larger numbers of **Great Knot** were recorded on Merawah island, west of Abu Dhabi, on visits between December and early March, when 86 were counted, and this island, now receiving more study thanks to the efforts of the National Avian Research Centre, may well be the largest over-wintering site for the species in the southern Gulf. A visit on 5th March gave one observer the delightful sight of a migrant **Peregrine** taking a **Redshank**.

Excitement in Abu Dhabi included a male **Eversmann's Redstart** in late February, which stayed long enough for most to see it well, and also provoked the initiation of a 'Twitcher's Guide' in one local paper, to put everyone on their metal - to see, and to report. **Blyth's Pipits** appeared for the first time in the autumn, and were present in numbers at several Abu Dhabi sites, although oddly not recorded in the Northern Emirates. The number of **Cattle Egrets** wintering in the capital, and roosting in the mangroves of the Eastern Lagoon reached a peak of 49 in late January, the highest number yet recorded since the pattern of wintering began to take off in 1988, with 46 counted as late as 9th March. As with last winter, they were joined for several weeks by a single **Glossy Ibis**. Unseasonal southerly winds in early March blew a **Robin** into Abu Dhabi as well.

The **Robin**, like a number of other birds this winter, was trapped and ringed, as an Emirates Bird Ringing Scheme began to get under way, sponsored by NARC and the Group. Initial work began in October, and the target species for the winter was **Bluethroat**.

The reeds at the sewage outlet at Al Wathba were found to hold thirty of this skulking species throughout the winter, with another twenty migrant **Bluethroats** also being ringed.

Large numbers of **Water Pipits** and **Citrine Wagtails** were also caught. More unusual species to be trapped were **Teal**, **Jack Snipe** and **Clamorous Reed Warbler**, the latter showing characteristics of the Asian

subspecies *brunnescens*. Also trapped was a **Blue-cheeked Bee-eater**, whose migrating flock mates anxiously perched by the net, and then patiently circled the ringer calling until the bird was released, when all circled up to some altitude and took off straight to the south.

As much data as possible, (biometrics, fat scores, weight, moult etc), was collected from all birds handled, and should produce very interesting information on migration strategies in the long run. Unfortunately, the sewage outlet was destroyed by Municipal workmen in early 1994, another sad and apparently unnecessary loss, and ringing had to be moved to Abu Dhabi. Some has also been done on Merawah.

The Al Ghar Lakes, site of the UAE's first breeding **Greater Flamingos** last summer, have also now been completely filled in, preparatory to a tree-planting programme, and it has sometimes seemed that no sooner is an important site identified than it is 'developed' and destroyed.

One ray of hope in March, however, was a request from President His Highness Sheikh Zayed for advice to be given on the creation and management of a waterfowl and wader reserve around an artificial lake at Ajban, around thirty five kilometres inland from the Abu Dhabi coast near Shahama. If proposals to expand the area of water and to plant appropriate vegetation are adopted, the site, albeit man-made, could become of considerable importance.

Finally, the Emirates Bird Records Committee held its second and third meetings during the winter. The Committee is now updating the UAE List for future publication in *Tribulus*, (the first List was published in Vol 1.2, October 1991). The meetings have produced some deletions of species, and a number of additions, among which have been **Blyth's Pipit**, recorded several times from autumn 1993 onwards, **Black Tern**, two records last year, and the **Bewick's Swans** and **Golden Plover** mentioned above.

Simon Aspinall, Erik Hirschfeld
and Colin Richardson,
for the Emirates Bird Records Committee



Corporate Members of the ENHG

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National Hotels Company, Abu Dhabi National Oil Company, ADNOC, Abu Dhabi Marine Operating Company, ADMA-OPCO, Abu Dhabi Petroleum Ports Operating Company, ADPPOC, ANZ Grindlays Bank plc, Al Fahim Group, Al Nasr Technical Trading Agencies, British Airways, The British Council, British Petroleum plc., Federal Express, Forte Grand Hotel, The Higher Colleges of Technology, Mobil Abu Dhabi Inc., Motivate Publishing, National Bank of Abu Dhabi, Shell Gas Abu Dhabi, Spinney's Abu Dhabi and Union National Bank.

Mammals

The highlight of the past few months has been further progress in laying the groundwork for the preservation of our two large felines, the **Caracal**, (*Caracal caracal*) and the **Arabian Leopard** (*Panthera pardus nimr*), thanks to the successes of the recently-founded Arabian Leopard Trust.

Reports over the past few months have continued to suggest that the mountains of the Emirates and neighbouring parts of Oman hold many more Caracals than previously suspected.

Hunters continue to kill the species, with a number of reports supplied to the Arabian Leopard Trust, including one found hanging from a tree at Sayh, in Oman's Musandam enclave on August 28th 1993, another found shot at Jebel Hareem, also in Musandam, on December 4th, one killed outside the Fujairah village of Saqamqam on December 15th, one long dead in late December in the Wadi Khabb Shamsi, also in Musandam, with two more in the same area on February 4th 1994 and March 18th.

One was also reported killed at Khor Horshim in Oman, on February 2nd, which villagers said was the first to have been seen there in living memory.

While the reports of continued killings are disappointing, there has been a flurry of live sightings as well. In October 1993, a live female cub was brought from Ras al Khaimah to Dubai, her mother and siblings presumably having been killed, and is now awaiting a mate for captive breeding. On December 3rd, two were seen on Jebel Hareem in Musandam, one of which was possibly the one reported seen dead the next day, while on February 16th 1994, one was seen on the site of the future Arabian Leopard Trust Breeding Centre, near Fili, a particularly encouraging report. The next day, one was reported near Dus, in Musandam, while an adult male was caught in Ras al Khaimah on March 4th, although sadly it later succumbed to injuries.

At the end of April, villagers in Saqamqam requested help from the Arabian Leopard Trust to catch a lynx killing their animals, a welcome development that followed on from contacts established between the Trust and the villagers after the killing of the male there in the previous December.

The development of the educational programme of the Arabian Leopard Trust has been of particular significance in the last few months. Not only has contact been established with a number of villages in the mountains, whose inhabitants are providing information on the distribution of lynxes and are, increasingly, seeking assistance from the Trust in trapping them, but there has also been a breakthrough

in securing a place for a breeding centre.

The Ruler of Sharjah, Dr. Sheikh Sultan bin Mohammed al Qassimi, has kindly allocated an area the mountains near Fili to the Trust, and a major fund-raising campaign is now under way to build the necessary fence and breeding pens. The Trust now seems well on its way to the establishment of a breeding programme, and credit is due not only to Trust members and to Dr. Sheikh Sultan, but also to those companies who have provided substantial corporate support.

As far as other mammals are concerned, the National Avian Research Centre continues to collect information on the distribution of smaller mammals throughout the Emirate of Abu Dhabi.

More recording has also been done in the Al Ain area and elsewhere, thanks in particular to Bob Read and Editorial Board member Mike Gillett, both members of the Al Ain ENHG. They include three **Brandt's Hedgehogs**, *Paraechinus hypomelas niger*, killed on the roadside near Dibba on March 13th and a flurry of records, both dead and alive, from in and around Al Ain, confirming previous suspicions that the species is more common and more widely distributed than previously believed, in both urban and mountainous areas.

Bob Read also reports, of considerable value in a much understudied area, a number of bat records near Al Ain, as part of a bat study project being undertaken by the Al Ain Group.

Mouse-tailed Bats *Rhinopoma muscatellum* were recorded on January 8th roosting in a falaj at Al Sarfanah, in the Dhahir falaj on January 9th and in the Aboule Fort on March 5th. Near Buraimi, Bob has been studying a colony of bats that roost in a rock crevice for the past two years, and has identified them as **Naked-bellied Tomb Bats**, *Taphozous nudiventris*, a rarely-recorded species for the area, although like all bats, they are probably under-recorded.

Since NARC and the Arabian Leopard Trust are now collating databases on felines and on other UAE mammals, the Recorder's task has become substantially easier. Overseas readers requiring detailed information should contact both bodies direct. There remains, however, much work to be done in collecting information on our mammal life, and all records, however insignificant they may seem, are gratefully received. The example being set by the Al Ain Group in its bat study project could usefully be copied in Abu Dhabi!

PETER HELLYER
Mammal Recorder

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Corrigendum : Fossil Sea Urchin tests

In the paper 'Fossil Sea Urchin tests found in the UAE and adjacent areas,' (Vol 3.2, October 1993, pages 7 - 11), the illustrations of some species were inadvertently inverted or misla

belled.

Details for those requiring a corrected text can be obtained from the author, Carolyn Lehmann, at P.O.Box 11416, Dubai, U.A.E.

* ♦ * ♦ *

Reptiles

Looking through my reptile notes for the past six months, I notice that many of them refer to nocturnal species. Camping overnight in the desert is a good way to see many species you would otherwise miss, as well as being fun.

Chief among the nocturnal reptiles are the geckos, particularly from the genus *Stenodactylus*. A search on the gravel interdunes within a triangle formed by Abu Dhabi, Al Ain and Dubai will often reveal *S. slevini*. It also occurs around Bainuna but has not been seen between the two areas. *S. arabicus*, the smallest of the genus and characterised by webbed front feet, is common on sand dunes and wind-blown sand lying in gravel. Much less commonly seen are *S. khobarensis* and *S. leptocosymbotes*, but I was lucky enough to find both on the same plain in an area some 60km SW of Al Ain on 24 February 1994. *S. khobarensis* was thought to live only along the coasts of Arabia until Sherif Baha El Din recorded it for the National Avian Research Centre as far inland as Umm al Zumul. *S. leptocosymbotes* has only been recorded twice before according to our records, although it was named from a specimen taken near Ras Ghanada in 1967. Both species inhabit compacted substrates such as sabkhas and gravels. Separating the *Stenodactylus* geckos requires practice but they are a fascinating group that deserves further study.

Also classed as geckos are the small climbing species of the genus *Pristurus*. Simon Aspinall collected a male *P. celerrimus* from near Dibba in early January 1994, the first I had seen. This was closely followed by a female of the same species collected by Andy Griggs near Wadi al Bih in Ras al Khaimah on 26 January 1994. Apparently, the species is commonly seen on rocks there but it has not been recorded in the Emirates before. Its presence is no surprise, however, as it is listed as occurring in northern Oman from the Musandam to Jebel Akhdar.

In the last issue of *Tribulus* (Vol. 3.2, October 1993), I reported difficulties in identifying *Acanthodactylus* lizards. The two unusual specimens were subsequently confirmed as *A. gongrorhynchatus* by Nick Arnold of the

British Museum (Natural History). This illustrates one of the problems with the taxonomy of Arabian lizards. In many cases, identification keys are based on only a few specimens of each species and it is possible to find new examples that differ on characters that were thought to be constant. However, on the plus side, this means there is much for the enthusiast to discover.

Rather similar to the *Acanthodactylus* species are lizards of the genus *Mesalina*. Our commonest species, *Mesalina adramitana*, was recorded at NARC's research station near Sweihan on 13 September 1993. It lives on hard substrates such as gravel plains. This is the only record we have during the last six months.

The usual snakes were seen at several sites. *Eryx jayakari* and *Cerastes cerastes* are commonly noted on sand, their presence betrayed by their characteristic tracks. One *Cerastes* was found waiting outside a burrow for some unsuspecting mammal or lizard to pass by. Only the eyes and 'horns' were visible (hence the name horned viper), the rest of the snake being hidden under the sand. When disturbed, *Cerastes* has the unnerving habit of moving rapidly towards shade. As the only shade is often a nearby parked vehicle and this is where the observer runs, it sometimes seems that the snake is in hot pursuit! Be warned, this is no snake to mess with. Its venom is highly toxic and can kill children and susceptible adults.

Definitely not a "usual" snake is *Leptotyphlops macro-rhynchus*, the thread snake. Like the amphisbaenians (see **Notes and Queries**) the thread snake lives underground in sandy soil, only emerging at night to feed on the surface on ants, termites and other small invertebrates. One was captured in a pitfall trap sunk into the sands at Bainuna in October 1993. It measured only 13cm long and 1mm diameter and is completely harmless. The only previous records for the UAE come from Sharjah and Al Ain, but the species is probably widespread although rarely seen.

PATRICK OSBORNE
Reptile Recorder



Group Meetings — September to December 1993

September 6th	:	Simon Aspinall, 'Birds of the Abu Dhabi Islands.'
September 20th	:	Quinta Woodward, 'The Dutch Archive in the Old Fort.'
October 4th	:	Peter Hellyer, 'An Introduction to the History of Abu Dhabi.'
October 18th	:	Dominique Leguiller, 'Medecins sans Frontieres.'
November 1st	:	Dr. Marijcke Jongbloed, 'The Arabian Leopard Trust.'
November 15th	:	Jonathan Pugh and Tim Goodall, 'Research into the Sabkhat Matti and the Liwa.'
December 6th	:	Erik Hirschfeld, 'The Birds of Bahrain.'
December 20th	:	Dr. Andrea Rugh: 'Reveal and Conceal: Dress in Modern Egypt.'

سمكة الشمس البحرية

Ocean sunfish (Mola ramsayi)

الخباط والكند. ويعتبر هذا أول سجل لهذا النوع من الأسماك في مياه دولة الامارات العربية المتحدة.

عند فحص العينة في مركز بحوث الصحراء والبيئة البحرية بجامعة الامارات العربية المتحدة، تم الحصول على البيانات الآتية من النموذج البلاستيكي للسمكة:

الطول الكلي = ١٢١٥ ملليمتر.

الطول القياسي = ٩٩٥ ملليمتر.

طول الزعنفة الظهرية = ٦١٠ ملليمتر.

طول الزعنفة الشرجية = ٥٨٥ ملليمتر.

طول الزعنفة الصدرية = ١٤٥ ملليمتر.

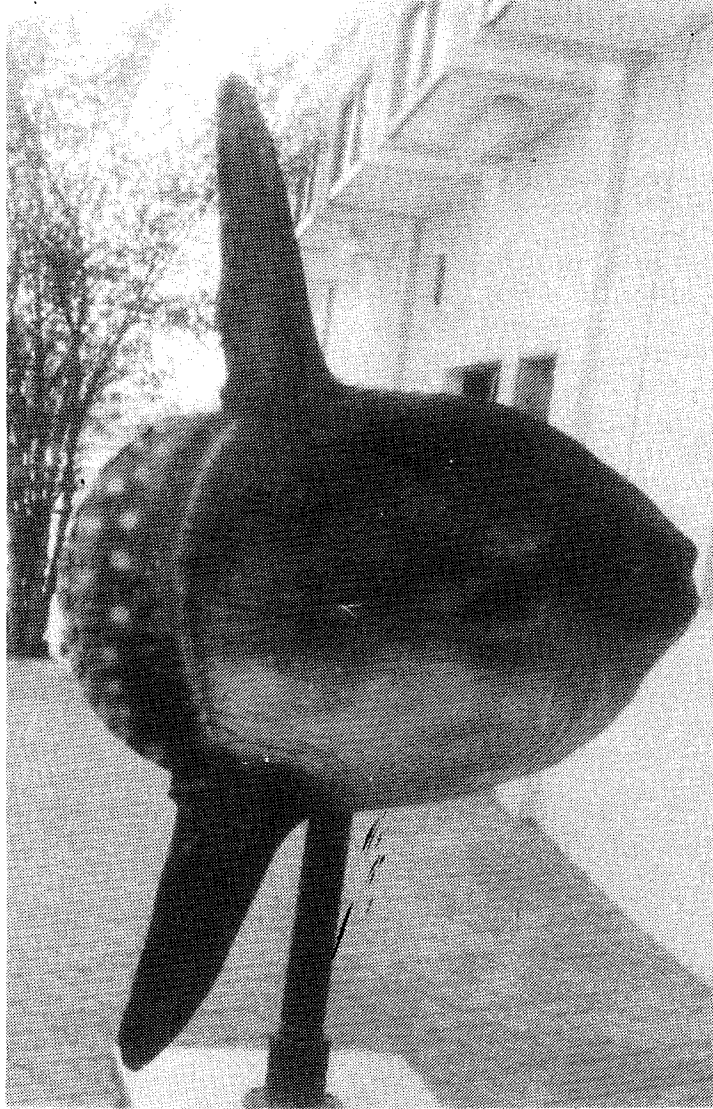
الوزن = ٤٥٠ - ٥٠٠ كجم تقريباً.

د. سيف الغيث

مركز البحوث للبيئة الصحراوية والبحرية
جامعة الامارات - ص. ب: ١٧٧٧٧ - العين

سمكة الشمس من الأسماك مضغوطة الجانبين بطيئة السباحة حيث يمكن رؤيتها في سطح المحيطات الباردة والاستوائية، فهي لا تحتوى على زعنفة حوضية ومثانة هوائية، الزعنفتان الظهرية والشرجية طويلتان ولهما قاعدة قصيرة في الجزء الخلفي من الجسم. كما يمكن تمييزها بعدم وجود حامل الذيل. الجسم مغطى بجلد سميك ولا يحتوي على أشواك، حيث يصل الوزن الكلي الى ٥٠٠ كيلوجرام. وتتغذى هذه السمكة على قناديل البحر واللافقاريات الكبيرة والتي تصطادها بدون مطاردة. كما إنها أكثر الفقاريات عدد في البيض، حيث تبيض حوالي (٣٠ مليون) بيضة في المرة الواحدة. طعم اللحم غير مستساغ ومليء بالطفيليات وهي لا تؤكل محلياً.

لقد اصطيدها هذا النوع من الأسماك لأول مرة في الساحل الشرقي (منطقة دبا) في مارس ١٩٩٣، وذلك باستخدام شباك الصيد الخيشومية والتي تستخدم في المنطقة لصيد أسماك



● سمكة الشمس البحرية بجامعة الامارات.

أربع حجرات يفصلها جداران ويقع مدخل المدفن من جهة الجنوب الغربي.

مما يرجح أن هذا المدفن يعود الى فترة أقرب من المدافن الأخرى، طريقة تقسيم المدفن الى أربع حجرات على طريقة فترة أم النار، فيما تعود المدافن الأخرى الى فترة حفيت، وهي غير مقسمة من الداخل.

إضافة الى ذلك فإنه تم العثور في إحدى مقابر هذا المدفن على اناء يبدو أنه يعود الى نهاية فترة حفيت وائناء آخر يعود تاريخه الى بداية فترة أم النار.

هذا المدفن تماماً مثل المدفن الأول اعيد استخدامه ما بين الفترة الهيلينية والساسانية.

تم حفر قبر في منتصف المدفن حيث دفن رجل يبلغ من العمر ما بين ٣٤ الى ٣٩ سنة ودفن معه سيف طويل من الحديد وربما كان هذا الرجل قد دفن في نفس الفترة التي دفن فيها الرجل الذي دفن في المدفن الأول ومعه رمح صنّع من الحديد.

يحتوي المدفن الرابع على هيكل بيضاوي قطره ٢ر٥ متر ويتوسط الهيكل حفرة دفن فيها جمل.

كما تم العثور على أدوات متفرقة من الحديد ترجح أن الدفن حدث في وقت ما خلال أو بعد الفترة الهيلينية كما أنه من المرجح أن يكون الدفن قد تم في فترة معاصرة لدفن الرجلين المحاربين اللذين تم دفنهما مع أسلحتهم المصنوعة من الحديد.

ومع أن دفن الجمال لم يكن من الأمور المألوفة إلا أنه تم اكتشاف عمليات دفن مماثلة في منطقة بعيدة مثل بتر التي تعود الى فترة النبطيين.

كما تم اكتشاف عمليات دفن مماثلة في مناطق أقرب مثل الظهران

وقطر والبحرين ومنطقة الدور على ساحل أم القيوين.. وفي منطقة الدور على وجه الخصوص عُثر على جملين تم ذبحهما وفقاً لطقوس معينة وعُثر بالقرب من أحد الجملين على سيف من الحديد كان لا يزال داخل غمده ومن المرجح أنه استخدم في ذبح ذلك الجمل.

ونشير هنا الى أنه وبعد موسم واحد فقط من أعمال التنقيب فقد تم جمع ثروة من المعلومات من منطقة جبل عمالة وهي معلومات يتم التوصل اليها لأول مرة على نطاق امانة الشارقة ودولة الامارات العربية المتحدة بشكل عام.

وتجرى الآن محاولات لتحليل المكتشفات وسوف تساعد دراسة وتحليل العظام على التعرف على أنواع التغذية والطعام الذي كانت سائدة في تلك الأزمنة كما تجرى دراسة مجموعات الخز لتحديد المواد التي صنعت منها وطرق التصنيع.

وسوف تساعد النتائج التي يتم التوصل اليها في اعطاء معلومات حول السكان الذين دفنوا في منطقة جبل عمالة وذلك فيما يتعلق بأساليب حياتهم وطعامهم والمناطق التي كانوا يمارسون معها تجارتهم.

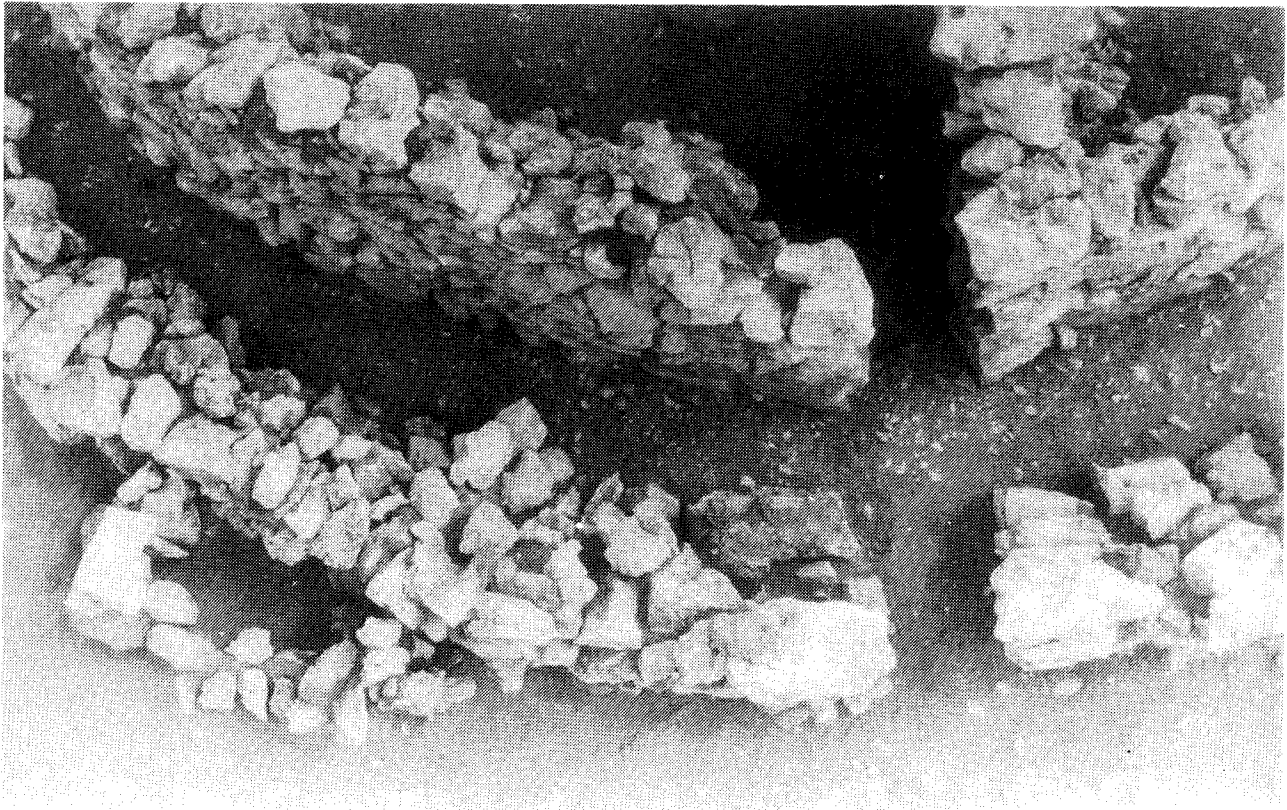
موسم التنقيب القادم سوف يبدأ في شهر نوفمبر من عام ١٩٩٤ مع عودة بعثة التنقيب لاستئناف العمل في المدفنين الكبيرين وعندها ربما تتضح الصورة بشكل كامل حول ماضي تلك المنطقة.

جودي بنتون

شعبة الآثار - جامعة سيدني

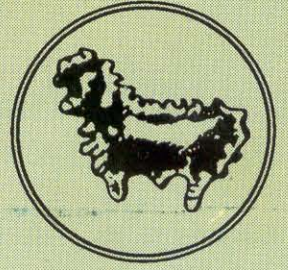
سيدني - نيو ساوث ويلز ٢٠٠٦

استراليا



● منظر من أعلى للقبر رقم (٣) بجبل عمالة.

تريپلوس



جمعية الإمارات للتاريخ الطبيعي

ابريل ١٩٩٤م

العدد: (٤١)

