



محمية دبي الصحراوية
DUBAI DESERT CONSERVATION RESERVE

Arthropods:

A Presence/ Absence Study in an Arid Desert Environment.



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Abstract:

This Arthropod study was conducted in the Dubai Desert Conservation Reserve (DDCR). The reserve is located on the border between Sharjah and Abu Dhabi. The habitats of the reserve are dominated mainly by low-to-medium size sand dunes with interspersed gravel plains. This reserve is a perfect site to observe and collect different Arthropod species. Although this study focused mainly on few species; the presence of these species in all habitats was observed. The study indicated that there are 7 Classes of Arthropods within the reserve; of which it has been observed that the Insecta Class is the largest with 13 Orders, more than 50 Families and over 140 Species. Furthermore; this study has supported the collection of specimens for a reference library. The collection process is an ongoing project

Introduction:

“Insects and other invertebrate groups never received the attention they deserve.”

H.H. Sheikh Tahnoon Bin Zayed Al Nahyan
(2007) Arthropod Fauna of the UAE.

Surely many of the insects of the Arabian Peninsula have not been seen or even thought to exist in the decimated environment around, but in true fact there are many insects surviving here cohabiting with one another and thriving in this arid reserve.

There are thousands of insect species that have not yet been identified. There are 7 Classes, 13 orders of the Class Insecta, and a presently recorded total of 157 species of Arthropods on the reserve. Every day new species are collected. The main focus of collecting of species is only within the Dubai Desert Conservation Reserve.

The first information dealing with the Arthropods of the DDCR goes back a few years, when the late Peter Phelan started research on this field and his collections and work are still being honoured. This field is not well documented; Mr. A. van Harten and his team produced a good reference library of the Arthropods in the UAE. Three of his volumes were a great help with regards to identification of most of the species. However, there is no readily accessible reference literature available in the UAE.

Why bother to take interest in the smaller species of fauna on the reserve? There are many reasons. First of all they are unique in their own way. Butterflies and Moths are gentle and delicate creatures, forming a beautiful and pleasant component of the reserve. Beetles? Well yes! They are the armed-plated creatures yet lots of fauna feed on them and in return they feed on other insects. The wasps and bees can cause nasty stings that you will feel for a while. So, as amazing as the nature world is, the Arthropods play a major role in the environment. Some of the insects feed on carrion, thereby getting rid of all deceased animals. In doing so, they defecate and return the nutrients back into the soil via their feces and the vegetation thrives. The scorpions, spiders (including the much feared camel spider) will feed on other insects, thereby

controlling the population. Therefore, protecting both the Fauna and Flora is very important in order for the reserve to function as a biosphere.

Several people have helped in establishing the insect collections. Dr. Brigitte Howarth and Dr. Crump are both well respected people in this field. Over the last four years, I have been observing arthropods to the extent that my studies have become more focused. Observation and study of all insects within the reserve would be a huge task to initiate but thanks to the Dubai Desert Conservation Reserve I have had the opportunity to start a reference library of the insects in the reserve. This paper will mainly focus on a few species, their movements and active periods. The methods, goals and objectives employed are to get a greater understanding of the different insect species located within the reserve.

The greater focus of this study is to observe the movements and habitat preference of some of the dominant insect species. The collecting of species and the location where they were collected will indicate the status of the Arthropod population on the reserve. Hopefully, this will also provide a better understanding on how threatened these species are in the current environment. Why do I say: "Arthropods are threatened?". Well, besides many natural reasons are others such as unintentional introduction of species with daily import of fresh produce to the country, which can cause the outbreak of a disease or infestation by foreign species. This would lead overall to destruction of not only vegetation but also the indigenous arthropod species.

Objectives of this Study:

- The primary objective of this study is to record the presence/absence of arthropod species within arid desert environments.
- Observing the activity time, to be able to understand which species prefer warmer and which prefer colder times of the year.
- The preferred habitats of five key species within the reserve.
- The population density of the key species with regards to numbers and habitat selection.

Arabic Translation:

مقدمة

على النقيض مما هو ظاهر للعيان إن البيانات الصحراوية فقيرة بالتنوع الحشري ولكن النظرة الدقيقة المتفحصّة تظهر أن هناك تنوع عالي من الأنواع الحشرية والتي تتواجد وتتكاثر في تلك البيئات الشديدة الجفاف.

هناك آلاف الأنواع من الحشرات التي لم يتم تعريفها في الجزيرة العربية، وداخل حدود محمية دبي الصحراوية تم تسجيل وتعريف 157 نوع من أنواع الحشرات وكل يوم جديد يتم تسجيل أنواع جديدة من الحشرات داخل حدود محمية دبي الصحراوية حيث تعتبر المحمية هي المكان الرئيسي لإجراء تلك الدراسة.

هناك بعض المعلومات الأساسية الأولية عن بعض أنواع الحشرات الموجودة بمحمية دبي الصحراوية والتي تم تسجيلها بصور مبدئية من خلال الدراسة التي نفّذها الراحل/ بيتر فيلان، ولكن ما يعيب تلك الدراسة الأولية أنها لم يتم توثيق معلوماتها بصورة جيدة، ولكن بصورة عامة فإن علم الحشرات وتصنيفها مازال علماً يحتاج للكثير من الجهود لسبر أغواره وبالأخص منطقة شبه الجزيرة العربية.

ربما يطرأ إلى الذهن سؤال عن أهمية دراسة الحشرات (تلك المخلوقات ضئيلة الحجم) في محمية دبي الصحراوية ولكن من المهم أن نعرف أن الحشرات تلعب دوراً محورياً وهاماً في ثبات النظام البيئي وتوازن دورات الحياة المختلفة . كان الهدف الأساسي من تلك الدراسة هو التركيز على أنواع قليلة من الحشرات ودراسة بيئاتهم وتحركاتهم داخل البيئات المختلفة ومتابعة فترات نشاطهم والحصول على معرفة أفضل لكل نوع، ومع الوقت أصبح التركيز الأكبر للدراسة هو مراقبة النشاطات الحركية و التوزيع الجغرافي للأنواع المختلفة، بتجميع عينات من تلك الأنواع والتحديد الدقيق لأماكن تواجدهم سوف يكون عامل مهم لتحديد المجموعات الحشرية الموجودة بالمحمية وفهم مدى تعرض تلك الأنواع للمخاطر المحتملة في البيئة المتواجدة بها تلك الأنواع.

أهداف الدراسة

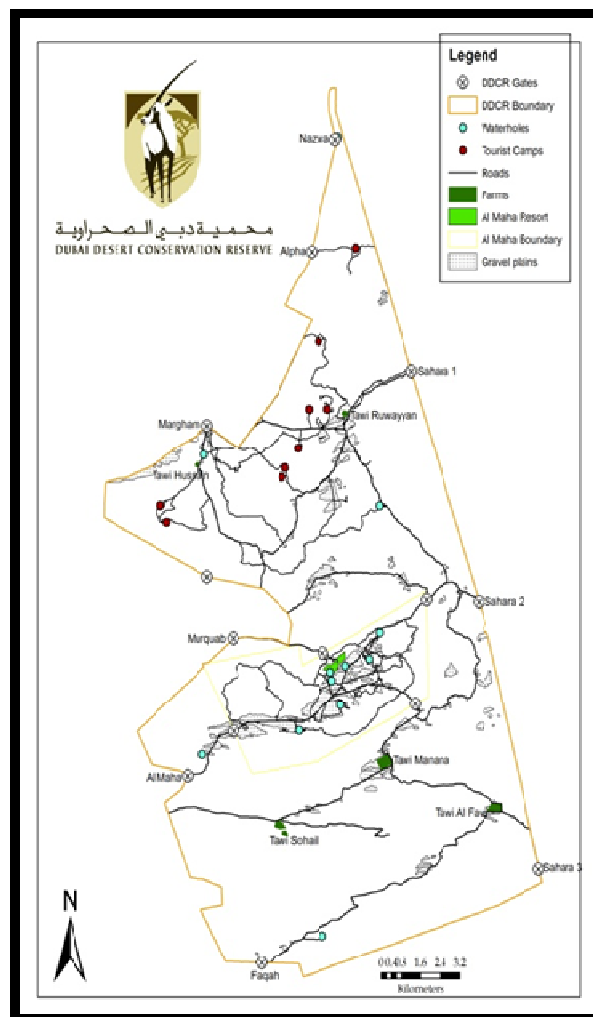
- 1- تحديد الأنواع الحشرية الموجودة في البيئات الصحراوية الجافة.
- 2- مراقبة أوقات نشاط الأنواع الحشرية لمعرفة أي أنواع تفضل النهار وأي الأنواع تفضل النشاط الليلي.
- 3- معرفة البيئات المفضلة لخمسة أنواع من الحشرات المتواجدة بالمحمية.
- 4- تقدير كثافة الأنواع الرئيسية باعتبار الأعداد والبيئات المفضلة لكل نوع.
- 5- قياس تأثير المناخ ووضعه في الاعتبار لمراقبة التغير في نمط حياة تلك الأنواع الرئيسية.

Study Area:

The Dubai Desert Conservation Reserve is a designated protected area for the conservation of the natural inland desert ecosystem of Dubai. It spans 4.7% of the total land area of the Dubai Emirate and encompasses 225km² of mainly sand dune desert ecosystems, interspersed with gravel plains which cover about 3.9% of the total Reserve.

The DDCR was established in 2003 but contained domestic livestock within the area until the end of 2008. Since then, a large improvement of vegetation has been seen. At the core of the DDCR is the Al Maha reserve that was established in 1999. There are no restrictions on movement for the animals between the reserves.

The Dubai Desert Conservation Reserve was the main focus of this study, being one of a few uninterrupted desert areas within the UAE. The reserve has good protection from excessive off-road driving and a limited amount of litter. There is a natural selection of wildlife on the reserve and there are no free-roaming goats, donkeys or camels. In other words, the reserve is an ideal environment to gain an understanding on the effects that habitats can have on different species. Five indicator species were randomly selected. As these species were readily seen during the initial stage, winter coleopterans were used to record the active periods.



Fixed Point Trapping Goals:

Over a period of twelve months, five pitfall traps were set to observe the presence/absence of different arthropod populations within the reserve. The main aim of these fixed points was to record the species, their preferred habitats, activity times and seasonal activity to set-up a database that can be used for future reference. Other aims were to identify key species found within the reserve and to observe the behavioural pattern of these indicator species, collecting of specimens and obtaining information regarding habitat preference.

Several different habitats and varied vegetation were focused upon. Habitats focused upon are as below:

Gravel and Sand plains: Of the host plants on the gravel plains, the Turnsole (*Heliotropium kotschyii*) and the Rimth (*Haloxylon salicornicum*) are the majority of plant species. Firebush/ Broombush (*Leptedenia pyrotechnica*) was also host to several species of arthropods to a lesser degree. Ghaf forests: Ghaf (*Prosopis cineraria*) was the main focus of the area but other vegetation species like dune-grass (*Cyperus conglomeratus*) was also present year round. Sand Dune valleys: The majority of plants in these areas were Firebush/ Broom bush (*Leptedenia pyrotechnica*) and (*Limeum arabicum*). Camel farms: Date palms (*Phoenix dactylifera*) and Turnsole (*Heliotropium kotschyii*) was the main host plants in this area.

Site Selections:

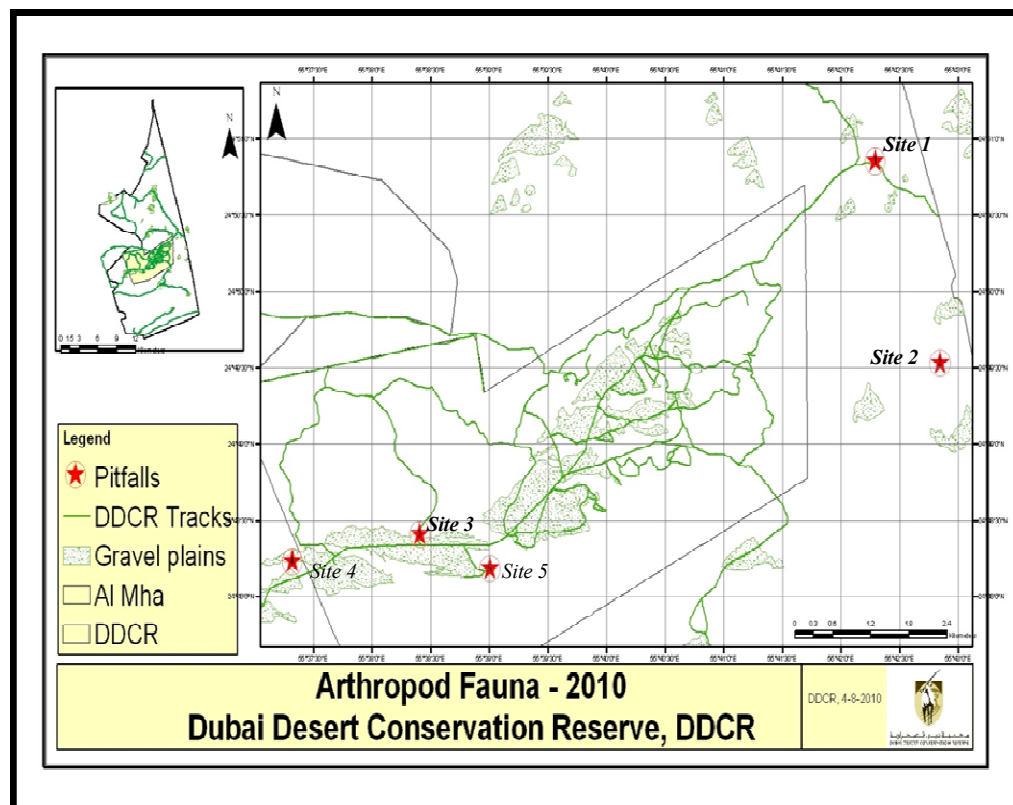
Site 1. Ghaf-forest, host plant Ghaf tree (*Prosopis cineraria*.), N 24°50'51.210/ E 55°42'17.568

Site 2. Sand-Dune valley, host plant Firebush (*Leptedenia pyrotechnica*), N 24°49'32.052/ E 55°42'50.790

Site 3. Gravel Plains, host plant Turnsole (*Heliotropium kotschyii*.), N 24°48'24.624/ E 55°38'24.756

Site 4. Gravel plains, host plants Rimth (*Haloxylon salicornicum*) and Fagonia (*Fagonia indica*), N 24°48'14.088/ E 55°37'19.608

Site 5. (Date farm, host plant *Phoenix dactylifera*.), {N 24°48'11.106/ E 55°39'00.546



Fixed Point Methodology:

A basic pitfall trap was used as it gave best results in the field. The target/indicator species was mainly terrestrial except for the Scarab beetle. The method that was used was as follows: a barrier was placed on a focus area, the general width of which was 3m with a height of 15cm. On either side of the barrier, a bucket was placed. On several occasions lures were used at sites 1 and 5. (*The lured traps did not attract more species than pitfalls.*) Collecting specimens and the clearing out of traps was accomplished daily during summer and every second day during winter. The use of an ATV (Rhino) to travel from site to site was employed mainly to reduce environmental impact. Records of presence/absence were kept. An on-reserve computer and a file were set up as backup. Summary of records are visible on activity charts.



Presence/Absence Survey:

Over a period of six months, forty sites were selected. The aim of selection of these sites was to observe the presence of the indicator species on the reserve, the same habitats were selected as were used for the fixed trapping. Indicating activity times regards to seasonal influences. Recorded data and compare with that of the fixed point, similar habitats sites. Sites co-ordinates were recorded.

The habitats of the site location were similar to that of the fixed point traps. The reason for this was to compare it with fixed points and the difference in the activity of the indicator species:

Gravel and Sand plains: Of the host plant on the gravel plains the Turnsole (*Heliotropium kotschyii*) and the Rimth (*Haloxylon salicornicum*) was the majority of plant species. Firebush/ Broombush (*Leptadenia pyrotechnica*) was also host to several species of arthropods. Ghaf forests: Ghaf tree. (*Prosopis cineraria*) was the main focus of the area, other species, like Dune grass (*Cyperus conglomeratus*) was also present year round. Sand Dune valleys: The majority of plants in these areas were Firebush/ Broombush (*Leptadenia pyrotechnica* and (*Limeum arabicum*) Previous camel farms and date farms: Date palms (*Phoenix dactylifera*) and Turnsole (*Heliotropium kotschyii*) were the main host plants in this area

Presence/Absence Site maps:

Pitfall 2011 (Map 1)

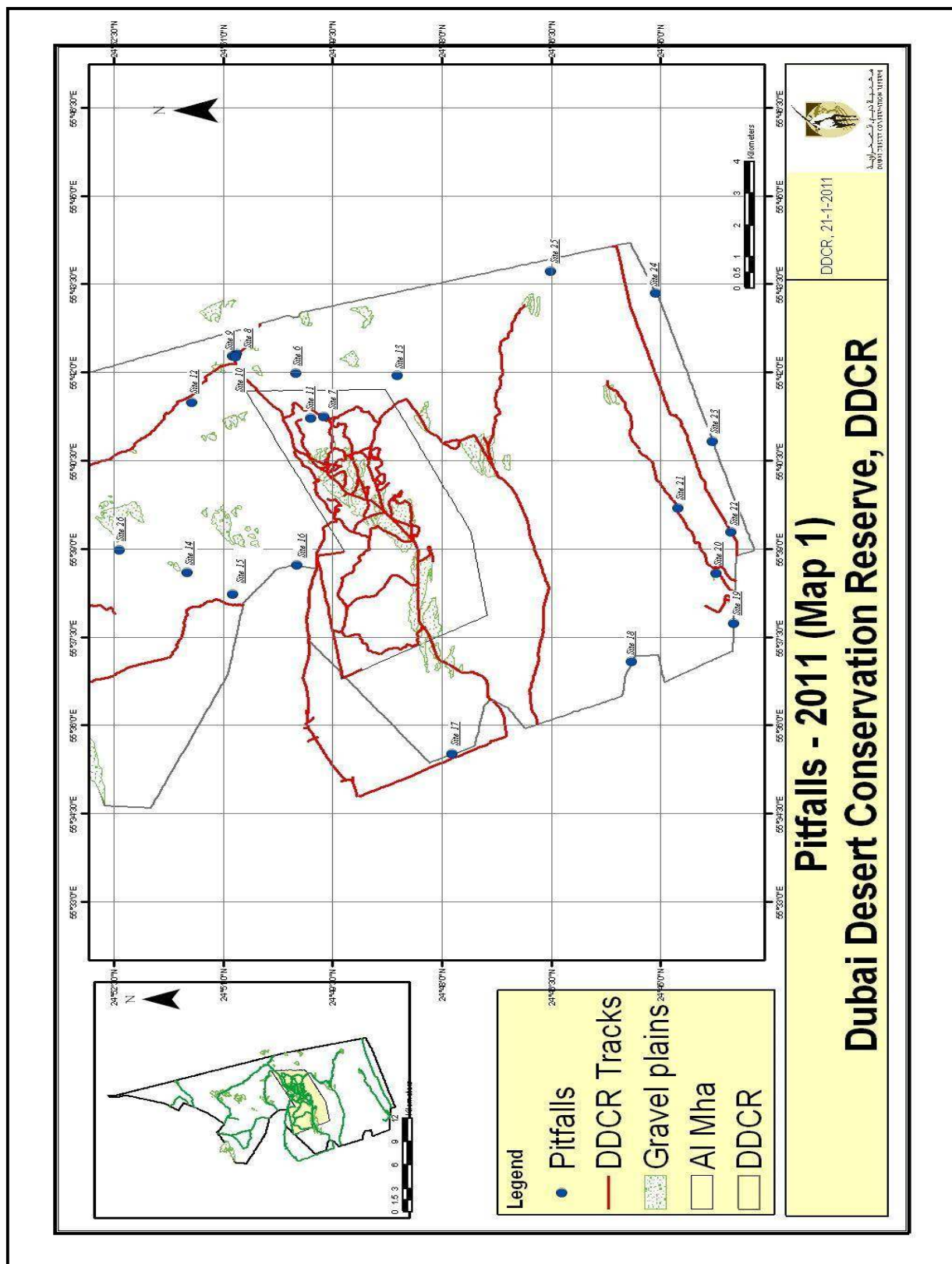
Site 6 Gravel plains, host plant; Turnsole (*Heliotropium kotschyii*), N 24°50'1 E 55°42'
Site 8 Ghaff forest, host plant; Ghaff (*Prosopis cineraria*), N 24°50'40.420' E 55°42'19.768
Site 10 Ghaff forest, host plant; Ghaff (*Prosopis cineraria*), N 24°50'40.695' E 55°42'16.324
Site 12 Sand dunes, host plant; Dune grass (*C. conglomerates*), N 24°51'25.896' E 55°41'29.748
Site 14 Gravel plains, no vegetation, N 24°51'29.226' E 55°38'36.390
Site 16 Sand dunes, host plant; Firebush (*L. pyrotechnica*), N 24°49'59.304' E 55°38'44.394
Site 18 Sand dune, host plant; Dune grass (*C. conglomerates*), N 24°45'24.546' E 55°37'05.478
Site 20 Gravel plains, host plants; Rimth (*H. salicornicum*), N 24°44'14.724' E 55°38'36.012
Site 22 Sand dunes, no vegetation, N 24°44'02.936' E 55°39'18.048
Site 24 Sand plains, host plant; Sodom's apple (*C. procera*), N 24°45'04.500' E 55°43'21.480
Site 26 Sand dunes, host plant; Firebush (*L. pyrotechnica*), N 24°52'25.320' E 55°38'59.658

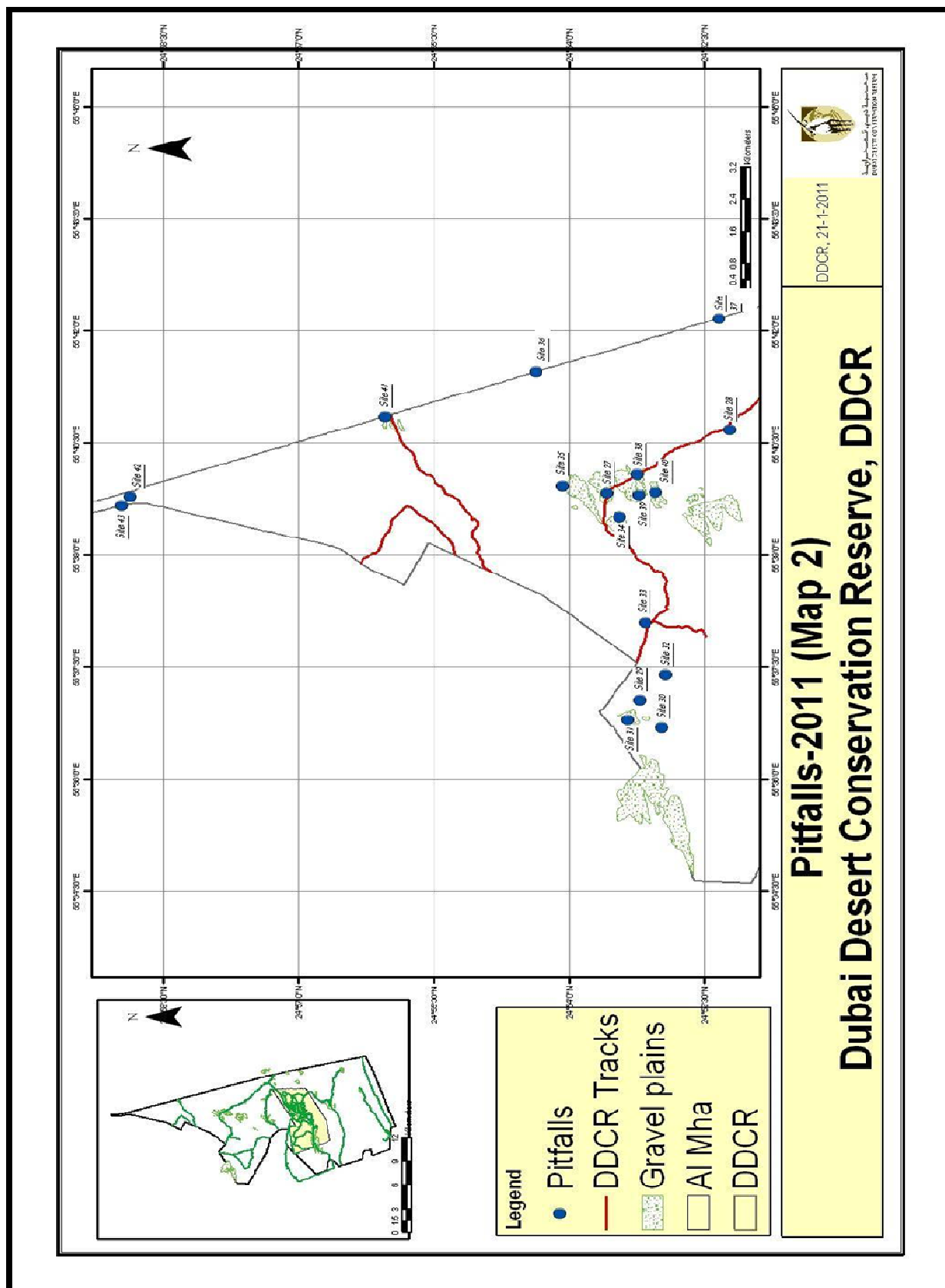
Pitfall 2011 (Map 2)

Site 27 Sand plains, host plant; Toothbrush bush (*S. persica*), N 24°53'35.082' E 55°39'50.334
Site 29 Sand dunes, host plant; Firebush (*L. pyrotechnica*), N 24°53'13.290' E 55°37'03.156
Site 31 Gravel plains, host plant; Sodom's apple (*C. procera*), N 24°53'21.224' E 55°36'47.520
Site 33 Sand dunes, host plant; Firebush (*L. pyrotechnica*), N 24°53'09.516' E 55°38'05.724
Site 35 Gravel plains, host plant; Sodom's apple (*C. procera*), N 24°54'04.800' E 55°39'55.698
Site 37 Sand dunes, host plant; Firebush (*L. pyrotechnica*), N 24°54'20.850' E 55°42'10.530
Site 39 Gravel plains, host plant; Sodom's apple (*C. procera*), N 24°48'52' E 55°66'35
Site 41 Gravel plains, host plants; Firebush (*L. pyrotechnica*), N 24°49'40' E 55°68'10
Site 43 Nazwa Mountain, Host plants; Acacia (*Acacia tortillis*), N 24°48'26' E 55°66'11

Site 7 Sand dune, host plant; Firebush (*Leptadenia pyrotechnica*), N 24°49'37' E 55°41'15
Site 9 Gravel plains, host plant; Desert thorn (*Lyceum shawii*), N 24°50'52.331' E 55°42'17.489
Site 11 Sand dunes, host plant; Dune grass (*Cyperus conglomerates*), N 24°49'47.976' E 55°41'13.524
Site 13 Sand dunes, no vegetation; N 24°48'36.954' E 55°41'57.384
Site 15 Sand dunes, host plant; Desert thorn (*Limeum arabicum*), N 24°50'51.762' E 55°38'14.538
Site 17 Sand dune, host plant; Arta (*Calligonum comosum*), N 24°47'51.444' E 55°35'31.308
Site 19 Sand dune, host plant; Sodom's apple (*Calotropis procera*), N 24°44'00.354' E 55°32'44.122
Site 21 Sand dune, host plant; Turnsole (*Heliotropium kotschyii*), N 24°44'46.452' E 55°39'42.282
Site 23 Sand dune, host plant; Rimth (*Haloxylon salicornicum*), N 24°44'18.090' E 55°40'50.376
Site 25 Sand dune, host plant; Firebush (*Leptadenia pyrotechnica*), N 24°46'30.576' E 55°43'43.824

Site 28 Sand plain, host plant; Acacia (*Acacia tortillis*), N 24°52'13.446' E 55°40'41.160
Site 30 Date plantation, host plant; Date palm (*Phoenix dactylifera*), N 24°52'58.584' E 55°36'41.160
Site 32 Sand dunes, host plant; Desert thorn (*Limeum arabicum*), N 24°52'56.256' E 55°37'24.312
Site 34 Gravel plains, host plant; Fagonia (*Fagonia indica*), N 24°53'26.898' E 55°39'30.462
Site 36 Sand dunes, host plant; Dune grass (*Cyperus conglomerates*), N 24°54'22.584' E 55°41'27.642
Site 38 Gravel plains, host plant; Dune grass (*Cyperus conglomerates*), N 24°48'76' E 55°66'80
Site 40 Sand dunes, host plant; Sodom's apple (*Calotropis procera*), N 24°48'41' E 55°66'42
Site 42 Sand dune, host plants; Firebush (*Leptadenia pyrotechnica*), N 24°48'10' E 55°66'32





Presence/Absence Methodology:

Collection of specimens was conducted by trapping, the same method to that of fixed point trapping. A total number of 40 randomly selected sites were used. Each pitfall trap was left out for a period of 7 days. A basic trap system was used. Barriers of 3m were set up and on either side of the barrier, a bucket was placed. Lures were used at some of the trap sites. (*The lures did not attract more species than pitfalls.*) Presence records were kept. The data was collected on a daily basis during the summer due to the activity and heat. During winter and colder months, data was collected every second day and recorded accordingly.



Site 20



Site 34



Site 35

Light Trapping:

Light trapping is a basic system that has proven to be the most effective way to collect specimens of the Lepidoptera order, although other terrestrial insects were attracted to the light as well. Some of the collecting was done using only lights but UV lights were also used. I found that the UV light attracts flying insects slightly more. As shown in the photo, active collecting was done by me during the period when the lights were on (lots of small irritating bugs). Traps were left out for three hours. Several light trapping nights were held and the same site was used for a comparison study. Records were kept to see which insects are active during different times of the year. The same site was repeatedly used. Co-ordinates of the site were N 24°51'56.376/ E 55°41'59.832.



Results of the Light Trapping:

I observed that during the light-trapping sessions a large number of insects were attracted and subsequently collected. Trapping sessions lasted about 3 hours and a number of species that were attracted were caught and identified. Records were kept within the overall list of insects (attached). The majority of insects that were attracted were of the Orders - Lepidoptera, Coleopteran, Diptera and a few species of Hymenoptera.

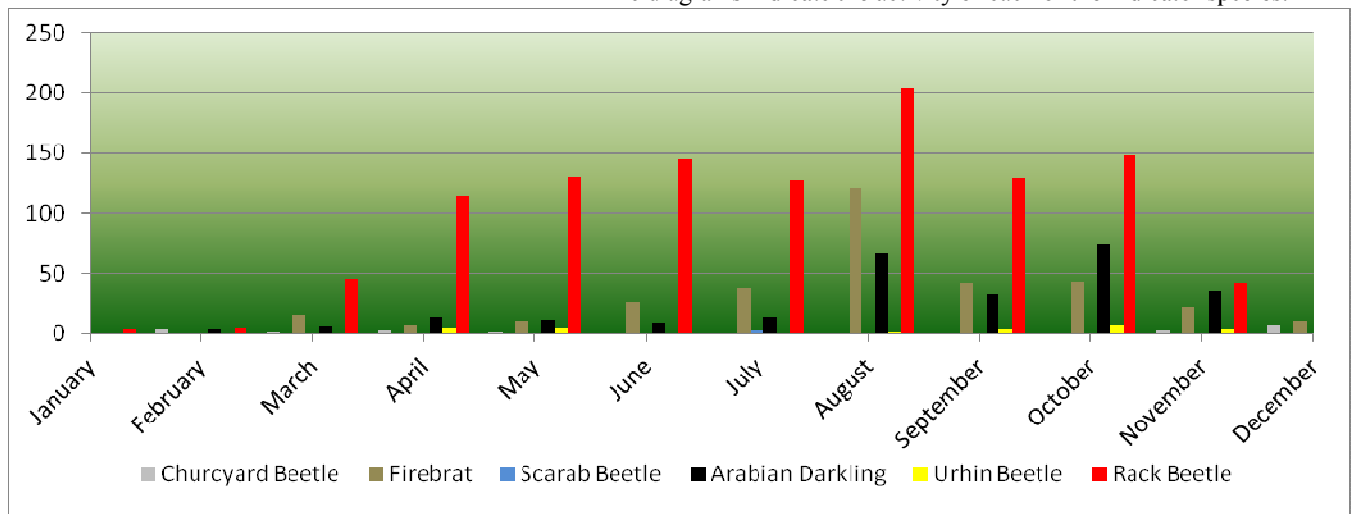
A comparison of all the trapping nights was done and large numbers of the Lepidoptera Order was collected. Appendix C. Will indicate the species collected that was attracted by the light around the Ghaff forest. (N 24°51'56.376 E 55°41'59.832)

Species Selected for Study and Results:

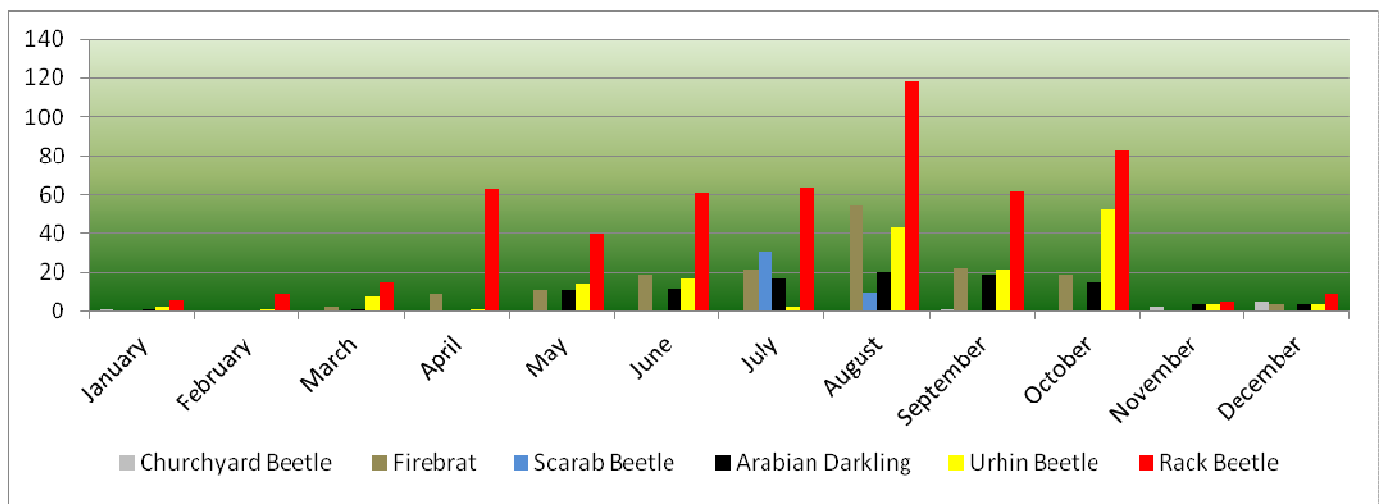
Five species were selected for study. Selecting these insects was done by the abundance (*at all five sites*) of these insects at the start of the study. The aim of selecting these species was to record their preferred habitats, host plants and movement throughout the year. A count was done on all species collected over the full year period and records were kept on file and computer. Data was retained for future use.

During the period of twelve months, indicator species have been observed and recorded on the site activity charts as below:

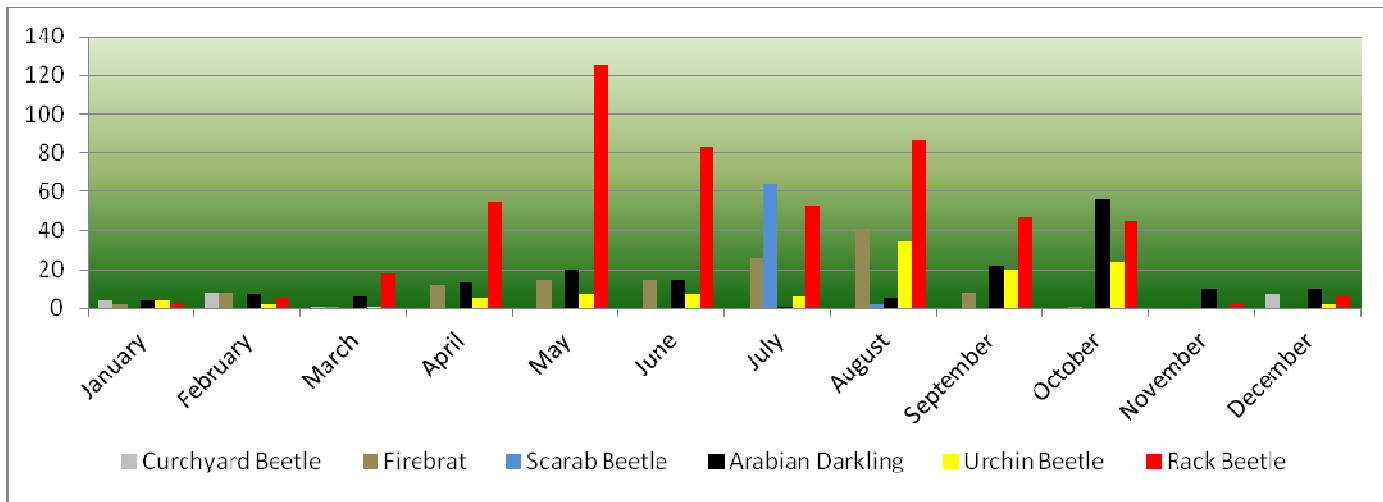
The diagrams indicate the activity of each of the indicator species.



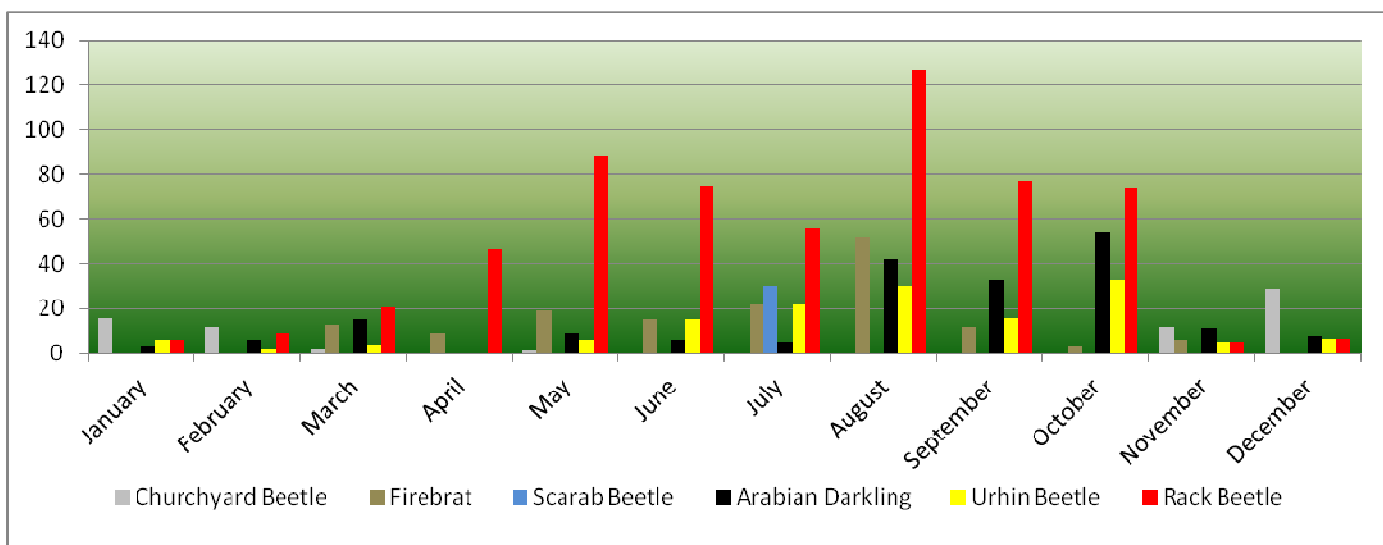
Site 1 Activity chart.



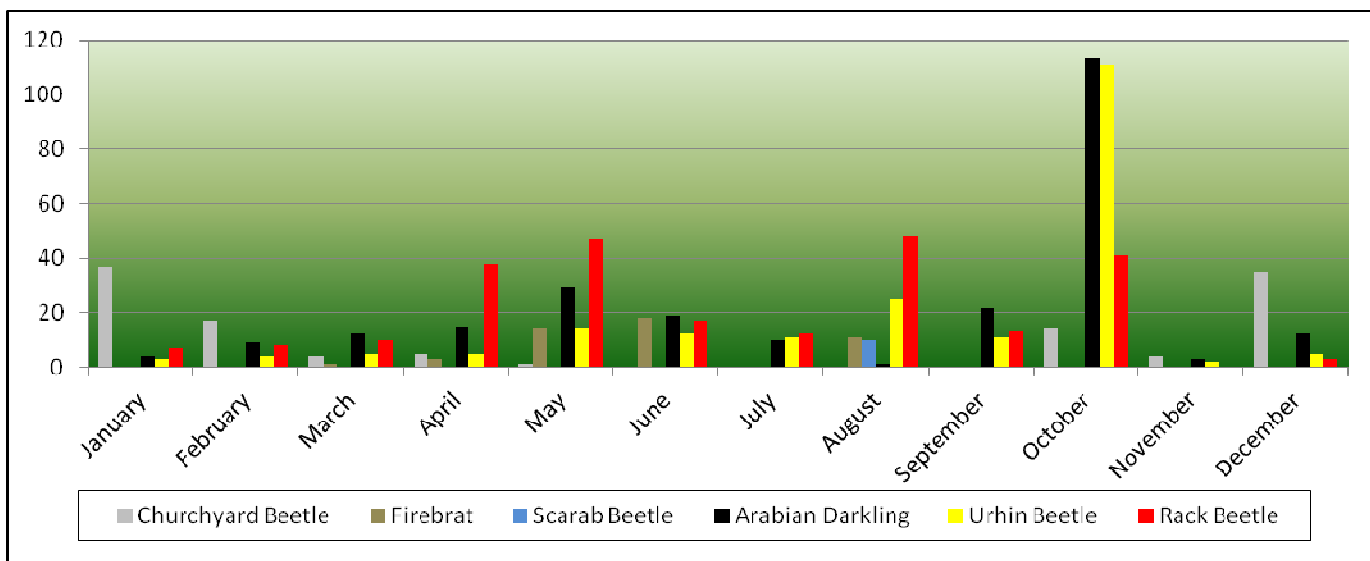
Site 2 Activity chart.



Site 3 Activity chart.



Site 4 Activity chart.



Site 5 Activity chart.

General observation of indicator species.

Rack Beetle:

(*Tentyrina palmeri*)



Widespread and the most common beetle on the reserve. A drop in numbers of this species was noticed around the Date farm and the Camel farm areas. Chart of site 5 clearly indicates the drop in number, mainly due to the increase of other species within the area. The number of these beetles around the Ghaf forest was significantly more than at other sites suggesting a slight preference to habitat and vegetation type.

These beetles are active scavengers with diet consisting of carrion, and organic matter. Active mainly during the day, they have been seen moving around full moon period as well. The study revealed that this species of Tenebrionidae is mostly active during the summer months. A small number of these beetles were observed during the winter months and a few individuals recorded. The peak time of their activity period is during summer. These beetles fall prey to several lizards, geckoes, agamas, and grey francolins. (April-November)

Scarab beetle:

(*Scarabaeus sacer*)



Scarab beetles not only feed on dung but also on carrion and other organic matter. Several different lures were used during the period of this study but no real changes in numbers were noticed during the year. A large number of scarab beetles were trapped during the summer months close to the camel farm as the beetles were attracted to the high dung content at the farms. Several specimens were kept but most of these beetles were released. The sizes of the *Scarabaeus sacer* varied

and the largest was between 12 mm and 24 mm. The breeding and associated behavior of producing dung-balls started during the warm days in April but increased as the days got warmer. The pitfalls show that was not the most effective way of trapping or collecting this specific species. The most effective way of collecting them was to observe their activity around the reserve. Collection of these species was accomplished by visiting Oryx (*Oryx leucoryx*) feeding spots and following the herds around, horse stables and the several camel farms that are active within the DDCR. Specimens were obtained by physical hand capture and with nets. Not having many samples and data collected from pitfall traps by no means indicates that their activity times are less during the warmer periods of the year. (April-October)

Urchin Beetle:

(*Prionotheca coronata*)

This species is the most common of the larger Tenebrionidae species within the reserve with a large population within the reserve. However, it is not as densely populated as the Rack beetle or the Arabian darkling beetle. Mostly active during the night, it can be seen feeding on carrion, other beetles, soft-bodied insects and organic matter. It is active during the warmer months of the year (as indicated on the activity charts). A few individuals were recorded in the cooler months of the year. Their sizes vary from 22 mm to 32 mm. There is no real sexual dimorphism. Vegetation and habitat preference was found limited to the gravel and sandy plains of which the most predominant host plants were the Turnsole (*Heliotropium kotschii*) and Rimth



(*holaxylon salicornium*). Most individuals were collected and recorded on Sites 2,3, and 4. Noteworthy to mention is their protection mechanism by sticking their head in the sand and holding up their hardened elytra with spikes exposed. (March-October)

Arabian darkling:

(*Pimelia Arabica*)

The most active period of this species recorded was during the warmer summer months. Records show an increase of activity during the months of March and April. Only a few has been recorded during the winter months. Records indicate a medium-sized population throughout the reserve. These beetles do not have a preference of habitat or vegetation type feeding on almost all plant species. They were also observed feeding on other beetles, lizards and even on a Cheesemans Gerbil. This was confirmed with the presence/absence sites. It is a medium sized beetle at 15mm to 28mm and distinguished by rows of protrusions on the elytra surmounted by hair. These are fast moving and nocturnally active beetles. Arabian darklings fall prey to desert monitors, grey francolin, houbaras, foxes and other agamas.

(March-October)



Firebrats:

(*Thermobia domestica*)



The Firebrat falls prey mostly to the Tenebrionidae beetles. These are all to fairly large with a body length of up to 10mm. They have a metallic and greasy feel caused by tiny overlapping scales that cover the body. The scales rub off easily when touched. There are three long appendages on the last segment of the body, two short antennae, characteristically small compound eyes, brown to light-brown pattern on body. This species feeds on dry organic matter and is nocturnally active. I found that there is no real difference in active periods during the year. They are attracted to lights and the number of these species increased after rain and misty mornings. Firebrats have the ability to absorb water from the atmosphere and so can survive easily in humid conditions. Observation reveals that these insects prefer soft sandy areas more than the hard gravel plains as seen on the charts above. These insects are found at site 1-4, most of the year and site 5 had no real presence. Firebrats are also found around drains and under rotten plant material. The population is a steady population in the Dubai Desert Conservation Reserve. (All year round)

Predominant winter coleopteran species:

Church yard beetle:

(*Blabs kollari*)

This particular beetle is not part of the 5 indicator species. I added it to the study as these beetles are the most predominant beetles during the winter months. The collection was done over the whole period of this study at all the sites. Fixed points and random points were used for the observation



study. The active part of the year is indicated on the chart above.

Churchyard beetles were found at most of the sites. Two particular types of habitats were the most common to find these beetles - gravel plains and sand dunes with a high vegetation count. Churchyard beetle size can range from less than 20 mm to the largest about 35 mm. They secrete a foul smell when disturbed, possibly spraying chemicals. Mostly nocturnal and attracted to lights. As most of the other species of beetle are active during the warmer period, these beetles shown a large increase of numbers throughout the colder months of the year. (October-March)

Preserving of Specimens:

***“Insects should be preserving per se, so that their activities can
Maintain ecosystems and also benefit man, besides, insects,
as with other biota are our earthly companions. With out them
we would indeed suffer from great loneliness of spirit”***

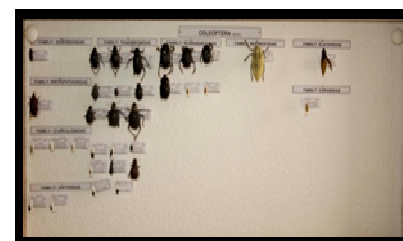
Michael J.
Samways (1994)
Insect conservation
biology.

Two main forms of preservation were used and these were advised to me to be used by several entomologists.

-Spirit Collection:

When collecting them, GPS coordinate was recorded and kept with each individual insect or arthropod. 95% alcohol was used to preserve the insect specimens. Collection was placed in a refrigerator. The number up to date is a total of 140 specimens, 44 of which still need to be identified. (Appendix B)

A record was kept of all the specimens that have been preserved in alcohol. Logbook was set up and added to a spread sheet on G-drive, a summary is attached to this report. Each sample was labelled and numbered for easy reference.



-Pinning Collections:

A total of 147 specimens were kept as samples. Pinning of these insects was a challenge. All specimens that were pinned were labelled and a database was set up. Specimens were sorted out into Orders and each order was placed in separate trays for easy access. These trays were fumigated every month. (Appendix B)

Naphthalene balls were used inside the trays to keep unwanted insects away that feed on the dried insects and other specimens. Only 22 specimens still need to be identified.

Conclusion of the Study:

Over a period of twelve months observation of 5 indicator species indicated several differences in preferred habitats, temperature fluctuation, interaction with other insects, and the impacts seen by predation on other species.

As visible on the activity charts, the most predominant beetle species is the Rack beetle (*Tentyrina palmeri*). Although it is the most seen beetle on the reserve during the warmer parts of the year, the Rack beetle digs itself deep underground to go into a dormant stage during the colder months. Some of the indicator species also go dormant until late March. As the temperature changes and becomes warmer, their activity level increases. As for the Urchin beetle the preferred areas were more of the sand dunes and sand plains as indicated on the activity charts 2, 3 and 4. The Arabian darkling beetle was seen on all sites and these beetle numbers fluctuated during the year but during the late summer the numbers started to drop down. There were a few individuals active during the year found mainly around the date farm where there was more vegetation. There was no preferred habitat for the Firebrat determined. Also, their activity period did not seem to vary from winter to summer mainly because they live a sub-terrestrial life. The Scarab beetle was no real indicator species as they only got attracted lures that I have place at the traps. Although these beetle were seen at the Horse stables and the Camel farms, there was no real recording at the pitfall traps. During the colder months of the year, the Churchyard beetle was the most predominant coleopteran species active with preference on habitat being mainly on the well-vegetated sandy areas, Overall the presence/absence study indicated that their presence is all across the Dubai Desert Conservation Reserve.

Pitfall traps that were used were a good method for trapping terrestrial beetle species whereas the light trapping that was done showed a large variety in the coleopteran species. The main focus of the light trapping, however, was on Lepidoptera species and a large number of species were observed and collected.

The absence/presence sites showed a remarkable similarity in regards to the activity times and the presence of species. The same vegetation and habitat proved to be attracting the same amount of species throughout the year. The presence/absence study only confirmed that there are not really sections of the reserve that the key species are not found.

This study has indicated that all over the reserve the arthropod activity with regards to habitat is the same and there are no areas of the reserve where any specific arthropod could be found. With the continuous trapping and collecting of insects, it was easy to set up a reference library.

All the continuous collecting of arthropods allowed me to build up a database, reference photo library, spirit collection and a large number of pinned insects. An MS Word document was set up and used on the Dubai Desert Conservation Reserve Website.

Attached is a list of the entire Arthropods collection (Appendix A) within the Dubai Desert Conservation Reserve. It was found that there are 7 Classes, Acari (Mites & Ticks), Aranaea(Spiders), Isopoda (Woodlice), Myriapoda(Centipedes),

Scorpiones(Scorpions), Solifugae(Camel spiders) and the largest of all the classes Insecta(Insects)

Under the Class Insecta, 13 Orders were identified as follows: Coleoptera (beetles), Dermaptera (earwigs), Dictyoptera (cockroaches & mantises), Diptera (flies), Ephemeroptera (mayflies), Hemiptera (bugs), Hymenoptera (wasps, bees, ants), Isoptera (termites), Lepidoptera (moths & butterflies), Neuroptera(antlions and lacewings), Odonata (damsel flies & dragonflies), Orthoptera (locust and crickets) and Thysanura (firebrats & silverfish). These Orders are sub-divided in to 68 families.

The total Arthropod species collected on the Dubai Desert Conservation Reserve are 15species.

Acknowledgements:

I would to take this opportunity to thank the Dubai Desert Conservation Reserve for the support provided to perform this study. Several helpful meetings I had with Dr. Crump from the University of Johannesburg Entomology department, Dr, Brigitte Howarth from the University of Abu Dhabi and a few other keen naturalists were definitely helpful with study results. Appreciation is due to Mr. A. van Harten for the guidance and use of the three volume editions of the “Arthropod Fauna of the UAE.” All photographs have been taken by Greg Simkins, Ryan Ingram, and me. Special thanks are due to the late Peter Phelan for collecting and contributing to arthropod research during the early stages of the reserve establishment. I also would like to thank the DDCR staff and the Al Maha Field Guide Department in assisting with collecting specimens for identification and setting up of the Arthropod Reference Library. I would also like to thank Ajmal Hasan for his advice and revising of this report.



Attached documents:

Database of species recorded on the DDCR. Appendix A
Pinning and sprit log, (identified and unidentified) Appendix B
Light trapping results. Appendix C

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Species list: (appendix A)

INSECT-FAUNA OF THE DDCR

up to 1st May 2011.

Family: Scientific name: Common name:

ACARI

1	TROMBIDIIDAE	<i>Trombidium sp.</i>	Velvet mites
2	TETRANYCHIDAE		Spider mites

ARANANE

3	THERIDIIDAE	<i>Latrodectus dehl</i>	Widow sp.
4	SALTICIDAE	<i>Salticidae spp.</i>	Jumping spider
5		<i>Langona pallida</i>	
6	ARANEIDAE	<i>Argiope spp.</i>	Zig-zag orb spider
7		<i>Heriaeus spp.</i>	Spider,
8	LYCOSIDAE	<i>Lycosidae spp.</i>	Wolf spider

ISOPODA

9		<i>Isopoda spp..</i>	Woodlice
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MYRIAPODA

10		<i>Scolopendrida mirabilis</i>	44-legged lady
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SCORPIONES

11	BUTHIDAE	<i>Apisthobuthus pterygocercus</i>	Arabian death stalker
12		<i>Vachoniolus globimanus</i>	Thick-pincer Scorpion
13		<i>Buthacus nigroaculeatus</i>	Black-tip scorpion
14		<i>Androctonus crassicauda</i>	Fat-tail scorpion

SOLIFUGAE

15	GELEODIDAE	<i>Galeodes arabs</i>	Camel Spider
16	RHAGODIDAE	<i>Rhagodes spp.</i>	Camel Spider

INSECTA

COLEOPTERA

17	BOSTRICHIDAE	<i>Bostrycholithes normandi yemenensis</i>	Wood borer
18		<i>Xylomedes rufcoronata</i>	Wood borer
19	BUPRESTIDAE	<i>Julodis euphratica</i>	Sulphurous Jewel beetle
20	CARABIDAE	<i>Carabidae</i>	Unknown spp.
21		<i>Anthracus angusticollis</i>	

22	CERAMBYCIDAE	<i>Derolus iranensis</i>	Long horn beetle.
23		<i>Anthracocentrus arabicus.</i>	Giant long-horn beetle.
24	CHRYSOMELIDAE	<i>Macrocoma vanharteni</i>	
25	CLERIDAE	<i>Necrobia rufipes</i>	
26	COCCINELLIDAE	<i>Menochilus sexmaculatus</i>	Six-spot Ladybird.
27		<i>Coccinella undecimpunctata</i>	Eleven-spotted Ladybird.
28	CURCULIONOIDAE	<i>Gronopidius jekeli</i>	Weevil
29		<i>Elasmobris alboguttata</i>	
30		<i>Bothynoderos anxius.</i>	Elegant ground weevil.
32	DERMISTIDAE	<i>Anthrenus flavipes</i>	Gaudy carpet beetle
33		<i>Dermestes frischii</i>	Carcas beetle
34	DYTICIDAE	<i>Cybister tripunctatus</i>	Short legged diving beetle
35	ELATERIDAE	<i>Lanelater buettikerri</i>	Click beetle
36	HESTERIDAE	<i>Xenophilothus choumovitchi</i>	Hister Beetle
38		<i>Saprinus confalonierii</i>	Saprinus hister beetle
39	MELODIDAE	<i>Crosherichia richteri</i>	Wasp oil beetle
40		<i>Mylabris elegans Olivier</i>	Elegant oil beetle
41		<i>Hycleus bipunctus</i>	Red Blister Beetle
42	OEDDEMERIDAE	<i>Alloxantha talhouki</i>	False blister beetle
43	RrYOPHTIHORIDAE	<i>Rhynchophorus ferrugineus</i>	Red palm weevil
44	SCARABAEOIDAE	<i>Oryctes elegans</i>	Elegant rhino beetle
45		<i>Scarabaeus sacer</i>	Scarab beetle
46	TENEBRIONIDAE	<i>Ammogian omanicum</i>	Tappered beetle
47		<i>Opatroides vicinus</i>	?
48		<i>Blaps kollari</i>	Churchyard beetle
49		<i>Paralatyope povovi</i>	Seven Striped Darkling
50		<i>Pimelia arabica</i>	Arabian darkling beetle
51		<i>Prionotheca coronata</i>	Urchin Beetle
52		<i>Tentyrina palmeri</i>	Rack Beetle
53		<i>Triptera kraatzi</i>	False urchin
54		<i>Zophosis pharaonis simplex</i>	
55		<i>Cheirodes pilosus</i>	
56		<i>Cyphostethe ferruginea</i>	
57		<i>Leichenum pulchelum</i>	
58		<i>Trackayderma philistina</i>	
59		<i>Trichophaeana arabica</i>	Grey darkling
60		<i>Apentanodes arabica</i>	Fat-bodied darkling
61		<i>Opatroides vicinus</i>	Pselaphid beetle
62		<i>Gonocephalum prolixum</i>	Wireworm
DERMAPTERA			
63	LABIDURIDAE	<i>Labidura riparia</i>	Tawny Earwig.
DICTYOPTERA			
64	MANTIDAE		Mantis nymph

65		<i>Mantis religiosa</i>	Praying Mantis.
66		<i>Blepharopsis mendica Fabricius</i>	Striped Mantis
67		<i>Eremiaphila Braueri Krauss</i>	Ground Mantis
68	BLATTIDAE	<i>Blatta lateralis.</i>	Dimorphic Cockroach.

DIPTERA

69	ASILDAE	<i>Apociea femoralis</i>	Highwayman
70	CULICIDAE	<i>Culex pipiens</i>	Common mosquito
71	TEPHRITIDAE	<i>Dacus longistylus</i>	Sodom's apple fly
72	MUSCIDAE	<i>Musca domestica</i>	Housefly
73	CALLIPHORIDAE	<i>Wollahrtia nuba</i>	Checkerspot fly
74		<i>Chrysomya marginalis</i>	Regal blow fly
75		<i>Sarcophaga ruficornis</i>	Rufous fleshfly
76		<i>Chrysomya albiceps</i>	False greenbottle
77	CURTONOTIDAE	<i>Curtonotum simile</i>	Quasimodo fly

EPHEMEROPTERA

78	BAETIDAE	<i>Cloeon arenorum</i>	Mayfly.
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HEMIPTERA

79	CYDNIDAE	<i>Pangaeus sp.</i>	Burrowing bug
80	CICADIDAE	<i>Platypleurini arabica</i>	Arabian Cicada
81	DINIDORIDAE	<i>Coridius viuatus</i>	Melon bug
82	LYGAEIDAE	<i>Lygaeus equestris</i>	Harlequin Ground bug
83	PYRRHOCORIDAE	<i>Scantius fosteri</i>	Red bug

HYMENOPTERA

84	APIDAE	<i>Pseudapis nilotica</i>	Zebra bee
85	APOIDAE	<i>Xylocopa koptortosoma aestuans</i>	Canary Carpenter
86		<i>Xylocopa ctenoxylocopa fenetrata</i>	Black Carpenter Bee
87		<i>Apis florea</i>	Asian Dwarf Honey bee
88		<i>Paramegilla semirufa</i>	Yellow Flower Bee
89	CHRYSIDAE	<i>Stilbum cyanurum</i>	Emerald Cuckoo Wasp
90	EUMENIDAE	<i>Delta campanitorme</i>	Harlequin potter wasp
91		<i>Delta dimidiatipenne</i>	Red potter wasp
92	FORMICIDAE	<i>Camponotus xerxes</i>	Giant ant
93		<i>Cataglyphus niger</i>	Desert Runner
94		<i>Ginonotus serieus</i>	Golden ant
95	MUTILLIDAE	<i>Tricholabiodes aegyptiacus</i>	Velvet ant
96	SCOLIDAE	<i>Campsomeriella thoracica</i>	Chafer wasp

97		<i>Vobalayca flavifrons</i>	Scolid Wasp
98	SPHECIDAE	<i>Parapsammophila turanica</i>	Cineraous Wasp
99	THYNNIDAE	<i>Komarowia concolor</i>	Short wing wasp
100	VESPIDAE	<i>Polistis Watti</i>	Arabian Paper wasp
101		<i>Rhynchium oculatum</i>	Red paper wasp
ISOPTERA			
102	RHINOTERMITIDAE	<i>Psammotermes hybostoma.</i>	Cyclops Termite.
LEPIDOPTERA			
103	ARCTIDAE	<i>Uthetheisa pulchella</i>	Crimson-speckled footman
104	DANAIDAE	<i>Danaus Chrysippus</i>	Plain Tiger
105	GEOMETRIDAE	<i>Lithostege fissurata</i>	
106		<i>Istugia disputaria</i>	Prickly Acacia looper moth
107	LASIOCAMPIDAE	<i>Streblote siva</i>	Jujube Lappet
108	LYCAENIDAE	<i>Chilades parrhaius</i>	Indian(small) cupid
109		<i>Lampides boeticus</i>	Pea blue
110		<i>Tarucus rosaceus</i>	Meditarranean Pierrot
111	NOCTUOIDAE	<i>Agrotis sardzeana</i>	
112		<i>Anumeta asiatica</i>	
113		<i>Cucullia systana</i>	
114		<i>Pandesma robusta</i>	
115		<i>Ophiusa trihaca</i>	Yellow Hindwing
116		<i>Creatontos omanirana</i>	Owlet moth
117	NYMPHALIDAE	<i>Venessa cardui</i>	Painted-lady
118		<i>Junonia orithya here</i>	Blue pansy
119	PIERIDAE	<i>Catopsilla florella</i>	African Migrant
120		<i>Colotis phiadia</i>	Blue-spotted arab
121		<i>Belenois aurota</i>	Caper white
122		<i>Pontia glauconome</i>	Desert White
123		<i>Colotis Fausta</i>	Small Salmon Arab
124	PSYCHIDAE	<i>Amicta maurentanica arabica</i>	Bag worm
125	PYRALOIDEA	<i>Evergestis desertalis</i>	
126		<i>Staudingeria partitella</i>	
127	SPHINGIDAE	<i>Daphnis nerii</i>	Oleander hawk Moth
128		<i>Hyles Livornica Esper</i>	Silver-striped Hawk Moth
129		<i>Agrius convolvuli</i>	Convolvulus hawh-moth
NEUROPTERA			
130	MYRMELEONTIDAE	<i>Palpares dispar</i>	Polkadot Antlion
131		<i>Nophis teillardi</i>	The serpent
132		<i>Gepus invisus</i>	Hunchback Antlion

133		<i>Lopezus fedtschenkoi</i>	Streaky Wing Antlion
134	CHRYSOPIDAE	<i>Chrysoperla Carnea Stephans</i>	Green Lacewing
ODONATA			
ZYGOPTERA			
135	COENAGRIIDAE	<i>Ischura sengalensis</i>	Common blue-tail
136		<i>Ischnura evansi</i>	Blue-banded Ischnura
ANISOPTERA			
137	AESHNIDAE	<i>Anax ephippger</i>	Vagrant emperor
138		<i>Anax parthenope</i>	Lesser Emperor
139	LIBELULIDAE	<i>Pantala flavesence</i>	Globe skimmer
140		<i>Tramea basilaris</i>	Keyhole Dragonfly
141		<i>Orthetrum Sabina</i>	Oasis Skimmer
142		<i>Trithemis kirbyi</i>	Orange Darter
143		<i>Selysiothemis nigra</i>	Black Pennant
144		<i>Crocothemis erythrea</i>	Carmine Darter
145		<i>Trithemis annulata</i>	Purpleblush Darter
ORTHOPTERA			
146	ACRIDIDTIES	<i>Anacridium aegyptium</i>	Egyptian tree locust
147		<i>Diabolocatantops axillaris</i>	Devel grasshopper
148		<i>Pyrgomorpha conica tereticornis</i>	
149		<i>Truxalis fitsgeraldi</i>	Longhorn grasshopper
150		<i>Schistocerca gregaria</i>	Desert Locust
151		<i>Truxalis procera</i>	Gangling grass hopper
152	GRYLLIDAE	<i>Acheta domestica</i>	House cricket
153		<i>Grylodis spp.</i>	Decorated cricket
154	GRYLLOTALPIDAE	<i>Grylotalpa gryliotalpa</i>	Mole cricket
155	TRIDACTYLIDAE	<i>Ellipus minuta</i>	Pigmy mole cricket
THYSANURA			
156	LEPISMATIDAE	<i>Thermobia domestica</i>	Firebrat
157	NICOLETIIDAE	<i>Nicoletiidae:</i>	Silverfish

Data base: (appendix B)

Spirit log, (un-identified):

Date:	Time:	Order:	Species:	Common Name:	Location:	Co-ordinates:	Collected By:	Log #:
20.7.10	5:45	Hemitera	?	Unknown	DDCR/ U.A.E	N 24° 50' 51.210 E55° 42' 17.568	P. Roosenschoon	2
20.7.10	5:48	Hymenoptera	?	Unknown	DDCR/ U.A.E	N 24° 50' 51.210 E55° 42' 17.568	P. Roosenschoon	4
20.7.10	5:48	Formicidae	?	Ant (small)	DDCR/ U.A.E	N 24° 50' 51.210 E55° 42' 17.568	P. Roosenschoon	5
20.7.10	5:50	Coleoptera	?	Unknown	DDCR/ U.A.E	N 24° 50' 51.210 E55° 42' 17.568	P. Roosenschoon	7
20.7.10	6:18	Arachnida	?	Unknown	DDCR/ U.A.E	N 24° 49' 32.052 E55° 42' 50.790	P. Roosenschoon	10
20.7.10	6:48	Coleoptera	?	Unknown	DDCR/ U.A.E	N 24° 48' 14.088 E55° 37' 19.608	P. Roosenschoon	11
20.7.10	6:49	Hymenoptera	?	Flightless wasp	DDCR/ U.A.E	N 24° 48' 14.088 E55° 37' 19.608	P. Roosenschoon	12
21.7.10	5:46	Coleoptera	?	Unknown	DDCR/ U.A.E	N 24° 50' 51.210 E55° 42' 17.568	P. Roosenschoon	13
21.7.10	6:10	Hymenoptera	?	Flightless wasp	DDCR/ U.A.E	N 24° 49' 32.052 E55° 42' 50.790	P. Roosenschoon	16
21.7.10	7:15	Hymenoptera	?	Unknown	DDCR/ U.A.E	N 24° 48' 24.624 E55° 38' 24.756	P. Roosenschoon	17
22.7.10	5:37	Orthoptera	?	Small Cricket	DDCR/ U.A.E	N 24° 50' 51.210 E55° 42' 17.568	P. Roosenschoon	18
22.7.10	6:27	Hymenoptera	?	Flightless Wasp	DDCR/ U.A.E	N 24° 48' 24.624 E55° 38' 24.756	P. Roosenschoon	20
23.7.10	6:43	Hemiptera	?	Unknown bug	DDCR/ U.A.E	N 24° 48' 24.624 E55° 38' 24.756	P. Roosenschoon	25
23.7.10	5:41	Coleoptera	?	Unknown bug	DDCR/ U.A.E	N 24° 50' 51.210 E55° 42' 17.568	P. Roosenschoon	26
23.6.07		Hymenoptera	?	Flightless wasp	DDCR/ U.A.E	N 24° 48' 09.3 E55° 38' 45.3	P. Phellan	27
23.7.10		Diptera	?	Fly	DDCR/ U.A.E	N 24° 49' 27.726 E55° 39' 29.370	P. Roosenschoon	28
4.3.10		Orthoptera	?	Locust	DDCR/ U.A.E	N 24° 49' 27.726 E55° 39' 29.370	P. Roosenschoon	30
24.6.10		Coleoptera	?	Unknown	DDCR/ U.A.E	N 24° 50' 51.417 E55° 42' 19.421	P. Roosenschoon	35
27.6.10		Neuroptera	?	Antlion larva	DDCR/ U.A.E	N 24° 48' 14.088 E55° 37' 19.608	P. Roosenschoon	39
29.6.10		Araneae	?	Spider	DDCR/ U.A.E	N 24° 50' 51.210 E55° 42' 17.568	P. Roosenschoon	40
7.7.10		Hemiptera	?	Bug	DDCR/ U.A.E	N 24° 48' 24.624 E55° 38' 24.756	P. Roosenschoon	43
7.7.10		Coleoptera	?	Small unknown	DDCR/ U.A.E	N 24° 48' 14.088 E55° 37' 19.608	P. Roosenschoon	44
23.7.07		Orthoptera	?	ground hopper	DDCR/ U.A.E	N 24° 49' 27.08 E55° 39' 29.2	G. Nel	64
1.5.07		Araneae	?	Spider	DDCR/ U.A.E	N 24° 48' 09.3 E 55° 38' 45.3	P. Phelan	70
1.5.07		Araneae	?	Pedi Spider	DDCR/ U.A.E	N 24° 48' 09.3 E 55° 38' 45.3	P. Phelan	71
1.5.07		Araneae	?	Spider	DDCR/ U.A.E	N 24° 48' 09.3 E 55° 38' 45.3	G. Nel	72
9.5.07		Araneae	?	Spider	DDCR/ U.A.E	N 24° 49' 27.08 E55° 39' 29.2	P. Phelan	73
13.5.07		Araneae	?	Spider	DDCR/ U.A.E	N 24° 48' 09.3 E 55° 38' 45.3	P. Phelan	74
23.5.07		Araneae	?		DDCR/ U.A.E	N 24° 47' 11.8 E 55° 40' 39.5	P. Phelan	75
23.5.07		Araneae	?		DDCR/ U.A.E	N 24° 48' 09.3 E 55° 38' 45.3	P. Phelan	76
26.6.10		Araneae	?		DDCR/ U.A.E	N 24° 50' 51.210 E55° 42' 17.568	P. Roosenschoon	78

23.7.10		Araneae	?	Spider	DDCR/ U.A.E	N 24 49°32.052	E55°42'50.790	P. Roosenschoon	82
25.7.10		Araneae	?		DDCR/ U.A.E	N 24 50°51.210	E55°42'17.568	P. Roosenschoon	84
26.7.10		Coleoptera/ Histeridae	?	Unknown	DDCR/ U.A.E	N 24 48°14.088	E55°37'19.608	P. Roosenschoon	85
30.7.10		Coleoptera	?	Unknown	DDCR/ U.A.E	N 24 50°51.210	E55°42'17.568	P. Roosenschoon	90
30.7.10		Hymenoptera	?	Unknown	DDCR/ U.A.E	N 24 48°14.088	E55°37'19.608	P. Roosenschoon	91
6.8.10	11:21	Coleoptera	?	Grub. (longhorn)	DDCR/ U.A.E	N 24 47°34.176	E55°40'24.354	P. Roosenschoon	95
7.8.10	5:37	Orthoptera	?	Grass hopper	DDCR/ U.A.E	N 24 50°51.210	E55°42'17.568	P. Roosenschoon	96
15.8.10	05:45	Aranaea	?		DDCR/ U.A.E	N 24 50°51.210	E55°42'17.568	P. Roosenschoon	97
21.8.10	6:15	Formicidae	?		DDCR/ U.A.E	N 24 48°24.624	E55°38'24.756	P. Roosenschoon	98
2.9.10	05:47	Thynarura	?	?	DDCR/ U.A.E	N 24 50°51.762	E55°38'14.538	P. Roosenschoon	101
19.12.10	11:00	Hemiptera	?	Backswimmer	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	106
19.12.10		Diptera	?	Mosquito	DDCR/ U.A.E	N24 53°21.224	E55°37'24.312	P. Roosenschoon	108
21.2.11	9:30	Diptera	?		DDCR/ U.A.E	N 24 49°27.08	E55°39'29.2	P. Roosenschoon	112

Spirit log, (Identified):

Date:	Time:	Order:	Species:	Common Name:	Location:	Co-ordinates:	Collected By:	Log #:
20.7.10	5:45	Coleoptera	<i>Tentyria palmeri</i> .	Rack beetle	DDCR/ U.A.E	N 24 50°51.210	E55°42'17.568	P. Roosenschoon
20.7.10	5:47	Thynarura	<i>Thermobia domestica</i> .	Firebrat	DDCR/ U.A.E	N 24 50°51.210	E55°42'17.568	P. Roosenschoon
20.7.10	5:48	Formicidae	<i>Ginonotus serieus</i>	Golden ant	DDCR/ U.A.E	N 24 50°51.210	E55°42'17.568	P. Roosenschoon
20.7.10	6:15	Coleoptera	<i>Hesteridae</i>	Unknown	DDCR/ U.A.E	N 24 49°32.052	E55°42'50.790	P. Roosenschoon
20.7.10	6:17	Acari	<i>Trombidium sp.</i>	Spider Mites	DDCR/ U.A.E	N 24 49°32.052	E55°42'50.790	P. Roosenschoon
21.7.10	5:47	Thynarura	<i>Nicolettidae sp.</i>	Silverfish	DDCR/ U.A.E	N 24 50°51.210	E55°42'17.568	P. Roosenschoon
21.7.10	6:05	Coleoptera	<i>Pimelia arabica</i>	Arabian Darkling	DDCR/ U.A.E	N 24 49°32.052	E55°42'50.790	P. Roosenschoon
22.7.10	6:21	Aranaea	<i>Salticidaesp.</i>	Jumpin Spider	DDCR/ U.A.E	N 24 48°24.624	E55°38'24.756	P. Roosenschoon
22.7.10	6:47	Coleoptera	<i>Prionotheca coronata</i>	Grub. (urchin)	DDCR/ U.A.E	N 24 48°14.088	E55°37'19.608	P. Roosenschoon
22.7.10	6:50	Solifuge	<i>Gelodes arabs</i>	Camel Spider	DDCR/ U.A.E	N 24 48°14.088	E55°37'19.608	P. Roosenschoon
22.7.10	6:55	Aranaea	<i>Salticidae sp.</i>	Jumpin Spider	DDCR/ U.A.E	N 24 48°14.088	E55°37'19.608	P. Roosenschoon
23.7.10	6:15	Isopoda	<i>Isopoda sp.</i>	Woodlice	DDCR/ U.A.E	N 24 49°32.052	E55°42'50.790	P. Roosenschoon
22.6.10		Neuroptera	<i>Lopezus fedtschenkoi</i>	Steaky wing antlion	DDCR/ U.A.E	N 24 49°27.726	E55°39'29.370	P. Roosenschoon
17.4.10		Diptera	<i>Apoclea femoralis</i>	Highwayman	DDCR/ U.A.E	N 24 49°27.756	E55°39'29.359	P. Roosenschoon
11.5.10		Hemiptera	<i>Panngaeus sp.</i>	Burrowing bug	DDCR/ U.A.E	N 24 49°27.726	E55°39'29.370	P. Roosenschoon
13.2.10		Hymenoptera	<i>Komarowia concolor</i>	Short wing wasp	DDCR/ U.A.E	N 24 48°47.411	E55°37'20.334	P. Roosenschoon
13.5.10		Diptera	<i>Wohlfahrtia nuba</i>	Checkerspot fly	DDCR/ U.A.E	N 24 50°39.711	E55°43'29.224	P. Roosenschoon
24.6.10		Solifuges	<i>Gelodes arabs</i>	Camel Spider	DDCR/ U.A.E	N 24 50°51.417	E55°42'19.421	P. Roosenschoon
27.6.10		Coleoptera	<i>Onyctes elegans</i>	Elegant Rhino Beetle	DDCR/ U.A.E	N 24 48°24.624	E55°38'24.756	P. Roosenschoon

27.6.10		Acari	<i>Ixodidae sp.</i>	Grey tick	DDCR/ U.A.E	N 24° 48' 24.624	E 55° 38' 24.756	P. Roosenschoon	38
1.7.10		Scorpionidae	<i>Buthacus yotvatensis</i> <i>Androctonus crassicauda</i>	Black-tip Scorpion	DDCR/ U.A.E	N 24° 49' 32.052	E 55° 42' 50.790	P. Roosenschoon	41
4.7.10		Scorpionidae		Fat-tail Scorpion	DDCR/ U.A.E	N 24° 48' 24.624	E 55° 38' 24.756	P. Roosenschoon	42
17.6.07		Formicidae	<i>Cataglyphis niger</i>	Desert Runner	DDCR/ U.A.E	N 24° 48' 51.9	E 55° 39' 46.06	P. Phelan	45
28.4.07		Hymenoptera	<i>Polistes watii</i>	Arabian Paper wasp	DDCR/ U.A.E	N 24° 49' 27.08	E 55° 39' 29.2	P. Phelan	47
12.4.07		Hymenoptera	<i>Delta dimidiatipenne</i>	Red potter wasp	DDCR/ U.A.E	N 24° 49' 27.08	E 55° 39' 29.2	P. Phelan	48
28.4.07		Hymenoptera	<i>Pseudapis nilotica</i> <i>Xylocopa ctenoxylocopa</i>	Zebra bee	DDCR/ U.A.E	N 24° 49' 27.08	E 55° 39' 29.2	P. Phelan	49
3.6.07		Hymenoptera		Black Carpenter Bee	DDCR/ U.A.E	N 24° 49' 27.08	E 55° 39' 29.2	G. Nel	50
31.7.07		Hymenoptera	<i>Xylocopa aestuans</i>	Canary Carpenter	DDCR/ U.A.E	N 24° 49' 17.2	E 55° 39' 21.6	G. Nel	51
17.9.07		Coleoptera	<i>Prionotheca coronata</i>	Urchin Beetle	DDCR/ U.A.E	N 24° 44' 47.4	E 55° 39' 23.00	P. Phelan	52
23.9.07		Coleoptera	<i>Scarabaeus sacer</i>	Scarab beetle	DDCR/ U.A.E	N 24° 45' 36.4	E 55° 42' 43.9	P. Phelan	53
23.9.07		Coleoptera	<i>Pimelia arabica</i>	Arabian Darkling Beetle	DDCR/ U.A.E	N 24° 45' 30.2	E 55° 42' 43.9	P. Phelan	54
29.6.07		Acari/ Ixodidae	<i>Ixodidae sp.</i>	Tick	DDCR/ U.A.E	N 24° 50' 02.022	E 55° 38' 49.9	P. Phelan	55
21.5.07		Myrmeleontidae		Anlion Larvae	DDCR/ U.A.E	N 24° 48' 09.6	E 55° 38' 45.3	P. Phelan	56
18.6.07		Myrmeleontidae		Anlion Larvae	DDCR/ U.A.E	N 24° 48' 51.9	E 55° 39' 46.6	P. Roosenschoon	57
23.6.07		Myrmeleontidae		Anlion Larvae	DDCR/ U.A.E	N 24° 48' 09.6	E 55° 38' 45.3	P. Phelan	58
28.4.07		Hemiptera	<i>Lygaeus equestris</i>	Harlequin Ground bug	DDCR/ U.A.E	N 24° 49' 08.9	E 55° 41' 31.6	P. Phelan	59
3.5.07		Hemiptera	<i>Lygaeus equestris</i>	Harlequin Ground bug	DDCR/ U.A.E	N 24° 49' 39.7	E 55° 41' 31.6	P. Phelan	60
11.8.07		Odonata	<i>Anax partherope</i>	Lesser Emperor	DDCR/ U.A.E	N 24° 49' 17.2	E 55° 39' 21.6	P. Roosenschoon	61
14.8.07		Odonata	<i>Pantala flavescens</i>	Globe skimmer	DDCR/ U.A.E	N 24° 49' 27.08	E 55° 39' 29.2	P. Phelan	62
11.6.07		Orthoptera	<i>pyrgomorpha conica</i>	Hollw grasshopper	DDCR/ U.A.E	N 24° 49' 27.08	E 55° 39' 29.2	G. Nel	63
16.8.07		Orthoptera	<i>Schistocerca gregaria</i>	Desert Locust	DDCR/ U.A.E	N 24° 49' 27.08	E 55° 39' 29.2	G. Nel	65
14.9.07		Orthoptera	<i>Truxalis procera</i>	Gangling grass hopper	DDCR/ U.A.E	N 24° 49' 27.08	E 55° 39' 29.2	G. Nel	66
26.7.10		Hymenoptera	<i>Camponotus xerxes</i>	Giant desert Ant	DDCR/ U.A.E	N 24° 49' 17.2	E 55° 39' 21.6	P. Roosenschoon	67
23.4.07		Araneae	<i>Heriaeus sp.</i>	Spider,	DDCR/ U.A.E	N 24° 48' 09.3	E 55° 38' 45.3	P. Phelan	68
27.4.07		Araneae	<i>Lycosidae sp.</i>	Wolf Spider	DDCR/ U.A.E	N 24° 48' 09.3	E 55° 38' 45.3	P. Phelan	69
26.7.10		Hymenoptera	<i>Vobalayca flavifrons</i>	Scollid Wasp	DDCR/ U.A.E	N 24° 48' 11.136	E 55° 39' 01.782	S. Khan	79
26.7.10		Dictyoptera	<i>Blatta lateralis</i>	Dimorphic Cockroach	DDCR/ U.A.E	N 24° 48' 11.136	E 55° 39' 01.782	S. Khan	80
24.4.10		Araneae	<i>Latrodectus dahli</i>	Spider(Widow)	DDCR/ U.A.E	N 24° 50' 51.210	E 55° 42' 17.568	P. Roosenschoon	81
24.7.10		Araneae	<i>Salicidae</i>	Jumpin Spider	DDCR/ U.A.E	N 24° 49' 32.052	E 55° 42' 50.790	P. Roosenschoon	83
28.7.10		Coleoptera	<i>Rhyssenus granosus</i>	Wrinkly beetle	DDCR/ U.A.E	N 24° 50' 51.210	E 55° 42' 17.568	P. Roosenschoon	87
29.7.10		Hemiptera	<i>Scantius fosteri</i> <i>Macrocoma vanharteni</i>	Red bug	DDCR/ U.A.E	N 24° 49' 27.08	E 55° 39' 29.2	P. Roosenschoon	88
30.7.10		Coleoptera			DDCR/ U.A.E	N 24° 50' 51.210	E 55° 42' 17.568	P. Roosenschoon	89
3.8.10		Coleoptera	<i>Dermestes frischii</i>	Carcas beetle	DDCR/ U.A.E	N 24° 48' 11.106	E 55° 39' 00.546	P. Roosenschoon	92

5.8.10	6:25	Hymenoptera			Flightless wasp	DDCR/ U.A.E	N 24°48'24.624	E55°38'24.756	P. Roosenschoon	93
6.8.10	10:35	Araneae			Spider	DDCR/ U.A.E	N 24°49'32.196	E55°42'48.956	P. Roosenschoon	94
22.8.10	05:42	Thynarura	<i>Nicoletidae sp.</i>		Silverfish	DDCR/ U.A.E	N 24°50'51.210	E55°42'17.568	P. Roosenschoon	99
2.9.10	6:55	Coleoptera	<i>Xenophilothus choumovitchi</i>		Hister Beetle	DDCR/ U.A.E	N 24°48'11.106	E 55°39'00.546	P. Roosenschoon	100
20.8.10	07:20	Scorpionidae	<i>Apithobuthus pterygorceus</i>		Golden Scorpion	DDCR/ U.A.E	N 24°50'51.210	E55°42'17.568	P. Roosenschoon	102
1.10.10	19:30	Coleoptera	<i>Anthrenus flavipes</i>		Gaudy carpet beetle	DDCR/ U.A.E	N 24°49'27.08	E55°39'29.2	P. Roosenschoon	103
3.10.10	06:15	Coleoptera	<i>Trichophaeana arabica</i>		Grey darkling	DDCR/ U.A.E	N 24°49'32.052	E55°42'50.790	P. Roosenschoon	104
24.11.10	7:30	Coleoptera	<i>Anthracus angusticollis</i>			DDCR/ U.A.E	N 24°48'11.106	E 55°39'00.546	P. Roosenschoon	105
19.12.10	13:44	Hymenoptera	<i>Ginonotus serieus</i>		Golden Ant	DDCR/ U.A.E	N24 48°24.624	E55°38'24.756	P. Roosenschoon	107
21.12.10		Odonata	<i>Ishnura senegalensis</i>		Common Blue-tail	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	109
16.12.10	19:30	Lepidoptera	<i>Argotis sardzeana</i>			DDCR/ U.A.E	N 24°51'56.376	E 55°41'59.832	P. Roosenschoon	110
19.12.10	19:30	Coleoptera	<i>Eiasmobris alboguttata</i>			DDCR/ U.A.E	N 24°51'56.376	E 55°41'59.832	P. Roosenschoon	111

Pinning log, (Un-identified):

12.7.10		Lepidoptera			Moth sp.	DDCR/ U.A.E	N24 49°27.726	E55°39'29.370	P. Roosenschoon	7
14.7.10		Lepidoptera			Moth sp.	DDCR/ U.A.E	N24 49°27.726	E55°39'29.370	P. Roosenschoon	8
11.8.10		Araneae			Spider	DDCR/ U.A.E	N24°50'51.210	E55°42'17.568	P. Roosenschoon	18
11.8.10		Araneae			Mouse spider	DDCR/ U.A.E	N24°50'51.210	E55°42'17.568	P. Roosenschoon	22
13.8.10		Hymenoptera				DDCR/ U.A.E	N24°48'24.624	E55°38'24.756	P. Roosenschoon	24
14.8.10		Orthoptera			Desert Hopper	DDCR/ U.A.E	N24°48'14.088	E55°37'19.608	P. Roosenschoon	27
17.8.10	11:43	Coleoptera			Weevil	DDCR/ U.A.E	N24°46'24.870	E55°43'36.136	P. Roosenschoon	33
17.8.10	12:12	Orthoptera			Locust	DDCR/ U.A.E	N24°46'23.211	E55°43'59.219	P. Roosenschoon	35
17.8.10	11:34	Dictyoptera			Mantis nymph	DDCR/ U.A.E	N24°46'23.211	E55°43'50.177	P. Roosenschoon	36
17.8.10	06:24	Hymenoptera				DDCR/ U.A.E	N24°49'32.052	E55°42'50.790	P. Roosenschoon	39
20.8.10	16:02	Diptera				DDCR/ U.A.E	N24°49'27.726	E55°39'29.370	S. Gul	41
20.8.10	05:40	Hymenoptera				DDCR/ U.A.E	N24°50'51.210	E55°42'17.568	P. Roosenschoon	45
15.8.10	05:37	Hymenoptera				DDCR/ U.A.E	N24°50'51.210	E55°42'17.568	P. Roosenschoon	47
12.8.10	05:44	Coleoptera			hister beetle ?	DDCR/ U.A.E	N24°48'11.106	E55°39'00.546	P. Roosenschoon	54
17.8.10	07:31	Coleoptera			hister beetle ?	DDCR/ U.A.E	N24°48'11.106	E55°39'00.546	P. Roosenschoon	55
3.10.10	19:55	Hemiptera			Assasin Bug	DDCR/ U.A.E	N24°46'37.106	E55°38'19.210	P. Roosenschoon	76
11.10.10	11:24	Neuroptera	?		Antlion	DDCR/ U.A.E	N24°49'27.726	E55°39'29.370	P. Roosenschoon	79
19.12.10	11:00	Hemiptera			Backswimmers	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	100

19.12.10	11:12	Hemiptera		Backswimmers	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	101
28.12.10	19:00	Coleoptera	Scarabaeoidea		DDCR/ U.A.E	N24 '51'56.376	E55 '41'59.832	P. Roosenschoon	115
28.12.10	19:00	Coleoptera	Scarabaeoidea		DDCR/ U.A.E	N24 '51'56.376	E55 '41'59.832	P. Roosenschoon	116

Pinning log, (Identified):

Date:	Time:	Order:	Species:	Common Name:	Location:	Co-ordinates:		Collected By:	Log #:
8.7.10	21:37	Solifuges	<i>Galeodes arabs</i>	Camel Spider	DDCR/ U.A.E	N24 '49'27.726	E55 '39'29.370	S. Bell	1
8.7.10	21:39	Solifuges	<i>Galeodes arabs</i>	Camel Spider	DDCR/ U.A.E	N24 '49'27.726	E55 '39'29.370	P. Roosenschoon	2 + 3
10.8.09		Coleoptera	<i>Rhynchophorus ferrugineus</i>	Red palm weevil	DDCR/ U.A.E	N24 '49'27.726	E55 '39'29.370	P. Roosenschoon	4
5.9.09		Scorpiones	<i>Apithobuthus pterygocercus</i>	Golden Scorpions	DDCR/ U.A.E	N24 '48'24.624	E55 '38'24.756	P. Roosenschoon	5
10.7.10		Scorpiones	<i>Androctonus crassicauda</i>	Fat-tail scorpion	DDCR/ U.A.E	N24 '48'14.088	E55 '37'19.608	P. Roosenschoon	6
17.7.10		Hymenoptera	<i>Xylocopa aestuans</i>	Canary Carpenter	DDCR/ U.A.E	N24 '49'36.447	E55 '39'41.732	T. Khafaga	9
27.7.10		Coleoptera	<i>Prionotheca coronata</i>	Urchin Beetle	DDCR/ U.A.E	N24 '50'51.210	E55 '42'17.568	P. Roosenschoon	10
28.7.10		Coleoptera	<i>Pimelia arabica</i>	Arabian darkling beetle	DDCR/ U.A.E	N24 '48'24.624	E55 '38'24.756	P. Roosenschoon	11
31.7.10		Coleoptera	<i>Prionotheca coronata</i>	Urchin Beetle	DDCR/ U.A.E	N24 '49'32.052	E55 '42'50.790	P. Roosenschoon	12
31.7.10		Coleoptera	<i>Pimelia arabica</i>	Arabian darkling beetle	DDCR/ U.A.E	N24 '50'51.210	E55 '42'17.568	P. Roosenschoon	13
1.8.10		Coleoptera	<i>Pimelia arabica</i>	Arabian darkling beetle	DDCR/ U.A.E	N24 '48'14.088	E55 '37'19.608	P. Roosenschoon	14
2.8.10		Coleoptera	<i>Prionotheca coronata</i>	Urchin Beetle	DDCR/ U.A.E	N24 '48'24.624	E55 '38'24.756	P. Roosenschoon	15
3.8.10		Coleoptera	<i>Prionotheca coronata</i>	Urchin Beetle	DDCR/ U.A.E	N24 '48'24.624	E55 '38'24.756	P. Roosenschoon	16
4.8.10		Scorpiones	<i>Apithobuthus pterygocercus</i>	Golden Scorpions	DDCR/ U.A.E	N24 '49'32.052	E55 '42'50.790	P. Roosenschoon	17
11.8.10		Orthoptera	<i>Grylloptarpa gryllotalpa</i>	Mole cricket	DDCR/ U.A.E	N24 '49'27.726	E55 '39'29.370	P. Roosenschoon	19
8.8.10	06:42	Solifuges	<i>Gelodes arabs</i>	Camel Spider	DDCR/ U.A.E	N24 '48'14.088	E55 '37'19.608	P. Roosenschoon	20
11.8.10		Hymenoptera	<i>Tricholabiodes aegyptiacus</i>	Velvet ant	DDCR/ U.A.E	N24 '48'24.624	E55 '38'24.756	P. Roosenschoon	23
13.8.10		Hymenoptera	<i>Tricholabiodes aegyptiacus</i>	Velvet ant	DDCR/ U.A.E	N24 '49'32.052	E55 '42'50.790	P. Roosenschoon	25
14.8.10		Coleoptera	<i>Apatroides vicinus</i>	?	DDCR/ U.A.E	N24 '50'51.210	E55 '42'17.568	P. Roosenschoon	26
14.8.10	16:10	Hymenoptera	<i>Polistes Wattii</i>	Arabian Paper wasp	DDCR/ U.A.E	N24 '49'27.726	E55 '39'29.370	P. Roosenschoon	28
15.8.10	06:30	Coleoptera	<i>Scarabaeus sacer</i>	Scarab beetle	DDCR/ U.A.E	N24 '49'32.052	E55 '42'50.790	P. Roosenschoon	29
15.8.10	06:45	Coleoptera	<i>Scarabaeus sacer</i>	Scarab beetle	DDCR/ U.A.E	N24 '49'32.052	E55 '42'50.790	P. Roosenschoon	30
17.8.10	11:35	Hemiptera	<i>Platyleurini arabica</i>	Arabian Cicada	DDCR/ U.A.E	N24 '46'25.026	E55 '43'55.590	P. Roosenschoon	31
17.8.10	11:38	Neuroptera	<i>Palpares dispar</i>	Polkadot Antlion	DDCR/ U.A.E	N24 '46'24.942	E55 '43'56.238	P. Roosenschoon	32
17.8.10	11:52	Hemiptera	<i>Platyleurini arabica</i>	Arabian Cicada	DDCR/ U.A.E	N24 '46'24.902	E55 '43'43.066	P. Roosenschoon	34
12.8.10	17:00	Odonata	<i>Ischura sengalensis</i>	Common blue-tail	DDCR/ U.A.E	N24 '49'27.726	E55 '39'29.370	P. Roosenschoon	37
18.8.10	06:20	Scorpiones	<i>Apithobuthus pterygocercus</i>	Golden Scorpions	DDCR/ U.A.E	N24 '49'32.052	E55 '42'50.790	P. Roosenschoon	38
20.8.10	06:47	Coleoptera	<i>Paralatyope povovi</i>	Seve Striped Darkling	DDCR/ U.A.E	N24 '48'24.624	E55 '38'24.756	P. Roosenschoon	40
17.8.10	19:34	Hemiptera	<i>Coridius viuatius</i>	Melon bug	DDCR/ U.A.E	N24 '49'27.726	E55 '39'29.370	P. Roosenschoon	42

18.8.10	06:00	Coleoptera	<i>Xylomedes ruficornata</i>	Wood borer	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	43
21.8.10	07:10	Hymenoptera	<i>Delta campaniforme</i>	Harlequin potter wasp	DDCR/ U.A.E	N24 '48'11.106	E55' 39'00.546	S. Khan	44
21.8.10	06:42	Orthoptera	<i>Diabolocatantops axillaris</i>	Devel grasshopper	DDCR/ U.A.E	N24 '48'14.088	E55' 37'19.608	P. Roosenschoon	46
2.9.10	14:30	Lepidoptera	<i>Colotis phiadia</i>	Blue-spotted arab	DDCR/ U.A.E	N24 '49'34.744	E55' 39'27.234	P. Roosenschoon	48
2.9.10	14:30	Lepidoptera	<i>Colotis phiadia</i>	Blue-spotted arab	DDCR/ U.A.E	N24 '49'34.744	E55' 39'27.234	P. Roosenschoon	49
2.9.10	14:30	Lepidoptera	<i>Colotis phiadia</i>	Blue-spotted arab	DDCR/ U.A.E	N24 '49'34.744	E55' 39'27.234	P. Roosenschoon	50
25.8.10	05:42	Coleoptera	<i>Prionotheca coronata</i>	Urchin Beetle	DDCR/ U.A.E	N24 '51'25.896	E55' 41'29.748	P. Roosenschoon	51
23.8.10	07:21	Hymenoptera	<i>Campsomeriella thotacica</i>	Oriental wasp	DDCR/ U.A.E	N24 '48'11.106	E55' 39'00.546	P. Roosenschoon	52
24.8.10	05:30	Coleoptera	<i>Blaps kollari</i>	Churchyard beetle	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	53
17.8.10	09:34	Coleoptera	<i>Scarabaeus sacer</i>	Scarab beetle	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	56
2.9.10	05:47	Scorpiones	<i>Apithobuthus pterygocercus</i>	Golden Scorpions	DDCR/ U.A.E	N24 '50'51.762	E55' 42'14.538	P. Roosenschoon	57
4.9.10	07:04	Hymenoptera	<i>Komarowia concolor</i>	Short wing wasp	DDCR/ U.A.E	N24 '50'51.762	E55' 42'14.538	P. Roosenschoon	58
4.9.10	04:05	Lepidoptera	<i>Amicta maurentanica arabica</i>	Bag worm	DDCR/ U.A.E	N24 '51'29.226	E55' 38'36.390	P. Roosenschoon	59
25.8.10	05:34	Coleoptera	<i>Ammogian omanicum</i>	Taperd beetle	DDCR/ U.A.E	N24 '49'47.976	E55' 41'13.524	P. Roosenschoon	60
23.8.10	05:30	Thysanura	<i>Thermobia domestica</i>	Firebrat	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	61
23.8.10	05:30	Thysanura	<i>Thermobia domestica</i>	Firebrat	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	62
26.8.10	10:15	Araneae	<i>Latrodectus dehlai</i>	Widow sp.	DDCR/ U.A.E	N24 '49'27.726	E55' 39'29.370	P. Roosenschoon	63
28.9.10		Araneae	<i>Salticidae sp.</i>	Jumping spider	DDCR/ U.A.E	N24 '49'34.744	E55' 39'27.234	P. Roosenschoon	64
3.9.10	10:47	Hymenoptera	<i>Polistis Watti</i>	Arabian Paper wasp	DDCR/ U.A.E	N24 '49'27.726	E55' 39'29.370	P. Roosenschoon	65
3.9.10	10:47	Hymenoptera	<i>Polistis Watti</i>	Arabian Paper wasp	DDCR/ U.A.E	N24 '49'27.726	E55' 39'29.370	P. Roosenschoon	66
2.9.10	07:30	Coleoptera	<i>Tentyrina palmeri</i>	Rack Beetle	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	67
31.8.10	05:30	Scorpiones	<i>Apithobuthus pterygocercus</i>	Golden Scorpions	DDCR/ U.A.E	N24 '49'59.304	E55' 38'44.394	P. Roosenschoon	68
24.8.10	05:25	Coleoptera	<i>Apatroides vicinus</i>	?	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	69
2.9.10	05:47	Hemiptera	<i>Pangaeus sp.</i>	Burrowing bug	DDCR/ U.A.E	N24 '49'59.304	E55' 38'44.394	P. Roosenschoon	70
3.10.10	19:55	Neuroptera	<i>Nophis tellardi</i>	The serpent	DDCR/ U.A.E	N24 '48'37.106	E55' 38'19.210	P. Roosenschoon	71
4.10.10	09:15	Lepidoptera	<i>Catopsilla florella</i>	African Migrant	DDCR/ U.A.E	N24 '49'36.144	E55' 39'41.724	P. Roosenschoon	72
4.10.10	09:15	Lepidoptera	<i>Catopsilla florella</i>	African Migrant	DDCR/ U.A.E	N24 '49'36.144	E55' 39'41.724	P. Roosenschoon	73
4.10.10	10:41	Lepidoptera	<i>Uthetheisa pulchella</i>	Crimson-speckled footman	DDCR/ U.A.E	N24 '49'36.144	E55' 39'41.724	P. Roosenschoon	74
4.10.10	10:41	Lepidoptera	<i>Uthetheisa pulchella</i>	Crimson-speckled footman	DDCR/ U.A.E	N24 '49'36.144	E55' 39'41.724	P. Roosenschoon	75
4.10.10	09:15	Lepidoptera	<i>Chilades parhaius</i>	Indian(small) cupid	DDCR/ U.A.E	N24 '49'36.144	E55' 39'41.724	P. Roosenschoon	77
9.10.10	19:37	Neuroptera	<i>Gepus invisus</i>	Hunchback Antlion	DDCR/ U.A.E	N24 '49'27.726	E55' 39'29.370	P. Roosenschoon	78
15.11.10	16:30	Odonata	<i>Pantala flavesence</i>	Globe skimmer	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	80
16.11.10	07:30	Orthoptera	<i>Truxalis fitsgeraldi</i>	Longhorn grasshopper	DDCR/ U.A.E	N24 '49'27.726	E55' 39'29.370	P. Roosenschoon	81
10.10.10	22:40	Coleoptera	<i>Lanelater buetikerri</i>	Click beetle	DDCR/ U.A.E	N24 '49'27.726	E55' 39'29.370	P. Roosenschoon	82
15.11.10	00:30	Coleoptera	<i>Oryctes elegans</i>	Elegant rhino beetle	DDCR/ U.A.E	N24 '48'24.756	E55' 39'19.608	P. Roosenschoon	83

15.11.10	23:00	Coleoptera	<i>Triptera kraatzii</i>	False urchin	DDCR/ U.A.E	N24 '49'28.741	E55' 38'54.143	P. Roosenschoon	84
16.11.10	12:00	Odonata	<i>Tramea basilaris</i>	Keyhole Dragonfly	DDCR/ U.A.E	N24 '47'294"	E55' 40.377"	R. W. Reimer	85
26.11.10	14:00	Orthoptera	<i>Pyrgomorpha conica tereficornis</i>		DDCR/ U.A.E	N24 '48'14.088	E55' 37'19.608	P. Roosenschoon	86
26.11.10	15:30	Orthoptera	<i>Anacridium aegyptium</i>	Egyptian tree locust	DDCR/ U.A.E	N24 '48'14.088	E55' 37'19.608	P. Roosenschoon	87
26.11.10	16:00	Scorpiones	<i>Vachoniolus globimanus</i>	Thick-pincer Scorpion	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	88
3.12.10	09:30	Lepidoptera	<i>Lampides boeticus</i>	Pea blue	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	89
1.12.10	15:34	Odonata	<i>Anax imperator</i>	Vagrant emperor	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	90
1.12.10	09:30	Lepidoptera	<i>Lampides boeticus</i>	Pea blue	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	91
4.12.10	10:21	Odonata	<i>Anax imperator</i>	Vagrant emperor	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	92
4.12.10	10:41	Odonata	<i>Pantala flavesence</i>	Globe skimmer	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	93
4.12.10	10:54	Lepidoptera	<i>Venessa cardui</i>	Painted-lady	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	94
16.12.10	21:30	Lepidoptera	<i>Agrotis sardzeana</i>		DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	95
16.12.10	14:30	Diptera	<i>Apoclea femoralis</i>	Highwayman	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	96
19.12.10	9:30	Lepidoptera	<i>Colotis phiadia</i>	Blue-spotted arab	DDCR/ U.A.E	N24 '49'27.726	E55' 39'29.370	P. Roosenschoon	97
19.12.10	10:30	Odonata	<i>Anax imperator</i>	Vagrant emperor	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	98
19.12.10	10:30	Odonata	<i>Anax imperator</i>	Vagrant emperor	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	99
17.12.10	7:45	Orthoptera	<i>Gryllotis spp.</i>	Decorated cricket	DDCR/ U.A.E	N24 '52'58.584	E55' 36'41.160	P. Roosenschoon	102
17.12.10	7:30	Diptera	<i>Musca domestica</i>	Housefly	DDCR/ U.A.E	N24 '53'21.224	E55' 37'24.312	P. Roosenschoon	103
17.12.10	7:30	Diptera	<i>Dacus longistylus</i>	Sodom's apple fly	DDCR/ U.A.E	N24 '53'21.224	E55' 37'24.312	P. Roosenschoon	104
17.12.10	7:30	Diptera	<i>Dacus longistylus</i>	Sodom's apple fly	DDCR/ U.A.E	N24 '53'21.224	E55' 37'24.312	P. Roosenschoon	105
6.12.10	9:30	Odonata	<i>Ischura sengalensis</i>	Common blue-tail	DDCR/ U.A.E	24.884	55.664	P. Roosenschoon	106
16.2.11	14:20	Diptera	<i>Culex pipiens</i>	Common mosquito	DDCR/ U.A.E	N24 '49'27.726	E55' 39'29.370	P. Roosenschoon	107
16.12.10	19:30	Coleoptera	<i>Gronopidius jekeli</i>	Weevil	DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	108
16.12.10	19:30	Coleoptera	<i>Gronopidius jekeli</i>	Weevil	DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	109
16.12.10	19:30	Coleoptera	<i>Carabidae</i>	Unknown spp.	DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	110
21.12.10	17:30	Hymenoptera	<i>Komarowia concolor</i>	Short wing wasp	DDCR/ U.A.E	N24 '50'51.210	E55' 42'17.568	P. Roosenschoon	111
21.12.10	19:30	Lepidoptera	<i>Agrotis sardzeana</i>		DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	112
21.12.10	19:30	Hymenoptera	<i>Komarowia concolor</i>	Short wing wasp	DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	113
21.12.10	19:30	Hymenoptera	<i>Komarowia concolor</i>	Short wing wasp	DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	114
26.12.10	7:30	Solifuges	<i>Galeodes arabs</i>	Camel Spider	DDCR/ U.A.E	N24 '49'32.052	E55' 42'50.790	P. Roosenschoon	117
17.12.10	11:20	Lepidoptera	<i>Catopsilla florella</i>	African Migrant	DDCR/ U.A.E	N24 '49'36.144	E55' 39'41.724	P. Roosenschoon	118
28.12.10	19:30	Lepidoptera	<i>Staudingeria partitella</i>		DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	119
28.12.10	19:30	Lepidoptera	<i>Lithostege fissurata</i>		DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	120
28.12.10	19:30	Lepidoptera	<i>Lithostege fissurata</i>		DDCR/ U.A.E	N24 '51'56.376	E55' 41'59.832	P. Roosenschoon	121
20.3.11	7:30	Coleoptera	<i>Julodis euphratica</i>	Sulphurous Jewel beetle	DDCR/ U.A.E	N24 '49'27.726	E55' 39'29.370	P. Roosenschoon	122

18.1.11	9:10	Scorpiones	<i>Buthacus nigroaculeatus</i>	Black-tip scorpion	DDCR/ U.A.E	N24 '51'56.376	E55 '41'59.832	P. Roosenschoon	123
12.3.11	14:30	Hymenoptera	<i>Rhynchium oculatum</i>	Red paper wasp	DDCR/ U.A.E	N24 '49'27.726	E55 '39'29.370	P. Roosenschoon	124
14.2.11		Orthoptera	<i>Gryllodes supplicans</i>	House cricket	DDCR/ U.A.E	N24 '49'28.741	E55 '39'54.143	P. Roosenschoon	125
11.3.11		Araneae			DDCR/ U.A.E	N24 '48'24.624	E55 '38'24.756	P. Roosenschoon	126
20.3.11	15:47	Hymenoptera	<i>Vobalayca flavifrons</i>	Scolid Wasp	DDCR/ U.A.E	N24 '49'17.000	E55 '39'21.614	A. Mckerrow	127
19.3.11	9:30	Hymenoptera	<i>Vobalayca flavifrons</i>	Scolid Wasp	DDCR/ U.A.E	N24 '48'11.106	E55 '39'00.546	P. Roosenschoon	128
19.3.11		Hymenoptera	<i>Vobalayca flavifrons</i>	Scolid Wasp	DDCR/ U.A.E	N24 '48'11.106	E55 '39'00.546	P. Roosenschoon	129
21.3.11	9:37	Hymenoptera	<i>Vobalayca flavifrons</i>	Scolid Wasp	DDCR/ U.A.E	N24 '48'11.106	E55 '39'00.546	P. Roosenschoon	130
28.12.10	19:37	Lepidoptera	<i>Cucullia systana</i>		DDCR/ U.A.E	N24 '51'56.376	E55 '41'59.832	P. Roosenschoon	131
14.11.10	14:17	Coleoptera	<i>Zophosis pharaonis simplex</i>		DDCR/ U.A.E	N24 '53'21.224	E55 '37'24.312	P. Roosenschoon	132
14.11.10	14:17	Coleoptera	<i>Zophosis pharaonis simplex</i>		DDCR/ U.A.E	N24 '53'21.224	E55 '37'24.312	P. Roosenschoon	133
28.12.10	19:30	Lepidoptera	<i>Evergestis desertalis</i>		DDCR/ U.A.E	N24 '51'56.376	E55 '41'59.832	P. Roosenschoon	134
28.12.10	19:45	Lepidoptera	<i>Evergestis desertalis</i>		DDCR/ U.A.E	N24 '51'56.376	E55 '41'59.832	P. Roosenschoon	135
19.3.11	9:30	Araneae	<i>Langona pallida</i>		DDCR/ U.A.E	N24 '48'24.624	E55 '38'24.756	P. Roosenschoon	136
19.3.11	9:30	Hemiptera	<i>Pageus spp.</i>		DDCR/ U.A.E	N24 '48'11.106	E55 '39'00.546	P. Roosenschoon	137
21.8.10		Coleoptera	<i>Apatroides vicinus</i>	?	DDCR/ U.A.E	N24 '48'14.088	E55 '37'19.608	P. Roosenschoon	21

Light trap results: (appendix C)

<u>Species:</u>	<u>12/06/2010</u>	<u>16/08/2010</u>	<u>21/12/2010</u>	<u>16/03/2011</u>
Camelspiders				
<i>Gelodes arabs.</i>	X	X		
<i>Rhagodes spp.</i>		X		
Scorpions				
<i>Androctonus craccicauda</i>	X			X
<i>Apisthobuthus pterygocercus</i>	X	X		
Crickets				
<i>Grylloptarpa gryliotalpa</i>		X		X
Beetles				
<i>Gronopidius jekeli</i>			X	
<i>Elasmabraris alboguttata</i>				
<i>Elegant Rhinoseros beetle</i>		X		X
<i>Pimila arabica</i>	X	X		
<i>Blaps kollari</i>			X	
<i>Prionothea cornata</i>	X	X		X
Antlions				
<i>Gepus invisus</i>	X	X		
Hymenoptera				
<i>Komarowia concolor</i>	X	X	X	X
Moths				
<i>Argrotis sardzeana</i>			X	
<i>Evergestis desrtalis</i>			X	X
<i>Lithostage fissurata</i>			X	X
<i>Staudingera partitella</i>			X	
<i>Pandesma robusta</i>			X	
<i>Cuculia systana</i>			X	X