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COMMUNICATION

The Odonata (Insecta) of Dhofar, southern Oman

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Abstract: The Dhofar governorate of Oman ('Dhofar') is largely desert with a mainly arid climate. It contains an Afrotropical escarpment region influenced by monsoon precipitation. We summarise published records of odonates for Dhofar, organised by four natural regions, present our unpublished photographic records for 23 sites according to these regions and produce a Dhofar apparent-status statement for most odonate species. Records for the regionally Endangered *Urothemis thomasi* and regionally Endangered *Acisoma variegatum* and regionally Least Concern *Paragomphus sinaiticus* are discussed.

Keywords: *Acisoma variegatum*, Arabian peninsula, dragonflies, *Paragomphus sinaiticus,* species inventory, *Urothemis thomasi.*

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Author Details: Elaine M. Cowan is an honorary senior lecturer. Peter J. Cowan is an arid regions wildlife specialist.

Author Contribution: EMC was primarily responsible for photography, record keeping and identification. PJC was primarily responsible for preparation of the manuscript. Both authors were active locating odonates in the field.

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INTRODUCTION

Dhofar governorate (hereafter Dhofar) in southern Oman is climatically somewhat distinct from northern and central Oman (Fisher et al. 1999) and is often considered to contain some biota of Afrotropical origin (e.g., Larsen 1984). The monsoon-influenced escarpment of Dhofar (region 2 in Fig. 1) is especially distinctive (Reade et al. 1980; Miller & Morris 1988; Pickering & Patzelt 2008; Jennings 2010). The western slopes of the Sarawat mountains in western Yemen and southwestern Saudi Arabia, south of the tropic of Cancer, are somewhat analogous (e.g., Le Houerou 2003). In Dhofar, the vegetation of the Jebel Qara escarpment (just north of Salalah City), of the Jebel Qamar escarpment (west of Jebel Qara) and the western portion of the Jebel Samhan escarpment (east of Jebel Qara) are greatly influenced by the 'Khareef' (Arabic: southwest monsoon). During the Khareef season, between June and September, fog wetting and drizzle are especially frequent on southwesterly facing slopes. Annual rain-gauge rainfall rises to more than 300mm on these mountains and altitude lessens temperature (El-Baz 2002). During the Khareef, vegetation on the seaward-facing scarps becomes lush and 'ains' (Arabic: springs) and related pools and streams are full. The back, i.e., dip slope and inland mountains lie in the rain shadow of the monsoon but inland-flowing wadis bring water seasonally to this area and beyond. Ground wells are a major water source in the interior of Dhofar for agriculture and settlements. These, plus sewage works, related reedbeds, 'aflaj' (Arabic plural of 'falaj': irrigation channels) and outflows from palmeries, i.e., palm groves can feed occasional and more permanent pools.

Forty-four species of odonates (dragonflies and damselflies) have been recorded for Oman as a whole (Schneider & Ikemeyer 2016; Cowan & Cowan 2017). Previously, we (Cowan & Cowan 2017) summarised the published records for Odonata in northern and central Oman and presented our own unpublished, photographic, records (December 2008–June 2016) for 50 sites there, organised by eight geographical regions. Odonate records for one site in northern Oman, visited by us on more than 78 occasions to 10 June 2015, in the foothills of the 'Jebel' (Arabic: mountain) Akhdar range, have also been presented (Cowan & Cowan 2013, 2015). The present paper summarises the published records and presents our photographic records at 23 sites, of odonates in Dhofar, southern Oman.

METHODS

The odonate records presented for Dhofar in the present paper have been organised into four geographic regions (Fig. 1):

- Coastal Plains (region 1), from the Yemeni border eastwards to the border with Oman's Wusta governorate (at Ra's Qarwaw) and including the Hallaniyat Islands, has a desert climate.
- Monsoon Slopes (region 2), the scarp slopes and monsoon-influenced wadi sides from the Yemeni border (inland of Ras Darbat Ali) to behind Mirbat, includes various base-of-scarp ains and related water bodies.
- Dry Slopes (region 3), the inland facing dip slopes of the coastal mountains and the mountains and high plains further north (plus the central and eastern Jebel Samhan escarpment), has a desert climate.
- The Northern Desert Plains (region 4) include the Dhofari section of the Rub al Khali sand sea, bordering Saudi Arabia and the Wusta governorate of Oman.

Our records in the systematic list and records of odonates for Dhofar first published in Waterston (1980), Waterston & Pittaway (1991), Schneider & Dumont (1997), van der Weide & Kalkman (2008), Reimer (2009), Ball (2014), Schneider & Ikemeyer (2016), and Lambret et al. (2017) are organised by species in the four geographic regions (Fig. 1) and given in the Results section below. The historical specimen records of Bertram Thomas from the Qara mountains, reported on by Longfield in 1931/32, included the first specimen of *Urothemis thomasi,* and have been discussed to some extent by Waterston (1980). Lambret et al. (2017) stated that their "Records are based on adult sighting, more rarely only on exuvia collecting." It is not clear which of their records are based solely on exuviae. We have treated van der Weide & Kalkman's (2008) two locations in 'Wadi' (Arabic: valley) Ash Shuwaymiyyah as a single site (in our Dry Slopes), their three locations at Ain Hamran (Monsoon Slopes) as a single site and their Wadi Hanna (Monsoon Slopes) as a single site. Ball's (2014; Ball et al. 2015) 11 collection sites along Wadi Sayq in southwestern Dhofar have been treated as two sites: his sites A–H (Monsoon Slopes) and I–K (Coastal Plains). We have treated Schneider & Ikemeyer's (2016) sites in Wadi Darbat as a single site (Monsoon Slopes) and Lambret et al.'s (2017) 'Locations' 52, 58 and 69 (each divided into two 'sites' by them) as single sites (52 in our Northern Desert and 58 and 69 in Coastal Plains). We have considered Lambret et al.'s (2017) location 55, sites 1 and 2 as a single site (in Dry Slopes), their location 55, site 3 as a single site (Coastal Plains), their location

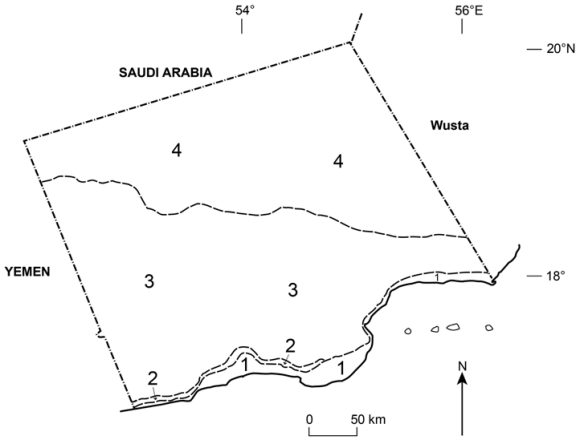

Figure 1. Map of Dhofar, Oman, showing the geographic regions used in the present paper. Geographic regions: 1 - Coastal Plains, 2 - Monsoon Slopes, 3 - Dry Slopes, 4 - Northern Desert. Wusta is the adjoining Omani governorate to Dhofar. The four islands off the southeast coast represent the Hallaniyat islands archipelago (Kuria Muria islands), which we have treated as part of our Coastal Plains region.

85, sites 1–3 as a single site (Monsoon Slopes) and their location 85, site 4 as a separate site (in Coastal Plains).

Photographic records of odonates were made by us at 23 sites in Dhofar September 2009–March 2017. Our sites were selected through reference to the previous odonate and ornithological literature (e.g., Sargeant et al. 2008), local contacts and serendipity. Table 2 lists the location and a brief description for each of our sites. We have not visited the Hallaniyat (Kuria Muria) islands (Coastal Plains). Every one of our records for each site is supported by a photographic voucher held in EMC's personal collection. All photos were taken by EMC using a handheld Sony Cybershot compact/bridge camera. Images 1–17 and 19–25 of the present paper were taken by EMC and Image 18 by Jens & Hanne Eriksen. In most cases these are of species not illustrated in Cowan & Cowan (2013, 2015, 2017).

EMC's photographs allowed for later deliberation and confirmation of identification (ID). Identification was again facilitated by reference to a wide range of field guides and other publications (including Giles 1998; Dijkstra & Lewington 2006; Feulner et al. 2007; Samways 2008; Reimer et al. 2009; Subramanian 2009; Djikstra & Clausnitzer 2014; Smallshire & Swash 2014; Boudot & Kalkman 2015; Tarboton & Tarboton 2015). Spellings of transliterated place names in Oman vary widely in the literature and within Oman.

Photographic records by other observers in Dhofar have also been included where the location was clearly stated and we were satisfied with the claimed identification. These are photos on the expert-moderated 'All Odonata website (2018)', on 'Jens & Hanne Eriksen's website (Eriksen & Eriksen 2018—26 records from 9 sites in Dhofar)' and in the trip reports by Wiprächtiger (2010) and Räz & Wiprächtiger (2012).

Each species account in the systematic list of the Results section below (species sequence as Schneider & Dumont 1997) gives the scientific name and authority citation (IUCN 2017, Schorr & Paulson 2018) and regional (Arabian peninsula) Red List status (García et al. 2015; Schneider & Samraoui 2015) where DD = Data Deficient, NE = Not Evaluated, LC = Least Concern, NT = Near Threatened, VU = vulnerable, EN = Endangered and CR = Critically Endangered, followed by a summary of published records for each of our geographic regions where (WP 1991) = Waterston & Pittaway 1991; (SD 1997) = Schneider & Dumont 1997; (WK 2008) = van der Weide & Kalkman 2008; (SI 2016) = Schneider & Ikemeyer 2016; (L et al. 2017) = Lambret et al. 2017. We felt the best way to summarise previously published records was to present the number of sites where authors recorded a species. Clearly some records, between publications, are likely to involve the same locations. These literature records are followed by 'C & C:' (Cowan & Cowan), our photographic records. In our records, * indicates reproductive behaviour (mating wheels, ovipositing, flying in tandem). None of our records are based on exuviae. Records by other observers 'OO:' are also summarised by number of sites. Those from the All Odonata web gallery are indicated by 'Allodonata/ photographer's name' and those by Jens and Hanne Eriksen by 'E & E'.

Other abbreviations used are A. = Ain, W. = Wadi, K. = 'Khor' (Arabic: coastal creek, usually a sand-blocked lagoon). In the systematic list below, our opinion of 'Apparent status' is given when the status of a species seems reasonably clear (common, can be expected to be seen at a site; uncommon, might be seen at a site; Rare, unlikely to be seen at a site; local, can be found at a few sites in the area concerned).

The specimen collection sites in Dhofar of Waterston & Pittaway (1991); Schneider & Dumont (1997); van de Weide & Kalkman (2008); Schneider & Ikemeyer (2016) and Lambret et al. (2017) have been grouped into our four geographic regions in Table 1. Table 2 lists species located by the authors (and the number of visits) at each of the 23 sites visited, with brief site descriptions.

Table 1. Sites of records in Dhofar of Waterston & Pittaway (1991), Schneider & Dumont (1997), van de Weide & Kalkman (2008), Schneider & Ikemeyer (2016) and Lambret et al. (2017) organised by the four geographic regions of the present paper.
A. = Ain (spring), K. = Khor (coastal lagoon), W. = Wadi (valley). Spellings of names and site numbers are as in their papers. Lambret et al. (2017) presented a district name in front of their site name. We have put their district name in brackets.

COASTAL PLAINS
(WP 1991): Darbat-Mirbat road; Raysut; Salalah; Taqah. **(SD 1997):** 19. K. Dahariz (K. Dahareez); 20a. K. Rawri (K. Rori); 20b. K. Taqah/36. Taqah; 21. K. Sahaur (K. Seehor); 22. K. Sawli; 30. Salalah; 31. as-Sawda Island, Kuria Muria Islands; 55. W. Nahiz (W. Nihaz). **(WK 2008):** 10. beach, ash Shuwaymiyyah; 11. nature reserve Salalah; 13. K. Dahariz; 14. Sahnawt farm, Salalah; 15. beach houses Salalah; 18. K. Taqah; 22. Jarziz farm, Salalah. **(SI 2016):** 9. lagoon and coastal lake west of Taqah; 10. coastal lake west of Salalah; 11. mouth of W. Ashawq; 13. northern fringe of East Khawr. **(L et al. 2017):** 54. K. Sharbithat (Sharbithat); 55. Ras Shuwaymiya, site 3 (Ash Shuwaymiya); 56. W. Sana'ak (Hasik); 58. Bandar Bay (Sadh); 59. K. Hadbeen (Sadh); 60. K. Mahall (Sadh); 61. W. Baqlat (Mirbat); 62. W. Anshayr (Mirbat); 63. A. Shabun (Mirbat); 67. khor and beach 12.5 km east of Taqah (Taqah); 69. K. Rawri (Taqah); 70. K. Taqah (Taqah); 72. K. Sawli (Taqah); 77. K. Ad Dahariz (Salalah); 78. K. Al Baleed (Salalah); 79. Jarziz farm (Salalah); 84. W. Madom at K. Madom (Salalah, Al Mughsayl); 85. W. Ashawq, site 4 (Salalah, Al Mughsayl); 86. K. Rass Sajir (Salalah, Shaat).
MONSOON SLOPES
(WP 1991): A., Jabal Qara; A. Arzat (al rizat); W.Arzat; Jarsis (A.); Khuyuut (Khiyunt); Milwah al Aud; Naqa; Sahalnaut; Darbat pools; W. Saiq; W. Sha'ath. **(SD 1997):** 1. A. Hamran (A. Umran); 2. A. Jarsis; 3. A. ar-Rizat (A. Arzat); 4. A. Tobruk; 10. Dhalqut; 44. W. Darbat, above waterfall; 49. W. Hinnah. **(WK 2008):** 12, 16 & 17. A. Hamran; 19 & 20. W. Hanna; 21. W. Darbat. **(SI 2016):** 8. W. Darbat northeast of Taqah; 12. W. Sayq. **(L et al. 2017):** 64. A. Hashir (Mirbat); 66. Tawi Atayr (Taqah); 68. Wadi Darbat lake and supply stream above the waterfall (Taqah); 71. A. Athum (Taqah); 73. A. Tabraq (Taqah); 74. A. Hamran (Taqah); 75. A. Razat (Taqah); 76. A. Sahalnaut (Salalah); 80. A. Jarziz (Salalah); 82. A. Ishat (Salalah); 83. Aftalqut (Salalah); 85. Wadi Ashawq, sites 1–3 (Salalah, Al Mughsayl); 87. Sinkhole Shaat (Salalah).
DRY SLOPES
(WP 1991): Ayun pools; Thumrait (Thamarit). **(SD 1997):** 6. Ayun; 24. Marmul. **(WK 2008):** 8 & 9. W. ash Shuwaymiyyah. **(SI 2016):** None. **(L et al. 2017):** 55. Ras Shuwaymiya, sites 1 & 2 (Ash Shuwaymiya); 57. Natif waterfall (Hasik); 65. A. Hut (Tayq); 81. 'Ayun pools' (Salalah).
NORTHERN DESERT
(WP 1991): None. **(SD 1997):** 8. Dawkah. **(WK 2008):** 23. oasis Qatbit, central desert; 24. oasis Montasar, central desert. **(SI 2016):** None. **(L et al. 2017):** 51. Muntasar oasis (Muqshin); 52. Qatbit (Muqshin); 53. Dawkah Farm (Thumrait).

RESULTS

Zygoptera (Damselflies)

Coenagrionidae

***Agriocnemis pygmaea* (Rambur, 1842) CR**

Coastal plains: *A.* cf. *pygmaea* 1 site (Reimer 2009). 1 site (SI 2016). 2 sites (L et al. 2017). C & C: K. Taqah 26 Mar 2017. Monsoon Slopes: 1 site (Ball 2014). 1 site (L et al. 2017).

Apparent status: Rare.

***Azuragrion nigridorsum* (Selys, 1876) EN**

Coastal plains OO: 1 site (Allodonata/Ton Elzerman). Monsoon Slopes: 1 site (WP 1991). 1 site (SD 1997). 1 site (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 5 sites (L et al. 2017). C & C: W. Ghadit 15, 17 Jan 2017, 25 Mar 2017; W. Darbat 17 Oct 2013 (Image 1), 15 Jan 2014, 8* Oct 2014, 21 Sep 2015 (Image 2), 16 Jan 2017; A. Tobruq 22* (Image 3), 24* Sep 2015, 29* Aug 2016, 18* Jan 2017; A. Sahnawt 15 Oct 2013; W. Ashawq 24 Sep 2015. OO: 1 site (Allodonata/Paul Schrijvershof), 1 site (Allodonata/Ton Elzerman), 1 site (E & E).

Apparent status: Common Monsoon Slopes.

***Azuragrion somalicum* (Longfield, 1931) VU**

Coastal plains: 1 site (L et al. 2017). Monsoon Slopes: 1 site (WP 1991). 2 sites (SD 1997). 1 site (SI 2016). Dry Slopes: 1 site (Waterston 1980). 1 site (WK 2008). 2 sites (L et al. 2017). C & C: Hanging Gardens 18* Jan 2014, 9* Oct 2014, 25* Sep 2015, 19* Jan 2017 (Images 4, 5). OO: 1 site (Allodonata/Paul Schrijvershof).

Apparent status: Local Dry Slopes. Rare elsewhere.

***Ischnura evansi* Morton, 1919 LC**

Coastal plains: 3 sites (L et al. 2017). OO: 1 site (Allodonata/Ton Elzerman). Monsoon Slopes: 2 sites (WP 1991). 1 site (SD 1997). 1 site (WK 2008). 2 sites (SI 2016). 3 sites (L et al. 2017). Dry Slopes: 2 sites (L et al. 2017). C & C: Mudhay 28 Aug 2016. Northern Desert: 1 site (L et al. 2017).

Apparent status: Rare.

***Ischnura senegalensis* (Rambur, 1842) LC**

Coastal plains: 2 sites (Waterston 1980). 1 site (WP 1991). 4 sites (SD 1997). 3 sites (WK 2008). 1 site (Ball

Image 1. Male *Azuragrion nigridorsum*, Wadi Darbat 17 October 2013. Blue eyes and face. Blue postocular line surrounded by black. Black along upper abdomen and distinctive blue bands on S8–10.

Image 2. Male *Azuragrion nigridorsum* (lower) Wadi Darbat 21 September 2015. Blue with distinctly black markings on thorax and black abdomen. Compare with paler blue and longer *Pseudagrion decorum* (upper).

Image 3. *Azuragrion nigridorsum* Ain Tobruq 22 September 2015. Mating pair. Male blue with clear black markings. Female pale greenish-brown.

2014). 2 sites (SI 2016). 14 sites (L et al. 2017). C & C: K. Ash Shuwaymiyyah 9 Oct 2014; K. Taqah 17 Oct 2013, 14, 16, 17 Jan 2014, 6 Oct 2014, 22 Sep 2015, 27, 30 Aug 2016, 26, 28* Mar 2017; K. Rawri 17 Jan 2014, 23* Sep 2015, 29* Aug 2016; Al Baleed 18* Jan, 28 March 2017; K. Muhit 27 Aug 2016; K. Mudam 7 Oct 2014. OO: 1 site (Allodonata/Ton Elzerman), 1 site (E & E). Monsoon Slopes: 1 site (Waterston 1980). 1 site (SD 1997). 1 site (Ball 2014). 4 sites (L et al. 2017). C & C: W. Darbat 15 Jan 2014, 16 Jan 2017; A. Sahnawt 15 Oct 2013, 16 Jan 2014; W. Ashawq 7 Oct 2014, 24 Sep 2015. OO: I site (Allodonata/Paul Schrijvershof). Dry Slopes: 1 site (L et al. 2017). C & C: Hanging Gardens 18 Jan 2014, 9 Oct 2014, 25 Sep 2015; Mudhay 28 Aug 2016, 27 Mar 2017; Mazyunah waste water 27 Mar 2017; Mazyunah farm 27 Mar 2017. Northern Desert: 1 site (L et al. 2017).

Apparent status: Common at coastal or near-coastal sites. Uncommon elsewhere.

***Ceriagrion glabrum* (Burmeister, 1839) LC**

Coastal plains: 1 site (Waterston 1980). 2 sites (WP 1991). 2 sites (SD 1997). 1 site (SI 2016). 3 sites (L et al. 2017). C & C: K. Taqah 14 Jan 2014 (Image 6), 27 Aug 2016. OO: 1 site (Räz & Wiprächtiger 2012). Monsoon Slopes: 1 site (Waterston 1980). 2 sites (WP 1991). 4 sites (SD 1997). 1 site (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 6 sites (L et al. 2017). C & C: W. Ghadit 15, 17* Jan 2017 (Image 7); A. Tobruq 22 Sep 2015. Dry Slopes: 1 site (Waterston 1980). 2 sites (L et al. 2017).

Apparent status: Uncommon.

***Pseudagrion decorum* (Rambur, 1842) NT**

Coastal plains: 1 site (WK 2008). 1 site (SI 2016). 3 sites (L et al. 2017). C & C: K. Taqah 22 Sep 2015, 26*, 28 Mar 2017; K. Rawri 17 Jan 2014, 23 Sep 2015; K. Mudam 7 Oct 2014. Monsoon Slopes: 1 site (SD 1997). 1 site (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 4 sites (L et al. 2017). C & C: W. Ghadit 15, 17 Jan 2017; W. Darbat 17 Oct 2013, 15 Jan 2014, 8 Oct 2014, 21* Sep 2015 (Image 2), 29* Aug 2016, 16 Jan 2017; A. Hamran 8 Oct 2014; A. Sahnawt 15 Oct 2013; W. Ashawq 24 Sep 2015. OO: 1 site (Wiprächtiger 2010).

Apparent status: Common coastal plains and monsoon slopes.

***Pseudagrion sublacteum* (Karsch, 1893) LC**

Monsoon Slopes: 2 sites (WP 1991). 1 site (SD 1997). 2 sites (WK 2008). 1 site (Reimer 2009). 1 site (SI 2016). 4 sites (L et al. 2017). C & C: W. Darbat 17* Oct 2013 (Image 8), 15 Jan 2014; A. Tobruq 18 Jan 2017; A. Hamran 16* Oct 2013, 23* Sep 2015 (Image 9); A. Sahnawt 15

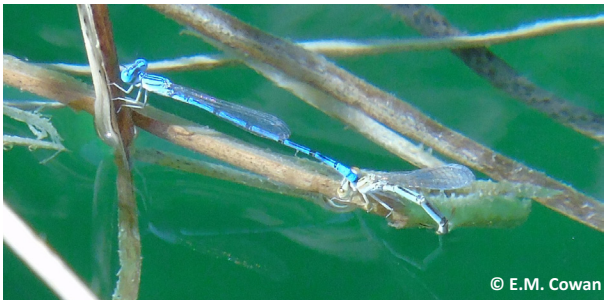

Image 4. *Azuragrion somalicum* Hanging Gardens, Wadi Ash Shuwaymiyyah, 25 September 2015. Ovipositing in tandem. Female paler with thicker black lance shapes dorsally along abdomen.

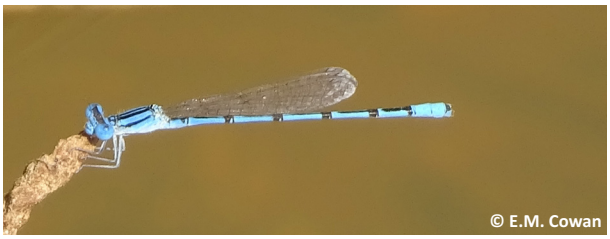

Image 5. Male *Azuragrion somalicum* Hanging Gardens, Wadi Ash Shuwaymiyyah, 19 January 2017. Blue overall, in life usually appears a darker, azure, blue. Fine dorsal stripes on thorax. Black segment bands and lance shapes dorsally along abdomen

Image 6. *Ceriagrion glabrum* Khor Taqah 14 January 2014. Dark orange-red mature male. Green eyes.

Image 7. *Ceriagrion glabrum* pair in tandem, Wadi Ghadit 17 January 2017. Female: green eyes, pale thorax, brown abdomen.

Image 8. Male *Pseudagrion sublacteum* Wadi Darbat 17 October 2013. Cherry red eyes. Blue sides of thorax. Two complete bright blue bands on abdomen (S8–9).

Image 9. *Pseudagrion sublacteum* Ain Hamran 23 September 2015. Pair in tandem, ovipositing.

Oct 2013; OO: 1 site (Räz & Wiprächtiger 2012), 1 site (Allodonata / Paul Schrijvershof), 2 sites (E & E).

Apparent status: Uncommon Monsoon Slopes.

Platycnemididae

***Arabicnemis caerulea* Waterston, 1984 LC**

Monsoon Slopes: 1 site (L et al. 2017).

***Arabineura khalidi* (Schneider, 1988) EN**

Dry Slopes: 1 site (L et al. 2017).

Anisoptera (Dragonflies)

Aeshnidae

***Anax imperator* Leach, 1815 LC**

Coastal plains: 1 site (WP 1991). 1 site (SD 1997). 10 sites (L et al. 2017). C & C: K. Taqah 26*, 28* Mar 2017. OO: 1 site (E & E). Monsoon Slopes: 1 site (WP 1991). 2 sites (SD 1997). 3 sites (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 8 sites (L et al. 2017). C & C: W. Ghadit 15 Jan, 25* Mar 2017; W. Darbat 15* Jan 2014, 8* Oct 2014; A. Sahnawt 15* Oct 2013, 16* Jan 2014; A. Razat 16 Jan 2014; A. Tobruq 22 Sep 2015, 18 Jan 2017; W. Ashawq 7 Oct 2014. Dry Slopes: 1 site (WK 2008). 3 sites (L et al. 2017). C & C: Hanging Gardens 18 Jan, 9 Oct 2014, 25 Sep 2015. Northern Desert: 1 site (L et al. 2017).

Apparent status: Uncommon.

***Anax parthenope* (Selys, 1839) LC**

Coastal plains: 2 sites (L et al. 2017). Monsoon Slopes: 1 site (WK 2008). 3 sites (L et al. 2017). Dry Slopes: 1 site (WP 1991). 2 sites (L et al. 2017). C & C: Mudhay 27 Mar 2017; Mazyunah farm 27 Mar 2017. OO: 1 site (E & E). Northern Desert: 1 site (WK 2008). 1 site (L et al. 2017).

Apparent status: Rare.

***Anax ephippiger* (Burmeister, 1839) LC**

Coastal plains: 2 sites (SD 1997). 8 sites (L et al. 2017). Monsoon slopes: 1 site (Ball 2014). 5 sites (L et al. 2017). C & C: W. Ghadit 15 Jan 2017. Dry Slopes: 1 site (WP 1991). 1 site (SD 1997). 2 sites (L et al. 2017). OO: 1 site (E & E). Northern Desert: 1 site (WK 2008). 3 sites (L et al. 2017). CC: Muntasar 14 Jan 2017.

Apparent status: Rare.

Gomphidae

***Lindenia tetraphylla* (Vander Linden, 1825) LC**

Monsoon Slopes: 1 site (SD 1997). 1 site (Reimer 2009). 1 site (SI 2016). 1 site (L et al. 2017). C & C: W. Ghadit 17 Jan 2017, 25 Mar 2017; W. Darbat 8 Oct 2014, 21 Sep 2015, 16 Jan 2017. OO: 1 site (Allodonata/Richard Hornby, Wiprächtiger 2010), 1 site (E & E). Dry Slopes: 1 site (L et al. 2017).

Apparent status: Local Monsoon Slopes.

***Paragomphus sinaiticus* (Morton, 1929) LC**

Monsoon Slopes: 1 site (Reimer 2009). 7 sites (L et al. 2017). C & C: W. Darbat 21 Sep 2015; A. Sahnawt 15 Oct 2013; A. Hamran 20 Sep 2009, 23 Sep 2015, 29 Mar 2017. Dry Slopes: 1 site (L et al. 2017).

Apparent status: Uncommon Monsoon Slopes.

Libellulidae

***Nesciothemis farinosa* (Förster, 1898) LC**

Coastal Plains OO: 1 site (Allodonata/Ton Elzerman). Monsoon Slopes: 2 sites (WP 1991). 2 sites (SD 1997). 1 site (WK 2008). 1 site (Ball 2014). 2 sites (SI 2016). 4 sites (L et al. 2017). C & C: W. Ghadit 17 Jan 2017; W. Darbat 8 Oct 2014; A. Hamran 16 Oct 2013; A. Tobruq 22 Sep 2015, 18 Jan 2017; A. Razat 29 Aug 2016 (Image 10). OO: 1 site (Allodonata/Ton Elzerman), 1 site (Allodonata/Geert De Knijf), 1 site (Allodonata/Paul Schrijvershof), 1 site (E & E). Dry Slopes: 1 site (WP 1991). 1 site (L et al. 2017).

Apparent status: Locally common Monsoon Slopes.

***Orthetrum chrysostigma* (Burmeister, 1839) LC**

Coastal plains: 1 site (Ball 2014). 6 sites (L et al. 2017). OO: 1 site (Allodonata/Ton Elzerman). Monsoon Slopes: 3 sites (Waterston 1980). 2 sites (WP 1991). 6 sites (SD 1997). 3 sites (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 10 sites (L et al. 2017). C & C: W. Ghadit 15, 17* Jan, 25 Mar 2017; W. Darbat 17 Oct 2013, 15* Jan, 8 Oct 2014, 21 Sep 2015, 29* Aug 2016; A. Sahnawt 15* Oct 2013, 16 Jan 2014; A. Tobruq 22 Sep 2015, 18 Jan 2017; A. Hamran 20 Sep 2009, 16* Oct 2013, 8* Oct 2014, 23 Sep 2015, 30* Aug 2016, 18 Jan, 29 Mar 2017; A. Razat 29* Aug 2016, 18 Jan 2017. OO: 1 site (Wiprächtiger 2010), 1 site (Allodonata/Paul Schrijvershof), 3 sites (E & E). Dry Slopes: 1 site (WP 1991). 2 sites (L et al. 2017). C & C: Mudhay 27 Mar 2017. OO: 1 site (Allodonata/Paul Schrijvershof).

Apparent status: Common Monsoon Slopes.

***Orthetrum ransonnetii* (Brauer, 1865) LC**

Coastal plains: 1 site (L et al. 2017). Monsoon Slopes: 1 site (Ball 2014). 1 site (L et al. 2017). Dry Slopes: 1 site (WP 1991). 1 site (L et al. 2017).

Apparent status: Rare.

***Orthetrum sabina* (Drury, 1773) LC**

Coastal plains: 1 site (Waterston 1980). 1 site (WP 1991). 3 sites (SD 1997). 2 sites (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 12 sites (L et al. 2017). C & C: W. Ataran 31 Aug 2016; K. Rawri 17 Jan 2014, 29 Aug 2016; K. Taqah 14, 17 Jan 2014, 6 Oct 2014, 22 Sep 2015, 27,

30 Aug 2016, 28 Mar 2017; K. Dahariez 27 Aug 2016; K. Muhit 27 Aug 2016; K. Mudam 7 Oct 2014. OO: 2 sites (Allodonata/Ton Elzerman). Monsoon Slopes: 1 site (WP 1991). 1 site (SD 1997). 2 sites (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 7 sites (L et al. 2017). C & C: W. Ghadit 15, 17 Jan 2017; W. Darbat 15 Jan 2014, 21 Sep 2015; A. Tobruq 22* Sep 2015, 18* Jan 2017, 25 Mar 2017; A. Hamran 20 Sep 2009, 16 Oct 2013, 23 Sep 2015, 30 Aug 2016; A. Razat 29 Aug 2016, 18 Jan 2017; A. Sahnawt 15 Oct 2013; W. Ashawq 24 Sep 2015. OO: 1 site (E & E). Dry Slopes: 1 site (WP 1991). 2 sites (L et al. 2017). C & C: Hanging Gardens 9 Oct 2014; Mudhay 28* Aug 2016, 27 Mar 2017; Mazyunah waste water 27 Mar 2017; Mazyunah farm 27 Mar 2017. OO: 1 site (E & E). Northern Desert: 1 site (SD 1997). 1 site (WK 2008). 2 sites (L et al. 2017). C & C: Muntasar 5 Oct 2014, 20 Sep 2015, 14 Jan 2017; Qitbit 26 Aug 2016. OO: 1 site (E & E).

Apparent status: Common.

***Crocothemis erythraea* (Brullé, 1832) LC**

Coastal plains: 1 site (Waterston 1980). 2 sites (WP 1991). 2 sites (SD 1997). 2 sites (WK 2008). 1 site (Ball 2014). 2 sites (SI 2016). 14 sites (L et al. 2017). C & C: K. Samhal 25 Sep 2015; K. Taqah 16, 17 Oct 2013, 14, 16 Jan 2014, 6 Oct 2014, 22 Sep 2015, 27*, 30 Aug 2016, 16 Jan, 26 Mar 2017; K. Rawri 17 Jan 2014; K. Mudam 7 Oct 2014. OO: 2 sites (Allodonata/Ton Elzerman), 1 site (E & E). Monsoon Slopes: 1 site (WP 1991). 6 sites (SD 1997). 2 sites (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 10 sites (L et al. 2017). C & C: W. Ghadit 15, 17 Jan, 25* Mar 2017; W. Darbat 17 Sep 2009, 17 Oct 2013, 15 Jan, 8 Oct 2014, 21 Sep 2015, 16 Jan 2017; A. Sahnawt 15 Oct 2013, 16 Jan 2014; A. Tobruq 22* Sep 2015, 18* Jan 2017; A. Hamran 20 Sep 2009, 16 Oct 2013, 8* Oct 2014, 23 Sep 2015, 30 Aug 2016; A. Razat 29 Aug 2016; W. Ashawq 7 Oct 2014, 24 Sep 2015. OO: 1 site (E & E). Dry Slopes: 1 site (WP 1991). 1 site (WK 2008). 2 sites (L et al. 2017). C & C: Hanging Gardens 9 Oct 2014, 25 Sep 2015, 26 Feb 2016, 19 Jan 2017; Mudhay 28 Aug 2016; Mazyunah farm 27 Mar 2017. OO: 1 site (Allodonata/Paul Schrijvershof). Northern Desert: 3 sites (L et al. 2017). C & C: Muntasar 20 Sep 2015, 14 Jan 2017. OO: 1 site (Allodonata/Ton Elzerman), 1 site (Allodonata/Vink), 1 site (E & E).

Apparent status: Common.

***Crocothemis sanguinolenta* (Burmeister, 1839) LC**

Coastal plains: 6 sites (L et al. 2017). Monsoon Slopes: 2 sites (SD 1997). 1 site (WK 2008). 2 sites (SI 2016). 5 sites (L et al. 2017). Dry Slopes: 1 site (L et al. 2017). OO: 1 site (Allodonata/Paul Schrijvershof).

Image 10. *Nesciothemis farinosa* Ain Razat 29 August 2016. Blue thorax and black eyes, dark abdomen (S6–10), dark legs and wing veins.

Image 11. *Rhyothemis semihyalina* Khor Taqah 6 October 2014. Shows clear (here appear beige) triangles within the hind wing patches.

Image 12. *Rhyothemis semihyalina* Khor Taqah 22 September 2015. Large purple/blue iridescent hind-wing patches.

Apparent status: Rare.

***Diplacodes lefebvrii* (Rambur, 1842) LC**

Coastal plains: 1 site (Waterston 1980). 2 sites (WP 1991). 6 sites (SD 1997). I site (WK 2008). 1 site (Ball 2014). 13 sites (L et al. 2017). C & C: W. Ataran 31 Aug 2016; K. Samhal 25 Sep 2015; K. Taqah 16, 17 Oct 2013, 14, 16, 17 Jan 2014, 6 Oct 2014, 22 Sep 2015, 27, 30 Aug 2016, 28 Mar 2017. OO: 1 site (E & E). Monsoon Slopes: I site (WP 1991). 1 site (SD 1997). I site (Ball 2014). 1 site (SI 2016). 6 sites (L et al. 2017). C & C: W. Ghadit 15, 17* Jan, 25 Mar 2017; W. Darbat 8 Oct 2014; A. Sahnawt 15 Oct 2013; A. Razat 29 Aug 2016; W. Ashawq 7* Oct 2014, 24* Sep 2015. OO: 1 site (Wiprächtiger 2010), 1 site (E & E). Dry Slopes: 1 site (WP 1991). 2 sites (L et al. 2017). OO: 1 site (Allodonata/Paul Schrijvershof). Northern Desert: 2 sites (L et al. 2017). C & C: Muntasar 5 Oct 2014, 20 Sep 2015. OO: 3 sites (Allodonata/Ton Elzerman).

Apparent status: Common, sometimes in large numbers.

***Sympetrum fonscolombii* (Selys, 1840) LC**

Monsoon Slopes: 1 site (SI 2016). Northern Desert: 1 site (L et al. 2017).

***Trithemis annulata* (Palisot de Beauvois, 1807) LC**

Coastal plains: 1 site (SD 1997). 3 sites (WK 2008). 1 site (Ball 2014). 5 sites (L et al. 2017). C & C: K. Taqah 16 Jan, 26, 28 Mar 2017. OO: 1 site (Allodonata/Ton Elzerman), 1 site (Allodonata/Paul Schrijvershof). Monsoon Slopes: 2 sites (Waterston 1980). 5 sites (WP 1991). 2 sites (SD 1997). 2 sites (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 9 sites (L et al. 2017). C & C: Wadi Ghadit 15, 17 Jan, 25 Mar 2017; W. Darbat 19 Sep 2009, 17 Oct 2013, 15 Jan 2014, 8* Oct 2014, 21 Sep 2015, 29 Aug 2016, 16 Jan 2017; A. Sahnawt 15 Oct 2013, 16 Jan 2014; A. Hamran 16 Oct 2013, 8 Oct 2014, 23 Sep 2015, 30 Aug 2016, 18 Jan, 29 Mar 2017; A. Tobruq 22, 24 Sep 2015, 29 Aug 2016, 18 Jan 2017; A. Razat 29 Aug 2016, 18 Jan 2017. OO: 1 site (E & E). Dry Slopes: 1 site (WP 1991). 1 site (L et al. 2017).

Apparent status: Common Monsoon Slopes, uncommon Coastal Plains.

***Trithemis arteriosa* (Burmeister, 1839) LC**

Coastal plains: 1 site (Ball 2014). 4 sites (L et al. 2017). OO: 1 site (Allodonata/Ton Elzerman). Monsoon Slopes: 4 sites (WP 1991). 3 sites (SD 1997). 2 sites (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 9 sites (L et al. 2017). C & C: W. Ghadit 17 Jan 2017; A. Razat 16 Jan 2014, 18 Jan 2017; A. Tobruq 22 Sep 2015, 18 Jan 2017; A. Hamran 20 Sep 2009, 16 Oct 2013, 8 Oct 2014, 23 Sep 2015, 30 Aug 2016, 18 Jan, 29 Mar 2017; A. Sahnawt 15 Oct 2013, 16 Jan 2014. OO: 1 site (Allodonata/Paul Schrijvershof). Dry Slopes: 2 sites (WP 1991). 1 site (SD 1997). 1 site (WK 2008). 3 sites (L et al. 2017). C & C: Hanging Gardens 19 Jan 2017, Mudhay 28 Aug 2016, 27 Mar 2017.

Apparent status: Common Monsoon Slopes, uncommon elsewhere.

***Trithemis kirbyi* Selys, 1891 LC**

Coastal plains: 1 site (L et al. 2017). Monsoon Slopes: 4 sites (L et al. 2017).

***Rhyothemis semihyalina* (Desjardins, 1835) EN**

Coastal plains: 2 sites (Waterston 1980). 3 sites (WP 1991). 3 sites (SD 1997). 1 site (WK 2008). 1 site (Reimer 2009). 2 sites (SI 2016). 11 sites (L et al. 2017). C & C: W. Ataran 31 Aug 2016; K. Taqah 16, 17 Oct 2013, 14 Jan, 6 Oct 2014 (Image 11), 22 Sep 2015 (Image 12), 27*, 31 Aug 2016, 26, 28 Mar 2017; Al Baleed 28 Mar 2017. OO: 1 site (E & E). Monsoon Slopes: 2 sites (WP 1991). 1 site (SD 1997). 1 site (Ball 2014). 1 site (SI 2016). 6 sites (L et al. 2017). C & C: W. Ghadit 25 Mar 2017; W. Darbat 21 Sep 2015; W. Ashawq 7 Oct 2014, 24* Sep 2015.

Apparent status: Common Coastal Plains and Monsoon Slopes.

***Pantala flavescens* (Fabricius, 1798) LC**

Coastal plains: 4 sites (WP 1991). 3 sites (SD 1997). 6 sites (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 5 sites (L et al. 2017). C & C: K. Taqah 27, 30 Aug 2016; K. Muhit 27 Aug 2016. Monsoon Slopes: 1 site (SD 1997). 3 sites (WK 2008). 1 site (Ball 2014). 1 site (SI 2016). 5 sites (L et al. 2017). C & C: W. Ghadit 15, 17* Jan 2017; W. Darbat 17 Oct 2013, 8 Oct 2014, 21* Sep 2015, 29 Aug 2016; A. Tobruq 22 Sep 2015; A. Hamran 23 Sep 2015, 30 Aug 2016; A. Razat 29 Aug 2016. Dry Slopes: 1 site (WP 1991). 1 site (WK 2008). 1 site (L et al. 2017). Northern Desert: 2 sites (WK 2008). 3 sites (L et al. 2017). C & C: Muntasar 5 Oct 2014, 14 Jan 2017. OO: 1 site (E & E).

Apparent status: Common.

***Tholymis tillarga* (Fabricius, 1798) DD**

Coastal plains: 1 site (L et al. 2017). Monsoon Slopes: 1 site (Ball 2014).

Apparent status: Rare.

***Tramea basilaris* (Palisot de Beauvois, 1817) NE**

Coastal plains: 3 sites (L et al. 2017). Monsoon Slopes: 3 sites (L et al. 2017). Northern Desert: 1 site (L

Image 13. Male *Tramea limbata* Wadi Ghadit 15 January 2017. Wing bases dark red either side of thorax. Dark dorsal abdominal terminal segments 8–10 and long anal appendages. Typical pennant pose.

Image 14. Male *Tramea limbata* Wadi Ghadit, 17 January 2017. Wing bases dark red either side of thorax. Dark terminal abdominal segments 8–10 and long dark anal appendages. Pennant pose.

Image 15. Mating wheel *Tramea limbata* Ain Tobruq 18 January 2017. Wing patches visible on both. Male red abdomen with black on S8–9 and female with darker abdomen.

et al 2017).

Apparent status: Rare.

***Tramea limbata* (Desjardins, 1835) NT**

Coastal plains: 3 sites (SI 2016). 1 site (L et al. 2017). Monsoon Slopes: 2 sites (WP 1991). 1 site (SD 1997). 1 site (Reimer 2009). 1 site (SI 2016). 6 sites (L et al. 2017). C & C: W. Ghadit 15 (Image 13), 17* Jan (Image 14), 25 Mar 2017; W. Darbat 16 Sep 2009, 15 Jan 2014, 8 Oct 2014, 21* Sep 2015, 16 Jan 2017; A. Tobruq 18* Jan 2017 (Image 15). OO: 1 site (Allodonata/Geert De Knijf).

Apparent status: Common Monsoon Slopes.

***Acisoma variegatum* Kirby, 1898**

sensu Mens et al. (2016)

Coastal plains: "widespread… in wet and dry wadis during August 1981" (WP 1991). 1 site (SD 1997). Monsoon Slopes: 2 sites (WP 1991). 1 site (SD 1997). 1 site (SI 2016). C & C: W. Ghadit 17 Jan, 25* Mar 2017 (Image 16, 17). OO: 1 site (E & E, Image 18).

Apparent status: Local and rare Monsoon Slopes.

***Macrodiplax cora* (Kaup in Brauer, 1867) NT**

Coastal plains: 1 site (Schneider & Krupp 1993, "… seems to be quite common around Salalah town."). 2 sites (SD 1997). 2 sites (WK 2008). 1 site (Reimer 2009). 1 site (Ball 2014). 2 sites (SI 2016). 14 sites (L et al. 2017). C & C: K. Ash Shuwaymiyyah 9 Oct 2014, 25 Sep 2015; K. Sanaq 31 Aug 2016; W. Ataran 31 Aug 2016; K. Samhal 25* Sep 2015; K. Rawri 17 Jan 2014, 23 Sep 2015, 29 Aug 2016; K. Taqah 17 Oct 2013, 14, 16 Jan 2014, 6 Oct 2014, 22 Sep 2015, 26, 28 Mar 2017; K. Dahariez 27 Aug 2016; K. Muhit 27 Aug 2016; K. Mudam 7 Oct 2014. OO: 1 site (Wiprächtiger 2010), 1 site (Allodonata/Paul Schrijvershof), 1 site (E & E). Monsoon Slopes: 1 site (Ball 2014). 4 sites (L et al. 2017). C & C: W. Darbat 15 Jan 2014, 21 Sep 2015; W. Ashawq 7 Oct 2014, 24 Sep 2015. OO: 1 site (Allodonata/Paul Schrijvershof). Dry Slopes: 1 site (L et al. 2017). C & C: Hanging Gardens 9 Oct 2014. Northern Desert: 2 sites (L et al. 2017).

Apparent status: Common Coastal Plains, uncommon or rare elsewhere.

***Selysiothemis nigra* (Vander Linden, 1825) LC**

Coastal plains: 1 site (L et al. 2017). Monsoon Slopes: 1 site (L et al. 2017).

***Urothemis edwardsii* (Selys in Lucas, 1849) EN**

Coastal plains: 2 sites (WP 1991). 1 site (SD 1997). 2 sites (SI 2016). 5 sites (L et al. 2017). C & C: K. Taqah 16, 17 Oct 2013, 14 Jan 2014, 6 Oct 2014 (Image 19), 22 Sep

Image 16. Male *Acisoma variegatum* Wadi Ghadit 25 March 2017. Blue eyes, blue abdomen with black dorsal line, white anal appendages, long pale pterostigmas on wings.

Image 17. Male *Acisoma variegatum* Wadi Ghadit 25 March 2017. Abdomen swollen at base to S4. No ventral 'step' between S5 and long S6, slender to tip. Distinctive abdominal pattern.

Image 18. Female *Acisoma variegatum* Wadi Ghadit 1 October 2016. Slight orange markings on wings at thorax.

Image 19. Immature *Urothemis edwardsii* Khor Taqah 6 October 2014.

Image 20. Male *Urothemis edwardsii* Wadi Ashawq 7 October 2014. Dark wing patches and blue abdomen.

Image 21. Mating pair tandem *Urothemis edwardsii* Wadi Ashawq 7 October 2014

Table 2. Sites in Dhofar, organised by geographic region, at which the authors recorded odonates, 2009–2017. A. = Ain (spring), K. = Khor (coastal lagoon), W. = Wadi (valley).

Site name, GPS coordinates, brief description, elevation (m A.S.L)	Species seen at site by us (number visits)
Coastal Plains	
K. Ash Shuwaymiyyah 17.8827° N, 55.6028° E. Brackish pools, beach side of main road at southern entry to town (10).	*Ischnura senegalensis, Macrodiplax cora* (2 visits).
K. Sanaq 17.4334° N, 55.2501° E. Large khor, 22 km north of Hasik at foot of cliffs, reeds, sedges and extensive palmerie (20).	*Macrodiplax cora* (1 visit).
W. Ataran 17.4550° N, 55.2531° E. Wadi with reeds at seaward side of new coast road 2 km north of Hasik petrol station (15).	*Orthetrum sabina*, *Diplacodes lefebvrii, Rhyothemis semihyalina, Macrodiplax cora* (1 visit).
K. Samhal 17.3502° N, 55.2835° E. 12 km south of Hasik, seaward side of new coast road, wadi outflow from Jebel Qamar, brackish with sedges and grasses (15).	*Crocothemis erythraea, Diplacodes lefebvrii, Macrodiplax cora* (1 visit).
K. Taqah 17.0334° N, 54.3668° E. Inlet, reedbeds, pools, open grass (14).	*Agriocnemis pygmaea, Ischnura senegalensis, Pseudagrion decorum, Ceriagrion glabrum*, *Anax imperator, Orthetrum sabina*, *Crocothemis erythraea, Diplacodes lefebvrii, Trithemis annulata, Rhyothemis semihyalina, Pantala flavescens, Macrodiplax cora, Urothemis edwardsii* (11 visits).
K. Rawri 17.0335° N, 54.4169° E. Extensive lagoon with open sandy areas and reeds (7).	*Ischnura senegalensis, Pseudagrion decorum, Orthetrum sabina*, *Crocothemis erythraea, Macrodiplax cora* (3 visits).
K. Dahariez 17.0002° N, 54.1668° E. Eastern outskirts of Salalah, extensive lagoon, mangroves and reeds (15).	*Orthetrum sabina*, *Macrodiplax cora* (1 visit).
Al Baleed park 17.0084° N, 54.1389° E. Archaeological site, gardens, khor with reeds and hotel (6).	*Ischnura senegalensis, Rhyothemis semihyalina* (2 visits).
K. Muhit 16.9669° N, 54.0002° E. Small pool, scrubby vegetation west of Hilton Hotel grounds (17).	*Ischnura senegalensis, Orthetrum sabina*, *Pantala flavescens, Macrodiplax cora* (1 visit).
K. Mudam 16.8835° N, 53.8168° E. Extensive khor inland from sea east of Mugsayl, low vegetation with grass in water (20).	*Ischnura senegalensis, Pseudagrion decorum, Orthetrum sabina*, *Crocothemis erythraea, Macrodiplax cora* (1 visit).
Monsoon Slopes	
W. Ghadit 17.1423° N, 54.4695° E. Tributary wadi to W. Darbat with spring fed pool (320).	*Azuragrion nigridorsum, Ceriagrion glabrum*, *Pseudagrion decorum, Anax imperator, A. ephippiger, Lindenia tetraphylla, Nesciothemis farinosa, Orthetrum chrysostigma, O. sabina, Crocothemis erythraea, Diplacodes lefebvrii, Trithemis annulata, T. arteriosa, Rhyothemis semihyalina, Pantala flavescens, Tramea limbata, Acisoma variegatum* (2 visits).
W. Darbat 17.1047° N, 54.4526° E. Wide wadi, seasonal river and pools, acacias (205).	*Azuragrion nigridorsum, Ischnura senegalensis, Pseudagrion decorum, P. sublacteum, Anax imperator, Lindenia tetraphylla, Paragomphus sinaiticus, Nesciothemis farinosa, Orthetrum chrysostigma, O. sabina, Crocothemis erythraea, Diplacodes lefebvrii, Trithemis annulata, Rhyothemis semihyalina, Pantala flavescens, Tramea limbata, Macrodiplax cora, Urothemis edwardsii* (4 visits).
A. Tobruq 17.1000° N, 54.3168° E. Concrete falaj and pool from spring, outflow into muddy ford, pools with grasses, shrubs and trees (110).	*Azuragrion nigridorsum, Ceriagrion glabrum, Pseudagrion sublacteum, Anax imperator, Nesciothemis farinosa, Orthetrum chrysostigma, O. sabina, Crocothemis erythraea, Trithemis annulata, T. arteriosa, Pantala flavescens, Tramea limbata, Zygonyx torridus* (3 visits).
A. Hamran 17.0836° N, 54.2669° E. Spring, falaj, pools, palms (85).	*Pseudagrion decorum, P. sublacteum, Paragomphus sinaiticus, Nesciothemis farinosa, Orthetrum chrysostigma, O. sabina, Crocothemis erythraea, Trithemis annulata, T. arteriosa, Pantala flavescens, Urothemis edwardsii, Zygonyx torridus* (6 visits).
A. Razat 17.1169° N, 54.2334° E. Gardens, falaj, stream with small rapids, large car park with trees and scrub (90).	*Anax imperator, Nesciothemis farinosa, Orthetrum chrysostigma, O. sabina, Crocothemis erythraea, Diplacodes lefebvrii, Trithemis annulata, T. arteriosa, Pantala flavescens, Zygonyx torridus* (2 visits).
A. Sahnawt 17.1335° N, 54.1669° E. Spring, pools and rapids, falaj (130).	*Azuragrion nigridorsum, Ischnura senegalensis, Pseudagrion decorum, P. sublacteum, Anax imperator, Paragomphus sinaiticus, Orthetrum chrysostigma, O. sabina, Crocothemis erythraea, Diplacodes lefebvrii, Trithemis annulata, T. arteriosa, Zygonyx torridus* (2 visits).
W. Ashawq 16.8834° N, 53.7668° E. Spring-fed wadi pool near cliff, 1–2 km 'upstream' from Mugsayl beach, waterside vegetation with reeds, sedges and grass, extensive algal mats (41).	*Azuragrion nigridorsum, Ischnura senegalensis, Pseudagrion decorum, Anax imperator, Orthetrum sabina, Crocothemis erythraea, Diplacodes lefebvrii, Rhyothemis semihyalina, Macrodiplax cora, Urothemis edwardsii* (2 visits).
Dry Slopes	
Hanging Gardens 17.9336° N, 55.5266° E. Pools above main floor of W. Ash Shuwaymiyyah *c*10 km from Ash Shuwaymiyyah town and coast (70).	*Azuragrion somalicum, Ischnura senegalensis, Anax imperator, Orthetrum sabina, Crocothemis erythraea, Trithemis arteriosa, Macrodiplax cora, Urothemis thomasi* (4 visits).
Mudhay 17.3668° N, 53.3500° E. Pool/large tank near picnic area at head of palmerie at south end of village (540).	*Ischnura evansi, I. senegalensis, Anax parthenope, Orthetrum chrysostigma, O. sabina, Crocothemis erythraea, Trithemis arteriosa* (2 visits).

Mazyunah waste water 17.8501° N, 52.6336° E. Waste water site (520).	*Ischnura senegalensis, Orthetrum sabina* (1 visit).
Mazyunah farm 17.8835° N, 52.6335° E. Farmland (502).	*Ischnura senegalensis, Anax parthenope, Orthetrum sabina, Crocothemis erythraea* (1 visit).
Northern Desert	
Muntasar 19.4500° N, 54.6167° E. Palmerie, runoff overflow pools from well (136).	*Anax ephippiger, Orthetrum sabina, Crocothemis erythraea, Diplacodes lefebvrii, Pantala flavescens* (4 visits).
Qitbit oasis 19.1501° N, 54.5001° E. Small spring adjacent to trees near the larger oasis and pool c. 2 km east from resthouse (165).	*Orthetrum sabina* (1 visit).

2015, 27 Aug 2016, 28 Mar 2017. OO: 1 site (Allodonata/Paul Schrijvershof), 1 site (E & E). Monsoon Slopes: 1 site (Waterston 1980). 1 site (WP 1991). 1 site (SD 1997). 1 site (SI 2016). 2 sites (L et al. 2017). C & C: W. Darbat 8 Oct 2014, 21 Sep 2015; A. Hamran 16 Oct 2013; W. Ashawq 7* Oct 2014 (Image 20, 21), 24 Sep 2015. Dry Slopes: 1 site (L et al. 2017).

Apparent status: Local and uncommon Coastal Plains and Monsoon Slopes.

***Urothemis thomasi* Longfield, 1932 EN**

Coastal plains: 1 site (SD 1997). Monsoon Slopes: 1 site (WP 1991). 2 sites (SI 2016). 4 sites (L et al. 2017). Dry Slopes: 1 site (WP 1991). C & C: Hanging Gardens 9 Oct 2014 (Image 22), 25 Sep 2015 (Images 23, 24).

Apparent status: Local, uncommon.

***Zygonyx torridus* (Kirby, 1889) LC**

Monsoon Slopes: 1 site (Waterston 1980). 1 site (WP 1991). 2 sites (SD 1997). 2 sites (WK 2008). 1 site (SI 2016). 6 sites (L et al. 2017). C & C: A. Sahnawt 15 Oct 2013, 16 Jan 2014; A. Hamran 20* Sep 2009, 16 Oct 2013, 23 Sep 2015 (Image 25), 30* Aug 2016, 18 Jan, 29* Mar 2017; A. Tobruq 22 Sep 2015; A. Razat 29 Aug 2016, 18 Jan 2017. OO: 1 site (Räz & Wiprächtiger 2012), 1 site (Allodonata/Ton Elzerman).

Apparent status: Common Monsoon Slopes where flowing water.

DISCUSSION

Of the 44 species recorded from Oman, 37 have been noted as occurring in Dhofar. We recorded and photographed eight zygopteran and 20 anisopteran species in this area. Of the 37 species recorded, *Arabineura khalidi* and *Arabicnemis caerulea* have both been recorded on one occasion only (Lambret et al. 2017), *Sympetrum fonscolombii* twice (Schneider & Ikemeyer 2016; Lambret et al. 2017) and *Trithemis kirbyi* five times (Lambret et al. 2017). *Selysiothemis nigra* has been recorded on two dates including a record of 10 individuals (Lambret et al. 2017). *Arabineura khalidi* and *Arabicnemis caerulea* both occur in the Hajar mountains of northern Oman (and according to Schneider & Nasher (2013), the latter is also known from the Hadhramout in Yemen). *Trithemis kirbyi* is very common in northern Oman (Cowan & Cowan 2017) and has also been recorded in the Hadhramout (Schneider & Nasher 2013). Species of odonate recorded for Dhofar are mainly regionally Least Concern though *Arabineura khalidi*, *Azuragrion nigridorsum, Rhyothemis semihyalina, A. variegatum* (under its regionally incorrect name *Acisoma panorpoides ascalaphoides*), *Urothemis edwardsii* and *U. thomasi* are regionally Endangered. *Agriocnemis pygmaea* is considered to be Critically Endangered and *Pseudagrion decorum, Tramea limbata* and *Macrodiplax cora* are regionally Near Threatened (García et al. 2015). *Azuragrion somalicum* is classed regionally as Vulnerable.

Odonate species listed for Oman that have only been recorded in Dhofar are *Azuragrion nigridorsum, A. somalicum, Pseudagrion sublacteum, Nesciothemis farinosa, Rhyothemis semihyalina, Tholymis tillarga, Acisoma variegatum* and *Urothemis edwardsii.* All also occur in Afrotropical Africa (Dijkstra & Clausnitzer 2014, Dijkstra 2016). We have recorded each of them except *T. tillarga. Tholymis tillarga* was added to the Dhofar and Oman lists by Ball (2014), with a record of a male and an ovipositing female in Wadi Sayq, which is close to the Yemeni border, though no ID evidence was presented. Lambret et al. (2017) recorded *T. tillarga*, a record of two individuals on 11 November 2010, at a different site from Ball's (2014), but presented no evidence except "observed at close distance". *T. tillarga* is apparently a migrant (Lambret et al. 2017), occurs in India and Africa, and is crepuscular (Subramanian 2009, Djikstra & Clausnitzer 2014) and may well have been overlooked in Dhofar by other observers. *Tramea basilaris* has been recorded on several occasions in Dhofar by Lambret et al. 2017. It is probably a rare migrant to Oman (cf. Reimer 2011).

Image 22. Old female *Urothemis thomasi* Hanging Gardens, Wadi Ash Shuwaymiyyah, 9 October 2014. Pale/very faded thorax and abdomen. Faded orange wing patches. Dark rear pointed markings dorsally on abdomen (as male, see Images 23 and 24).

Image 23. Male *Urothemis thomasi* Hanging Gardens, Wadi Ash Shuwaymiyyah, 25 September 2015. Bicoloured orange patches on hind wings.

Image 24. Male *Urothemis thomasi* Hanging Gardens, Wadi Ash Shuwaymiyyah, 25 September 2015. Thoracic stripes, pale pink frons, bicoloured orange patches on hind wings and black pointed markings dorsally on red abdomen.

Image 25. Male *Zygonyx torridus* Ain Hamran 23 September 2015. 'Hanging' early morning.

Included are our records of *Acisoma variegatum* from Wadi Ghadit (Images 16–18). Until Schneider & Ikemeyer's (2016) records, this species (recorded as *A. panorpoides ascalaphoides*) had not been recorded in Dhofar (and Oman) for many years. It now seems to be locally resident in Wadi Darbat and its upper tributary Wadi Ghadit. We recorded mating pairs ovipositing in some of the pools of Wadi Ghadit.

Ball (2014) indicated that the most species rich areas within Wadi Sayq, studied intensively in February 2012 and February/March 2013, were two areas of freshwater pools (his sites E and F, both in our Monsoon Slopes) inland from more saline, coastal sites. Our observations indicate that the freshwater sites (ains, streams/aflaj, pools and wadis) in Monsoon Slopes have the greatest number of species: Wadi Darbat (we recorded 18 species), Wadi Ghadit (17), Ain Sahnawt (13), Ain Hamran (12), Wadi Ashawq (10). Khor Taqah was our most prolific coastal site (we recorded 13 species).

Azuragrion somalicum was recorded on each of our visits, including mating, to the Hanging Gardens site in Wadi Ashuwayymiyah, c. 10km from the sea. This site has been subject to recreational 'improvements' that have removed the edge of reeds surrounding the pool; however, *A. somalicum* was spotted most recently by us

in the adjacent stream in spite of visible pollution.

Before 2013, when it was discovered in the United Arab Emirates (Feulner & Judas 2013), *Urothemis thomasi* had been mostly recorded in Oman (Schneider 1988; Waterston & Pittaway 1991; Schneider & Dumont 1997). It does seem to be present occasionally at rocky sites, usually inland, such as Wadi Sayq (Ball 2014; Schneider & Ikemeyer 2016) and the Hanging Gardens of Wadi Ash Shuwaymiyyah. Males are easy to overlook because of their initial similarity to other red dragonflies e.g. *Trithemis kirbyi*. Image 22 of the present paper shows an old female (a male was also present on the same visit). *Urothemis thomasi* has been recorded several times in northern Oman (Schneider 1988; Schneider & Dumont 1997; Cowan & Cowan 2017; Lambret et al. 2017). *Paragomphus sinaiticus* occurs at some ains in Dhofar (Hamran, Sawnaut) and also in Wadi Darbat, seeming to prefer rockier areas. It occurs commonly in the Hajar mountains of northern Oman (Cowan & Cowan 2017). *Lindenia tetraphylla* and *Tramea limbata* seem to be resident at both Wadi Darbat and Wadi Ghadit, with 10 records or more regularly available since 1993 and 1981, respectively. The latter species has also been seen by us at Ain Razat with mating at Ain Tobruq and Wadi Ghadit.

In Dhofar *Rhyothemis semihyalina* and *Urothemis edwardsii* usually occur at sites quite close to the sea, e.g., at Khor Taqah in large numbers, and more occasionally (not seen there by ourselves), at nearby Khor Rawri. The furthest north occurrence for *R. semihyalina* was at the Coastal Plains (one of our regions) site Wadi Ataran (just north of Hasik). There were occasional more southerly sightings slightly more inland e.g. at Wadi Ashawq and Wadi Darbat. In his intensive study of Wadi Sayq, Ball (2014) surprisingly had only one *R. semihyalina* and did not record *U. edwardsii* but these are regulars further east in similar geographic locations. *Paragomphus genei* (locally common in the Hajar mountains of northern Oman), *Orthetrum julia* and *O. caffrum* do not seem to occur in Dhofar but have been recorded to the west in Yemen (Schneider & Krupp 1993; Schneider & Nasher 2013).

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