



# International Dragonfly Fund - Report

Journal of the  
International Dragonfly Fund

ISSN 1435-3393

## Content

Ebrahimi, Akram, Hassan Mohammadian and Seyed Massoud Madjdzadeh

A note on libellulid dragonflies (Odonata: Libellulidae) of Khabr National  
Park (Kerman Province, South-East Iran)

1-9

Volume 69 2014

**The International Dragonfly Fund (IDF) is a scientific society founded in 1996 for the improvement of odonatological knowledge and the protection of species.**

**Internet: <http://www.dragonflyfund.org/>**

**This series intends to publish studies promoted by IDF and to facilitate cost-efficient and rapid dissemination of odonatological data.**

**Editorial Work: Martin Schorr, Milen Marinov and Wolfgang Schneider**

**Layout:** Martin Schorr

**Indexed by Zoological Record,** Thomson Reuters, UK

**Home page of IDF:** Holger Hunger

Printing: ikt Trier, Germany

**Impressum: International Dragonfly Fund - Report - Volume 69**

- Date of publication: 04.03.2014
- Publisher: International Dragonfly Fund e.V., Schulstr. 7B, 54314 Zerf, Germany. E-mail: [oestlap@online.de](mailto:oestlap@online.de)
- Responsible editor: Martin Schorr

## **A note on libellulid dragonflies (Odonata: Libellulidae) of Khabr National Park (Kerman Province, South-East Iran)**

**Akram Ebrahimi<sup>1\*</sup>, Hassan Mohammadian<sup>2</sup> and Seyed Massoud Madjdzadeh<sup>3</sup>**

<sup>1</sup> Dept. of Biology, Faculty of Sciences, Shahid Bahonar University, Kerman, Iran

<sup>2</sup> Biodiversity Office, Department of Environment, Tehran, Iran

<sup>3</sup> Dept. of Biology, Faculty of Sciences, Shahid Bahonar University, Kerman, Iran

\*Corresponding author Email: [krmbrhm5@gmail.com](mailto:krmbrhm5@gmail.com)

### **Abstract**

In spring and summer 2008, the Odonata fauna of the Khabr National Park (Iran) was studied for the first time. Here, we present records of the representatives of family Libellulidae only. A total of twelve libellulid Odonata were found. Most of them are common species in Iran and other parts of Kerman province. Scarce Iranian species are *Trithemis arteriosa* and *Zygonyx torridus*.

### **Key words**

Odonata, Libellulidae, Khabr National Park, Kerman province, Iran.

### **Introduction**

The study of Odonata fauna of Iran has a long tradition; some basic information on Palaearctic species are found in publications on Iran (e.g. Selys-Longchamps 1887; Bartenev 1916, 1929; Martin 1912; Morton 1920). With the exception of Schmidt (1954) there is a gap in studying Iranian Odonata along a large period in the second part of the 20<sup>th</sup> century. More recent studies have been published by Blom (1982), Lohmann (1990, 1992), Heidari & Dumont (2002) or Ghahari et al. (2009). Heidari & Dumont (2002) claim for 95 species as the total species number for the country up to date. With 35 recorded species, family Libellulidae is the most common group all over Iran.

Own regional studies were realized in the beginning of the 21<sup>th</sup> century in the Kerman province in southwestern Iran and also includes some data from the region treated in this paper. The results of this paper focus on the Khabar National Park and



Ruchoon Wildlife refuge and condense records by visiting more localities than published in Ebrahimi et al. (2009).

### Study area

"With an area of 149,982 ha, Khabr National Park ( $28^{\circ}56'N$ ,  $56^{\circ}0.2'E$ ) is located in Kerman Province (Fig. 1) and covers a relatively vast extent of land from the high snow-cold and tree/shrub covered Mount Khabr to tropical plains. The altitude ranges of 1,040-3,860 m a.s.l. and mean annual precipitation of 200-300 mm and temperatures between  $9-21^{\circ}C$ . Climate and ecological factors resulted in arid and cold semi-arid conditions.

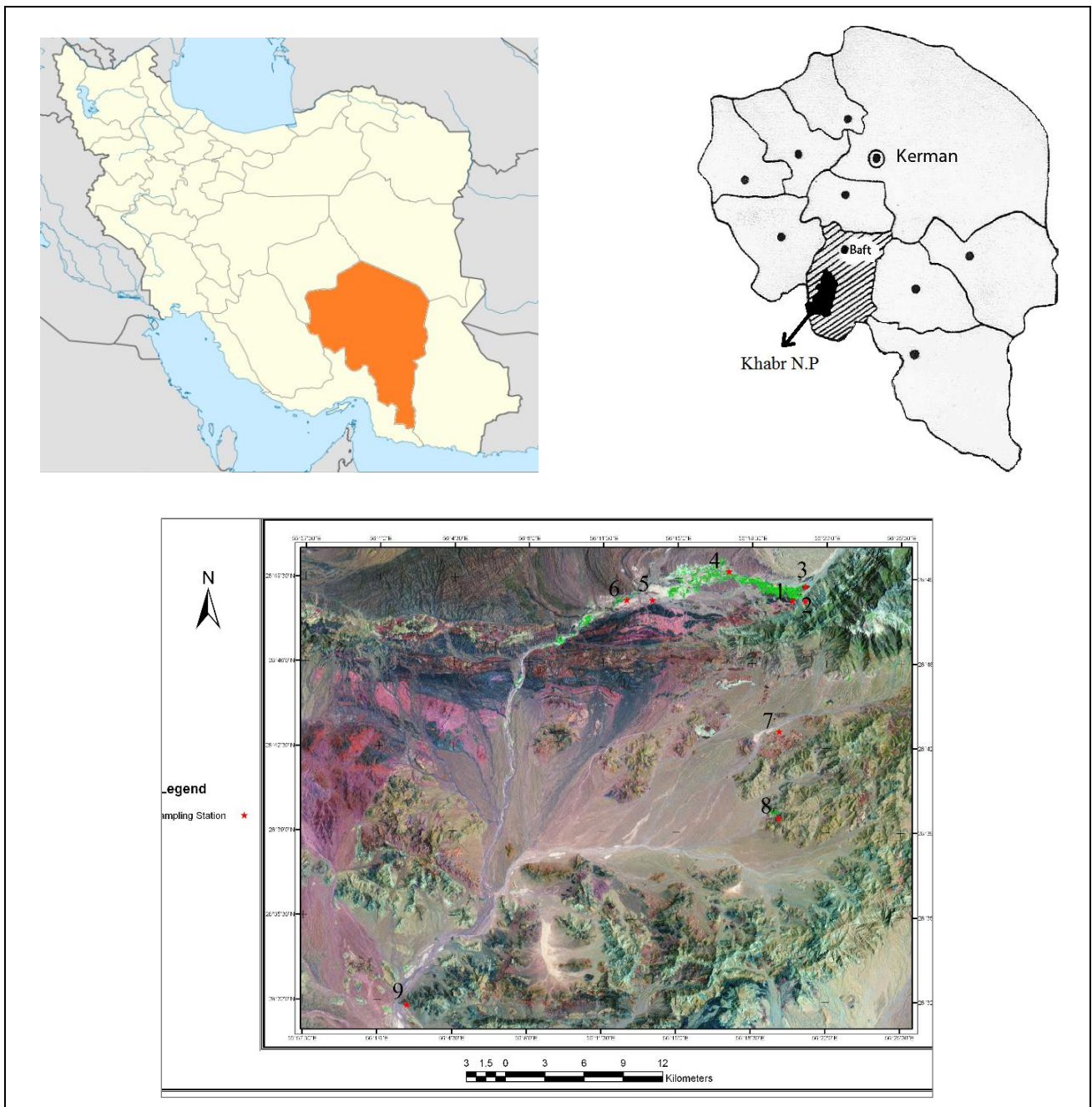
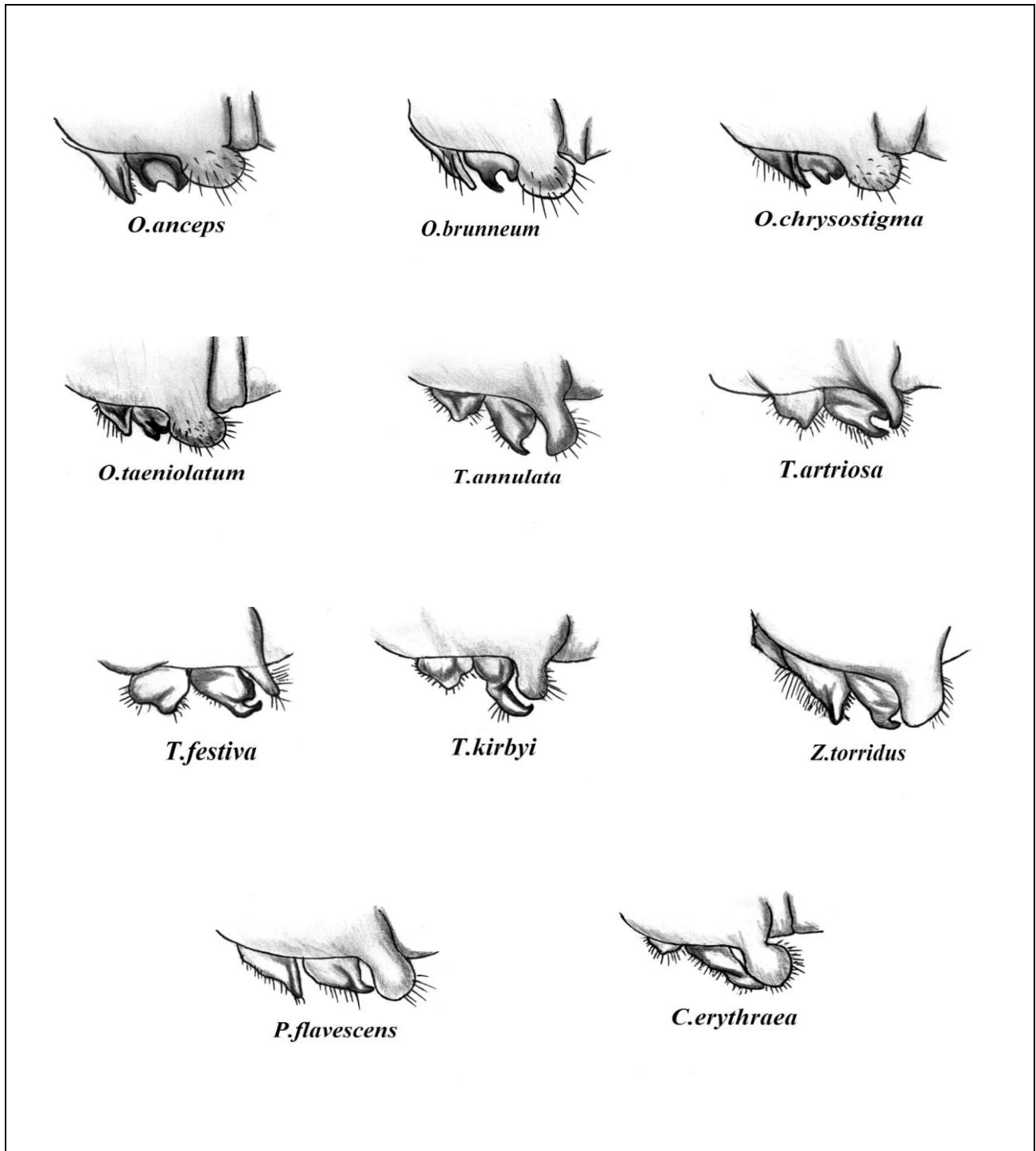


Figure 1. Position of Khabr National park in Kerman province and Iran with detailed map of studied area.





**Figure 2. Male secondary genitalia profiles of libellulid dragonfly species (except *O. ransonnetii*) recorded from Khabr National park, lateral view.**

Khabr Park had been managed as a protected area and, later on, as wildlife refuge since 1971 and was designated national park in 1999, thanks to its specific characteristics. KNP has been an excellent habitat because of the presence of 120 endemic plant species and some plant communities which are only found in this area. The wildlife of the park consists of 164 higher animal species; the Cheetah (*Acinonyx jubatus*, Mammalia: Felidae) is one of the endangered species of the region. "The existence of rocky mountains with permanent snow cover, interlinked peaks, the beautiful valley of Shah-evela-





yat, visit-worthy caves, frequent springs, adjacency of tropical and cold sites, beautiful forests, rich wildlife and proper access to roads have encouraged tourism, as well as scientific and research activities in the park." (Veisi et al. 2010)

## Materials and Methods

In spring and summer 2008 the second author collected Odonata in the Khabr National Park during several field trips. The specimens were collected by net and transferred to the biological collection of Shahid Bahonar University of Kerman, Iran. They were dried and prepared for study. Each species was mainly identified based on wing venation and male secondary genitals as shown in Fig. 2 on the base of the present keys and guides from Dijkstra & Lewington (2006) and Dumont, (1991). One female *Orthetrum* was identified as *Orthetrum ransonnetii* (Brauer, 1865) by comparison with preserved museum specimens and Dumont's (1991) keys.

## List of localities

- 1 Up the environmental Guard station of the Park: (28°48.7'N, 56°20.5'E), 2119 m a.s.l., stream
- 2 Khabr River in front of the Guard station: (28°48.8'N, 56°20.7'E), 2101 m a.s.l., river



Figure 3. Typical running water habitat in the Khabr National Park and suitable for the regional dragonfly fauna.



- 3 Khabr River lower than big pond: (28°49.3'N, 56°21'E), 2114 m a.s.l., river
- 4 Region between Khabr village and Deikhoieh village: (28°49.6'N, 56°17.5'E), 1973 m a.s.l., river
- 5 River in the valley between Deikhoieh and Ghalatoieh: (28°48.8'N, 56°13.5'E), 1753 m a.s.l., river
- 6 River between Deikhoieh and Ghalatoieh: (28°48.6'N, 56°12.3'E), 1723 m a.s.l., river
- 7 Kaht: (28°43.4'N, 56°19.7'E), 1960 m a.s.l., stream
- 8 Ruchoon: (28°39.8'N, 56°19.8'E), 1761 m a.s.l., river
- 9 Qanat (a spring) Shekarabe Orzuiyeh Wakilabad: (28°31.9'N, 56°02.1'E), 1208 m a.s.l., spring

## Results

A total of twelve libellulid Odonata were recorded during the study. Thus, about 35% of the libellulid Odonata of Iran were regionally represented. Most frequent species were *Orthetrum coerulescens anceps* and *Trithemis festiva* with records from five localities for each, followed by *Trithemis festiva* with five localities. *Orthetrum chrysostigma* was collected at four and *T. arteriosa*, *Pantala flavescens* and *Zygonyx torridus* respectively at three localities. *T. kirbyi* was collected at two localities. Rare species with only one locality for each are *O. brunneum*, *O. ransonnetii*, *O. taeniolatum*, *T. annulata*, and *Crocothemis erythraea*.

## List of Libellulidae species from Khabr National Park

- 1 *Orthetrum brunneum* (Fonsclombe, 1837)  
Locality 8: 10.vii.2008, 13.vii.2008, 21.viii.2008.
- 2 *Orthetrum coerulescens anceps* (Schneider, 1845)  
Locality 3: 14.vii.2008; Locality 5: 15.vii.2008; Locality 7: 2.vii.2008; Locality 8: 2.vii.2008, 6.vii.2008; Locality 9: 13.vii.2008.
- 3 *Orthetrum chrysostigma* (Burmeister, 1839)  
Locality 3: 6.vii.2008; Locality 5: 16.viii.2008; Locality 7: 2.vii.2008; Locality 8: 2.vii.2008
- 4 *Orthetrum ransonnetii* (Brauer, 1865).  
Locality 1: 31.v.2008.
- 5 *Orthetrum taeniolatum* (Schneider, 1845)  
Locality 5: 10.vii.2008, 16.viii.2008.



- 6 *Trithemis annulata* (Palisot de Beauvois, 1807)  
Locality 8: 9.vii.2008.
- 7 *Trithemis arteriosa* (Burmeister 1839)  
Locality 7: 2.vii.2008; Locality 8: 2.vii.2008; Locality 9: 13.vii.2008.
- 8 *Trithemis festiva* (Rambur, 1842)  
Locality 1: 31.v.2008; Locality 6: 10.vii.2008; Locality 7: 2.vii.2008; Locality 8: 9.vii.2008; Locality 9: 13.vii.2008.
- 9 *Trithemis kirbyi* Selys, 1891  
Locality 6: 10.vii.2008; Locality 9: 13.vii.2008.
- 10 *Crocothemis erythraea* (Brullé, 1832)  
Locality 8: 9.vii.2008.
- 11 *Pantala flavescens* (Fabricius, 1798)  
Locality 2: 15.vii.2008; Locality 4: 3.vii.2008; Locality 5: 16.vii.2008.
- 12 *Zygonyx torridus* (Kirby, 1889)  
Locality 5: 15.vii.2008; Locality 7: 2.vii.2008; Locality 8: 9.vii.2008.

## Discussion

All sampling localities are located in a region with an arid climate. Locally several valleys are characterised by a more temperate climate, with permanent water bodies mainly rivers, runnels and springs. "Almost all the precipitation which falls in Iran is brought by low-pressure systems moving east-southeast from the Mediterranean Sea. During the winter months these depressions cross the country, bringing rain which decreases in amount in both easterly and southerly directions; most of it falls in the Alburz and Zagros mountains (the National Park is situated at the sotheastern fringe of the Zagros mountain), to the north and west of the Iranian plateau, respectively. ... In the eastern and southern parts of the plateau annual water surpluses do not occur, and so streams only flow here for short periods following heavy rainfall. Perennial river systems are only found around the margins draining the inward facing slopes of the Alburz and Zagros mountains. These rivers, almost all of which are relatively small, are fed by water surpluses generated in the upland regions. The National Park is situated in a region with an annual water surplus (precipitation-evapotransportation) of ca 100mm."

*Trithemis arteriosa* and *Z. torridus* can be found within the boundaries of the National Park, species which elsewhere are scarce in Iran. *Z. torridus* is a species of "open, fast-flowing waters, particularly waterfalls and rapids" (Dijkstra & Lewington, 2006), a habitat of special concern in semi-arid to arid regions. So far, the latter only had been discovered from southern Iran (Bandar Abbas) in 1990 (Heidari & Dumont 2002).





However, during their research in Oman Schneider & Dumont (1997) established this species in any wadi with permanently flowing water. The Arabic word Wadi refers to a dry riverbed with intermittent and often ephemeral waterbodies, whether flowing or stagnant. No published information is available on adaptive strategies of larvae to this situation (but see Johansson & Suhling 2004).

*T. arteriosa* may exist at the eastern borders of its geographic range. Dijkstra & Lewington (2006) characterise it as an African species but with limited expansion tendencies and local occurrence in the fringe of its distribution area. Boudot et al. (2009) discuss the species' tendency to expand in the East-Mediterranean region.

Most of the recorded libellulid Odonata are adapted to dry climates (see Johansson & Suhling 2004, Suhling et al. 2006, Martens et al. 2010). Obviously the biotopes typical of running waters and their alluvium (e.g. with shallow semi-permanent waters) contain habitats which allow the reproduction of all the species recorded. There are considerable parallels to the situation as in other countries as Namibia with running waters in deserts resp. arid regions. Considering the scarcity of suitable habitats for dragonflies, the regional diversity of libellulid dragonflies is remarkable. As a result, this protected area of the National Park is a natural reservoir for very rare Iranian species (*Trithemis arteriosa*, *Zygonyx torridus*) in the heart of the desert.

As stated before, this region is not rich in freshwater habitats and woodlands, thus has a low potential for Odonata species. In addition it receives a low annual precipitation, long periods of hot and dry climate. Consecutive droughts with low precipitation cause reduction of running and shallow waters. On the other hand, the local inhabitants and their cattle provide their needs from the regional underground waters with a tendency to overexploitation and devastation of water sources (e.g. Moosavirad et al. 2013). This threat is also visible for Odonates because of their dependence on freshwaters and indicated by species with some physiological adaptation in temporary water habitats.

*Zygonyx torridus* which is reported as a vulnerable taxon in Europe (Kalkman et al. 2010) is a very scarce species in Iran and in the National Park. The records of *Z. torridus* from Iran (Kunz et al. 2006, this paper) indicate Iran as a bridge to populations on the Indian subcontinent with the doubtful subspecies *isis* described by Fraser (1936). In spite of this regional scarcity the species is believed to be an effective migrant with the ability to successfully colonize new habitats (Kunz et al. 2006, Dijkstra & Lewington, 2006). For more details on the current taxonomic status see Kunz et al. (2006), who treat the taxon as monotypical.

It should be emphasised that some libellulid dragonflies from the studied region (as well as almost certainly in rest of the country), are threatened with extinction. The main reason for the extinction of odonate species being extra habitat destruction and water pollution (Kalkman et al. 2008), special efforts must be made and appropriate measures must be taken to manage the freshwater resources of the Khabr National Park in order to protect the local fauna and flora.



## Acknowledgments

We are indebted to Prof. Dr H. J. Dumont for confirmation of identification of some samples. We wish to thank Mr. R. Sharifzadeh and Mr. R. Raouf for help in collecting some specimens considered in this study. Financial support for this research provided by Shahid Bahonar University of Kerman, Iran.

## References

- Askew, R.R. 1988. *The Dragonflies of Europe*. Harley Books, Colchester, UK. 308 pp.
- Bartenef, A.N. 1916. Contributions à la faune des odonates du nord de la Perse. *Revue russe d'entomologie* 16: 38-45.
- Bartenef, A. 1929. Données nouvelles sur les odonates de la Transcaucasie, de la Perse et du Turkestan. *Revue russe d'entomologie* 23(1/2): 124-131.
- Blom, W. L. 1982. List of Odonata collected during various Lepidopterological trips in Iran. *Notulae Odonatologicae* 1: 150-151.
- Boudot, J.P., V.J. Kalkman, M. Azpilicueta Amorín, T. Bogdanovic, A. Cordero Rivera, G. Degabriele, J.L. Dommanget, S. Ferreira, B. Garrigós, M. Jovic, M. Kotarac, W. Lopau, M. Marinov, N. Mihokovic, E. Riservato, B. Samraoui, W. Schneider, W. 2009.: *Atlas of the Odonata of the Mediterranean and North Africa*. *Libellula Supplement* 9. 256 pp.
- Dijkstra, K.-D.B. & R. Lewington 2006. *Field Guide to the Dragonflies of Britain and Europe*. British wild life publishing, UK. 320 pp.
- Dumont, H.J. 1991. *Fauna Palaestina - Insecta V. Odonata of the Levant*. Israel Academy of sciences and Humanities, Jerusalem. 297pp.
- Ebrahimi, A.; Madjzadeh, S.M.; Mohammadian, H. (2009): Dragonflies (Odonata) from South-Eastern Iran. *Caspian Journal of Environmental Sciences* 7(2): 107-112.
- Fraser, F.C., 1936. *The Fauna of British India including Ceylon and Burma. Odonata* 3. Taylor and Francis. London. XI + 461 pp.
- Ghahari, H., M. Tabari, M. Sakenin, H. Ostovan & S. Imani 2009. Odonata (Insecta) from northern Iran, with comments on their presence in rice fields. *Munis Entomology and Zoology* 4: 148–154.
- Heidari, H. & Dumont H. J. 2002: An annotated check-list of the Odonata of Iran. *Zoology in the Middle East* 26: 151–156.
- Johansson, F. & F. Suhling 2004. Behaviour and growth of dragonfly larvae along a permanent to temporary water habitat gradient. *Ecological Entomology* 29(2): 196-202.
- Kalkman, V.J., J.P. Boudot, R. Bernard, K.J. Conze, G. de Knijf, E. Dyatlova, S. Ferreira, M. Jovic, E. Riservato & G. Sahlen 2010. *European Red List of dragonflies*. IUCN and European Union. Malaga, Spain. 40 pp.



- Kalkman, V.J., V. Clausnitzer, V., K.-D.B. Dijkstra, A.G. Orr, D.R. Paulson, J. van Tol 2008. Global diversity of dragonflies (Odonata) in freshwater. *Hydrobiologia* 595: 351–363.
- Kunz, B., S.V. Ober & R. Jödicke 2006. The distribution of *Zygonyx torridus* in the Palaearctic (Odonata: Libellulidae). *Libellula* 25(1/2): 89-108.
- Lohmann, H., 1990. *Anax immaculifrons* Rambur, 1842 in Iran (Odonata: Aeshnidae). *Opuscula Zoologica Fluminensia* 54: 9–10.
- Lohmann, H. 1992: *Gomphus kinzelbachi* Schneider in Iran. *Notulae Odonatologicae* 3:169.
- Martens, A., O. Richter & F. Suhling 2010. The relevance of perennial springs for regional biodiversity and conservation. In: Schmiedel, U. & Jürgens, N. [Eds.]: *Biodiversity in southern Africa. Volume 2: Patterns and processes at regional scale.* Klaus Hess Publishers, Göttingen & Windhoek. 70-74.
- Martin, R. 1912. Les odonates. *Annales d'histoire naturelle Délégation en Perse, Paris* 2: 5-9.
- Moosavirad, S.M., M.R. Janardhana & H. Khairy 2013. Impact of anthropogenic activities on the chemistry and quality of groundwater: a case study from a terrain near Zarand City, Kerman Province, SE Iran. *Environmental Earth Sciences* 69(7): 2451-2467.
- Morton, K.J. 1920. Odonata collected in north-western Persia and Mesopotamia by Captain P.A. Buxton, R.A.M.C. *Entomologist's monthly magazine* 56: 82-87.
- Schmidt, E. 1954. Die Libellen Irans. *Sitzungsberichte der Österreichischen Akademie der Wissenschaften* 163: 223–260.
- Schneider, W. & H.J. Dumont 1997. The dragonflies and damselflies (Insecta: Odonata) of Oman. An updated and annotated checklist. *Fauna of Saudi Arabia* 16: 89-110.
- Selys-Longchamps, E. de, 1887. Odonates de l'Asie mineure et révision de ceux des autres parties de la faune paléartique (dite européenne). *Annales de la Société entomologique de Belgique* 31: 1-85.
- Suhling, F., G. Sahlen, A. Martens, E. Marais & C. Schütte 2006. Dragonfly assemblages in arid tropical environments: a case study from western Namibia. *Biodiversity and Conservation* 15: 311-332.
- Veisi, H., Y. Arash & M.K. Kasmipour 2010. Co-management in Khabr National Park, Iran: An agenda for action. *Journal of Environmental Research and Development* 4(4): 1060-1069.



## INSTRUCTION TO AUTHORS

*International Dragonfly Fund - Report* is a journal of the International Dragonfly Fund (IDF). It is referred to as *the journal* in the remainder of these instructions. Transfer of copyright to IDF is considered to have taken place implicitly once a paper has been published in the journal.

The journal publishes original papers only. By *original* is meant papers that: a) have not been published elsewhere before, and b) the scientific results of the paper have not been published in their entirety under a different title and/or with different wording elsewhere. The republishing of any part of a paper published in the journal must be negotiated with the Editorial Board and can only proceed after mutual agreement.

Papers reporting studies financially supported by the IDF will be reviewed with priority, however, authors working in general with Odonata are encouraged to submit their manuscripts even if they have not received any funds from IDF.

Manuscripts submitted to the journal should preferably be in English; alternatively German or French will also be accepted. Every manuscript should be checked by a native speaker of the language in which it is written; if it is not possible for the authors to arrange this, they must inform the Editorial Board on submission of the paper. Authors are encouraged, if possible, to include a version of the abstract in the primary language of the country in which their study was made.

Authors can choose the best way for them to submit their manuscripts between these options: a) via e-mail to the publisher, or b) on a CD, DVD or any other IBM-compatible device. Manuscripts should be prepared in Microsoft Word for Windows.

While preparing the manuscript authors should consider that, although the journal gives some freedom in the style and arrangements of the sections, the editors would like to see the following clearly defined sections: Title (with authors names, physical and e-mail addresses), Abstract, Introduction, Material & Methods, Results, Discussion, Acknowledgments and References. This is a widely used scheme by scientists that everyone should be familiar with. No further instructions are given here, but every author should check the style of the journal.

Authors are advised to avoid any formatting of the text. The manuscripts will be stylised according to the font type and size adopted by the journal. However, check for: a) all species names must be given in *italic*, b) the authority and year of publication are required on the first appearance of a species name in the text, but not thereafter, and c) citations and reference list must be arranged following the format below.

Reference cited in the text should read as follows: Tillyard (1924), (Tillyard 1924), Swezey & Williams (1942). The reference list should be prepared according to the following standard:

Swezey, O. & F. Williams, 1942. Dragonflies of Guam. Bernice P. Bishop Museum Bulletin 172: 3-6.

Rebora, M., Piersanti, S. & E. Gaino. 2004. Visual and mechanical cues used for prey detection by the larva of *Libellula depressa* (Odonata Libellulidae). *Ethology, Ecology & Evolution* 16(2): 133-144.

Citations of internet sources should include the date of access.

The manuscript should end with a list of captions to the figures and tables. The later should be submitted separately from the text preferably as graphics made using one of the Microsoft Office products or as a high resolution picture saved as a .jpg or .tif file. Hand-made drawings should be scanned and submitted electronically. Printed figures sent by the post could be damaged, in which case authors will be asked to resubmit them.

Manuscripts not arranged according to these instructions may also be accepted, but in that case their publication will be delayed until the journal's standards are achieved.

Nr.	Jahr	geförderte Person bzw. Körperschaft	Fördergegenstand
77	2011	Do Manh, Cuong, Hanoi, Vietnam	Providing the Odonatological literature database
78	2010	Villanueva, Reagan, Philippinen	Stereomikroskop
79	2010	Villanueva, Reagan, Philippinen	Odonata of the Diomabok-Lake region south of Davao, The Philippines Follow-up
80	2011	Villanueva, Reagan, Philippinen	Odonata of the Catanduanes-Island, The Philippines
81	2012	Villanueva, Reagan, Philippinen	Odonata of Dinapigue, The Philippines
82	2012	Dow, Rory, UK/The Netherlands	Odonata of Kalimantan, Borneo, Malaysia
83	2012	Marinov, Milen, Christchurch	Odonata species diversity of the "Eua Island, Kingdom of Tonga"
84		Marinov, Milen, Christchurch	Odonata of Solomon Islands
85	2012	Villanueva, Reagan, Philippinen	Odonata from Talaingod, Davao del Norte, Mindanao Island, Philippines
86	2012	Do Manh, Cuong, Hanoi, Vietnam	Mau Son Mountain Odonata, Vietnam
87	2012/13	Villanueva, Reagan, Philippinen	Odonata fauna Mt. Lomot and Mt. Sumagaya, The Philippines
88	2013	Anna Rychla, Ukraine	Vorkommen der Arktischen Smaragdlibelle <i>Somatochlora arctica</i> (Zetterstedt, 1840) in Planregenmooren der polnischen Ostseeküste ( <i>S. arctica</i> in bogs along the coast of Polish Baltic Sea)
89	2013	Vincent Kalkman/A.B. Orr, The Netherlands/Australia	Field guide New Guinea Zygoptera
90	2013	Oleg Kosterin, Russia	Progress study Cambodia 2013
91	2013	Dejan Kulijer, Bosnia & Herzegovina	Odonata fauna of karst streams and rivers of South Herzegovina (Bosnia and Herzegovina, West Balkan)
92	2013	Saeed, Muhammad & Fazlullah Gujjar, Haripur, Pakistan	Distribution and diversity of Odonata with emphasis on Gomphidae and Cordulegastridae in the border region of Pakistan and Afghanistan
93	2013	Villanueva, Reagan, Philippinen	Odonata from Balabac Islands, Palawan, Philippines
94	2013	Villanueva, Reagan, Philippinen	Fieldwork to survey the odonatologically unstudied islands of Balut and Sarangani (The Philippines) and Talaud (Indonesia)"
95	2013	Garrison, Rosser/von Ellenrieder, Natalia, Sacramento, USA	The genus <i>Argia</i> in Costa Rica
96	2013	Villanueva, Reagan, Philippinen	Odonata of Surigao del Sur, Philippines
97	2014	Dawn, Prosenjit, Kolkata, India	Rheophilous Odonata diversity of protected areas of Chhattisgarh, India
98	2014	Dow, Rory, UK/The Netherlands	Sarawak Odonata – documenting the status quo Odonata diversity prior logging"
99	2014	Xu, Xin, Nankai University, Tianjin, China	Odonata of Mt Dabieshan in centre of eastern China
100	2014	Rychla, Anna, Polen	Untersuchung der Libellen von westpolnischen Mooren.
101	2014	Dow, Rory, UK/The Netherlands	Naming an <i>Onychogomphus</i> from Malaysia
102	2014	Vincent Kalkman/A.B. Orr, The Netherlands/Australia	Field guide New Guinea Anisoptera
103	2014	Marinov, Milen, Christchurch, New Zealand	Odonata of Samoa, revisiting the localities from Fraser 1925, 1926, 1927, 1953 and 1956
104	2014	Ahmed Zia, Pakistan	Zygoptera in eastern Pakistan
105	2014	Saeed, Muhammad & Fazlullah Gujjar, Haripur, Pakistan	Progress study: Distribution and diversity of Odonata with emphasis on Gomphidae and Cordulegastridae in the border region of Pakistan and Afghanistan and China