

2009/10 SEASON

# Qatar Natural History Group

March 2010 Issue #3



## DRAGONFLIES & DAMSELFLIES IN THE STATE OF QATAR

### Summary

A brief generalist overview of Odonata is given below followed by a summary of known species in the State of Qatar. The main body is an illustrated and annotated checklist of the Odonata of Qatar followed by speculation about further additions to the list, ending with a proposal for future recording procedures of Odonata in Qatar.

I was first introduced to this group of insects as an undergraduate in the early eighties. As the years have passed I have become reasonable in the identification of adult forms but I now want to learn more about this exciting group and try to get others involved. I hope this article will encourage at least some people to want to go to their local wet patch and look for these fascinating insects.

### What are they?

Dragonflies and damselflies both belong to a group of insects (technically an order) called Odonata. Within this group are two sub-orders; the Anisoptera (the dragonflies) and the Zygoptera (the damselflies). The table below summarises the key differences.

	Anisoptera (dragonflies)	Zygoptera (damselflies)
Wings held at rest	Held out at right angles from the body	Usually held folded up along the line of the body
Size	Medium to large	Usually much smaller and much more slender bodied
Eyes on head	Usually touching across the head	Usually protruding, not touching "on stalks"
Flight	Strong fast flyers	Rather weak and fluttery

### Do they sting or bite people?

None have stings of any sort. The biggest dragonflies have strong mandibles for chewing their prey, if you were to hold one and force it to chew your finger it may well nip you otherwise there is nothing to fear. Some dragonflies may be inquisitive and fly close to you but they are definitely never going to attack you.

### Why are they associated with water?

All the Odonata develop underwater, after hatching from tiny eggs (which are usually but not always laid in water) They spend most of their life as larvae, growing by shedding their skins. Large dragonfly larvae are several cm long and are fearsome underwater predators hunting small fish and tadpoles. Smaller species spend several months to over a year underwater whilst the mighty Emperor dragonflies will only emerge after 4 years underwater. They can only develop in freshwater, never saltwater. Some species which occur in Qatar are tolerant of slightly brackish water.

### What do they eat?

The larvae predate just about anything they can kill and eat underwater. The winged adults are strictly aerial predators, actively catching smaller flying insects. In the case of the biggest dragonflies their prey may include large butterflies or smaller species of dragonfly.

### How do they change into their adult form?

When ready the final larval stage climbs out of the water, usually up a plant stem, the outer skin cracks and is shed. Many of these shed skins, called exuviae, can be found at the base of emergent stems and are an important element in the identification of species present in an area. The wings are unfurled and pumped up with blood and then dried. When insects first emerge from the water their colour is often pale and develops over several days. These newly emerged forms are called 'teneral'. Some damselflies will only live a week or two in the adult form, some migratory dragonflies will survive a few months before their wings become so worn and tatty that they can no longer fly and

feed themselves. Once females have mated and laid their eggs their job is done and it is likely that they will die soon after.

### How many species are there?

Worldwide there are 2,900 Anisoptera and 2,700 Zygoptera, however in Qatar we have a very impoverished list of around a dozen species in total.

### Is there a guide I can use?

The greatest and best guide is ***Field Guide to the Dragonflies of Britain and Europe*** by KDB Dijkstra and R Lewington published by British Wildlife Publishing. It is the indispensable guide to European species and covers most but not all of the species in Qatar. The references at the end of

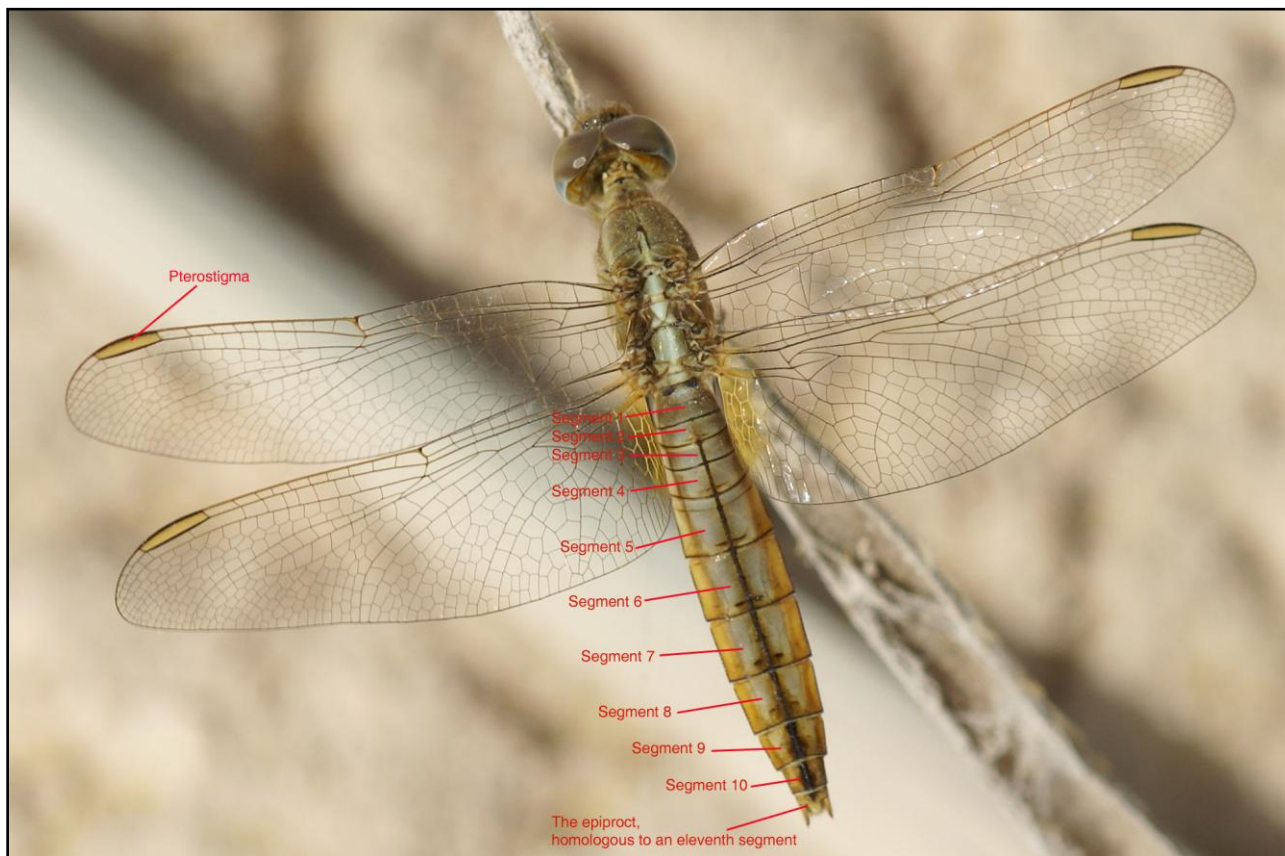
this article list many of the other sources that I have used in my study of Qatari Odonata.

### How do I get a close view?

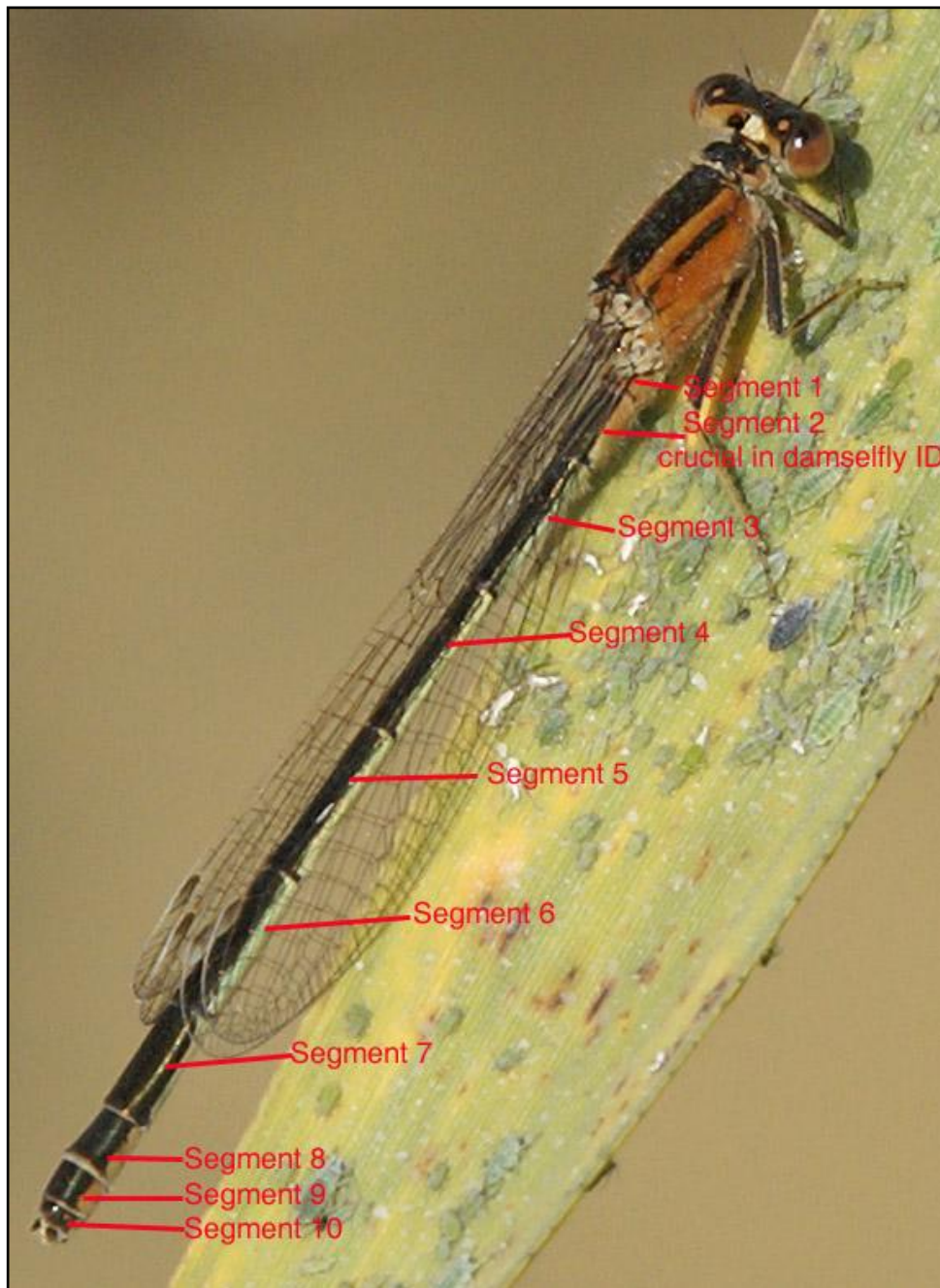
Close focus binoculars are very helpful, I can recommend the Pentax Papillion range which focus to less than 1 metre. I find the very best way to get a good view is to use a macro lens and get a decent photograph. I am only a very amateurish photographer but I hope you will find most of the photos in this article suitable for identification. I use a 100mm f2.8 macro lens on a cheap DSLR. You can get a decent shot with a standard 50mm lens or standing back and using say a 300mm lens. The key is getting the focus sharp, at macro distances with an open aperture (small f-stop) the depth of field of sharp focus is no more than a couple of mm at best.

### What are the bits of the body called?

There are many highly technical names for obscure and hard to see bits of a dragonfly's anatomy which are clarified in all the guides. For this article the words head, thorax and abdomen will suffice but we also need to be aware that the segments of the abdomen are numbered from the thorax to the tip of the abdomen (we need to avoid using the word tail). The other crucial new word is pterostigma, this is a pigmented "window" found along the leading edge of each wing. See the annotated photos above.



**Fig 1. A female *Crocothemis erythraea*, Broad Scarlet, a dragonfly**



**Fig 2. A female *Ischnura fountaineae*, Oasis damselfly**

How do they reproduce?

The males produce sperm from their sexual organs at the end of their abdomen, however in order to fertilise a female the male transfers sperm onto his “secondary genitalia” which is a brush-like pad structure underneath the front of the abdomen. Males first clasp females around the back of the neck using the appendages at the end of his abdomen. Pairs flying in tandem, with the male always leading the female are a common

sight. During copulation the female brings her abdomen tip forward and up to collect sperm from the male’s secondary genitalia. This creates a heart shaped structure referred to as a wheel.

Generally males are brighter coloured than females but females, particularly damselflies, have much more robust abdomens and often show an ovipositor (the egg laying tube).



**Fig 3. A pair of *Ischnura Evansi***

The photo above shows a pair of Evans' Bluetail damselflies "in cop", note that the insect at the top is the male, he is holding the female tightly behind her head whilst she has bent her abdomen under and forward to connect with his secondary genitalia from which she is collecting sperm.

Naming conventions.

Using the species data from these sources plus my own records I have created the following list of species which are known to occur in the State of Qatar.

Species	Status in Qatar from W&P	Status in the UAE from Giles or since	Observations by MJ Grunwell 2007-2010
<i>Ischnura evansi</i>	Recorded in Qatar, but no detail.	Recorded, described as common and widespread in Arabia	Recorded at one site in the far south of Qatar
<i>Ischnura fountaineae</i>	Recorded, one female at Rayyan 30 May 1979	Recorded recently, locally common.	Common at one site in Qatar.
<i>Anax parthenope</i>	Not mentioned as specifically recorded in Qatar	Widespread, migratory, often in swarms	Fairly common, widely recorded.
<i>Anax ephippiger</i>	Recorded as widespread	Probably the commonest desert Anax	Not definitely recorded to date.

With Odonata we need to be using scientific names, English names are unreliable because many species have several English names whilst having only one unique scientific name. In this article I will always use the scientific name and provide the common/English name once on introduction. I am using the taxonomy of KDB Dijkstra throughout where I can, for species not covered in the European guide I am using taxonomy used by Waterston & Pittaway.

The status of Odonata in Qatar.

The first proper published review listing the Odonata of Qatar was by Waterston and Pittaway (see references) based on field work in the late 1970's. Their paper was mainly concerned with Oman but some limited survey work was performed in Qatar. ***The Illustrated Checklist of the Damselflies & Dragonflies of the UAE*** published in 1998 by GB Giles and updated in ***An Updated Illustrated Checklist of the Damselflies & Dragonflies of the UAE*** by Feulner, Reimer and Hornby (2007) gives a comprehensive overview of the status of species in the UAE which currently totals 26 species.

<i>Orthetrum sabina</i>	Recorded, 2 males at Rayyan 30 May 1979	Very common	Common, the most widespread and often seen dragonfly in Qatar.
<i>Sympetrum fonscolombii</i>	No records	Recently recorded in a major influx late 2009	At least 5 males plus some females Dec 2009 at Al Khor, not seen since late Jan 2010
<i>Crocothemis erythraea</i>	Recorded, 1 female of the form <i>chaldaeurum</i> , Rayyan, 30 May 1979	Common	Fairly common and widespread
<i>Crocothemis sevilla</i>	No records	Not recorded	At least 1 insect photographed at Al Khor in 2008
<i>Trithemis annulata</i>	Recorded, 1 male, Doha, 10 May 1979. 1 male Rayyan, 30 May 1979	Very common	Common at one site, other scattered records.
<i>Diplacodes lefebvrei</i>	No records	Occurs but no detail of status	Common at two sites in Qatar.
<i>Selysiothemis nigra</i>	Recorded, three records, all collected.	Occurs but not common	Not definitely recorded but very probably recorded at Al Khor May 2009
11 species	7 species		9 probably 10 species

In summary the current list for Qatar stands at 11 species with 2 damselflies and 9 dragonflies.

### An illustrated guide to species occurring in Qatar.

#### Damselflies, Zygoptera.

There are only two species on the list, both belong to the genus *Ischnura* (the bluetails).

***Ischnura Evansi*** (Morton 1919), Evans' Bluetail.

I recorded this species in Qatar for the first time in January 2010 at a date farm in the far south of the country. I can only speculate as to how widespread the species may be; probably much more so than the single location found to date.

**Figure 4. A male *Ischnura evansi*, in cop. Note the straight, horizontal lower edge to the black on segment 2.**



***Ischnura fountaineae*** (Morton 1905), Oasis Bluetail

This species is common at Al Khor and may be much more widely distributed. The males are greenish blue and black with a distinctive orange flush to the underside of the abdomen. The females when teneral are quite pale orange, becoming much darker with age. Some females are andochrome which means they are similar to the male colouration though they have a much more robust abdomen and sport an ovipositor.



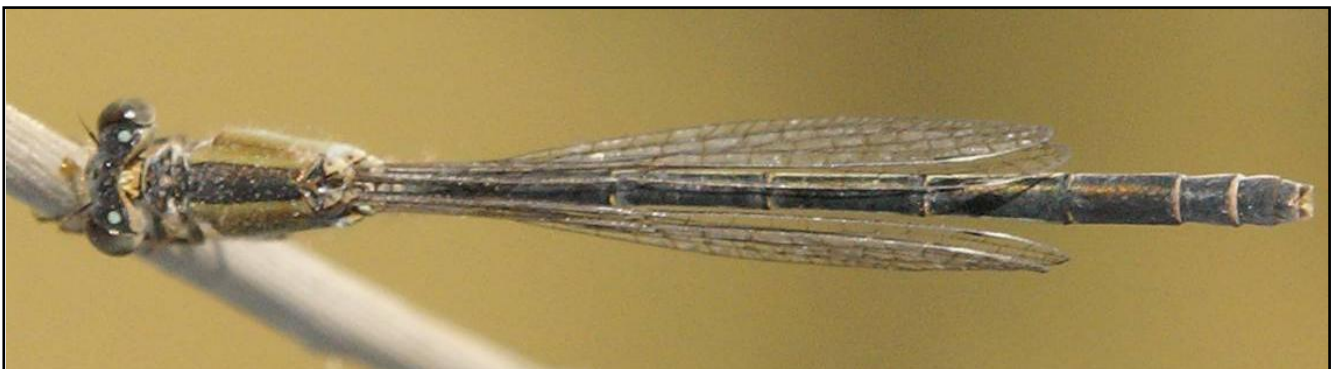
**Fig 5.** A female *Ischnura fountaineae*, rather teneral.



**Fig 6.** Female *Ischnura fountaineae*, slightly more mature than in Fig 5.



**Fig 7** An andochrome (male-like) female *Ischnura fountaineae*, note the orangey wash to the underside of the abdomen.



**Fig 8.** *Ischnura fountaineae*, a mature female, note the orange has become brown.



**Fig 9. A pair of *Ischnura fountaineae* in wheel. The female here is of the androchrome (male-like) form. Note the female has a much more robust abdomen.**

I am currently investigating reliable methods to distinguish the two species from each other in the field, at present I feel the best feature is the edge of the black on the upperside of segment two (in males only). In *I evansi* it is reasonably straight and parallel to the upper and lower sides, in *I fountaineae* it slopes downwards towards the front.

### Dragonflies, Anisoptera

#### ***Anax parthenope*** (Selys 1839) Lesser Emperor

Regularly seen in Qatar, it is not known whether all those recorded are just migrants or have emerged here. They may well lay eggs in Qatar.



**Fig 10. *Anax parthenope*, a male in flight**



**Fig 11. *Anax parthenope*, a male.**

#### ***Anax ephippiger*** (Burmeister, 1839) Vagrant Emperor

A well known long distance wanderer, probably occurs frequently in good numbers across Qatar but to date I have failed to clinch identification. Separated from *Anax parthenope* by

brown not green eyes and by the blue saddle only extending over the top half of the abdomen.

***Orthetrum sabina*** (Drury, 1773) Slender Skimmer



This is the dragonfly that is most likely to be seen visiting hotel swimming pools around Qatar. I have recorded them in all months of the year, perhaps slightly commoner in late summer. They have a characteristic waisted abdomen with a bulge at the thoracic end. This will probably be your first dragonfly in Qatar.

**Fig 12** *Orthetrum sabina*, a male.



**Fig 13.** A more mature male *Orthetrum sabina*. Note the white appendages and the small brown patch at the base of the hindwings.

***Sympetrum fonscolombii*** (Selys, 1840) Red-veined Darter

The Sympetrum are a very common and widespread genus in Europe, however there is only one species found in our area. Since the year 2000 a few *S. fonscolombii* have been seen occasionally in the UAE. In late 2009 there was an unprecedented influx of *S. fonscolombii*, with many records around the UAE. I recorded at least 5 males and a few females at Al Khor water treatment works in late December 2009. They were present for several weeks but were not seen after the end of Jan 2010.



**Fig 14.** A male *Sympetrum fonscolombii* resting on the ground at Al Khor water treatment works, 23 Dec 2009.

*S. fonscolombii* is an invasive species in Europe prone to periodic widespread migrations into new areas. They are capable of completing their life cycle in only a few months, in the UK I have seen migrants laying eggs in



**Fig 14. A male *Sympetrum fonscolombii*, note the bluish lower half to the eyes, the pale straw coloured pterostigma and the black legs with a narrow yellow stripe.**

June and a new generation emerging in September. I did record at least one pair in tandem at Al Khor and it is likely that eggs have been laid, however the water level fluctuates greatly in the shallow pools where they may have laid and I think it highly unlikely that any new insects will emerge.



**Fig 15. A pair of *Sympetrum fonscolombii* in tandem at Al Khor water treatment works 22 Dec 2009.**

***Crocothemis erythraea* (Brullé, 1832) Broad Scarlet**

A common and widespread European species. In Qatar I have recorded them regularly around Al Khor water treatment works and Al Khor sewage marsh. Any bright red, fat bodied dragonfly is likely to be a male of this species, the female is much more drab. See fig 1 for an example of the female.

**Fig 16. A really nice bright male *Crocothemis erythraea***





**Fig 17. A bright mature male *Crocothemis erythraea*. Note the lack of any true black on the insect and the bright red face and eyes and red legs.**



**Fig 18. A female *Crocothemis erythraea* holding her abdomen up, this is called an obelisk position. Note the small yellow base on the hindwing.**

***Crocothemis servilia* (Drury, 1773) Oriental Scarlet**



The genus *Crocothemis* is particularly tricky and the distribution of species around the Gulf states poorly known. This species is on the Qatar national list entirely because of the photograph shown below which I took in November 2008 at Al Khor water treatment works. I was not sure of the identity at the time and it is on the advice of K-D B Dijkstra that this species has been included. I am hopeful of recording and photographing some more of this species.

**Fig 19. *Crocothemis servilia*, a sub-adult male, photographed at Al Khor, 1 November 2008. Note the whitish lines on the thorax, the whitish surround to the face and the dusky tips of the wings.**

***Trithemis annulata* (Palisot de Beauvois, 1807) Violet Dropwing**

I recorded this species for the first time in a Doha garden in Jan 2010. Since then I have found a site where they are common, around a water tank in an old farm near Khararra, southern Qatar. The males have a wonderful purple blush to their bodies and sport red veins in their wings. I am confident that this species is locally common throughout Qatar.



**Fig 20. *Trithemis annulata*. A female in a Doha garden, Jan 2010. Note the way the wings are held forward and down, hence their common name Dropwing.**

***Diplacodes lefebvrii* (Rambur, 1842) Black Percher**

This species stays close to emergent vegetation above shallow pools, it is rarely seen more than a metre away from the water's edge and so is often overlooked.



**Fig 21. A pair of *Diplacodes lefebvrii* in cop. The male is above.**

It is the smallest dragonfly in Qatar, not much longer, but much bulkier, than a damselfly. It is common at Al Khor water treatment works and at Dandy farm (near the Saudi border). I speculate that it is widely distributed and locally fairly common throughout Qatar.

The males become very dark, older males can become almost entirely black, though most have pale spots along the abdomen. The females can be much shorter-bodied and somewhat browner.

***Selysiothemis nigra* (Vander Linden, 1825) Black Pennant.**



This species is similar in colouration to the previous but bigger bodied and much bigger headed. It has wide pale wings which flutter in the breeze, hence the name pennant. I am sure I saw several at Al Khor water treatment works and even took photographs. Unfortunately I lost the files so I have no conclusive evidence. I am sure I will record them again. They are on the Qatar national list because of the three collected records in Waterman & Pittaway. They are seen well away from the water's edge unlike the Black Percher.

**Fig 22. A sub adult male *Diplacodes lefebvrei*. Note the pale pattern along the abdomen.**

#### Forecast additions to the Qatar list.

The biggest issue in Qatar is the lack of established fresh water areas where species can successfully breed. The two factors against a greater Odonate biodiversity are:

- The transient nature of many ponds, following winter rains there may be quite extensive shallow lakes, however most will be dry by late spring.
- The high salinity of many water bodies. Ground water in Qatar is often slightly brackish so pools created from pumped-up groundwater are unsuitable for most species. Clearly those commoner species in Qatar can cope with slight salinity.

Given that the UAE which has a much greater range of habitats and ecosystems has less than thirty species in total we will be doing well if we can push our list anywhere close to 20 species from the current 11.

At a first guess the most likely additions are the following four species:

***Orthetrum chrysostigma*** (Burmeister, 1839), Epaulet skimmer.

Common in the UAE. The male is a medium sized all blue dragonfly. The female is drab and much more difficult to identify on a brief view.

***Trithemis kirbyi*** (Selys, 1891), Orange-winged dropwing

Common in the UAE this species should be occurring in Qatar. Similar shape and habits as Violet dropwing but a red not purple abdomen with extensive orange patches on the wing bases.

***Pantala flavescens*** (Fabricius, 1798), Wandering Glider.

A widespread migrant which must surely occur regularly in Qatar, though likely to be just flying past rather than settling. A generation can develop from a newly laid egg to an emerging adult in under two months so the transient nature of many bodies of water in Qatar may not be a challenge to this successful species.

***Ischnura senegalensis*** Common bluetail



This is widespread on man-made pools in parts of the UAE, so we need to look closely at all damselflies in Qatar. *I. senegalensis* has a distinctive segment 2 in the male in that the black top half creeps right down the side of the abdomen as a “saddle mark”, neither *I. evansi* or *I. fountaineae* ever show this pattern on segment 2.

**Fig 23. A pair of *Ischnura senegalensis*, Egypt, courtesy of J-P Boudot.**



**Fig 24. A male *Ischnura senegalensis*, Egypt, courtesy of J-P Boudot. Note the more greenish tinge to the thorax and the saddle on segment 2.**

### **Procedure for recording Odonata in the State of Qatar**

I would be happy to act as a recorder, please send me any records at all of Odonata you find. If they are one of the 11 species on the current list, particularly if they match the photographed species in this article just send me brief details of where, when and how many.

If you find a species you cannot identify firstly try to get a photograph, otherwise get in touch and I may be able to visit and help to identify the insect.

In order to accept a species onto the national list the insect will have to be collected (not something I would consider on ethical grounds) or a good quality photograph provided.

My contact methods are:

By mail (the slowest and least effective)

Michael J Grunwell, Al Khor International School – British stream, Secondary Staffroom, PO Box 22166, Doha

By email [mjgrunwell@gmail.com](mailto:mjgrunwell@gmail.com)

By phone My mobile is 584 9161, my phone is switched off during school hours 07:00 – 13:30 but you are welcome to call at other times, before 9pm.

### **Acknowledgements**

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