LIBELLULA

Zeitschrift der Gesellschaft deutschsprachiger Odonatologen (GdO) e.V.
ISSN 0723 - 6514 2009

Atlas of the Odonata of the Mediterranean and North Africa

LIBELLULA SUPPLEMENT

LIBELLULA Supplement 9, Börnsen, 20. März 2009
Zeitschrift der Gesellschaft deutschsprachiger Odonatologen (GdO) e.V.

ISSN 0723 - 6514

Abbildung auf dem Titel:
Selysiothemis nigra, Weibchen
Zeichnung: Dietrich Kern

LIBELLULA SUPPLEMENT dient der Veröffentlichung umfangreicher Arbeiten und der Zusammenstellung besonderer Themen auf dem Gebiet der Libellenkunde. Es erscheint unregelmäßig als Ergänzungsband der Zeitschrift LIBELLULA.

Schriftleitung:
Dr. Florian Weihrauch, Jägerstraße 21A, D-85283 Wolnzach <schriftleitung@libellula.org>

Bezug von **LIBELLULA** und **Adressenänderung** über:
GdO, Gabi Peitzner, Hamfelderedder 7A, D-21039 Börnsen <gdo.peitzner@gmx.de>

Für Mitglieder der GdO ist der Bezug von **LIBELLULA** und **LIBELLULA SUPPLEMENT** im Jahresbeitrag enthalten. Dieser beträgt 25,- €; auf Antrag für Schüler, Studenten (nach 2 Jahren Neuantrag!) und Rentner 18,- €. Beiträge bitte auf das Konto der GdO, z.Hd. Gabi Peitzner überweisen: 03 30 91 95 05 bei der Postbank Köln (BLZ 370 100 50).
Die GdO im Internet: <www.libellula.org>

Foreword

This atlas contains information on the distribution of damselflies and dragonflies in the Mediterranean and North Africa, collected by hundreds of people over a period of more than 150 years. Knowledge of the Odonata in this area has shown a strong growth rather recently, particularly since the 1970s. For species virtually unstudied a decade ago, we now have photographs, drawings, maps and information on ecology and biology. That does not mean that there is nothing left to do or to discover. Countries like Jordan and Egypt are poorly explored and even well-known countries like Spain and Italy show 'white' areas on the map.

There is only one thing nicer than glancing through distribution maps and fantasizing about good species in great places. This is, of course, actually being at a great place and seeing the good species. So start planning your next holiday.

Jean-Pierre Boudot & Vincent J. Kalkman

***Aeshna juncea* copula, France (JPB).**

Atlas of the Odonata of the Mediterranean and North Africa

Jean-Pierre Boudot[1], Vincent J. Kalkman[2], Mónica Azpilicueta Amorín[3], Tomislav Bogdanović[4], Adolfo Cordero Rivera[3], Godwin Degabriele[5], Jean-Louis Dommanget[6], Sónia Ferreira[7], Bernat Garrigós[8], Miloš Jović[9], Mladen Kotarac[10], Wolfgang Lopau[11], Milen Marinov[12], Nino Mihoković[13], Elisa Riservato[14], Boudjéma Samraoui[15] and Wolfgang Schneider[16]

[1] Corresponding author: LIMOS, UMR 7137 CNRS – Universités de Nancy, Faculté des Sciences, B.P. 70239, F-54506 Vandoeuvre-lès-Nancy Cedex, <jean-pierre.boudot@limos.uhp-nancy.fr>

[2] European Invertebrate Survey – Nederland, Nationaal Natuurhistorisch Museum – Naturalis, Postbus 9517, NL-2300 RA Leiden, <kalkman@naturalis.nl>

[3] Grupo de Ecoloxía Evolutiva e da Conservación, Universidade de Vigo, EUET Forestal, Campus Universitario, E-36005 Pontevedra, Galiza, <mazpilicueta@sek.es>, <adolfo.cordero@uvigo.es>

[4] Sveučilište J.J. Strossmayera, Odjel za biologiju, Zavod za zoologiju, Trg Ljudevita Gaja 5, HR-31 000 Osijek, <tbogdano@ffos.hr>

[5] 18, Centifolja, Triq it-Tank, Siggiewi, SGW 3412, Malta, <gergo@euroweb.net.mt>

[6] 7, rue Lamartine, F-78390 Bois-d'Arcy, <jld.sfo@libellules.org>

[7] CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos, Universidade do Porto, Campus Agrário de Vairão, PT-4485-661 Vairão, <hiporame@gmail.com>

[8] Oxygastra, grup d'estudi dels odonats de Catalunya, Carrer del Carme, 47, E-08001 Barcelona <pescaire@batetnatural.com>

[9] Natural History Museum, Njegoševa 51, RS-11000 Belgrade, <milos.jovic@nhmbeo.rs>

[10] Centre for Cartography of Fauna and Flora, Antoličičeva 1, SI-2204 Miklavž na Dravskem polju, <mladen.kotarac@ckff.si>

[11] Kuhstedtermoor 26, D-27442 Gnarrenburg, <lopi-@t-online.de>

[12] <mg_marinov@yahoo.com>

[13] Croatian Odonatological Society – Platycnemis, Zajceva 43, HR-40000 Cakovec, <nino.mihokovic@inet.hr>

[14] Via Maestra 81 T.Q., Novara I-28100, <elisa.riservato@gmail.com>

[15] Laboratoire de Recherche et de Conservation des Zones Humides Biology Department, University of Guelma, Guelma, Algeria, <bsamraoui@yahoo.fr>

[16] Senckenberg Research Institute, Entomology II, Senckenberganlage 25, D-60325 Frankfurt, <Wolfgang.Schneider@senckenberg.de>

Abstract

This atlas gives the distribution of Odonata in Africa north of the 18th northern parallel, the Levant, Anatolia and the whole of Mediterranean Europe. Some nearby areas like Portugal, The Canary Islands, Madeira, Serbia, Macedonia, Bulgaria and parts of the Arabian Peninsula, Iraq and Iran are included as well. Records, shown via a 50 km x 50 km UTM MGRS grid, are categorized according to their date – prior to 1980 and from 1980 onwards. 179 species are presently recognized in this area.

Zusammenfassung

Atlas der Libellen (Odonata) des Mittelmeerraumes und Nordafrikas — Der Atlas stellt die Verbreitung der Libellen im europäischen Mittelmeerraum, in Anatolien, in der Levante und in Nordafrika bis zum 18. Grad nördlicher Breite dar. Angrenzende Gebiete wie Portugal, die Kanarischen Inseln, Madeira, Serbien, Mazedonien, Bulgarien sowie Teile der Arabischen Halbinsel, Iraks und Irans werden ebenfalls mit einbezogen. Insgesamt werden 179 derzeit anerkannte Arten berücksichtigt. Die Angaben, bezogen auf 50 km x 50 km UTM-Gitterflächen werden nach den Funddaten in zwei Kategorien, bis 1979 und ab 1980, eingeteilt.

Introduction

Over two hundred million tourists visit the Mediterranean coast each year, making it the biggest large-scale tourist attraction in the world. Not all tourists come to watch and enjoy the dragonflies the region has to offer, however they all do have an impact on the fauna, especially the groups associated with freshwater. The construction of tourist resorts, an increased demand for drinking water, agricultural irrigation measures, hydroelectric dams and an increase of wastewater, all these factors put pressure on the quality of freshwater habitats. In addition to this climate change and changing precipitation patterns, they lead to a continuous loss of habitats, especially of permanent running waters. All these threats to freshwater in general made the Centre for Mediterranean Cooperation of the International Union for Conservation of Nature (IUCN) decide to start working on a Red List for the Mediterranean and North Africa of several freshwater groups, including the Odonata. The Red Lists of the Mediterranean and of the North African dragonflies were compiled during 2007 and 2008, respectively. These as yet unpublished results are also used here. During the Red list assessment workshop that was held in Porto in October 2007, several of the authors of the present publication decided that the time was right to make a distribution atlas of the region. For most countries good databases were available and, although a lot of work was expected to fit them together, it was felt that the spirit was there to approach this project.

As a result, the present publication provides information on the distribution of all known 179 Odonata species from the Mediterranean and North Africa, and of some subspecies occurring in the region. Its purpose is twofold: to stimulate further fieldwork on the Mediterranean and North African Odonata, and to show where the threatened species occur in order to favour relevant management plans.

Methods

Database

The maps in this atlas were produced by combining numerous databases gathered for individual countries or regions. For all major European countries and Turkey, separate databases existed and were made available through the courtesy of their managers. For North Africa and the countries of the eastern Mediterranean, Jean-Pierre Boudot maintains a database, and Boudjéma Samraoui curates a separate Algerian database. Information on the current knowledge and available databases for the different countries is given below.

We have aimed to include all data from the literature, although some omissions may have occurred. A fair number of unpublished records are also included. Please contact the regional coordinators (see below) if you have questions on the data or have new data to include in the database.

Distribution maps

The distribution of each taxon is shown via a 50 km x 50 km UTM MGRS grid (WGS84 geodesic system). Records prior to 1980 are depicted with a red dot and those from 1980 onwards with a blue dot. Undated records are plotted with a green dot. In some cases the distribution of the various subspecies is given with a pattern. This is largely based on the general knowledge offered by the literature, as the information contained in the databases used to make the maps is not always sufficiently detailed on individual subspecies. Figure 1 shows the area and all countries considered in the atlas. A check-list of all species occurring in the area and of their presence in the different countries is given in Appendix 1.

The political borders shown in the figures have been chosen according to United Nations specifications, which are used traditionally in IUCN publications. It is emphasized that the authors do not endorse any political considerations regarding country definition, nomination and delineation.

All European countries bordering the Mediterranean are included. Gibraltar and Monaco have not been considered separately, and the few data from these two areas are listed under Spain and France. In addition, Portugal, Andorra, Serbia, Macedonia and Bulgaria were also included, although these countries have no Mediterranean coast. For France, only records south of 47°N were considered. For North Africa all known records north of 18°N are included. Furthermore, this area encompasses the whole of Morocco, the Canary Islands, the Madeira archipelago, Western Sahara, Algeria, Tunisia, Libya and Egypt, as well as the northern parts of Mauritania, Mali, Niger, Chad and Sudan. To the east, records from Turkey, Syria, Lebanon, Israel, Palestine, the West Bank and Jordan are shown on the maps. Saudi Arabia, Kuwait, Iraq and Iran are at least partly included in the frame of the maps. Their non-Mediterranean species are not considered in this publication, hence only species that are also present in the other countries have been retained. Figure 2 shows all the 50 km x 50 km squares for which records are available prior to 1980, and figure 3 shows all records from 1980 onwards.

All maps in this publication were made with the free software ‘Carto Fauna Flora’, © Yvan Barbier & Pierre Rasmont, 1995-2002, Laboratoire de Zoologie, Université de Mons-Hainaut, 6 Avenue du Champ de Mars, B-7000 Mons, Belgium.

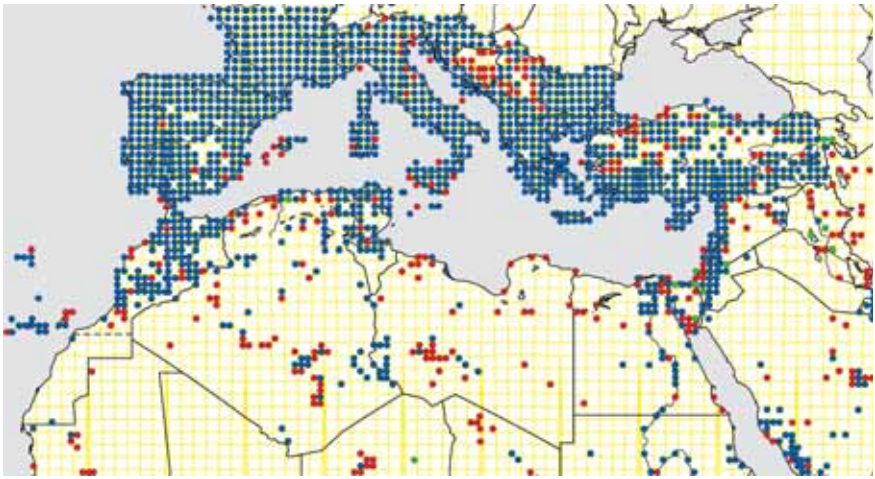


Figure 1: Overview of all countries and data localities included in the atlas. For Saudi Arabia, Kuwait, Iraq and Iran only species that are also present in the Mediterranean or North Africa are included. The authors do not endorse any political considerations regarding country definition, nomination and delineation. Grids with Odonata records prior to 1980 are indicated with a red dot, grids with records from 1980 onwards are indicated with a blue dot, and grids with undated records are marked with a green dot. If records for both periods are available for a grid, the more recent records have priority. — Abbildung 1: Überblick über alle in diesem Atlas berücksichtigten Länder und Fundorte. Für Saudi-Arabien, Kuwait, Irak und Iran werden nur jene Arten aufgeführt, die auch im Mittelmeerraum oder in Nordafrika vorkommen. Die Autoren unterstützen keinerlei politisch motivierte Betrachtungsweisen zur Abgrenzung, Festlegung und Namensgebung einzelner Länder. Raster mit Libellenfunden bis einschließlich 1979 sind mit einem roten Punkt gekennzeichnet, Raster mit Funden ab 1980 sind mit einem blauen Punkt versehen und Raster mit undatierten Funden mit einem grünen Punkt. Falls Alt- und Neufunde für ein Raster vorliegen, wurde den Neufunden Vorrang gegeben.

Concerning e.g. unpublished observations of the authors or checks of museum specimens, if mentioned in the text, only the initials of respective authors are given: JPB, VJK, TB, ACR, JLD, SF, MJ, WL, NM, ER, BS, WS.

Abbreviations for museum collections used:

BMNH – The Natural History Museum, London, UK
RMNH – Nationaal Natuurhistorisch Museum Naturalis, Leiden, The Netherlands
ZMA – Zoölogisch Museum Amsterdam, The Netherlands

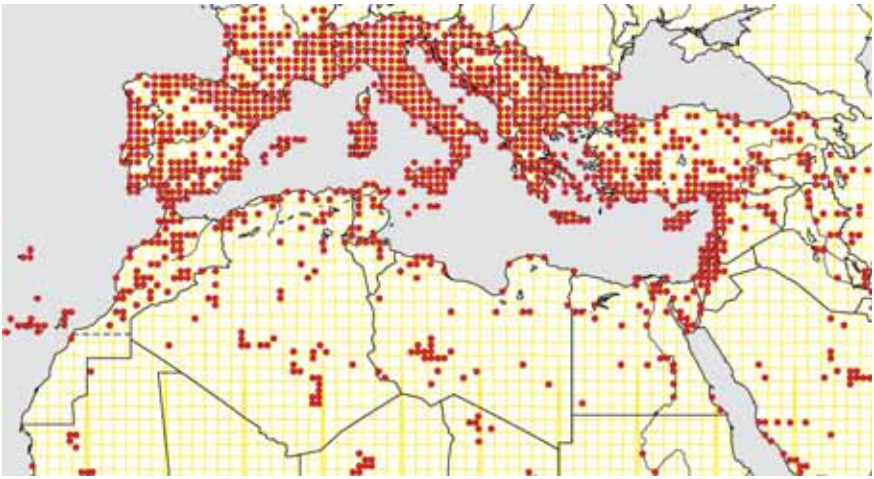


Figure 2: Map of the Mediterranean and North Africa showing all the localities for which records of Odonata are available prior to 1980. — Abbildung 2: Karte des Mittelmeerraums und Nordafrikas mit den Fundorten aller Libellennachweise bis einschließlich 1979.

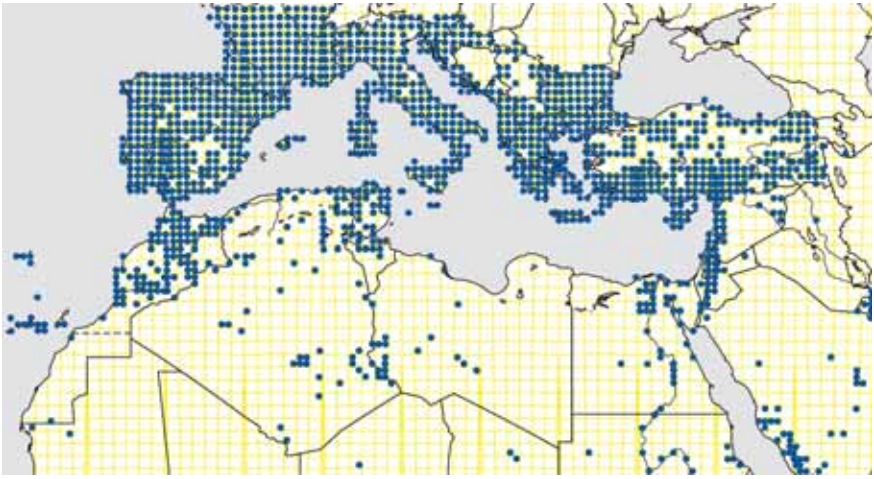


Figure 3: Map of the Mediterranean and North Africa showing all the localities for which records of Odonata are available from 1980 onwards. — Abbildung 3: Karte des Mittelmerraumes und Nordafrikas mit den Fundorten aller Libellennachweise seit 1980.

Study area

Europe

Albania

Albania is odonatologically one of the least explored countries of Europe and much remains to be discovered. Bilek (1966) summarised all records published prior to 1966. Since then, other studies specifically dealing with the Odonata of Albania have been published by Dumont et al. (1993), Kalkman (2000) and Muranyi (2007). Currently, nobody is working on the Odonata fauna of Albania and no distribution atlas is being prepared. Information on distribution prior to 1980 is very poor; information for the period after 1980 is only slightly better. The database used for this atlas contains all published information and a handful of unpublished records.

Records of Albanian Odonata can be sent to:
Vincent J. Kalkman, European Invertebrate Survey – the Netherlands, National Museum of Natural History Naturalis, Postbus 9517, 2300 RA Leiden, The Netherlands, <kalkman@naturalis.nl>.

Bosnia and Herzegovina

Most knowledge of the Odonata of Bosnia and Herzegovina originates from the first half of the 20th century. The most comprehensive list of records was published by Adamović (1948), while the most recent data were given by Dumont (1977c). Besides records from the literature, the database also contains some unpublished records from the ZMA and the RMNH, submitted by Elena Dyatlova and VJK.

Records of Odonata from Bosnia and Herzegovina can be sent to:
Miloš Jović, Natural History Museum, Njegoševa 51, 11000 Belgrade, Serbia, <milos.jovic@nhmbeo.org.yu>.

Bulgaria

The Odonata of Bulgaria are fairly well studied, although the distribution of some species is still not clear (Beschovski 1994, Marinov 2000). Since 1984, the amount of information on Bulgaria has increased greatly (Marinov 2003), resulting in some studies devoted to taxonomical issues (Marinov 2001a, b; Grozeva & Marinov 2007) as well as in an updated checklist and an atlas of the dragonflies in Bulgaria (Marinov 2000, 2003). All records from the literature as well as numerous unpublished records from the last few years are incorporated into the database.

Records of Odonata from Bulgaria can be sent to:
Milen Marinov, <mg_marinov@yahoo.com>

Croatia

There are two distinct peaks of publications dealing with Croatian Odonata: the second part of the 19th century, and the 1980s and 1990s. Franković (1994) summarised all records and published maps on the distribution of Odonata in the country. Since then, a good deal of fieldwork has been done and the distribution of Odonata in Croatia is relatively well known.

In 2006 and 2007, two odonatological organizations were formed: firstly the Croatian Odonatological Society 'Platycnemis', and, a year later, a special working group that aims to build a database of Croatian dragonflies (CROD). This latter group (Anita Belančić, TB, Matija Franković, Maša Ljuština, NM and Boria Vitas) submitted the database used for the present atlas. Further projects include a Red Book of Croatian dragonflies (FRANKOVIĆ et al. 2008) and an atlas of Croatian dragonflies, which is in the planning stage. Information on Croatian Odonata including a bibliography can be found online on the Internet, at <http://www.vretenca.hr>.

Records of Croatian Odonata can be sent to:
Nino Mihoković, Ivana pl. Zajca 43, HR-40000 Čakovec, Croatia,
<nino.mihokovic@inet.hr>.

Cyprus

Records prior to 1952 were summarised by VALLE (1952) and some additions were published by KIAUTA (1963). Less than 200 records were published on the Odonata fauna of Cyprus before 1980. After 1980, several odonatologists collected in Cyprus. In addition to this, records based on material in the BMNH, RMNH and ZMA were added to the database. All old records and numerous new records were summarised by LOPAU & ADENA (2002). This publication contains maps of all 33 species then known for the island. Records of *Brachythemis leucosticta* and *Trithemis arteriosa*, previously unknown from the island, were published by COTTLE (2007).

Records of Odonata in Cyprus can be sent to:
Wolfgang Lopau, Kuhstedtermoor 26, 27442, Gnarrenburg, Germany, <lopi-@t-online.de>.

France, incl. Principauté de Monaco

The French Odonata fauna is now well known. All the information prior to 1986 has been summarised by DOMMANGET (1987). With the creation of the INVOD (INVentory of ODonata) program in 1982, the amount of newly collected data started to increase, resulting in numerous publications in 'Martinia', the journal of the Société Française d'Odonatologie (SFO), as well as in other journals. All contributors for the INVOD database are listed online on the Internet, at <http://www.libellules.org/fra/fra_index.php> (tabs "Observatoire", then "Contributeurs"). A preliminary atlas was published in 1994 (DOMMANGET 1994), and recently a new synthesis appeared (GRAND & BOUDOT 2006). The INVOD program ended formally in 2004 but is now extended under the CILIF (Complément à l'inventaire des libellules de France) inventory program. Further details can be found online on the Internet, at <www.libellules.org>. As a result of these efforts, a database of about 124,300 entries with a resolution of 36 seconds of arc (1,100 m in latitude – 800 m in longitude) has been constructed in the area covered by the present atlas. Only the most important of the data prior to 1980 has been digitalized and could be used for the maps; however, most of the other localities have been surveyed since, as part of the INVOD program.

Records of Odonata in France can be sent to:
Jean-Louis Dommanget, 7 rue Lamartine, F-78390 Bois-D'Arcy, France,
<info@libellules.org>.

Greece

The Odonata fauna of Greece was poorly known prior to 1980. COWLEY (1940) gave an overview of the Odonata of the Greek islands. A summary of the mainland was however lacking. After 1980, several odonatologists started fieldwork in Greece, resulting in a greatly increased knowledge on the distribution of species. All published records were summarised in a provisional atlas published by LOPAU & WENDLER (1995). Later, several thousands of hitherto unpublished records were compiled chiefly by LOPAU (1999b, 2000, 2005) in three issues of *Libellula Supplement* published as 'Studies on the Odonata fauna of Greece' on special initiative of the GdO (Society of German-speaking Odonatologists). A new atlas of the Odonata of Greece including all new data is in preparation (WL).

Records of Greek Odonata can be sent to:
Wolfgang Lopau, Kuhstedtermoor 26, 27442 Gnarrenburg, Germany, <lopi-@t-online.de>.

Italy

The Odonata fauna of Italy is well known, although there are some areas that have been poorly investigated. All information published prior to 1980 and most of the records published after 1980 were summarised by UTZERI & D'ANTONIO (2005). Over the last couple of years, the study of Italian Odonata has increased. An important result of this has been the publication of the atlas of Piemonte and Valle d'Aosta (BOANO et al. 2007), which was based on a database containing all published records and a handful of unpublished data. In 2007, the first national meeting of Italian odonatologists was held. The meeting resulted in the intensification of activity on Odonata research in Italy, which will probably result in a big increase in available data over the coming years. In this context, some important last-minute data could be incorporated in this atlas thanks to the effort and courtesy of Jan-Joost Mekkes. An Italian Odonatological Society will hopefully be established in 2009.

Records of Italian Odonata can be sent to:
Elisa Riservato, Via Maestra 81, 28100 Novara <info@odonata.it>.
Sönke Hardersen, Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale, Bosco della Fontana, Strada Mantova 29, 46045 Marmirolo < info@odonata.it >.
or for Sardinia only:
Bernd Kunz, Hauptstraße 111, D-74595 Langenburg, <libellen@berndkunz.de>

Macedonia

The Odonata fauna of Macedonia is, as in the case of the most of the Balkan states, poorly known. Much of the available data originates from the period prior to 1980. The only paper summarising data on Macedonian Odonata was published by KARAMAN (1969). Other, more ample studies on Macedonian Odonata are BUCHHOLZ (1963), PETERS & HACKETHAL (1986) and ADAMOVIĆ (1990). Two new species for this area were recorded very recently by MICEVSKI et al. (2008). Besides literature records, the database also contains unpublished records from the ZMA and the RMNH.

Records of Odonata from FYR Macedonia can be sent to:
Miloš Jović, Natural History Museum, Njegoševa 51, 11000 Belgrade, Serbia, <milos.jovic@nhmbeo.org.yu>.

Malta

The Maltese Islands are an archipelago of four small islands of sedimentary origin, with a total area of circa 320 km^2 and with very limited amounts of freshwater. Literature on the Odonata of the Maltese Islands is sparse. The earliest records have been provided by McLachlan (1899) and Cowley (1940), who both mention *Ischnura genei*, *Crocothemis erythraea* and *Sympetrum striolatum*. Valletta (1949, 1957) published the first list of Odonata of the Maltese Islands in two papers. In all, Valletta mentioned eleven species for Malta. More recent works include the study by Degabriele (1992), which focused on the ecology and behaviour of Odonata of the Maltese Islands. An updated checklist including four new species for the islands was published recently by Ebejer et al. (2008) and Sciberras (2008).

Records of Odonata from Malta can be sent to:
Godwin Degabriele; 18 "Ċentifolja", Triq it-Tank, Siġġiewi, SGW 3412, Malta, <gergo@euroweb.net.mt>.

Montenegro and Serbia

The Odonata fauna of Montenegro is poorly known, and especially the mountainous part of the country has received little attention. Recently the Adriatic part of Montenegro was explored more intensively (Gligorović et al. 2008; Jović et al. 2008a). All published records prior to 2007 are summarised in Jović et al. (2008a). Besides records from the literature, the database also contains some unpublished records from the ZMA and the RMNH. Records obtained during fieldwork in 2007 along the Adriatic coast of Montenegro are also included. Strictly speaking, only the southwest of Serbia is part of the Mediterranean. The fauna of this part of Serbia is so poorly known that just two dozen published and unpublished records are available, all from the period prior to 1980. The other parts of Serbia are better covered and most records can be found in Adamović (1949) and Anđus (1992). An atlas and a database of Serbian Odonata are in preparation (MJ).

Records of Odonata from Serbia and Montenegro can be sent to:
Miloš Jović, Natural History Museum, Njegoševa 51, 11000 Belgrade, Serbia, <milos.jovic@nhmbeo.org.yu>.

Continental Portugal

Information on the Odonata of continental Portugal prior to 1980 is scarce and based on less than 30 publications; most of these largely repeat the information previously published. Since 1980, a much larger number of papers have been published, and knowledge of the distribution of species increased significantly in recent years with the publication of several papers, including an annotated bibliography (Ferreira & Weihrauch 2005) and a critical checklist (Ferreira et al. 2006). The database used for the present atlas includes all published and some unpublished data. Efforts are underway to prepare the first national atlas of Odonata (SF) and to develop a network of volunteers.

Records of Odonata from Portugal can be sent to:
Sónia Ferreira, CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos, Universidade do Porto, Campus Agrário de Vairão, 4485-661 Vairão, Portugal, <hiporame@gmail.com>.

Slovenia

In 1997 Slovenia was one of the first countries in Europe to produce a distribution atlas (KOTARAC 1997). This atlas contained nearly 13,000 records from over 1,400 localities. Since then, a steady flow of publications appeared on the Slovenian Odonata fauna and the distribution of species is now well known. The present database contains all published as well as many unpublished records.

Records of Odonata from Slovenia can be sent to:
Mladen Kotarac, Centre for Cartography of Fauna and Flora, Antoličičeva 1, SI-2204 Miklavž na Dravskem polju, Slovenia, <mladen.kotarac@ckff.si>.

Continental Spain incl. Balearic Islands and Gibraltar, with Andorra

Records of Odonata from continental Spain for the first half of the 20th century are scarce and mainly scattered in innumerable publications by NAVÁS (e.g., 1906a, 1907, 1908, 1924), which were later amended by COMPTE SART (1965). Due to an increased interest in this order, from the 1970s onwards especially the works of FERRERAS ROMERO (e.g., 1976, 1980, 1991, 1999; FERRERAS ROMERO & PUCHOL CABALLERO 1984) contributed to a very good knowledge of the Odonata in Andalusia. But also other regional studies increasingly appeared from the 1980s onwards (e.g., MARTÍN 1983; OCHARAN 1987, 1988; BENÍTEZ-DONOSO 1990). Another landmark was the compilation of papers on the Iberian Peninsula edited by JÖDICKE (1996), in which hundreds of unpublished records were made available. That was followed more recently by the works of, e.g. MARTÍN CASACUBERTA (2004), TORRALBA BURRIAL & OCHARAN (2005), BAIXEIRAS et al. (2006), PEREZ-BOTE et al. (2006), and AZPILICUETA AMORÍN et al. (2007). All this resulted in a good knowledge of the species in areas like Andalusia, Asturias, Catalonia, Extremadura, Galicia, Madrid, and Valencia. Work on several regional atlases is in progress, including those compiled by the Group 'Oxygastra' <www.oxygastra.org> in Catalonia, by Antonio Torralba Burrial and Francisco J. Ocharan Larrondo in Asturias, by Adolfo Cordero Rivera and Mónica Azpilicueta Amorín in Galicia, by the group lead by Joaquin Baixeras Almela in Valencia and by the 'Zalandrana' group in La Rioja, coordinated by Pablo C. Rodriguez, Carlos Zaldivar and Tomás Latasa. This atlas benefits from all the related records through their courtesy.

Records of Odonata from Spain can be sent to:
Adolfo Cordero Rivera <adolfo.cordero@uvigo.es> and Mónica Azpilicueta Amorín <mazpiliceta@sek.es>, Grupo de Ecoloxía Evolutiva e da Conservación, Universidade de Vigo, EUET Forestal, Campus Universitario A Xunqueira, 36005 Pontevedra, Galiza, Spain

The Levant, Arabian Peninsula, Iran, Turkey

The Levant: Israel, Jordan, Lebanon,
Palestinian territories, West Bank and Syria, with Iraq

The Levant encompasses the territories of the modern states or areas of Lebanon, Syria, Israel, West Bank and Jordan. For practical reasons Iraq was allotted to the Levant here; the

region covered is therefore almost congruent with the area named the 'fertile crescent' by historians to describe a unique cultural unit in early human history. The Odonata fauna of this region is reasonably well known. So far about 86 species have been recorded in the region. This number might increase in the future, however, once the fauna of the western mountain ranges in Syria (Jabal as-Sahiliya), Lebanon (Jabal Lubnan al-Gharbiya) and the border regions between Iraq and Iran east of the river Tigris become better known. The only recent regional synopses with identification guides are those by SCHNEIDER (1986) and DUMONT (1991). In most cases KALKMAN's (2006) key to the Odonata of Turkey will also lead to a proper identification, especially for the northern Levant. For Iraq it is still useful to consult ASAHINA (1973), which also enables the reader to find references to older literature. In a regional report by the IUCN Odonata Specialist Group, SCHNEIDER (2004) provided a detailed account of the published literature and critically reviewed the status of species and habitats. Additional and recent information was available for this atlas thanks to the courtesy of Arne Lehmann and Christian Monnerat. Research in the area is ongoing, with an increasing number of regional partners.

Records of Odonata from the Levant can be sent to:
Wolfgang Schneider, Senckenberg Research Institute, Entomology II, Senckenberganlage 25, 60325 Frankfurt, Germany, <Wolfgang.Schneider@senckenberg.de>
Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy, Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France, <jean-pierre.boudot@limos.uhp-nancy.fr>.

The Arabian Peninsula: Kuwait and Saudi Arabia

Although research on Arabian Odonata has made substantial progress in the last three decades, recent surveys (2004, 2005, most data unpublished) revealed that every further collecting effort could potentially increase the species list, which has now reached 62. The most up-to-date information, including literature surveys, is given by WATERSTON & PITTAWAY (1991), SCHNEIDER & KRUPP (1993), SCHNEIDER & DUMONT (1997) and FEULNER et al. (2007). Here, we only deal with the north of Saudi Arabia and with Kuwait. As Kuwait is situated on the Shatt al-Arab, it is also the natural extension of the Tigris-Euphrates system and shares a very similar Odonata fauna. Most of the Saudi territories are desert or semi-desert, and are consequently poor in Odonata. In comparison, rather high numbers are known from the high mountains in the south-west near the Red Sea (28 species, including two endemics) and on the border with Yemen (35 species).

Records of Arabian Odonata can be sent to:
Wolfgang Schneider, Senckenberg Research Institute, Entomology II, Senckenberganlage 25, 60325 Frankfurt, Germany, <Wolfgang.Schneider@senckenberg.de>
Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy, Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France, <jean-pierre.boudot@limos.uhp-nancy.fr>.

Iran

Only the extreme west of Iran is included in this atlas. Considering the immense geographical extent of the country and the variety of habitats encountered, it is evident that Iran's Odonata fauna is poorly known and much remains to be discovered. Nevertheless, progress has been made in recent years, mainly due to research carried out by H.J. Dumont and collaborators. HEIDARI & DUMONT (2002) give an updated species inventory and references to almost all relevant literature prior to 2002. All known species can be identified using the key provided by KALKMAN (2006).

Records of Iranian Odonata can be sent to:

Henri J. Dumont, Institute of Animal Ecology, University of Ghent, Ledeganckstraat 35, B-9000 Ghent, Belgium, <henri.dumont@ugent.be>.

Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy, Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France, <jean-pierre.boudot@limos.uhp-nancy.fr>.

Turkey

The Odonata fauna of Turkey is reasonably well known. Information on Turkish Odonata prior to 1980 is poor and almost all the information from this period has been summarised by DUMONT (1977b). From the 1990s onwards, work on the Odonata of Turkey has increased greatly, resulting in the publication of numerous papers – see VAN PELT & KALKMAN (2004) for an overview. In 2006 an atlas of the distribution of Turkish Odonata was published, showing species distributions via a 10 km x 10 km UTM grid (KALKMAN & VAN PELT 2006). Since then, several further important publications have appeared (e.g., SALUR & KIYAK 2006, 2007; HOPE 2007), all of which were incorporated into the database used for the present atlas. Taken overall, information on the distribution of species from 1980 onwards is reasonable, although many areas in the northeast and southeast still have not been visited.

Records of Turkish Odonata can be sent to:

Vincent J. Kalkman, European Invertebrate Survey - the Netherlands, National Museum of Natural History Naturalis, Postbus 9517, 2300 RA Leiden, The Netherlands, <kalkman@naturalis.nl>.

North Africa and Macaronesia

Algeria

The Odonata fauna of northern Algeria was relatively well investigated in the 19th century, and a compilation was published by MARTIN (1910). In the early part of the 20th century, efforts switched from northern Algeria to the Sahara, which at that time attracted the main attention of naturalists (e.g., LE ROI 1915). Following a period of relative neglect, renewed interest in Algerian Odonata in the 1990s led to a surge of publications (SAMRAOUI & MENAI

1999; SAMRAOUI & CORBET 2000; SAMRAOUI et al. 2003). All published information has been included in the database, which provides a fairly good knowledge of species distribution from 1980 onwards. Recent unpublished records by BS (2007) have been added as well.

Records of Algerian Odonata can be sent to:
Boudjéma Samraoui, Laboratoire de Recherche des Zones Humides,
Université de Guelma, Algeria, <bsamraoui@yahoo.fr>
Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy,
Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France,
<jean-pierre.boudot@limos.uhp-nancy.fr>.

Canary Islands and the Madeira archipelago

The Spanish Canary Islands and the Portuguese Madeira archipelago share several species with northwestern Africa. The Odonata fauna of the Canaries is fairly well known (435 records), thanks both to older (e.g., MCLACHLAN 1882; BRAUER 1900; NAVAS 1906b) and more recent investigations (e.g., MALMQVIST et al. 1993; BEMMERLE 2005; BRAUNER 2007). The data set available for Madeira is more limited, comprising no more than 86 records from a few published (e.g., BRAUER 1864; MCLACHLAN 1882; GARDNER 1960, 1963; STAUDER 1991; PELNY 2006) and unpublished studies (SMIT 1998; J.T. Smit pers. comm.; ACR), which however pertain to only six species (FERREIRA & WEIHRAUCH 2008).

Records of Odonata from the Canary Islands and Madeira can be sent to:
Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy,
Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France,
<jean-pierre.boudot@limos.uhp-nancy.fr>
Florian Weihrauch, Jägerstraße 21A, 85283 Wolnzach, Germany,
<florian.weihrauch@t-online.de>

Egypt

Egypt is a popular holiday destination and shows a tropical African component in its Odonata fauna, favoured by the north-south oriented Nile corridor. Despite this, its Odonata fauna has received remarkably little attention. Several papers have been published in the first half of the 20th century, based on material collected by the British when Egypt was part of the British Empire. This included a seminal extensive overview of the fauna by ANDRES (1928). Records published after 1950 include KIMMINS (1950), DUMONT (1973, 1980), DUMONT & FOSSATI (1990) and GEENE (1994). Additional unpublished and recent information was available for this atlas thanks to the courtesy of Jacqueline Burell, Daniel Grand, Arne Lehmann, Andreas Martens, Stefan Ober and WS, as well as through the examination of collections in the RMNH by VJK and K.-D.B. Dijkstra.

Records of Egyptian Odonata can be sent to:
Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy,
Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France,
<jean-pierre.boudot@limos.uhp-nancy.fr>.

Libya

Libya has received little attention from odonatologists, a situation due to the scarcity of freshwater habitats and the isolation of the country over many decades. For these reasons only a small number of publications deals with the Odonata of Libya (e.g., NAVÁS 1928, 1930, 1932; NIELSEN 1935a, 1935b, 1959). No primary records from 1979 onwards have been published to-date, but a careful revision of all previous Libyan records, implemented by recent personal records, has been announced for publication by Stefan Ober. The present atlas has already benefited from his work.

Records of Libyan Odonata can be sent to:
Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy,
Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France,
<jean-pierre.boudot@limos.uhp-nancy.fr>.

Morocco

The northern Moroccan Odonata fauna is relatively well known, although some "blank areas" still persist. The main gaps comprise: i) from Agadir to Casablanca over a large coastal strip around 100 km wide, ii) the transition zone between the High and Middle Atlas, and iii) the border of the Sahara. All published information prior to 1998 was summarised in JACQUEMIN & BOUDOT (1999). This publication was based on the personal investigations of the authors as well as on previous syntheses by LIEFTINCK (1966) and DUMONT (1972). Only a small amount of data has been published since. However, recent findings, including three species new for Morocco – *Selysiothemis nigra* (BOUDOT 2008), *Orthetrum ransonnetii* and *Sympetrum sinaiticum* (JUILLERAT & MONNERAT 2009) – prove that more fieldwork is still needed in the blank areas. The database on Morocco used for this atlas contains approximately 1,960 records and includes all published records as well as unpublished information thanks to the courtesy of SF, Valérie Goethals, Daniel Grand, Laurent Juillerat, Dietrich Kern, Christian Monnerat, Julien Renoult, Richard Seidenbusch and David Walsh.

Records of Odonata from Morocco can be sent to:
Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy,
Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France,
<jean-pierre.boudot@limos.uhp-nancy.fr>.

Tunisia

Tunisia is, with Morocco, the easiest country to visit in North Africa. Combined with the fact that this country holds several of the species regarded as endemic for northwestern Africa, Tunisia is a relatively popular holiday destination for odonatologists. As a result the Odonata fauna is well known, although records prior to 1990 are scarce. The first thorough investigation of the Tunisian fauna was published by DUMONT (1977a). More recently JÖDICKE et al. (2000) published a large number of new records and discussed the validity of some old ones. Subsequent investigations have been made by the authors as well as by Bernd Kunz, increasing the number of records available for this atlas.

Records of Tunisian Odonata can be sent to:
Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy,
Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France,
<jean-pierre.boudot@limos.uhp-nancy.fr>.
Bernd Kunz, Hauptstraße 111, D-74595 Langenburg, <libellen@berndkunz.de>

Western Sahara, Mauritania and northern Mali, Niger, Chad and Sudan

As a result of both its aridity and its political situation, only very little data is available from the disputed Western Sahara. The fauna of Mauritania is slightly better known. A string of papers dealing specifically with these two countries was published from 1952 to 1978 (Fraser 1952; Dekeyser & Villiers 1956; Aguesse & Pruja 1958; Dumont 1976, 1978a). Recent information is very scarce and unpublished (J. Renoult pers. comm.). Although some records are available from south Mali, mainly from the Niger basin, no data at all refers to the largely arid north. The northern parts of Niger, Chad and Sudan have been fruitfully investigated from 1929 to 2005 by various entomologists (e.g., Andres 1929; Dumont 1978b; Martens & Dumont 1983; Dumont & Martens 1984; Dumont & Verschuren 2005). Most records refer to the Nile basin or the Saharan and Sahelian mountains. In the latter, permanent or temporary springs and 'gueltas' (natural freshwater bodies in the Sahara, usually groundwater-fed and permanent) fit the reproductive requirements of many aquatic animals. Many species found here have their main area of occurrence in tropical Africa. The occurrence of some non-migrating species in these countries as isolated populations is often considered to be a heritage of the pluvial early to middle Holocene period (Dumont 1982). Only 162 records are available in these countries north of 18°N.

Records of Odonata in the Saharan and Sahelian belts can be sent to:
Jean-Pierre Boudot, LIMOS, UMR 7137 CNRS - Universités de Nancy,
Faculté des Sciences, B.P. 70239, F-54506, Vandoeuvre-lès-Nancy Cedex, France,
<jean-pierre.boudot@limos.uhp-nancy.fr>.

Acknowledgements

Although we worked on this atlas with seventeen authors as regional or national database coordinators, there are legions of fieldworkers who collected the actual data behind the dots. It is impossible to name them individually but all of them receive our warm thanks.

Annabelle Cuttelod and Sandra Simoes of IUCN Mediterranean organised the Mediterranean Red List project that formed the base leading to the co-operation for this atlas. This atlas was made possible by the support of IUCN Mediterranean and the European Invertebrate Survey, and was funded by Ministerio de Asuntos Exteriores y de Cooperación and MAVA, fondation pour la Nature. Some of the authors were able to do additional fieldwork with the help of funding from the International Dragonfly Fund (IDF). Antonio Torralba invested a lot of time in checking the maps for Spain. Rory Dow and Adrian Parr were found willing to check the language at very short notice. Almost all of the species occurring in the region are illustrated with pictures. In addition to those of the authors, pictures were kindly provided by Oliver Brauner, Viola Clausnitzer, Mike Crewe, Eugene Davkaev, Gary Feulner, Daniel Grand, Peter Hoppenbrouwers, Gilles Jacquemin, Jens Kipping, Bernd Kunz, Keith Morris, Dirk Motshagen, Erland R. Nielsen, Harm Niesen, Fons Peels, Bob Reimer, Graham Reels, Saurabh Sawant, Paul Schrijvershof, Wolfgang Schweighofer, Marc Tailly, Arnold Wijkers, and Roy Woodward.

The authors are pleased to acknowledge the huge effort made by the editorial team of this Libellula Supplement, namely Florian Weihrauch, Bernd Kunz, Andreas Martens, Klaus Guido Leipelt, Henry Curry, and Reinhard Jödicke. Their effort resulted in a strong increase in the quality of this volume.

Men at work ... part of the editorial team with the first author (centre: JPB). Langenburg, Germany, 15-ii-2009, 00:11 hours (iMac).

Calopterygidae

Calopteryx exul Selys, 1853

IUCN Red List Status		Record by countries
Global	VU	DZA, MAR, TUN
Mediterranean	EN	
North Africa	EN	

Calopteryx exul is endemic to the northern Maghreb and has undergone a strong decline. In Algeria it was rediscovered in 2007 (BS), nearly a century after its last record. This species is classified VU in the Global Red List, but has been upgraded to EN in the subsequent Mediterranean and North African Red Lists.

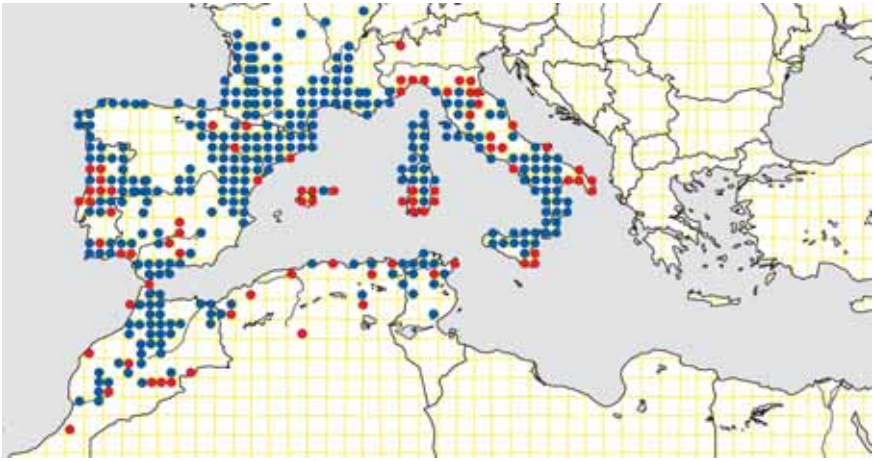
***Calopteryx exul* ovipositing female, Tunisia (BK).**

Calopteryx exul male, Morocco (JPB).

Male *C. exul* exibit a unique iridescent colour that changes immediately with the incidence angle of light from blue (above) to the green of females.

Calopteryx exul male, Tunisia (BK).

Calopteryx haemorrhoidalis (Vander Linden, 1825)

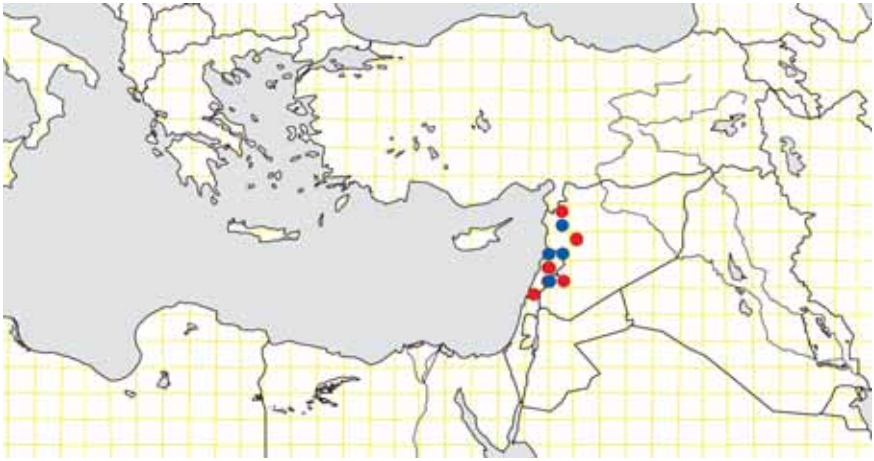


IUCN Red List Status		Record by countries
Global	NE	DZA, ESP, FRA, ITA, MAR, PRT, TUN
Mediterranean	LC	
North Africa	LC	

The three traditionally recognised subspecies, *Calopteryx h. haemorrhoidalis* (Vander Linden, 1825), *C. h. occasi* Capra, 1945 and *C. h. asturica* Ocharan, 1983 do not show a clear geographic range and are no longer recognized as valid subspecies (Maibach 1986, 1987). *Calopteryx h. almogravensis* Hartung, 1996, is a dwarf form of the *occasi* phenotype and does not warrant any taxonomic status (Ferreira et al. 2006). The northernmost records in France pertain only to vagrants, whereas the northernmost populations are found in the Rhône valley.

Calopteryx haemorrhoidalis female, Tunisia (BK).

Calopteryx hyalina Martin, 1909

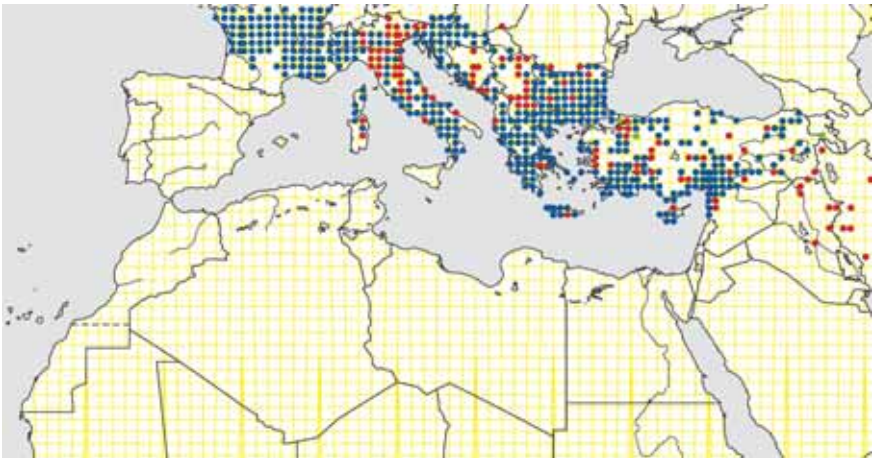


IUCN Red List Status		Record by countries
Global	NE	ISR, LBN, SYR
Mediterranean	EN	
North Africa		

Calopteryx hyalina is a Levantine endemic that underwent a strong decline due to the increased water demand of the human population. This species is classified EN in the Mediterranean Red List.

Calopteryx hyalina male, Israel (KM).

Calopteryx splendens (Harris, 1780)

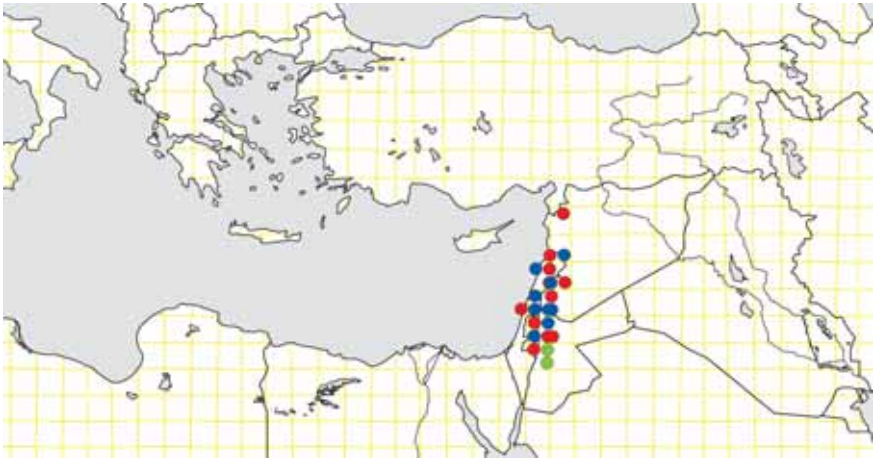


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, FRA, GRC, HRV, IRN, IRQ, ITA, MKD, MNE, SRB, SVN, SYR, TUR
Mediterranean	LC	
North Africa		

The status and the distribution of the various subspecies of *Calopteryx splendens* are far from clear and the validity of many subspecies can be questioned. Genetic studies have been undertaken for a better understanding of this puzzle (Weekers et al. 2001) but more work is urgently needed.

Calopteryx splendens male, France (BK).

***Calopteryx syriaca* Rambur, 1842**

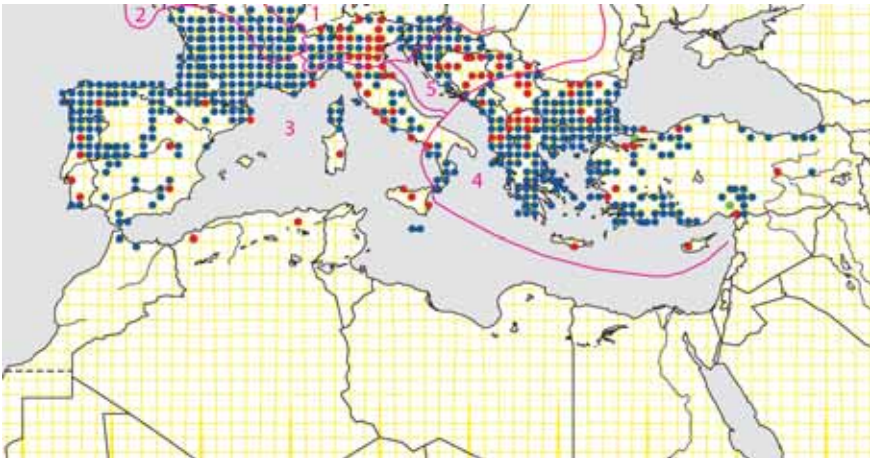


IUCN Red List Status		Record by countries
Global	EN	ISR, JOR, LBN, PSE, SYR
Mediterranean	EN	
North Africa		

Calopteryx syriaca is a Levantine endemic that has strongly declined due to increased anthropogenic water demand, similar to *C. hyalina*. This species is classified EN in the Global and Mediterranean Red Lists.

***Calopteryx syriaca* male, Israel (KM).**

Calopteryx virgo (Linnaeus, 1758)

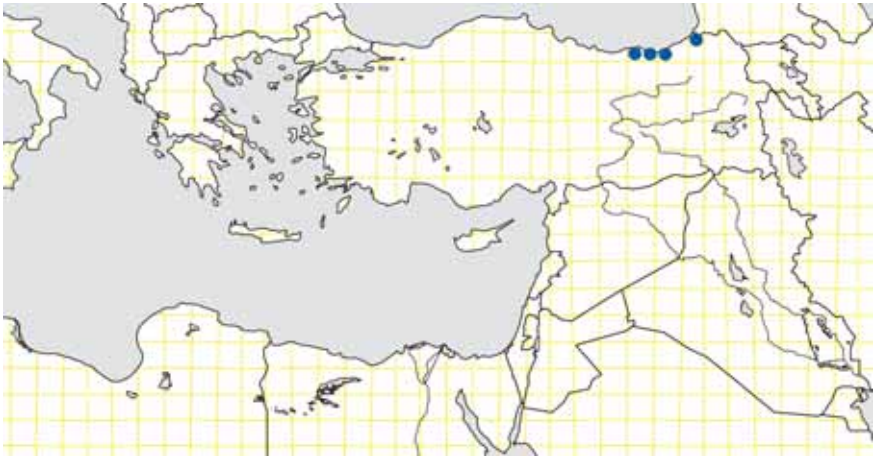


IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, CYP, DZA, ESP, FRA, GRC, HRV, ITA, MAR, MKD,
Mediterranean	LC	MNE, PRT, SRB, SVN, TUR
North Africa	CR	

The three traditionally recognised subspecies, *Calopteryx v. virgo* (Linnaeus, 1758) (1: central and northern Europe), *C. v. meridionalis* Selys, 1873 (3: western Mediterranean area) and *C. v. festiva* (Brullé, 1832) (4: eastern Mediterranean area) are widely connected by intermediate forms, so that many populations cannot be ascribed to a subspecies with certainty. In France, a wide northwest-southeastern transitional band between the nominal subspecies and *C. v. meridionalis* occurs (2). The transitional area between the nominal subspecies and *C. v. festiva* in the north of the Balkans is poorly known (5). A recent record of the species from Malta (Sciberras & Sammut 2008) refers only to two vagrants. *Calopteryx v. meridionalis* is very rare in the Maghreb and is classified CR in the North African Red List.


Calopteryx virgo meridionalis male, France (BK).

Calopteryx waterstoni Schneider, 1984

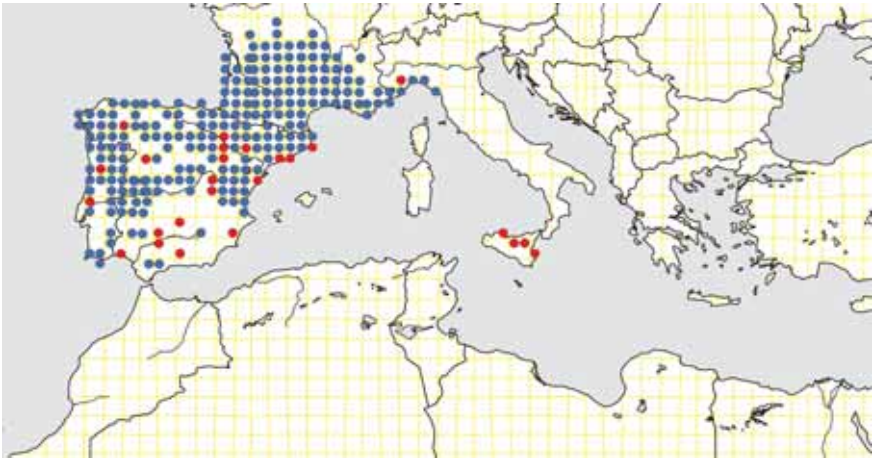


IUCN Red List Status		Record by countries
Global	NE	TUR
Mediterranean		
North Africa		

Calopteryx waterstoni is endemic to a small area along the Black Sea coast of northeastern Turkey. It is here treated as a valid species, although it is sometimes considered as a subspecies of *C. splendens*, with which it hybridises.

***Calopteryx waterstoni* male, Turkey (JPB).**

Calopteryx xanthostoma (Charpentier, 1825)



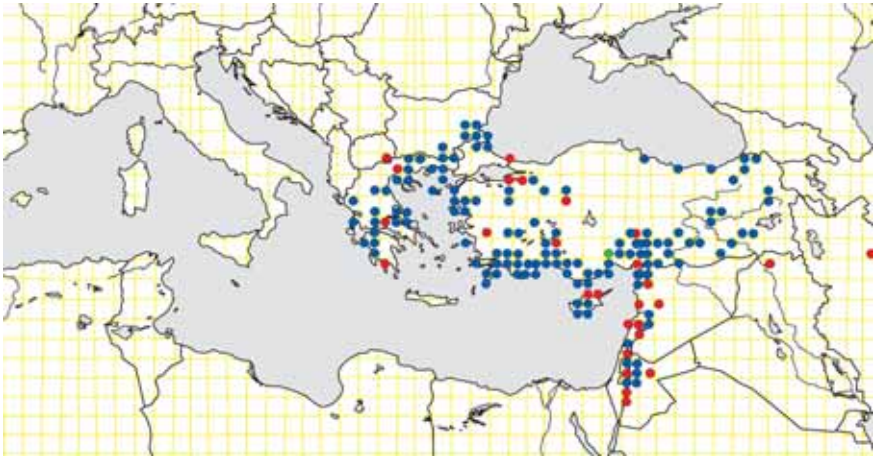
IUCN Red List Status		Record by countries
Global	NE	ESP, FRA, ITA, PRT
Mediterranean	LC	
North Africa		

Calopteryx xanthostoma is closely allied to *C. splendens*, but genetically sufficiently different to merit a species status (Weekers et al. 2001). Old records from Sicily (Ghiliani 1842; Pirotta 1879; Galletti et al. 1987) have never been confirmed, are doubtful and refer most likely to *C. splendens* sensu lato. The Maghrebian record by Selys (1871) is regarded as erroneous.

***Calopteryx xanthostoma* female (left) and male, France (JPB).**

Epallagidae

***Epallage fatime* (Charpentier, 1840)**



IUCN Red List Status		Record by countries
Global	NE	BGR, CYP, GRC, IRQ, ISR, JOR, LBN, MKD, PSE, SYR, TUR
Mediterranean	LC	
North Africa		

Epallage fatime is the only Mediterranean representative of this Oriental family. The species is widespread in southwestern Asia and reaches west to Macedonia and Greece.

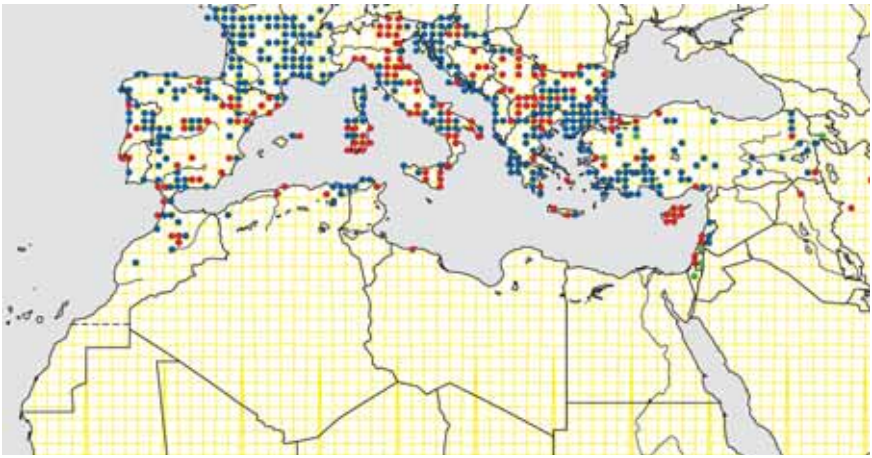
Epallage fatime male, Turkey (JPB).

Epallage fatime female, Turkey (JPB).

Epallage fatime old female, Turkey (JPB).

Lestidae

***Lestes barbarus* (Fabricius, 1798)**

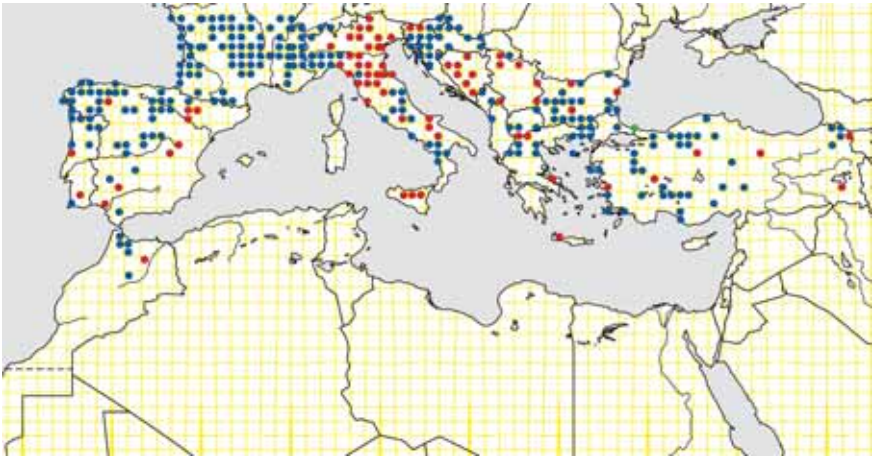


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, DZA, ESP, FRA, GRC, HRV, IRN, IRQ, ISR, ITA, LBN,
Mediterranean	LC	LBY, MAR, MKD, MNE, PRT, PSE, SRB, SVN, SYR, TUN, TUR
North Africa	LC	

Lestes barbarus is widespread in southern Europe, but has a more patchy distribution in North Africa.

Lestes barbarus male, Germany (BK).

Lestes dryas Kirby, 1890

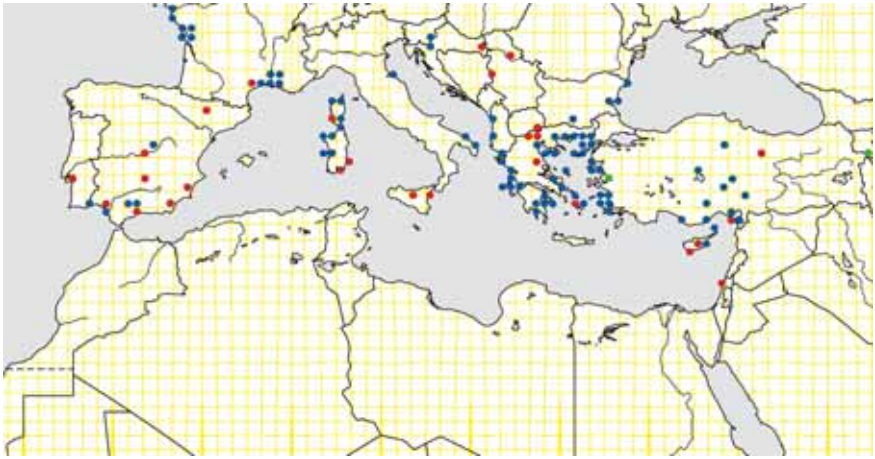


IUCN Red List Status		Record by countries
Global	NE	AND, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MAR, MKD, MNE, PRT, SRB,
Mediterranean	LC	SVN, TUR
North Africa	VU	

Lestes dryas is a Holarctic species, which is largely restricted to mountainous areas in the southern parts of its range. In North Africa it is confined to the Rif and Atlas ranges in Morocco, where the species reproduces in temporary wetlands that are inundated during winter and spring. It is extinct in Crete, where it had only been recorded by Cecconi (1895). It is classified VU in the North African Red List.

***Lestes dryas* female, Germany (BK).**

Lestes macrostigma (Eversmann, 1836)



IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, CYP, ESP, FRA, GRC, HRV, ISR, ITA, MKD, MNE, PRT, SRB, SVN, TUR
Mediterranean	NT	
North Africa		

Lestes macrostigma is almost always encountered at brackish waters, either continental or coastal. The species appears to be absent from North Africa. It is classified NT in the Mediterranean Red List.

Lestes macrostigma male, Sardinia, Italy (BK).

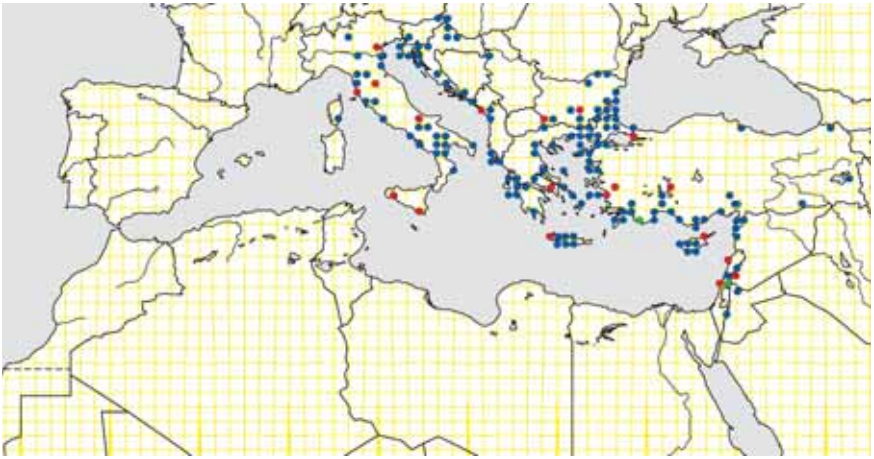
Lestes numidicus Samraoui, Weekers & Dumont 2003

IUCN Red List Status		Record by countries
Global	DD	DZA
Mediterranean	DD	
North Africa	DD	

The relationships between the various members of the *L. virens* group are more complex than previously expected (Samraoui et al. 2003) and more research on the different species and subspecies is needed. As an example, Jödicke (2003) regards *L. numidicus* as a synonym to *L. v. virens*.

Lestes virens virens male, Sardinia, Italy (BK).

Lestes parvidens Artobolevskii, 1929

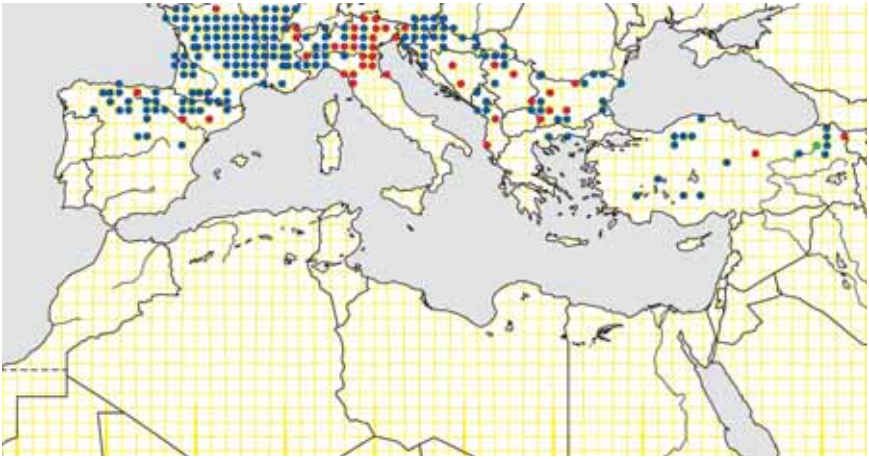


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, CYP, FRA, GRC, HRV, ISR, ITA, JOR, LBN, MNE, SRB, SVN,
Mediterranean	LC	SYR, TUR
North Africa		

It is only in the last two decades that attention has been paid to the correct identification of *Lestes parvidens* and *L. viridis* (Utzeri et al. 1994; Olias 2005; Olias et al. 2007). The maps presented here are believed to give a good impression of the distribution of these species in the Mediterranean. It is however likely that at least some of the older records of *L. viridis* refer in fact to *L. parvidens*.

Lestes parvidens male, Rhodes (BK).

Lestes sponsa (Hansemann, 1823)

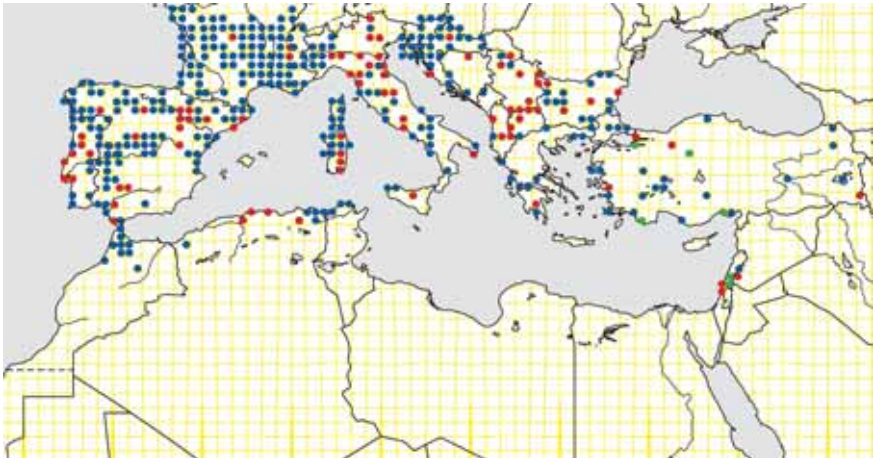


IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MNE, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

The very isolated and old records of *Lestes sponsa* from Crete (Pongrácz 1911), Sardinia (Bentivoglio 1920), Andalusia (Ocharan Larrondo 1987) and the Maghreb (Gadeau de Kerville 1908; Martin 1910; Lacroix 1925) are considered erroneous and are omitted here.

Lestes sponsa male, Germany (BK).

***Lestes virens* (Charpentier, 1825)**

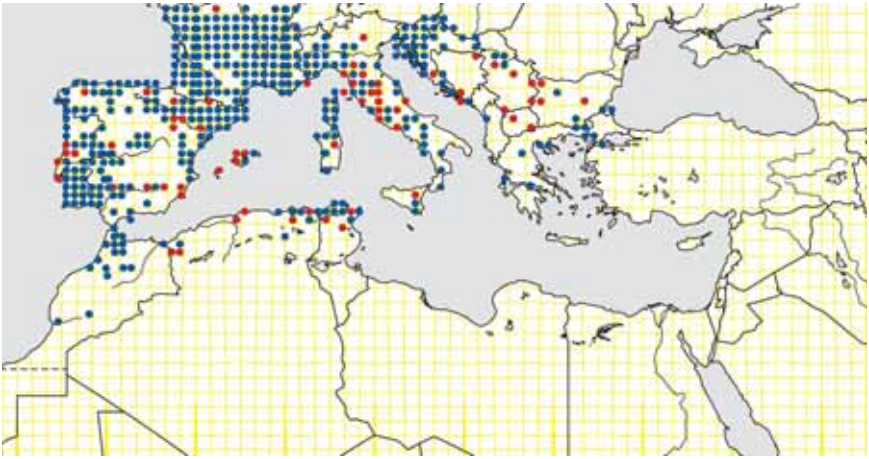


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, DZA, ESP, FRA, GRC, HRV, ISR, ITA, LBN, MKD, MNE,
Mediterranean	LC	MAR, PRT, SRB, SVN, SYR, TUN, TUR
North Africa	LC	

The characters distinguishing between the subspecies *Lestes v. virens* and *L. v. vestalis* Rambur, 1842, are not clear. More work is needed to understand their relationship with *L. numidicus*, and to establish their correct distribution.

Lestes virens vestalis male, Germany (BK).

***Lestes viridis* (Vander Linden, 1825)**

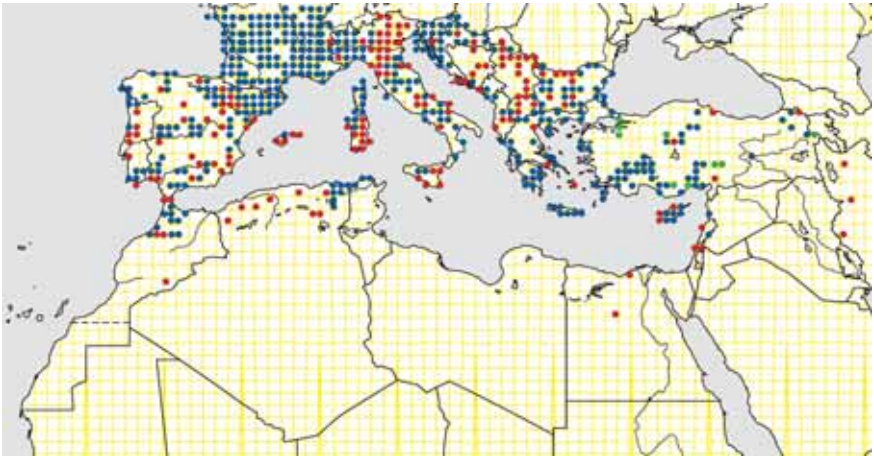


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, DZA, ESP, FRA, GRC, HRV, ITA, MAR, MKD, MNE, PRT,
Mediterranean	LC	SRB, SVN, TUN, TUR
North Africa	LC	

Lestes viridis is widespread and common in Europe and the Maghreb. In Italy and large parts of the Balkans the species' range overlaps with that of *L. parvidens*.

Lestes viridis male, Germany (BK).

***Sympecma fusca* (Vander Linden, 1820)**



IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, DZA, EGY, ESP, FRA, GRC, HRV, IRN, ISR, ITA,
Mediterranean	LC	LBN, MAR, MKD, MNE, PRT, SRB, SVN, SYR, TUN, TUR
North Africa	LC	

Sympecma fusca is common and widespread across a large part of the Mediterranean.

Sympecma fusca hibernating male, Germany (BK).

***Sympecma paedisca* (Brauer, 1877)**

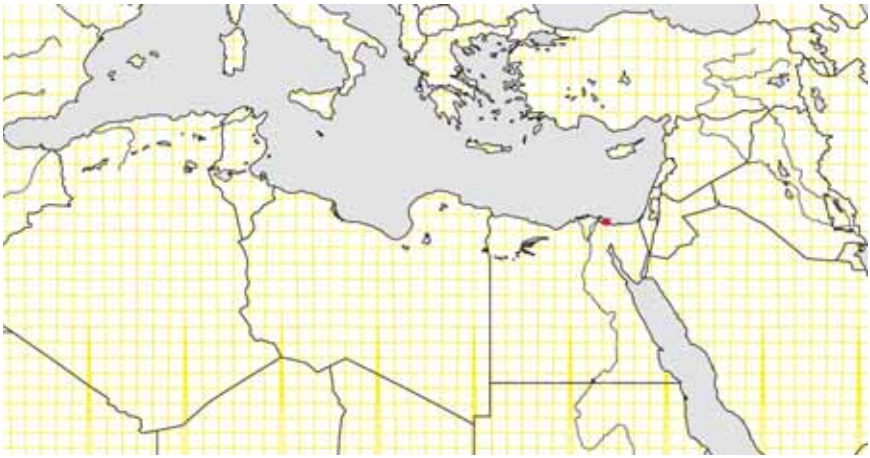
IUCN Red List Status		Record by countries
Global	NE	FRA*, IRN, IRQ, ITA, TUR
Mediterranean	EN	
North Africa		

The former occurrence of *Sympecma paedisca* in France, where it is classified as extinct due to proven habitat destruction, refers to Jurzitza (1961) and Bilek (1964). No other records are available for this country. The species has become extinct in several localities in its central European range, but is still present in northern Italy.

***Sympecma paedisca* female, Italy (ER).**

Coenagrionidae

Agriocnemis exilis Selys, 1872



IUCN Red List Status		Record by countries
Global	LC	EGY*
Mediterranean	RE	
North Africa	RE	

Agriocnemis exilis is an Afrotropical species that is known from North Africa and the Mediterranean from only a single record from Port Said in the Nile delta (Martin 1915). The next localities are in southern Sudan, almost 2500 km further south. There are no recent records of *A. exilis* in the region and it is therefore classified as RE in the Mediterranean and North African Red Lists. The material on which the only North African record of this species is based has not been studied in recent times and it is not unlikely that it in fact belongs to *A. sania*.

***Agriocnemis exilis* male, Botswana (JK).**

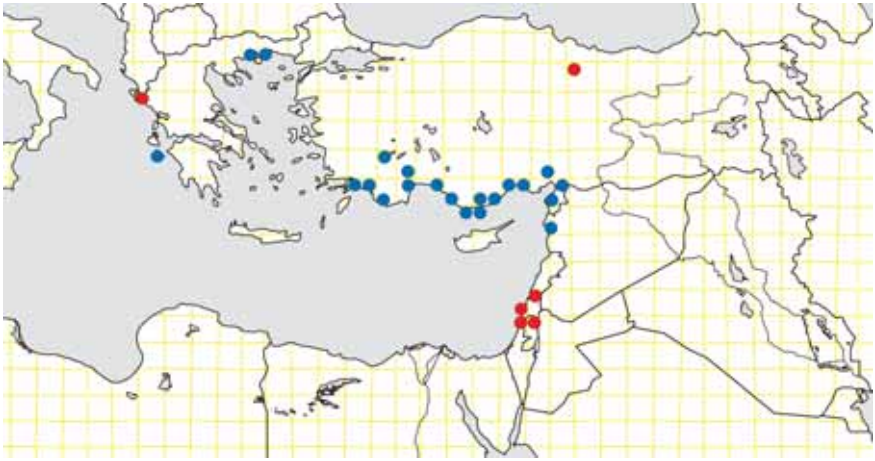
Agriocnemis sania Nielsen, 1959

IUCN Red List Status		Record by countries
Global	LC	EGY, ISR, LBY*
Mediterranean	CR	
North Africa	RE	

The present range of *Agriocnemis sania* in North Africa and the Mediterranean reaches from the Sinai Peninsula to northern Israel. The type locality, Ghat Oasis, is located in south-western Libya, but *A. sania* went extinct at this site due to the introduction of Mosquitofish (*Gambusia* sp.) for mosquito control (Dumont 1991). In the Levantine area, freshwater habitats are strongly threatened due to pollution and the over-exploitation of water resources, and the last regional records of *A. sania* date from 1972 (Dumont 1974). Despite several surveys, more recent records are not available. The species may now be extinct or nearly extinct in the Jordan Valley, possibly due to the introduction of fish farms along the Jordan River system (de Marmels 1995; Katbeh-Bader et al. 2002, 2004). Its situation elsewhere in Israel remains to be confirmed. The species has been classified as CR in the Mediterranean Red List and as RE in the North African Red List.

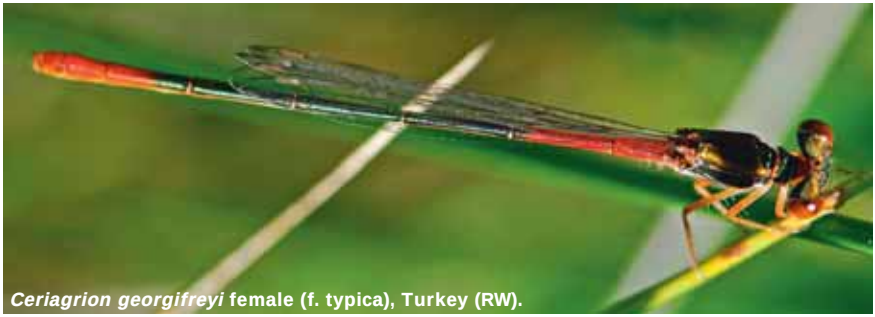
Agriocnemis exilis female, Botswana (JK).

Ceriagrion georgifreyi Schmidt, 1953



IUCN Red List Status		Record by countries
Global	NT	GRC, ISR, SYR, TUR
Mediterranean	VU	
North Africa		

The presence of *Ceriagrion georgifreyi* in Europe was only recently recognised, and its distribution range in the Balkans is not yet clear (Kalkman 2005). It has a restricted range and occurs mainly in a narrow coastal strip from Israel to southwestern Turkey and on the Greek islands Thásos, Zákinthos and Corfu (Kalkman 2005). Records from Lesvos and from continental Greece, published as *C. tenellum*, may refer to *C. georgifreyi*. No voucher specimens are available for these records and new fieldwork needs to be undertaken to establish the identity of these populations. A record of *C. georgifreyi* from Niksar in northern Turkey is based on a series of specimens in the Royal Scottish Museum, Edinburgh (Schneider 1986). This population belongs to the northern limit of the species and may tentatively be recognized as valid, although a label error or a problem of homonymy in the locality name cannot be ruled out. The species is not common across its range and is confined to seepages and small streams. *Ceriagrion georgifreyi* was classified NT in the Global Red List but has been upgraded to VU in the subsequent Mediterranean Red List.

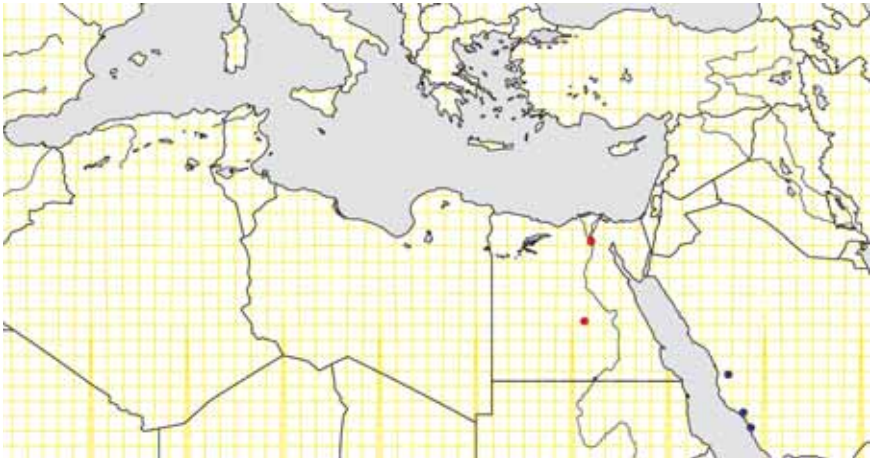


***Ceriagrion georgifreyi* female (f. typica), Turkey (RW).**

Ceriagrion georgifreyi female (f. melanogastrum), Turkey (RW).

Ceriagrion georgifreyi male, Turkey (RW).

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

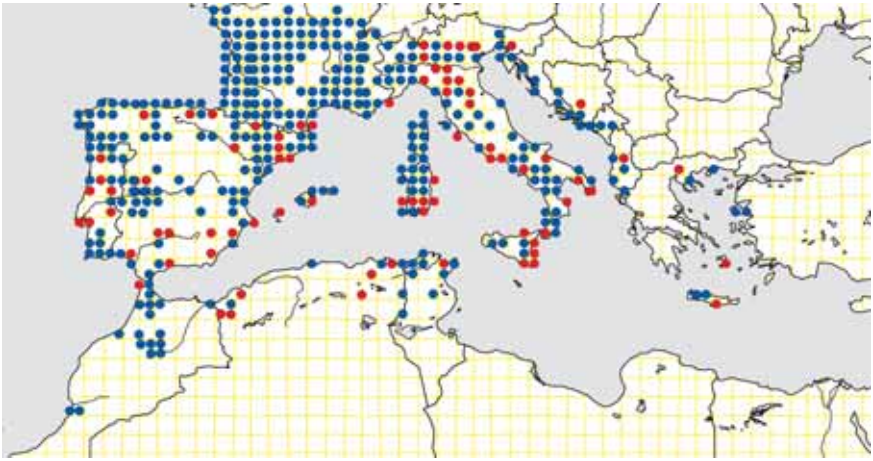


IUCN Red List Status		Record by countries
Global	LC	EGY*, SAU
Mediterranean	RE	
North Africa	RE	

No record of *Ceriagrion glabrum*, a common Afrotropical species, has been published from Egypt since 1928, and it is therefore regarded as extinct in North Africa. The nearest populations are known from Sudan and Saudi Arabia at a distance of 2000 and 1000 km, respectively. *Ceriagrion glabrum* has been classified RE in the North African and Mediterranean Red Lists.

***Ceriagrion glabrum* male, Nigeria (DM).**

***Ceriagrion tenellum* (Villers, 1789)**

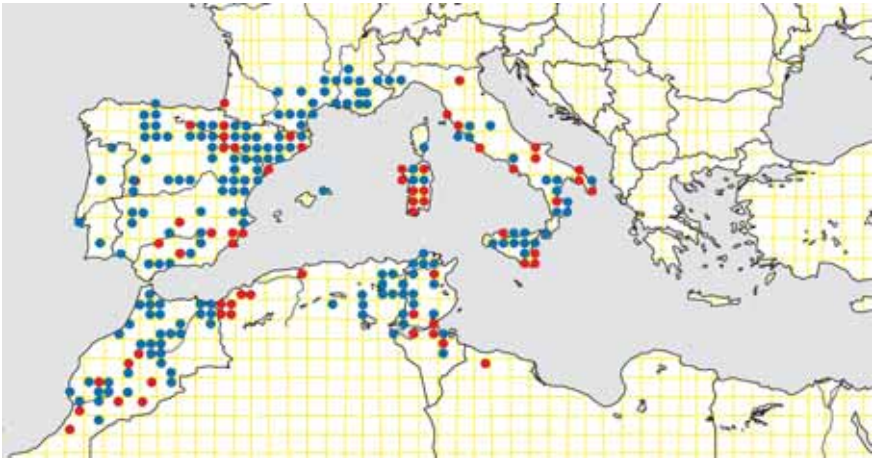


IUCN Red List Status		Record by countries
Global	NE	ALB, BIH, DZA, ESP, FRA, GRC, HRV, ITA, MAR, MNE, PRT, SVN, TUN
Mediterranean	LC	
North Africa	LC	

Ceriagrion tenellum has a large European and North African range and reaches to at least Albania in the Balkans. It can also be found on Crete and probably Ios. Records taken in northern Greece, Lesbos and Thásos are in need of confirmation, as a confusion with *C. georgifreyi* is possible.

Ceriagrion tenellum copula, Tunisia (BK).

***Coenagrion caerulescens* (Fonscolombe, 1838)**

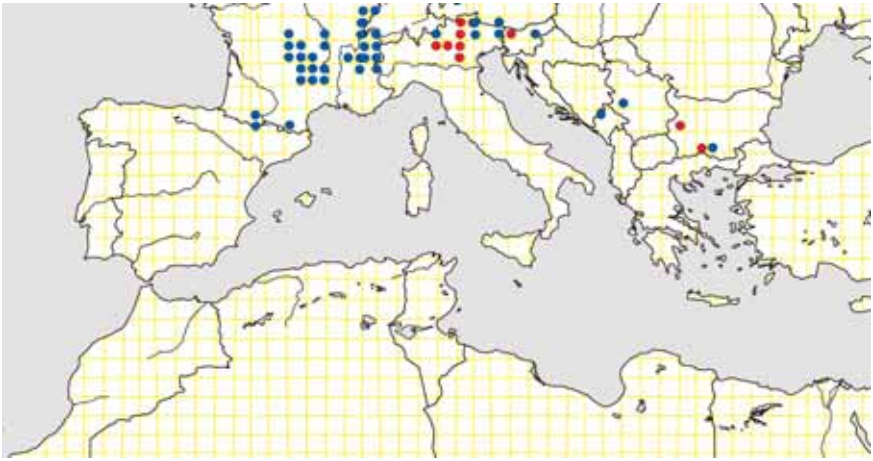


IUCN Red List Status		Record by countries
Global	NE	DZA, ESP, FRA, ITA, LBY, MAR, PRT, TUN
Mediterranean	LC	
North Africa	LC	

Coenagrion caerulescens is a western Mediterranean endemic, which is rare in southern France but is reasonably common further south.

***Coenagrion caerulescens* male, France (BK).**

***Coenagrion hastulatum* (Charpentier, 1825)**

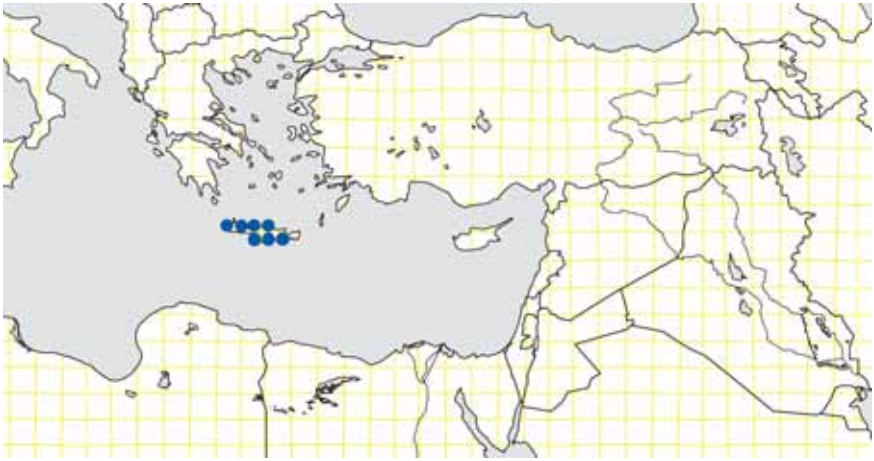


IUCN Red List Status		Record by countries
Global	NE	BGR, ESP, FRA, ITA, MNE, SRB, SVN
Mediterranean	LC	
North Africa		

Coenagrion hastulatum is a boreoalpine species that often develops in marshes and acid peat bogs. In the area covered by this atlas, the species is restricted to mountains. Old Italian records south of River Po (cf. Utzeri & D'Antonio 2005) have been regarded as incorrect, as proper habitat is lacking in this area. The more northern records in Italy have been included but some of these may be erroneous as well.

Coenagrion hastulatum male, Germany (BK).

Coenagrion intermedium Lohmann, 1990

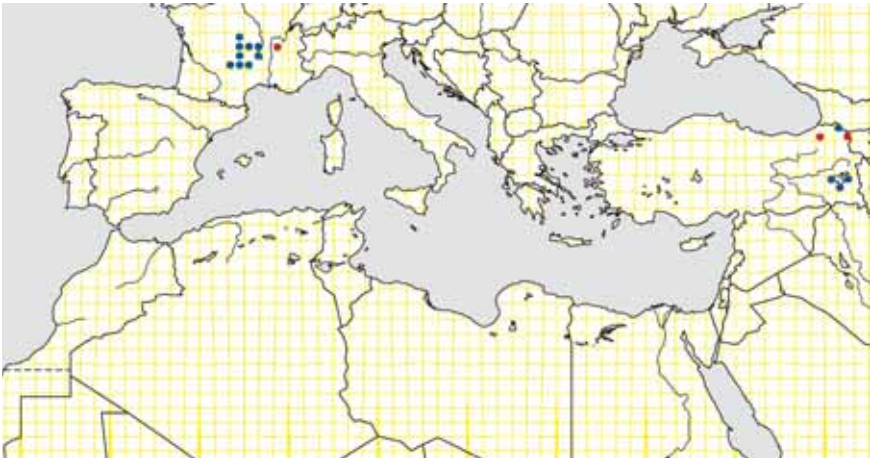


IUCN Red List Status		Record by countries
Global	NE	GRC (Crete)
Mediterranean	NT	
North Africa		

Coenagrion intermedium is endemic to Crete, where it is relatively common all over the island (Jödicke 2005). Although it is not presently threatened, the species is likely to decrease in the near future due to poor water management and changes in precipitation patterns related to climate change. It is classified as NT in the Mediterranean Red List.

***Coenagrion intermedium* male, Crete, Greece (JPB).**

Coenagrion lunulatum (Charpentier, 1840)

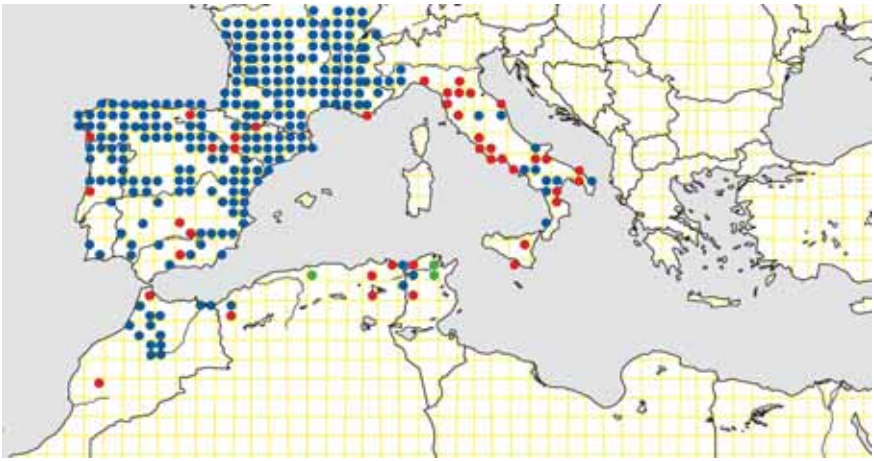


IUCN Red List Status		Record by countries
Global	NE	FRA, TUR
Mediterranean		
North Africa		

Coenagrion lunulatum is a boreoalpine species, which prefers acid waters like pools, marshes and peat bogs. In the Mediterranean it is restricted to the mountainous areas. The species occurs in eastern Turkey and the Massif Central in France. Although plausible, old records from the French Alps (Petit & Grangaud 1965) are uncertain.

Coenagrion lunulatum male, France (JPB).

Coenagrion mercuriale (Charpentier, 1840)



IUCN Red List Status		Record by countries
Global	NT	DZA, ESP, FRA, ITA, MAR, PRT, SVN, TUN
Mediterranean	NT	
North Africa	EN	

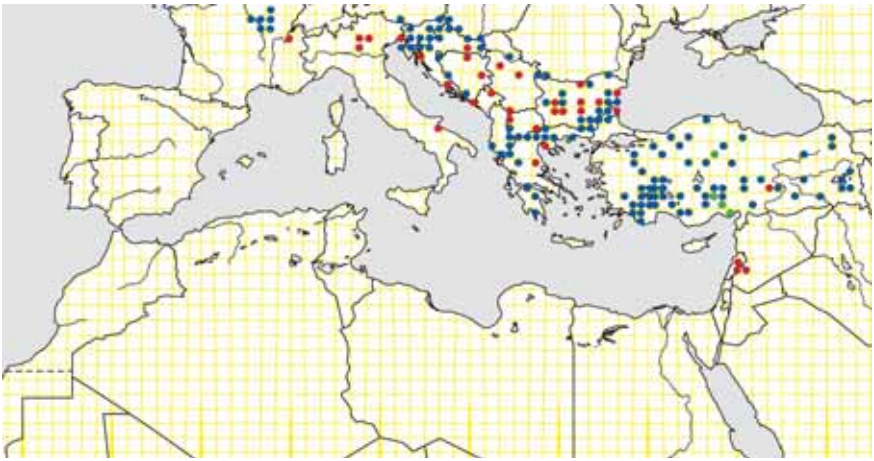
Coenagrion mercuriale is confined to the western Mediterranean and parts of western Europe. It is still widely distributed in France and in the Iberian Peninsula, but is steadily decreasing in Italy and in large areas of the Maghreb. The Italian populations are sometimes regarded as a distinct subspecies, *C. m. castellanii* Roberts, 1948, but the differences with the nominal subspecies are small and do not warrant a subspecific status. *Coenagrion m. castellanii* has been erroneously reported from the Maghreb as a valid species (Ben Azzouz et al. 1989). In Italy, the species is only present south of River Po. Two records from the Lago Maggiore itself (Nocentini 1963) are erroneous (Carchini et al. 1985) and have been omitted. Two records from Slovenia have never been confirmed, are doubtful (Kotarac 1997) and have been omitted. Records from Bulgaria are likely to belong to *C. ornatum* (Marinov 2001b). Records from the Caucasian range (e.g., Spuris 1988; Kosterin 2005) are unreliable and are obviously due to confusion with another species, possibly the closely related *C. ecornutum* (Selys, 1872), which is known to occur in the southwestern Ural (Kosterin 2005). *Coenagrion mercuriale* is strongly impacted by intensive agricultural practices and is declining over much of its range. It is classified EN in the North African Red List and NT in the Global and Mediterranean Red Lists.

Coenagrion mercuriale male, France (BK).

Coenagrion caerulescens male, France (BK).

Coenagrion mercuriale male, France (BK).

Coenagrion ornatum (Selys, 1850)

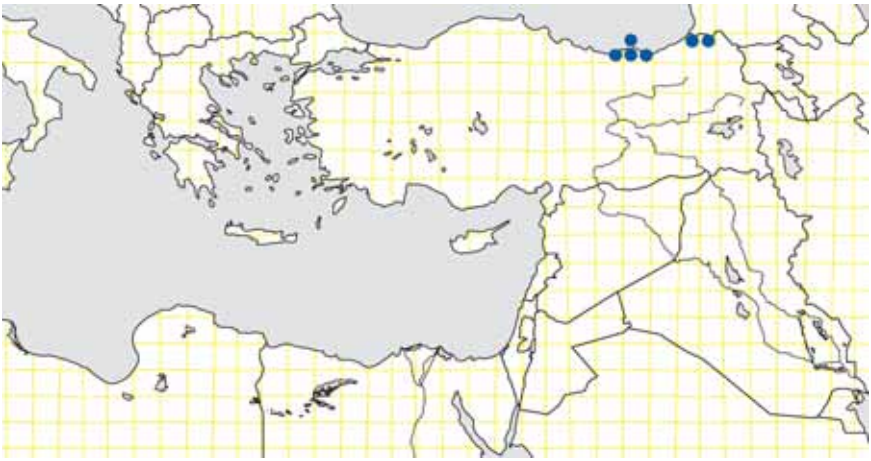


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, FRA, GRC, HRV, ITA*, LBN, MKD, MNE, SRB, SVN, SYR, TUR
Mediterranean	NT	
North Africa		

Coenagrion ornatum is not rare in Turkey and parts of the Balkan. It is much rarer in central Europe and underwent a strong decline. The isolated record from southern Italy pertains to an old record from 1939 from Cerignola, Foggia (Schmidt 1952). There are no recent records from Italy and the species is believed to be extinct in this country. *Coenagrion ornatum* is highly specialized and confined to seepage waters, small ditches and rivulets. The species is threatened by intensive agricultural practices and is classified NT in the Mediterranean Red List.

Coenagrion ornatum female, Germany (BK).

Coenagrion ponticum (Bartenef, 1929)

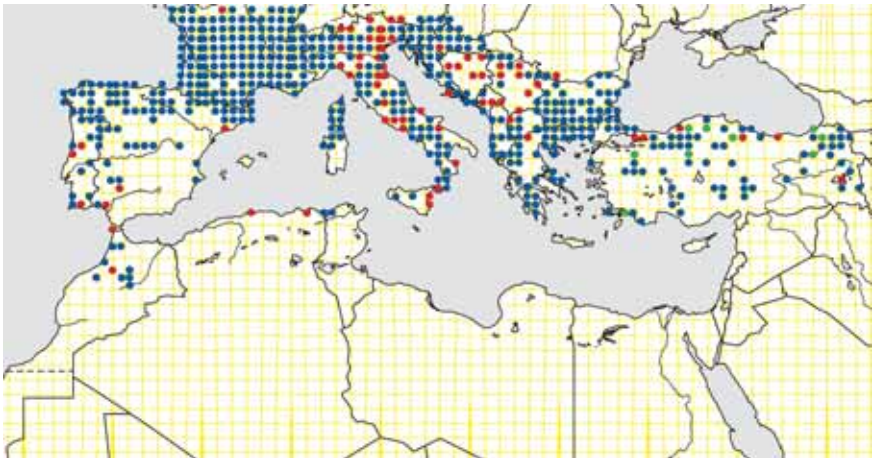


IUCN Red List Status		Record by countries
Global	LC	TUR
Mediterranean		
North Africa		

Coenagrion ponticum is a close relative of *C. puella* and replaces the latter in parts of north-eastern Turkey.

***Coenagrion ponticum* copula, Turkey (JPB).**

***Coenagrion puella* (Linnaeus, 1758)**

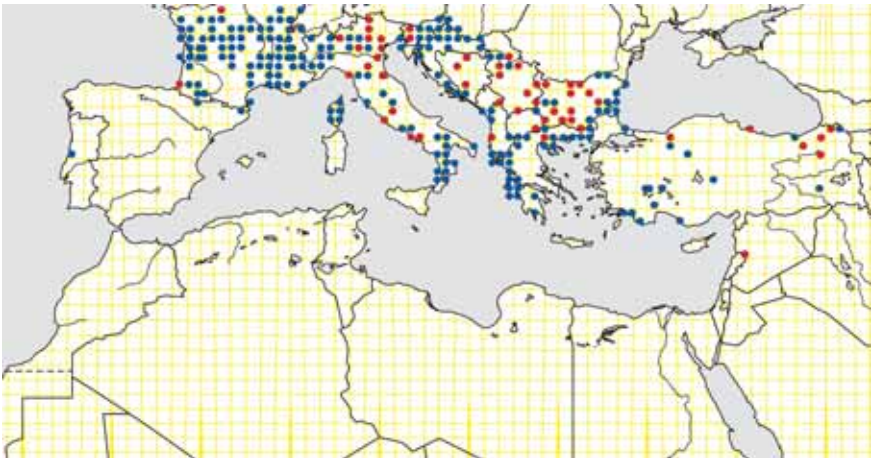


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, DZA, ESP, FRA, GRC, HRV, ITA, MAR, MKD, MNE, PRT,
Mediterranean	LC	SRB, SVN, TUN*, TUR
North Africa	LC	

Coenagrion puella is common and widespread in large parts of Europe and the Mediterranean. It has not been found in Tunisia since 1906 (Gadeau de Kerville 1908) and is regarded as extinct there.

Coenagrion puella male, Germany (BK).

Coenagrion pulchellum (Vander Linden, 1825)

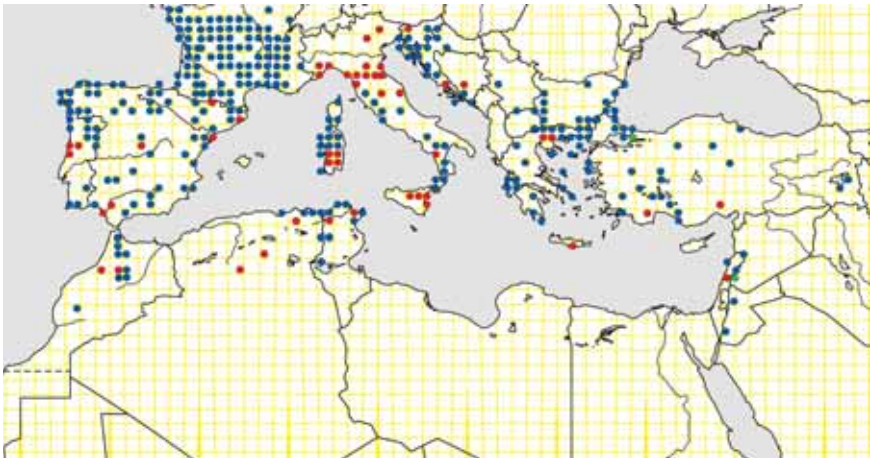


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MKD, MNE, PRT, SRB, SVN,
Mediterranean	NT	SYR*, TUR
North Africa		

Coenagrion pulchellum is common and widespread in northern Europe, but is scarcer further to the south and may decline in the future due to global warming. It is classified NT in the Mediterranean Red List. There is only a single record from Syria (Schneider 1986), which has not been confirmed for more than 100 years and consequently is regarded as extinct.

***Coenagrion pulchellum* female, Poland (BK).**

***Coenagrion scitulum* (Rambur, 1842)**

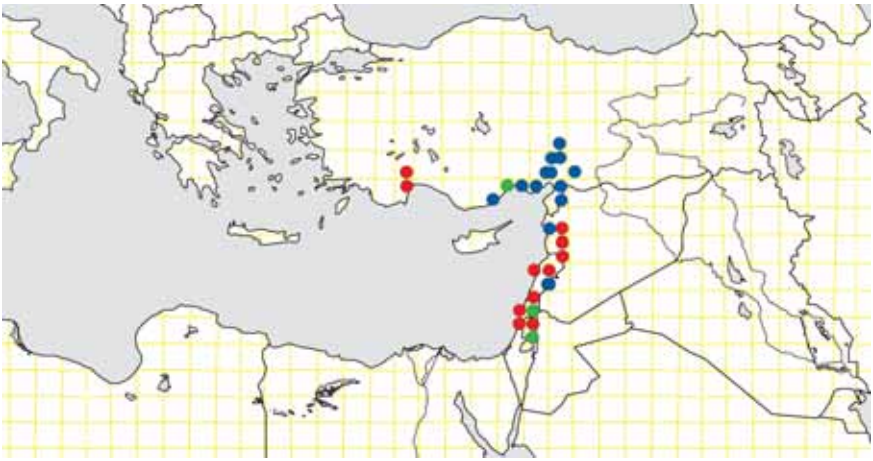


IUCN Red List Status		Record by countries
Global	NE	BGR, BIH, DZA, ESP, FRA, GRC, HRV, ISR, ITA, JOR, LBN, MAR, MKD,
Mediterranean	LC	PRT, SRB, SVN, SYN, TUN, TUR
North Africa	NT	

Coenagrion scitulum has largely a Mediterranean distribution and is most common in the west of its range. It is mainly found in shallow pools with rich aquatic submerged and floating vegetation. These habitats are threatened in the Mediterranean due to climate change and the abandonment of meadow pools used for livestock. *Coenagrion scitulum* is presently not threatened in the European part of its range, as it seems to be expanding to the north. For the North African Red List it is classified as NT.

Coenagrion scitulum male, Tunisia (BK).

Coenagrion syriacum (Morton, 1924)



IUCN Red List Status		Record by countries
Global	NT	ISR, LBN, SYR, TUR
Mediterranean	NT	
North Africa		

Coenagrion syriacum, which was first described as a subspecies of *C. puella*, is now widely accepted as a full species. It is endemic to southern Turkey and the Levant, where it is common and locally abundant. However there are no recent records for the western part of its range in Turkey and the species might have disappeared there (Schneider 1982, 2004; Kalkman et al. 2004). *Coenagrion syriacum* is classified NT in the Global and Mediterranean Red Lists.

Coenagrion syriacum male, Turkey (HN).

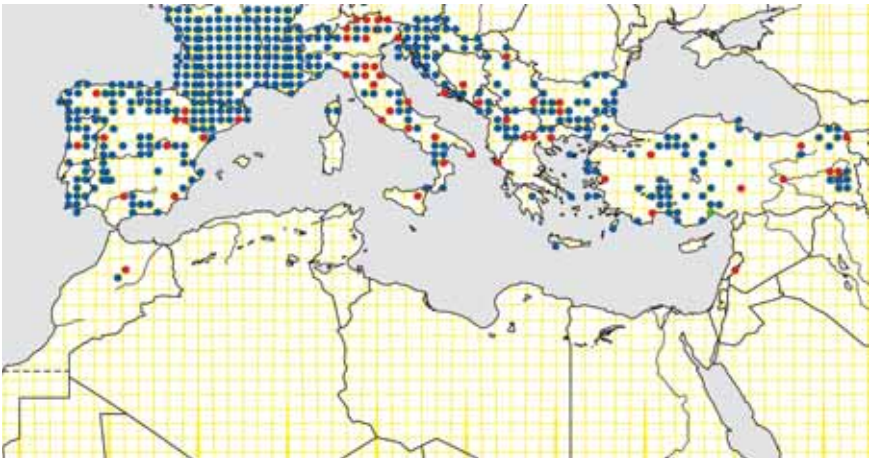
Coenagrion vanbrinkae Lohmann, 1993

IUCN Red List Status		Record by countries
Global	DD	TUR
Mediterranean		
North Africa		

The description of *Coenagrion vanbrinkae* is poor and the characters distinguishing it from *C. ornatum* are not clear. A study based on material of *C. vanbrinkae* and *C. ornatum* from Turkey and Iran, preferably including new material from the latter country, is needed. The map presented here gives only records published in the original description by Lohmann (1993).

***Coenagrion vanbrinkae* male, Armenia (MT).**

Enallagma cyathigerum (Charpentier, 1840)

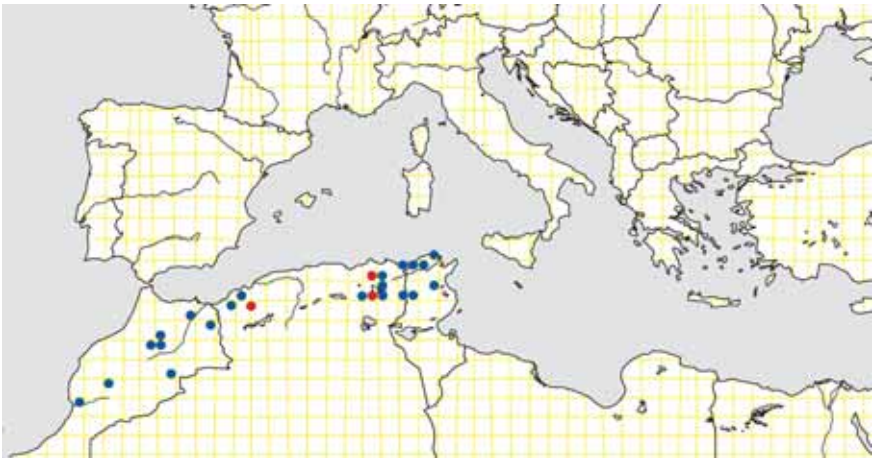


IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MAR, MKD, MNE, PRT,
Mediterranean	LC	SRB, SVN, SYR, TUR
North Africa	DD	

Enallagma cyathigerum is common and widespread in Europe but is very scarce in North Africa, where it is usually replaced by *E. deserti*.

Enallagma cyathigerum female, Germany (BK).

***Enallagma deserti* (Selys, 1871)**

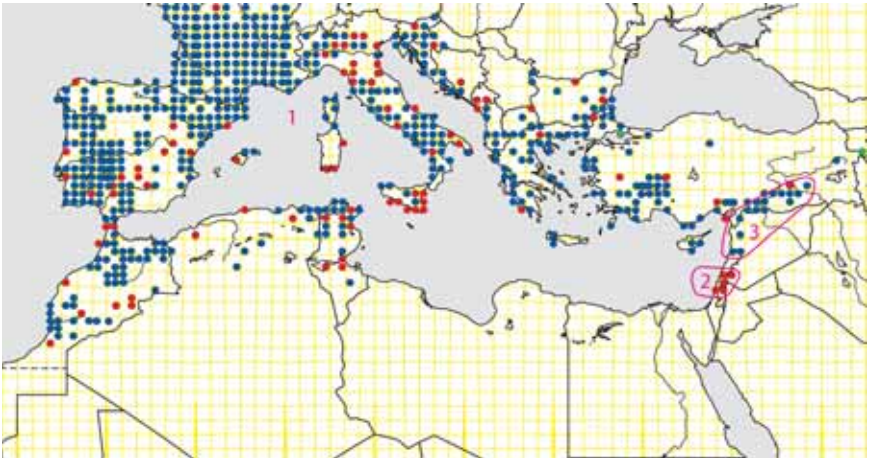


IUCN Red List Status		Record by countries
Global	NE	DZA, MAR, TUN
Mediterranean	LC	
North Africa	LC	

Enallagma deserti is endemic to the Maghreb, where its numbers seem to be increasing thanks to the construction of a number of small dams. It overlaps with the closely related *E. cyathigerum* in the High Atlas in Morocco and both hybridize (Samraoui et al. 2002).

***Enallagma deserti* male, Tunisia (JPB).**

***Erythromma lindenii* (Selys, 1840)**

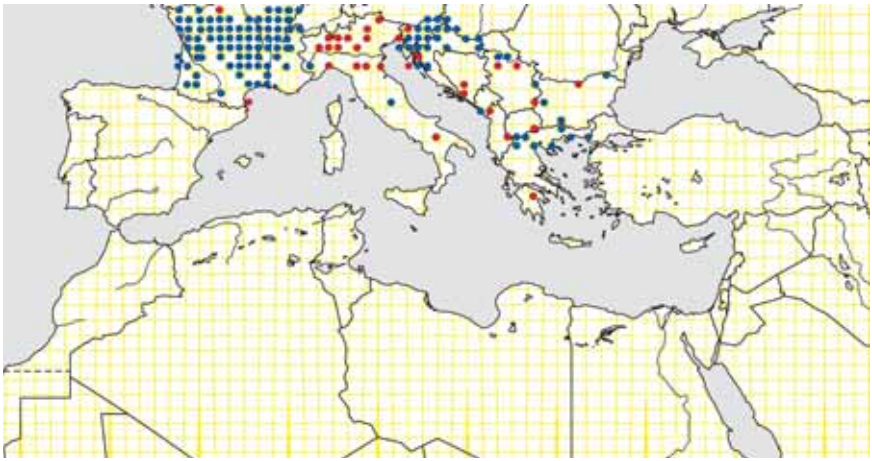


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, DZA, ESP, FRA, GRC, HRV, ISR, ITA, MAR, MKD,
Mediterranean	LC	MNE, PRT, SRB, SVN, SYR, TUN, TUR
North Africa	LC	

Erythromma l. lindenii (1) and *E. l. zernyi* Schmidt, 1938 (2) are two taxa that are assumed to have differentiated during the last glacial period as a result of geographical isolation. Their subsequent connection during the Holocene led to hybridization and assimilation of the Middle-Eastern *E. l. zernyi* by the nominal subspecies. Intermediate populations (3) have been reported as «small islands» in several parts of the Middle-East (Dumont et al. 1995) and it is expected that *E. l. zernyi* will progressively disappear naturally with time.

Erythromma lindenii male, France (BK).

***Erythromma najas* (Hansemann, 1823)**

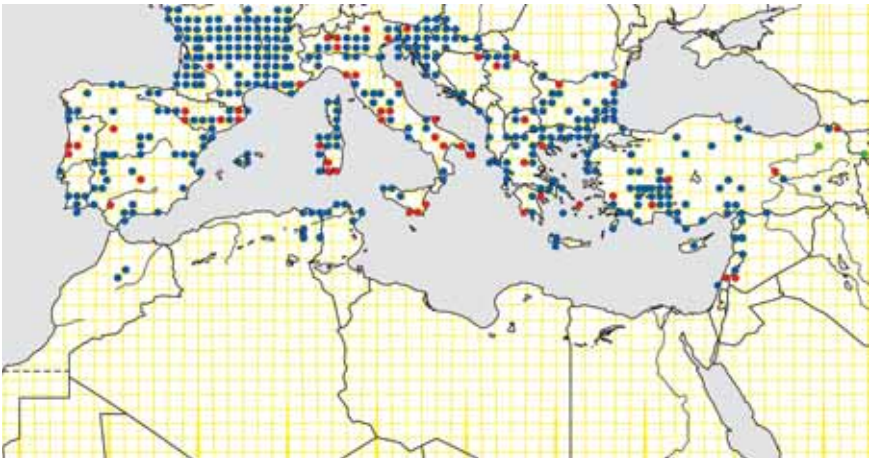


IUCN Red List Status		Record by countries
Global	NE	BGR, BIH, FRA, GRC, HRV, ITA, MKD, MNE, SRB, SVN
Mediterranean	NT	
North Africa		

Old records of *Erythromma najas* from the Maghreb (Gadeau de Kerville 1908; Martin 1910) as well as some records from the lowland of southern Italy (cf. Utzeri & D'Antonio 2005) are most likely based on confusion with *E. viridulum* and have been omitted for that reason. Some of the northern Italian records may also pertain to mis-identifications. The species is likely to decline in the southern latitudes due to climate change and therefore has been classified NT in the Mediterranean Red List.

Erythromma najas male, Germany (BK).

Erythromma viridulum (Charpentier, 1840)

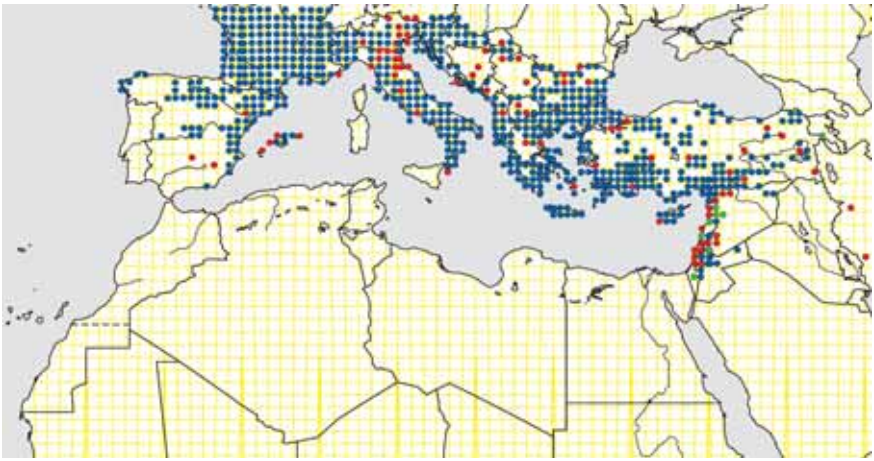


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, CYP, DZA, ESP, FRA, GRC, HRV, ISR, ITA, LBN, MAR, MKD,
Mediterranean	LC	MNE, PRT, SRB, SVN, SYR, TUN, TUR
North Africa	LC	

Erythromma viridulum is a common and widespread species in large parts of Europe and the Mediterranean.

Erythromma viridulum male, Germany (BK).

Ischnura elegans (Vander Linden, 1820)

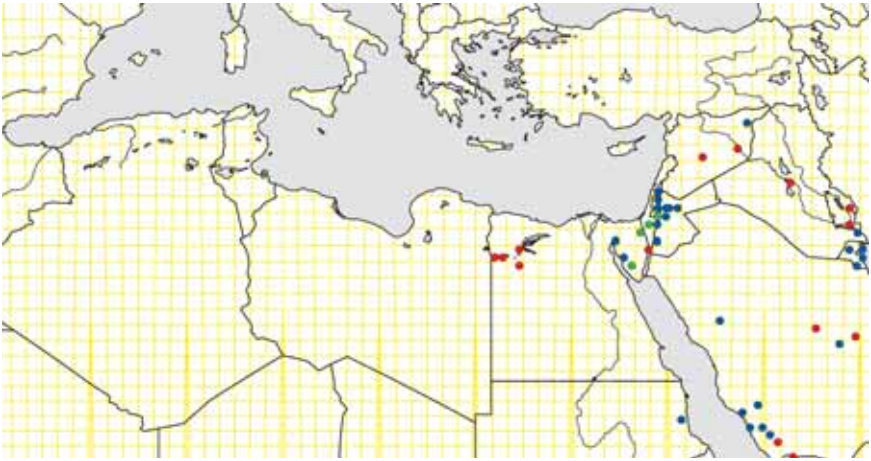


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, ESP, FRA, GRC, HRV, IRN, ISR, ITA, JOR, LBN,
Mediterranean	LC	MKD, MNE, PSE, SRB, SVN, SYR, TUR
North Africa		

Ischnura elegans is one of the most common and most widespread species in Europe. Several subspecies have been described (Schmidt 1939, 1967) but subsequently these have received very little attention by field workers so that their distribution is only poorly known.

Ischnura elegans male, Germany (BK).

Ischnura evansi Morton, 1919

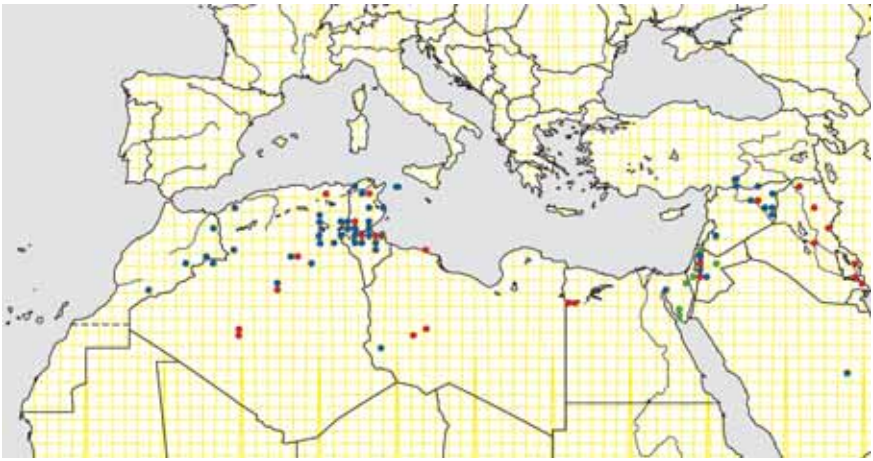


IUCN Red List Status		Record by countries
Global	NE	EGY, IRQ, ISR, JOR, KWT, PSE, SAU, SDN, SYR
Mediterranean	LC	
North Africa	DD	

Ischnura evansi has a scattered distribution but is usually abundant where found. The species shows migratory tendencies (Waterston & Pittaway 1991) and can therefore turn up in large parts of the eastern Mediterranean. It has not been found west of Egypt but can be expected to occur in northeastern Libya.

***Ischnura evansi* male, Oman (BR).**

Ischnura fountaineae Morton, 1905

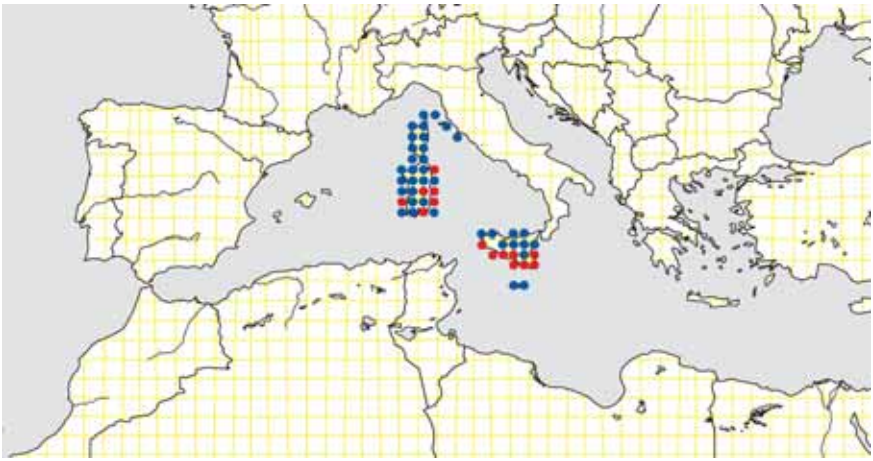


IUCN Red List Status		Record by countries
Global	NE	DZA, EGY, IRQ, ISR, ITA (Pantelleria), JOR, LBY, MAR, PSE, SAU, SYR,
Mediterranean	LC	TUN, TUR
North Africa	LC	

Ischnura fountaineae is an eastern species, which was recently found in the western half of Morocco (Boudot 2008). It is expected that *I. fountaineae* occurs over a wide range along the Saharan northern margin. It probably does not reach the Atlantic coast, as this area has a relatively cold climate. The only European locality is the island of Pantelleria (Lohmann 1989).

***Ischnura fountaineae* copula, Tunisia (BK).**

Ischnura genei (Rambur, 1842)

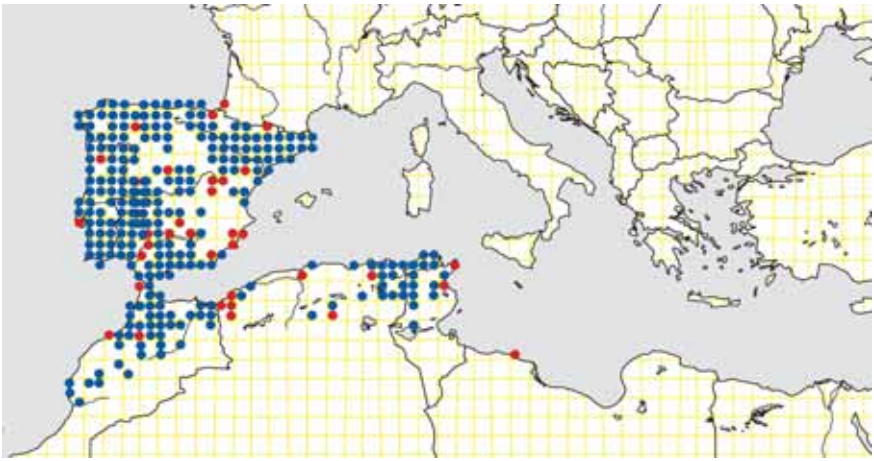


IUCN Red List Status		Record by countries
Global	NE	FRA (Corse), ITA (Capraia, Elba, Giglio, Sardinia, Sicily), MLT
Mediterranean	LC	
North Africa		

Ischnura genei is endemic to the Tyrrhenian Islands, Sicily and the Maltese Islands. Old records from the oasis of Trahgen in Libya by Nielsen (1935a, b) have been checked and found to pertain to *I. saharensis* (S.V. Ober pers. comm.). Specimens of *I. genei* published by Ris (1911) from Benghasi and Dernah in northern Libya, also, most probably, refer to *I. saharensis*. These records have been included under *I. saharensis* in this atlas, although the material could not be checked (S.V. Ober pers. comm.). The record of *I. genei* from the oasis of Marada by Nielsen (1935a) could not be checked and – although *I. saharensis* would be the most probable – could refer to any *Ischnura* species, why it has been omitted here.

***Ischnura genei* male, Sicily, Italy (JPB).**

***Ischnura graellsii* (Rambur, 1842)**

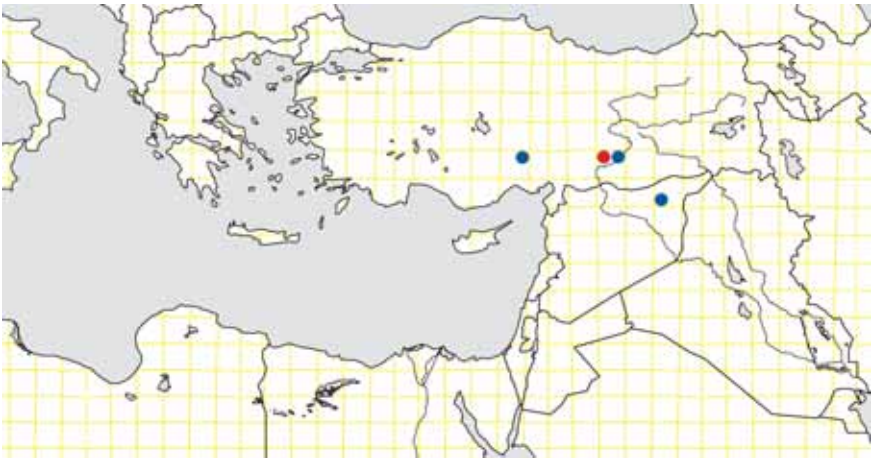


IUCN Red List Status		Record by countries
Global	NE	FRA*, DZA, ESP, LBY, MAR, PRT, TUN
Mediterranean	LC	
North Africa	LC	

Ischnura graellsii replaces *I. elegans* in large parts of the Iberian Peninsula. Over parts of its range it is hybridising with *I. elegans*, resulting in the assimilation and replacement by *I. elegans* due to unidirectional hybridisation. Genetic analysis has shown that both taxa are closely related and should be regarded as incipient species. Their divergence, initiated by climate change and geographical isolation, began about 100,000 years ago at the beginning of the last glacial period (Monetti et al. 2002).

Ischnura graellsii male, Tunisia (BK).

Ischnura intermedia Dumont, 1974

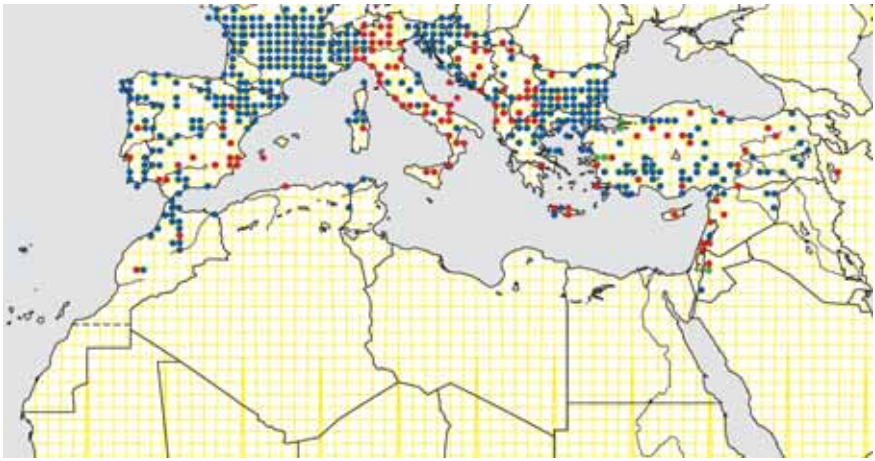


IUCN Red List Status		Record by countries
Global	NE	SYR, TUR
Mediterranean	DD	
North Africa		

Ischnura intermedia is a poorly known species, perhaps often overlooked due to its resemblance with *I. pumilio*. Its known range reaches from Turkey and Syria to the northeastern parts of Iran and Turkestan.

Ischnura intermedia male, Turkey (PH).

***Ischnura pumilio* (Charpentier, 1825)**

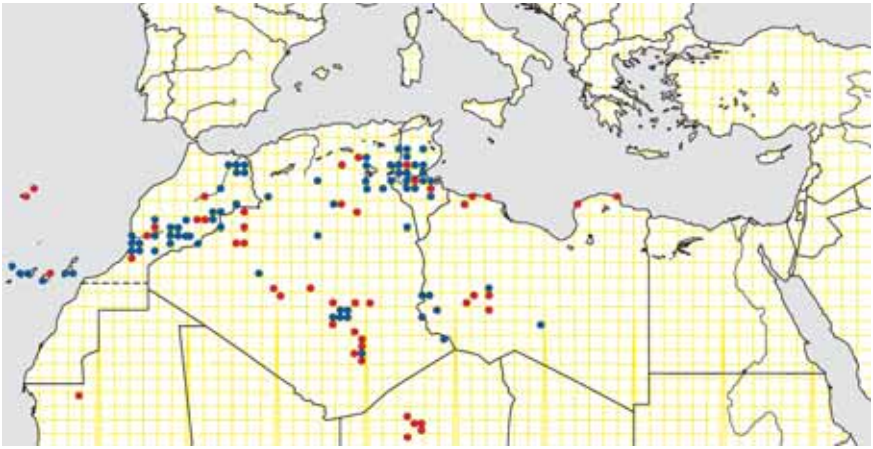


IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, CYP, DZA, ESP, FRA, GRC, HRV, IRN, ISR, ITA,
Mediterranean	LC	JOR, LBN, MAR, MKD, MNE, PRT, SRB, SVN, SYR, TUN, TUR
North Africa	LC	

Ischnura pumilio was found for the first time in Sardinia by M. Pavesi in 1979 (Bucciarelli et al. 1983), but this record has been overlooked in the recent overall Italian database (Utzeri & D'Antonio 2005). In 2008, it was recorded again from the northern part of this island (JPB, ER). Old records from Iraq (St. Quentin 1964) pertain in fact to *I. evansi* (Schneider 1986), so that no record of *I. pumilio* is presently valid for this country.

Ischnura pumilio male, Germany (BK).

Ischnura saharensis Aguesse, 1958

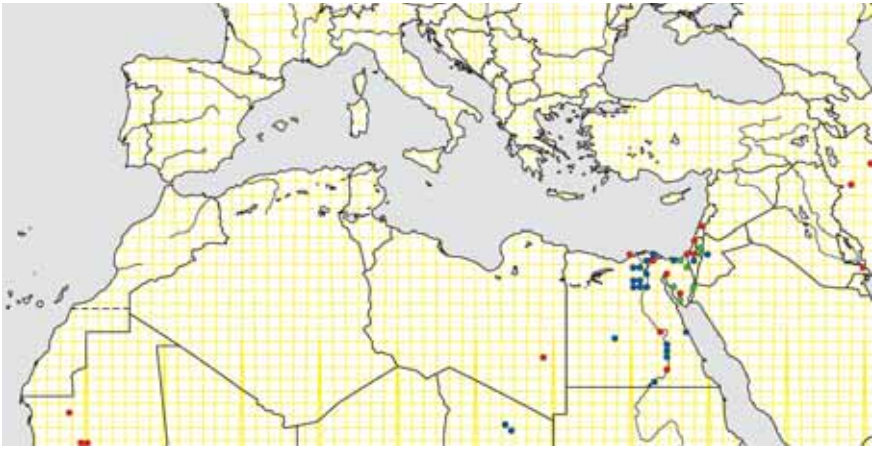


IUCN Red List Status		Record by countries
Global	NE	DZA, ESP (Canary Islands), LBY, MAR, MRT, NER, PRT (Madeira archi-
Mediterranean	LC	pelago), TUN
North Africa	LC	

Ischnura saharensis is an endemic Saharan and sub-Saharan species, extending to the Macaronesian Islands in the west and to eastern Libya in the east. It is very mobile and new rain pools in desert areas are quickly colonised (Dumont 2007). Records of a still unidentified *Ischnura* species from the Madeira archipelago have been mentioned by Selys & Hagen (1850) under "*Agrion Maderae*" (nom. nud.), and by Gardner (1963) misleadingly under *I. senegalensis*. Although all these specimens are lost today and hence are pending actual specification, Jacquemin & Boudot (1999: 76) and Ferreira et al. (2006: 144) suppose that they pertain most likely to *I. saharensis* and are mapped accordingly here.

Ischnura saharensis male, Tunisia (BK).

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



IUCN Red List Status		Record by countries
Global	LC	EGY, IRN, IRQ, ISR, JOR, LBY, MRT, PSE, TCD
Mediterranean	LC	
North Africa	DD	

An old record of *Ischnura senegalensis* from Benghasi in Libya by Navás (1930) is doubtful and omitted as it probably refers to *I. saharensis* (Dumont 1982; S. Ober pers. comm.). The record of *I. senegalensis* from the Trahgen Oasis by Nielsen (1935b) pertains in fact to *I. saharensis* (S. Ober pers. comm.). Old records of *I. senegalensis* from the Canary Islands have been found to belong to *I. saharensis* (Hämäläinen 1986), and records from the Madeira archipelago by Gardner (1963) also pertain most likely to that species (Ferreira et al. 2006).

***Ischnura senegalensis* male, Hong Kong (GR).**

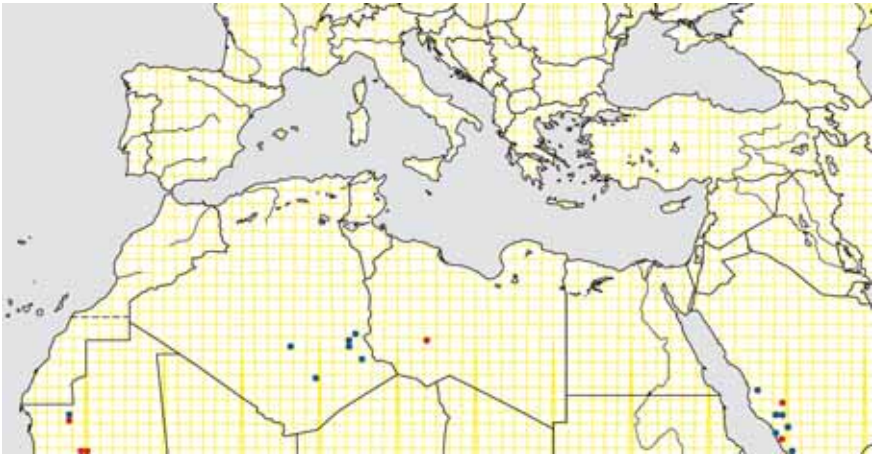
Nehalennia speciosa (Charpentier, 1840)

IUCN Red List Status		Record by countries
Global	NT	FRA*, ITA
Mediterranean	CR	
North Africa		

Nehalennia speciosa has suffered a dramatic decline in Europe (Bernard & Wildermuth 2005). In the Mediterranean region it has a restricted and severely fragmented distribution and is one of the most threatened species. The former occurrence of *N. speciosa* in France, where it is extinct today, is based on the indication of Selys (1876) «in the surroundings of Chambery» and on the presence of a specimen in the collection of E. Foudras in Lyon. The latter collected only in France, did not accept gifts and was visited by Selys who probably referred with the remark in his 1876 publication to the specimen he saw in the collection of Foudras. *Nehalennia speciosa* is still present in a few localities in northeastern Italy. It is classified NT in the Global Red List and as CR in the Mediterranean Red List.

***Nehalennia speciosa* male, Poland (JPB).**

Pseudagrion hamoni Fraser, 1955

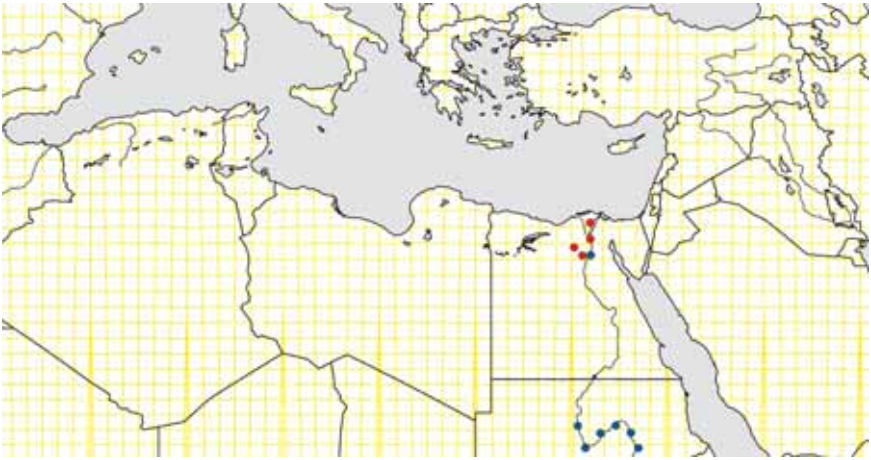


IUCN Red List Status		Record by countries
Global	LC	DZA, LBY, MRT, SAU
Mediterranean North Africa	VU	

Pseudagrion hamoni is a widespread African species, which is found in North Africa in a small number of permanent 'gueltas' in Mauritania, southern Algeria and southern Libya. In this region *P. hamoni* is considered to be a relict from pluvial periods during the early Holocene. Other populations are found along the Red Sea coast from Saudi Arabia to Yemen. Further south, the species is widespread from South Africa to the south of the Sahelian belt. The impact of humans on the habitats in North Africa is low as these waters are mostly used for water supply to dromedary caravans. The species is however vulnerable to climate change and is classified VU in the North African Red List.

***Pseudagrion hamoni* tandem during oviposition, Zambia (JK).**

Pseudagrion niloticum Dumont, 1978

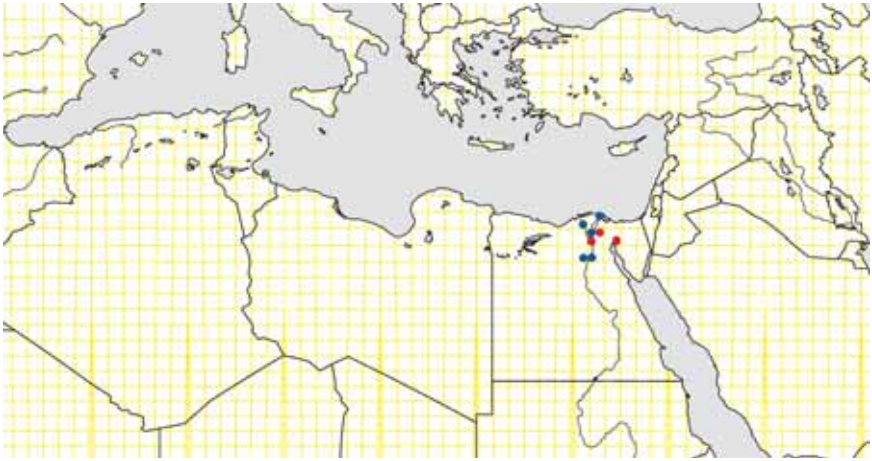


IUCN Red List Status		Record by countries
Global	LC	EGY, SDN
Mediterranean	EN	
North Africa	EN	

Pseudagrion niloticum is an East African species, which occurs in the Nile delta in Egypt and in springs in Sudan, Ethiopia, Somalia and Kenya. Only one recent record is available from Egypt and the species is believed to have strongly decreased due to degradation of its habitats during the last century, although detailed information on this is lacking. It is classified EN in the Mediterranean and North African Red Lists.

Pseudagrion niloticum tandem during oviposition, Kenya (VC).

Pseudagrion nubicum Selys, 1876

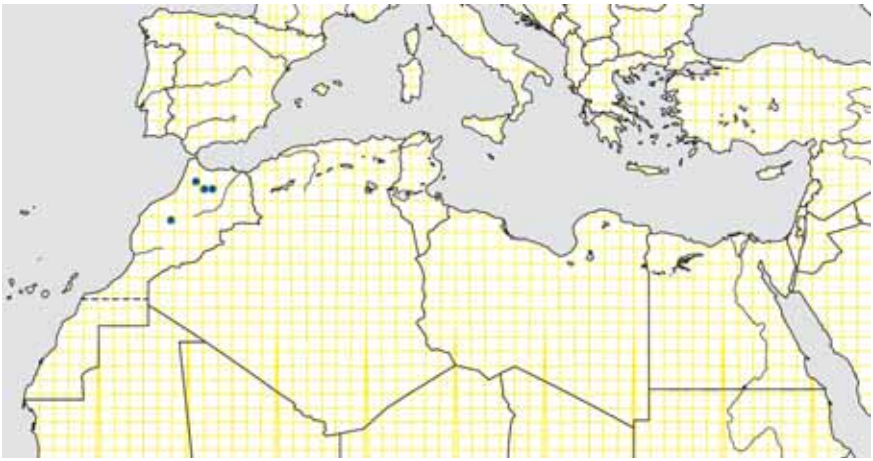


IUCN Red List Status		Record by countries
Global	LC	EGY
Mediterranean	EN	
North Africa	EN	

Pseudagrion nubicum is a widespread Afrotropical species that reaches the north of Africa. All North African localities are within the north of Egypt and some old localities in this area are no longer suitable due to urbanization and pollution. The species is classified EN in the Mediterranean and North African Red Lists.

***Pseudagrion nubicum* male, Kenya (VC).**

***Pseudagrion s. sublacteum* (Karsch, 1873)**

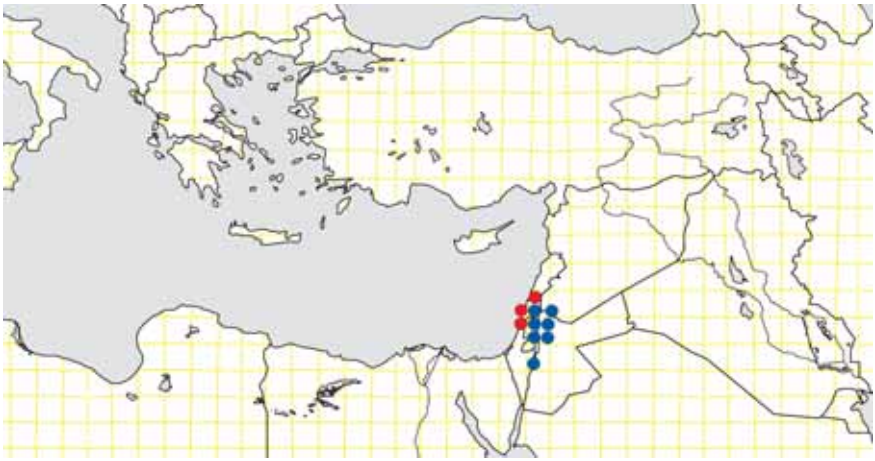


IUCN Red List Status		Record by countries
Global	LC	MAR
Mediterranean		
North Africa	CR	

Pseudagrion sublacteum is an Afrotropical species that is widespread south of the Sahelian belt. Two isolated populations – *Pseudagrion s. sublacteum* and *P. s. mortoni* Schmidt in Ris, 1936 – occur in the Mediterranean region. The very small Moroccan population belongs to the nominal subspecies. It is interpreted as a relict of a past pluvial period, during which the Sahelian and Saharan belts allowed an easy expansion of Afrotropical species to the north. *Pseudagrion s. sublacteum* is classified CR in the North African Red List.

Pseudagrion s. sublacteum male, Morocco (JPB).

Pseudagrion sublacteum mortonii Ris & Schmidt, 1936

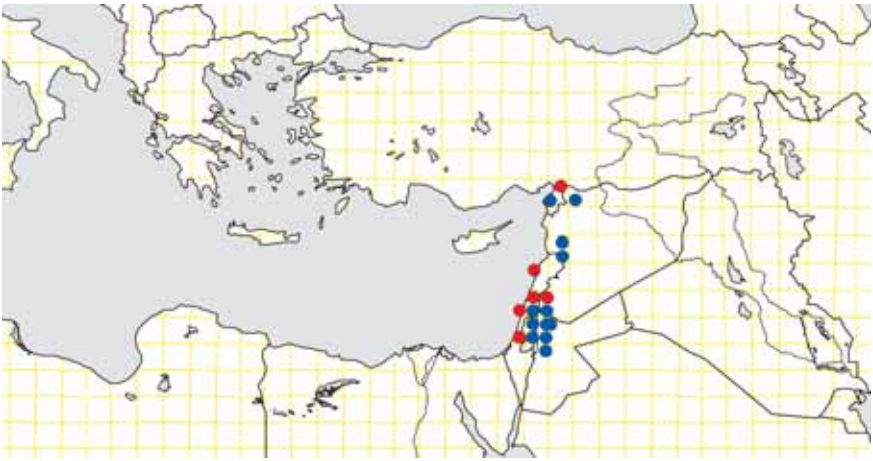


IUCN Red List Status		Record by countries
Global	LC	ISR, JOR, PSE, SYR
Mediterranean	LC	
North Africa		

Pseudagrion s. mortoni is endemic to the Levant and is believed to be relatively common in its small range. Like the nominal subspecies, it is interpreted as a relict of a past pluvial period.

Pseudagrion s. sublacteum female, Morocco (JPB).

Pseudagrion syriacum Selys, 1887

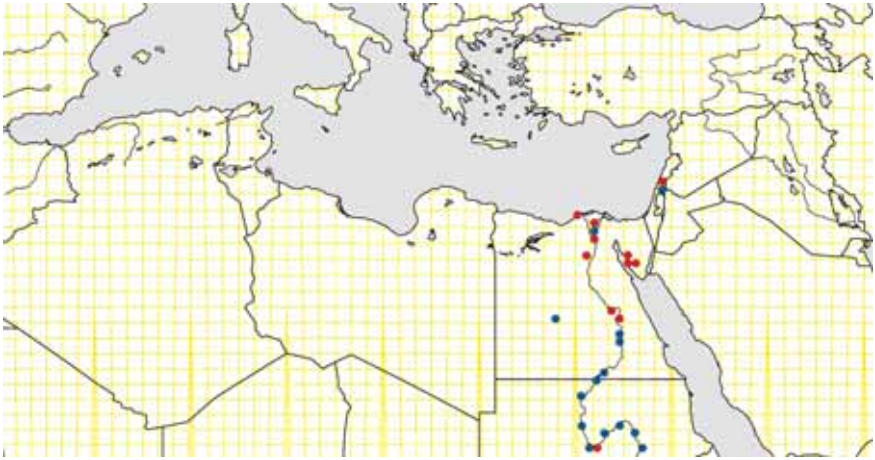


IUCN Red List Status		Record by countries
Global	NE	ISR, JOR, LBN, PSE, SYR, TUR
Mediterranean	LC	
North Africa		

Pseudagrion syriacum is a Levantine endemic, which has strong populations in some well-managed Nature Reserves in Israel. The species seems to be rare in the northern part of its range.

***Pseudagrion s. sublacteum* female, Morocco (JPB).**

***Pseudagrion torridum* Selys, 1876**



IUCN Red List Status		Record by countries
Global	LC	EGY, SDN, ISR
Mediterranean	LC	
North Africa	LC	

Pseudagrion torridum is an Afrotropical species reaching the north of Africa and the Sinai Peninsula through the Nile corridor. The population in the upper Jordan Valley was described as a poorly characterised and doubtful subspecies *P. t. hulae* Dumont, 1973.

Pseudagrion s. sublacteum male, Morocco (JPB).

Pyrrhosoma elisabethae Schmidt, 1948

IUCN Red List Status		Record by countries
Global	VU	ALB, GRC
Mediterranean	EN	
North Africa		

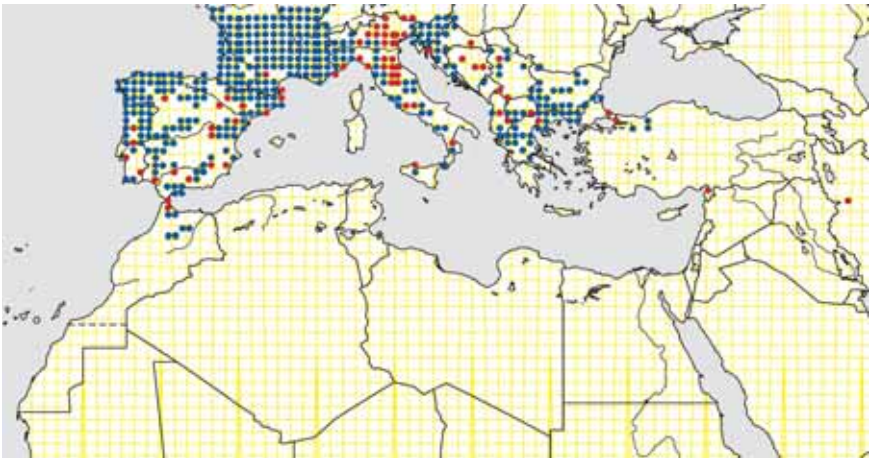
Pyrrhosoma elisabethae has a very restricted range, which extends from the northern Peloponnese to the south of Albania and to Corfu (Kalkman & Lopau 2006). In northwestern Greece it has been found syntopic with *P. nymphula*. No more than 14 localities have yet been identified, at several of which it has subsequently become extinct. Hence, *P. elisabethae* is one of the most threatened Odonata species in the Mediterranean region. It is classified VU in the Global Red List but has been upgraded to EN in the subsequent Mediterranean Red List.

***Pyrrhosoma elisabethae* tandem, Greece (JPB).**

Pyrrhosoma elisabethae male, Greece (FP).

Pyrrhosoma nymphula male, Germany (BK).

Pyrrhosoma nymphula (Sulzer, 1776)



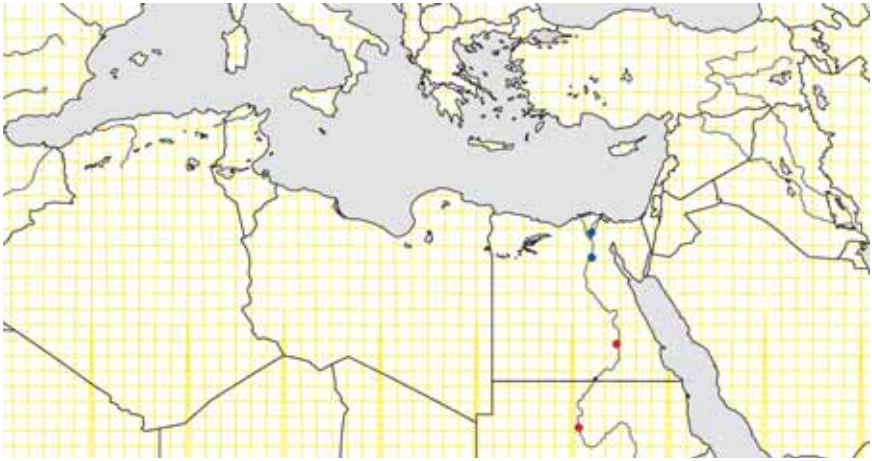
IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, ESP, FRA, GRC, HRV, IRN, ITA, MAR, MKD, MNE,
Mediterranean	LC	PRT, SRB, SVN, TUR
North Africa	NT	

Pyrrhosoma nymphula is a common species in most parts of Europe but becomes more scattered to the southeast. In North Africa it is limited to Morocco, where it is regarded as a glacial relict. The identity of an old specimen collected by A. David at «Alexandrette» (Iskenderun) in southern Turkey and reported by Selys (1887) has been confirmed by Schneider (1986). This record is believed to be reliable, as all specimens collected by A. David from Asia Minor came from Alexandrette and surroundings. However, this locality and a single recording site from Iran (Schmidt 1954) are strongly isolated and may represent a relict distribution. The species is classified NT in the North African Red List.

Pyrrhosoma nymphula female, Germany (BK).

Platycnemididae

***Mesocnemis robusta* (Selys, 1886)**



IUCN Red List Status		Record by countries
Global	NE	EGY, SDN
Mediterranean	CR	
North Africa	CR	

Mesocnemis robusta is known from West Africa and from the Nile valley, where it was found in few localities in Egypt and Sudan (Dijkstra 2008). Northern Egyptian populations still exist in the agricultural areas of the Nile delta and at the El-Fayum Oasis, although this area suffers from irrigation and pollution. *Mesocnemis robusta* is classified CR in the North African and the Mediterranean Red Lists.

Mesocnemis robusta male, Ghana (VJK).

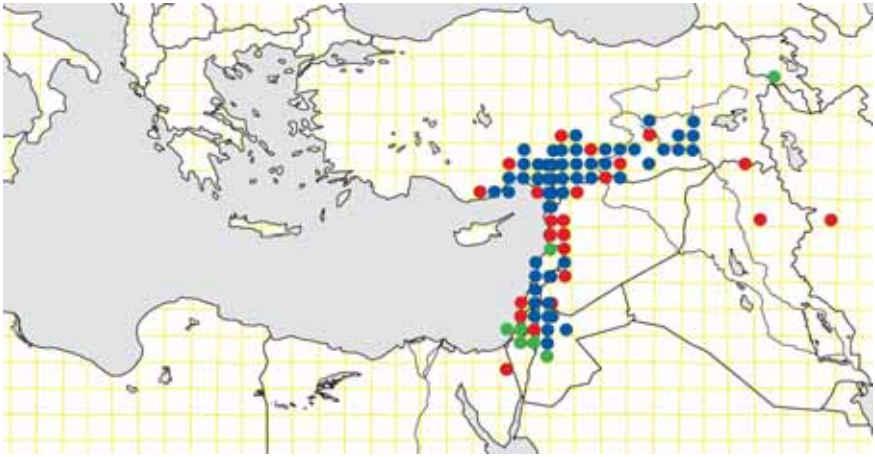
***Platycnemis acutipennis* Selys, 1841**

IUCN Red List Status		Record by countries
Global	NE	ESP, FRA, PRT
Mediterranean	LC	
North Africa		

Platycnemis acutipennis is endemic to southwestern Europe and the map shows almost its whole range. The species is widespread and common in southwestern France and the Iberian Peninsula.

***Platycnemis acutipennis* male, France (JPB).**

***Platycnemis dealbata* Selys, 1863**

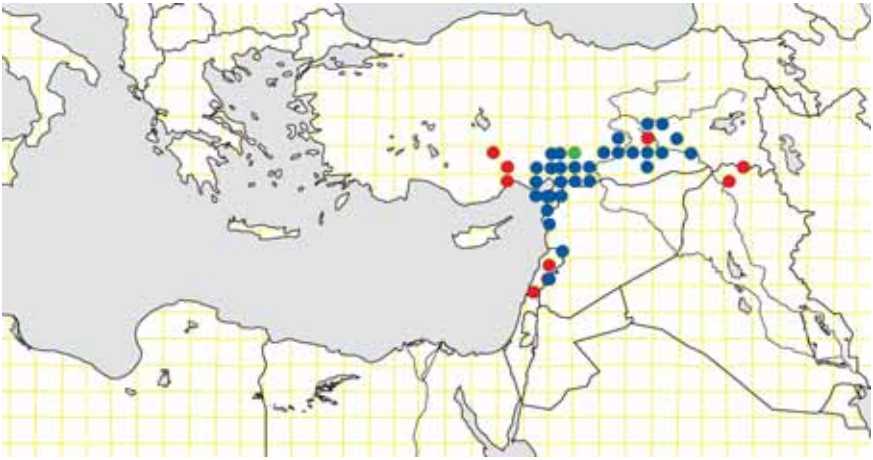


IUCN Red List Status		Record by countries
Global	NE	EGY, IRN, IRQ, ISR, JOR, LBN, PSE, SYR, TUR
Mediterranean	LC	
North Africa		

Old records of *Platycnemis dealbata* from the Sinai Peninsula, sub *P. latipes* (Andres 1928), have never been confirmed. This eastern species does not occur beyond the Taurus range to the northwest of Turkey, but extends to Tajikistan and Kashmir to the east.

***Platycnemis dealbata* male, Turkey (RW).**

***Platycnemis kervillei* (Martin, 1909)**



IUCN Red List Status		Record by countries
Global	NE	IRQ, ISR, LBN, SYR, TUR
Mediterranean	LC	
North Africa		

Platycnemis kervillei is a Middle-East endemic that reaches Iraq and Iran to the east and to the north does not cross the Taurus range in Turkey.

Platycnemis kervillei immature male, Turkey (JPB).

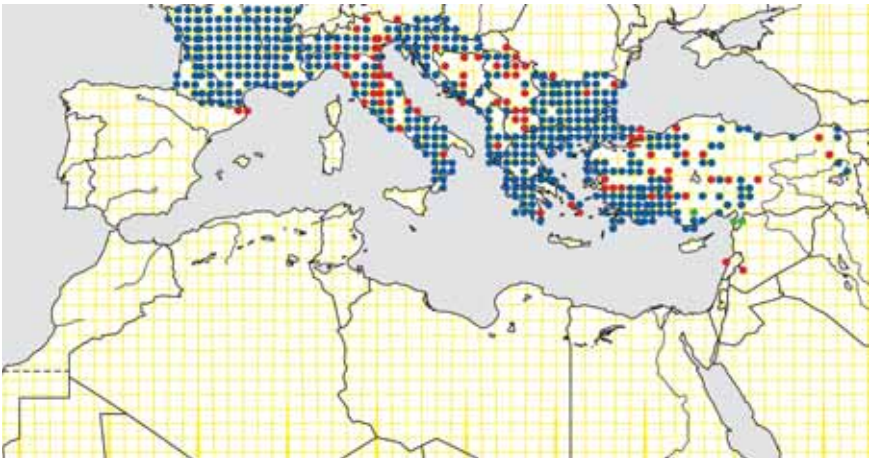
Platycnemis latipes Rambur, 1842

IUCN Red List Status		Record by countries
Global	NE	ESP, FRA, PRT
Mediterranean	LC	
North Africa		

Platycnemis latipes is endemic to southwestern Europe and is widespread in southwestern France and the Iberian Peninsula. One old record from Mallorca in the Balearic Islands (Navás 1910, 1914) has long been regarded as doubtful (Compte Sart 1963, Martens 1996) and has been omitted.

***Platycnemis latipes* male, France (JPB).**

***Platycnemis pennipes* (Pallas, 1771)**

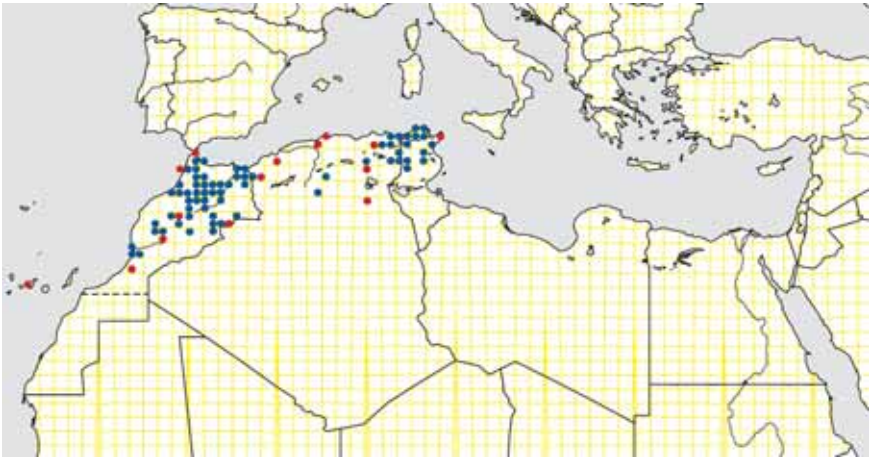


IUCN Red List Status		Record by countries
Global	NE	BGR, BIH, ESP, FRA, GRC, HRV, ITA, LBN*, MKD, MNE, SRB, SVN, SYR*,
Mediterranean	LC	TUR
North Africa		

Platycnemis pennipes is a widespread European species, which is common in a large part of the Mediterranean. However, the species is rare in Iberia and confined to Catalonia. Two single records from the Levant are dated 1908 (Schneider 1986), so that the species is probably extinct in this area. Old records from Crete by E. Frivaldszky (Selys & Hagen 1850) have never been confirmed (Martens 1997) and have been omitted. The demarcation line between the nominal subspecies and *P. p. nitidula* (Brullé, 1832) in the Balkans is only roughly known. Intermediate populations have been reported from various parts of Greece. According to Dumont (1977c) and Battin (1992), *P. p. nitidula* is confined to the Cyclades and Ionian islands and to the Adriatic coast of Greece, Albania and Montenegro.

Platycnemis p. pennipes male, Germany (BK).

***Platycnemis subdilatata* Selys, 1849**



IUCN Red List Status		Record by countries
Global	NE	DZA, ESP (Tenerife, Canary Islands), MAR, TUN
Mediterranean	LC	
North Africa	LC	

Platycnemis subdilatata is endemic to the Maghreb. A specimen of this species, detected by Kalkman & Smit (2002) in the ZMA collection and labelled «Canary Islands, Tenerife, Puerto de la Cruz, 28 March 1971, J.H. Stocks» refers probably to a single vagrant favoured by African winds.

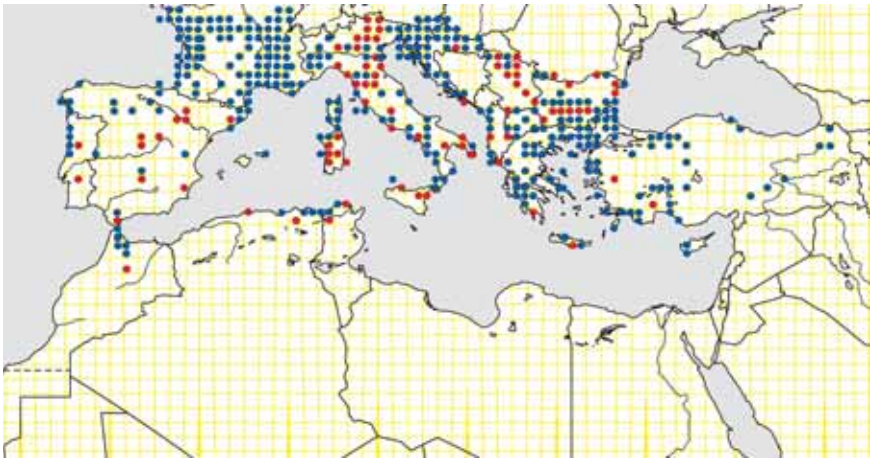
***Platycnemis subdilatata* male, Tunisia (BK).**

Platycnemis kervillei male, Turkey (RW).

Platycnemis pennipes nitidula male, Naxos Island, Greece (JPB).

Aeshnidae

Aeshna affinis Vander Linden, 1820



IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, DZA, ESP, FRA, GRC, HRV, ITA, MAR, MKD, MNE,
Mediterranean	LC	PRT, SRB, SVN, TUN, TUR
North Africa	VU	

Aeshna affinis is a Mediterranean species presently showing an increase in density in the north of Europe, probably largely as a result of global warming. It is classified VU in the North African Red List.

Aeshna affinis male, Germany (BK).

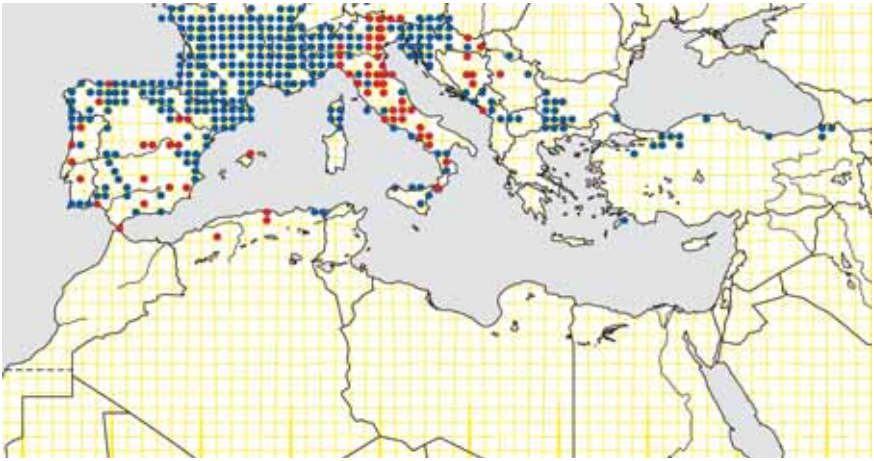
Aeshna caerulea (Ström, 1783)

IUCN Red List Status		Record by countries
Global	NE	FRA, ITA, SVN
Mediterranean	VU	
North Africa		

Aeshna caerulea is a boreoalpine species, which in the Mediterranean is confined to the higher altitudes of the Alps. The species might be affected by climate change and is classified VU in the Mediterranean Red List.

***Aeshna caerulea* copula, Italy (JPB).**

***Aeshna cyanea* (Müller, 1764)**

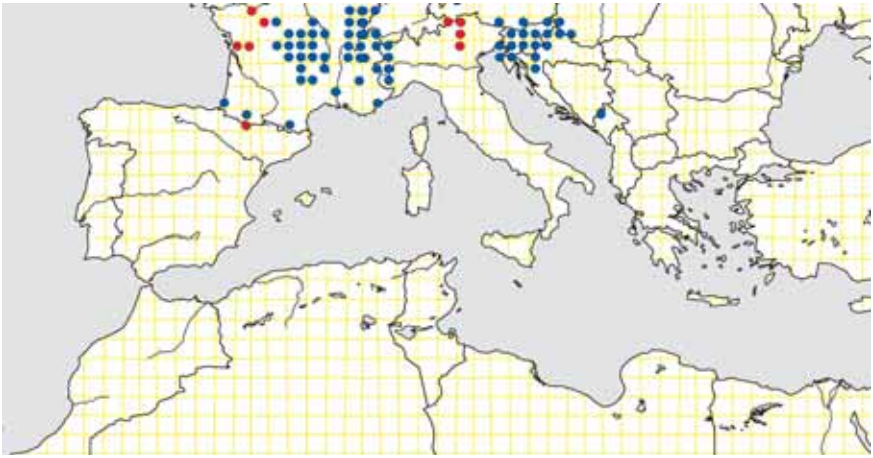


IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, DZA, ESP, FRA, GRC, HRV, ITA, MAR?, MKD, MNE,
Mediterranean	LC	PRT, SRB, SVN, TUR
North Africa	EN	

The record of «*Aeshna cyanea* Latreille» by Navás (1934) from Morocco near Ceuta is the only record known from that country. The fact that Latreille was given as authority instead of O.F. Müller makes a confusion with *Aeshna mixta* Latreille, 1805 possible. However, here we have assumed that the record is correct and indeed pertains to *A. cyanea*. The species regularly occurs on the Spanish side of the Gibraltar Strait so that this record may refer to a vagrant. The species is classified EN in the North African Red List.

Aeshna cyanea male, Germany (BK).

Aeshna grandis (Linnaeus, 1758)

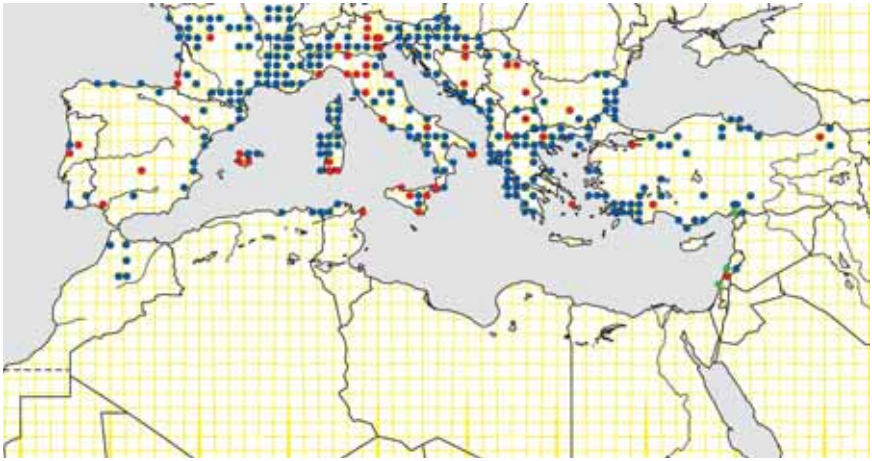


IUCN Red List Status		Record by countries
Global	NE	FRA, HRV, ITA, MNE, SVN
Mediterranean	LC	
North Africa		

Old records of *Aeshna grandis* from River Po lowlands in northern Italy (e.g. Pirotta 1879) are unlikely and have been omitted.

***Aeshna grandis* female, France (JPB).**

***Aeshna isoceles* (O.F. Müller, 1767)**

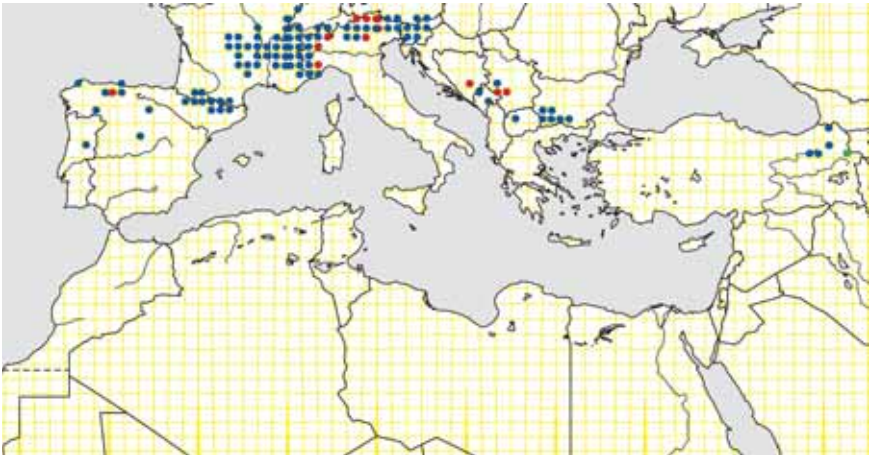


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, DZA, ESP, FRA, GRC, HRV, ISR, ITA, LBN, MAR, MKD,
Mediterranean	LC	MNE, PRT, SRB, SVN, TUN, TUR
North Africa	VU	

Although *Aeshna isoceles* is common in most of the Mediterranean, it remains rare in the Iberian Peninsula and the Maghreb. It is classified VU in the North African Red List.

***Aeshna isoceles* male, Germany (BK).**

Aeshna juncea (Linnaeus, 1758)

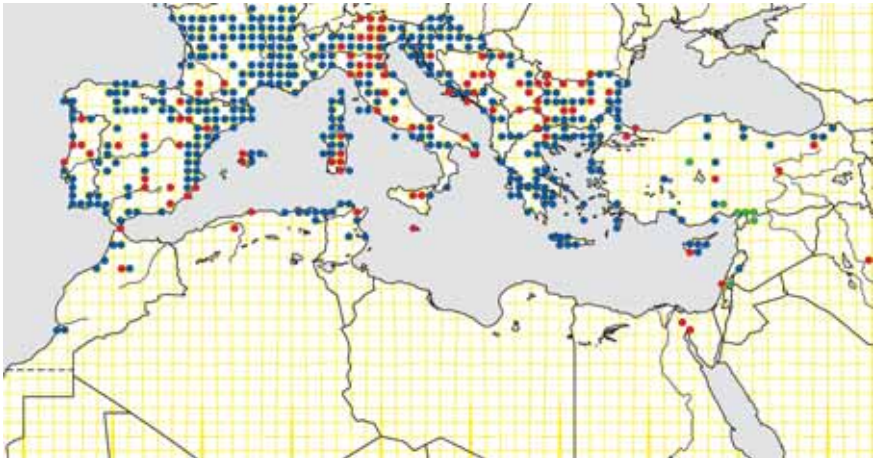


IUCN Red List Status		Record by countries
Global	NE	AND, BGR, BIH, ESP, FRA, ITA, MKD, MNE, PRT, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

Aeshna juncea is a holarctic species, which in the Mediterranean is confined to high mountain ranges.

Aeshna juncea male, France (JPB).

Aeshna mixta Latreille, 1805

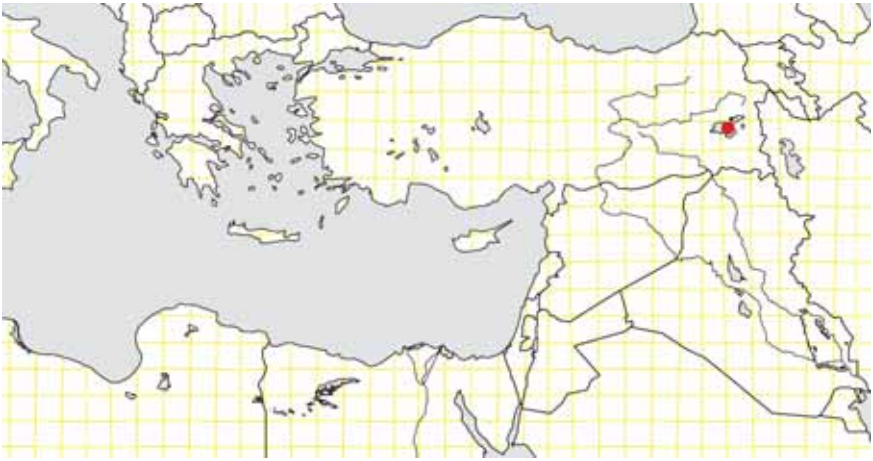


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, DZA, EGY, ESP, FRA, GRC, HRV, IRQ, ISR, ITA,
Mediterranean	LC	LBN, MAR, MKD, MLT, MNE, PRT, SRB, SVN, SYR, TUN, TUR
North Africa	LC	

Aeshna mixta is common and widespread in large parts of Europe and the Mediterranean. The species is a strong migrant.

***Aeshna mixta* male, Germany (BK).**

Aeshna serrata Hagen, 1856



IUCN Red List Status		Record by countries
Global	NE	TUR
Mediterranean		
North Africa		

The only record of the northeastern European and central Asian *Aeshna serrata* in the area covered by this atlas is that of a male collected near Van in eastern Turkey in the year 1912 (Morton 1914).

Aeshna serrata male, Sweden (GJ).

Aeshna subarctica elisabethae Djakonov, 1922

IUCN Red List Status		Record by countries
Global	NE	BGR, FRA, SVN
Mediterranean	NT	
North Africa		

In the area covered by this atlas, the Eurosiberian *Aeshna subarctica elisabethae* is confined to mountain ranges above 800 m in France in the Jura mountains, Slovenia and Bulgaria. It is threatened by climate change and is classified NT in the Mediterranean Red List.

***Aeshna subarctica elisabethae* female, France (JPB).**

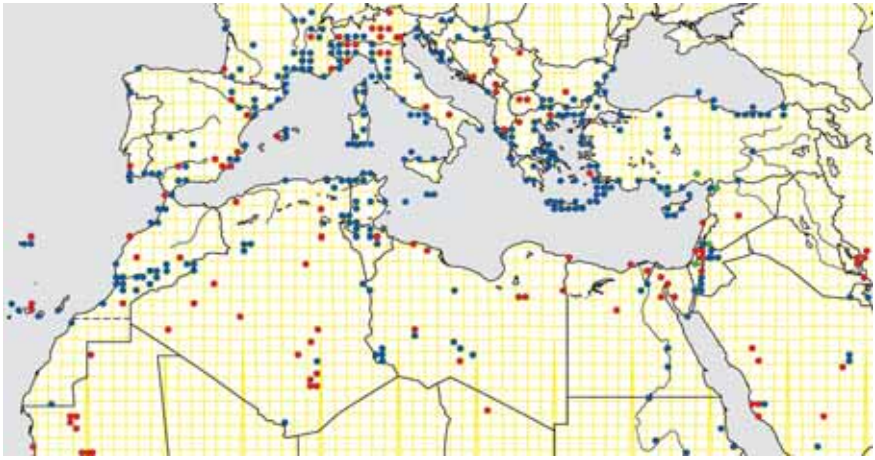
Aeshna viridis Eversmann, 1936

IUCN Red List Status		Record by countries
Global	LC	HRV, SVN
Mediterranean		
North Africa		

The Slovenian and Croatian localities of the northern European and western Siberian *Aeshna viridis* constitute the western edge of the Hungarian populations. The species is present at a small number of waters with *Stratiotes aloides*, in which the females insert their eggs.

***Aeshna viridis* female, Germany (JPB).**

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

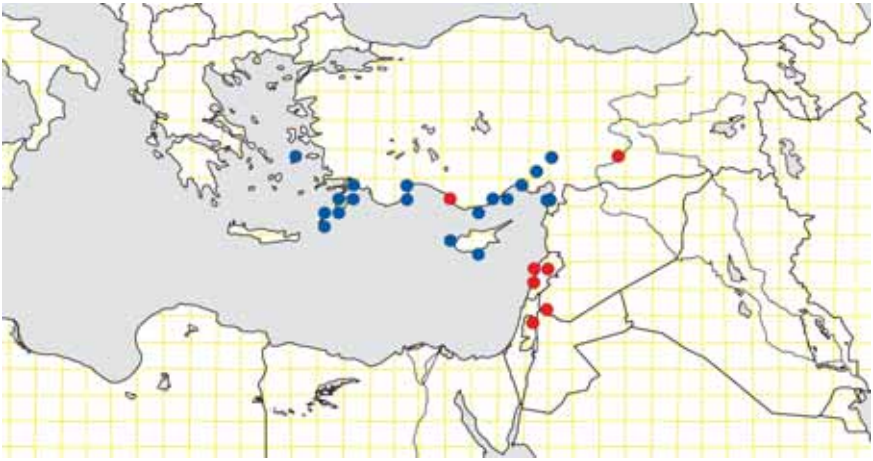


IUCN Red List Status		Record by countries
Global	LC	ALB, BGR, BIH, CYP, DZA, EGY, ESH, ESP, FRA, GRC, HRV, IRN, IRQ,
Mediterranean	LC	ISR, ITA, JOR, KWT, LBN, LBY, MAR, MKD, MLT, MNE, MRT, PRT, SAU,
North Africa	LC	SDN, SRB, SVN, SYR, TCD, TUN, TUR

Migrating *Anax ephippiger* can be found throughout the whole area covered by this atlas. Rather regular reproduction localities are however largely limited to areas with a hot climate in North Africa and some European areas directly bordering the Mediterranean Sea, although a summer generation may also emerge in Central Europe during favourable years. Even though winter oviposition, starting in December, has been reported from northern Morocco (Jacquemin & Boudot 1999), there is practically no evidence for the development of a larval generation in the Mediterranean region during winter (Peters & Günther 2000; Jödicke 2003; Weihrauch & Weihrauch 2003) as probably the summer generation leaves Europe again before ovipositing. The species is an obligate migrant (sensu Corbet 1999) and can often be seen in large numbers. An example of this was witnessed by JPB along a stretch of 220 km of the Black Sea coast from Rize to Ordu in Turkey, on 11-viii-1995.

***Anax ephippiger* female, France (JPB).**

Anax immaculifrons Rambur, 1842

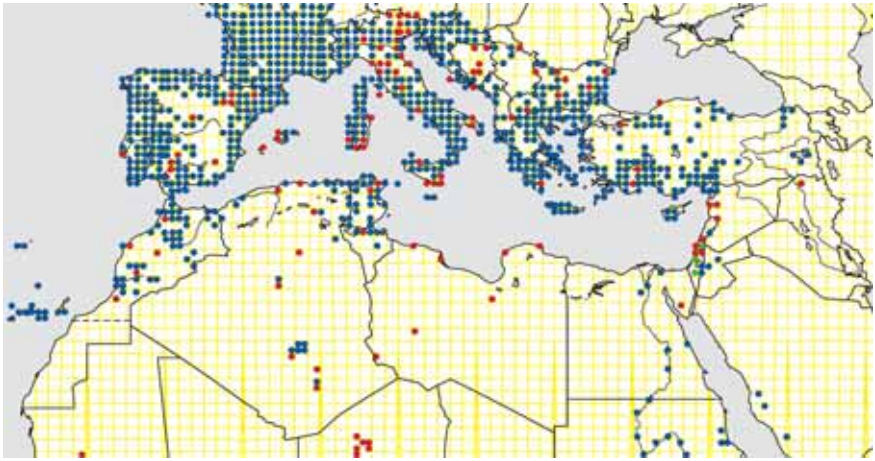


IUCN Red List Status		Record by countries
Global	NE	CYP, GRC, LBN, PSE, SYR, TUR
Mediterranean	LC	
North Africa		

Anax immaculifrons is an Oriental species extending in the west to the islands of Karpathos and Ikaria in the Aegean, and to southern Syria and southern Lebanon in the Levant. A single record from «Wadi Qurein» is given for Upper Galilee in northern Israel by Dumont (1991), which in fact pertains most likely to West Bank.

***Anax immaculifrons* male, India (SS).**

Anax imperator Leach, 1815

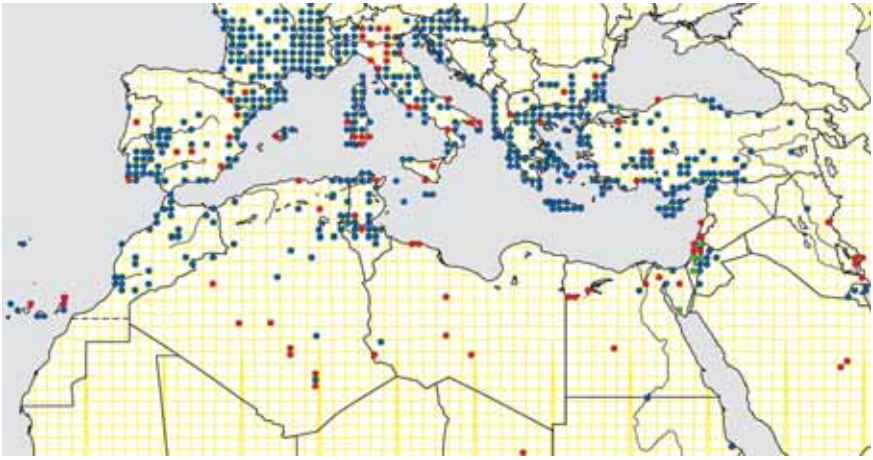


IUCN Red List Status		Record by countries
Global	LC	ALB, BGR, BIH, CYP, DZA, EGY, FRA, ESP, GRC, HRV, IRQ, ISR, ITA,
Mediterranean	LC	JOR, LBN, LBY, MAR, MKD, MLT, MNE, NER, PRT, SAU, SDN, SRB, SVN,
North Africa	LC	SYR, TUN, TUR

Anax imperator is common and widespread in Europe, western Asia and parts of Africa.

***Anax imperator* male, Germany (BK).**

Anax parthenope Selys, 1839



IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, CYP, DZA, EGY, ESP, FRA, GRC, HRV, IRQ, ISR, ITA, JOR,
Mediterranean	LC	KWT, LBN, LBY, MAR, MKD, MLT, MNE, PRT, SAU, SDN, SRB, SVN,
North Africa	LC	TUN, TUR

Anax parthenope is common and widespread in large parts of southern Europe and the Mediterranean.

***Anax parthenope* female, Turkey (JPB).**

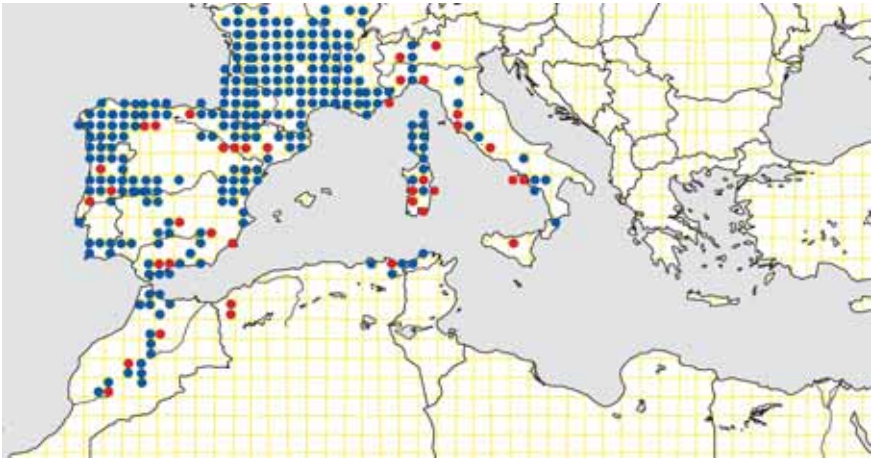
***Boyeria cretensis* Peters, 1991**

IUCN Red List Status		Record by countries
Global	VU	GRC
Mediterranean	VU	
North Africa		

Boyeria cretensis is endemic to Crete, where it is confined to small rivulets bordered with gallery forest (Schneider & Müller 2006; Müller 2008). The species is expected to decrease in the near future due to climate change and poor water management. It is therefore classified VU in the Global and Mediterranean Red Lists.

***Boyeria cretensis* male, Crete, Greece (JPB).**

***Boyeria irene* (Fonscolombe, 1838)**

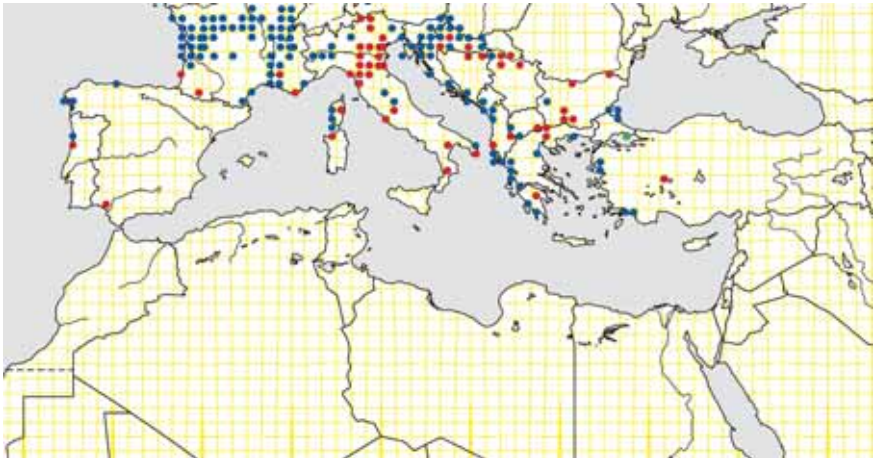


IUCN Red List Status		Record by countries
Global	NE	DZA, ESP, FRA, ITA, MAR, PRT, TUN
Mediterranean	LC	
North Africa	NT	

Boyeria irene is a western Mediterranean endemic, which is widespread in southwestern France, Corsica, the Iberian Peninsula and Morocco, but becomes more scattered in the other parts of its range. It is classified NT in the North African Red List.

***Boyeria irene* male, France (JPB).**

***Brachytron pratense* (Müller, 1764)**

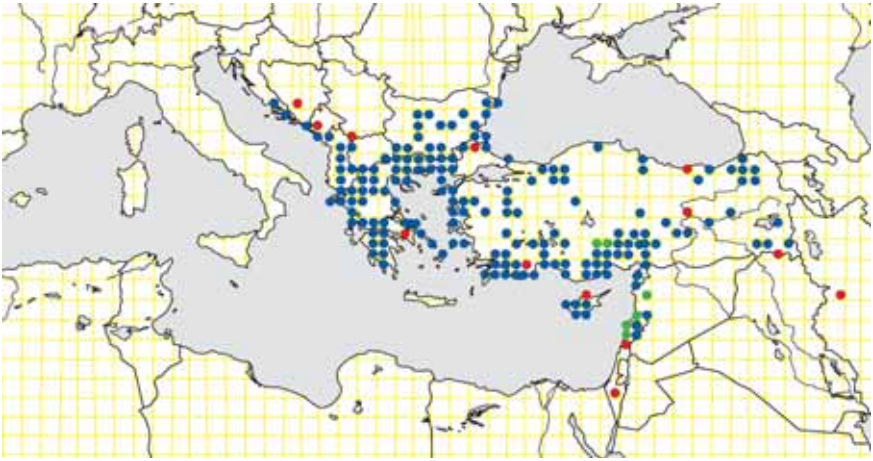


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MKD, MNE, PRT, SRB, SVN, TUR
Mediterranean	NT	
North Africa		

Brachytron pratense is a widespread species in the temperate regions of Europe that becomes rare towards southern latitudes. It is classified NT in the Mediterranean Red List.

***Brachytron pratense* male, Germany (BK).**

***Caliaeschna microstigma* (Schneider, 1845)**



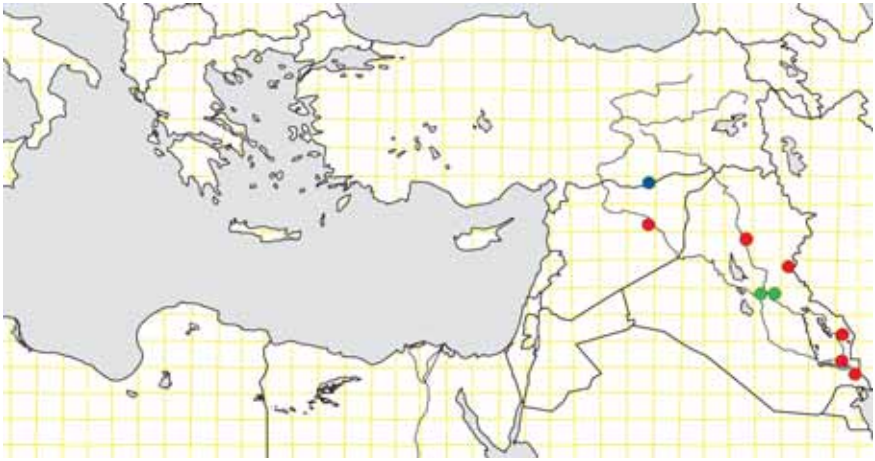
IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, GRC, HRV, IRN, IRQ, ISR, LBN, MKD, MNE, SYR,
Mediterranean	NT	TUR
North Africa		

Caliaeschna microstigma is common in large parts of the eastern Mediterranean. It is confined to brooks and small rivers and may decline rapidly in the future due to climate change. The record from Rehobot in the arid Idumea area in southern Israel (Morton 1929) refers to a perennial stream with large and thick reed-grasses. It may be interpreted as a relict population from a pluvial period that became isolated by aridification during the second half of the Holocene. No subsequent records are known from this area. *Caliaeschna microstigma* is classified NT in the Mediterranean Red List.

***Caliaeschna microstigma* male, Greece (JPB).**

Gomphidae

Anormogomphus kiritshenkoi Bartenef, 1913

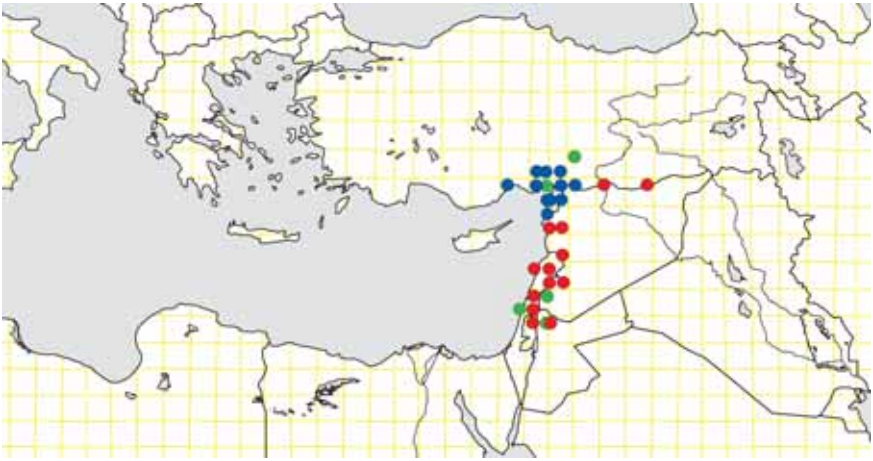


IUCN Red List Status		Record by countries
Global	NE	IRQ, SYR, TUR
Mediterranean		
North Africa		

Anormogomphus kiritshenkoi is an Asiatic species that is only marginally present in the area covered by this atlas. It was formerly recorded from Iraq and once from Syria (Schmidt 1961). A more recent record was taken in Turkey north of Ceylanpinar, province of Urfa, close to the Syrian border (Börzsöny 1996).

Anormogomphus kiritshenkoi male, Tajikistan (VJK).

***Gomphus davidi* Selys, 1887**

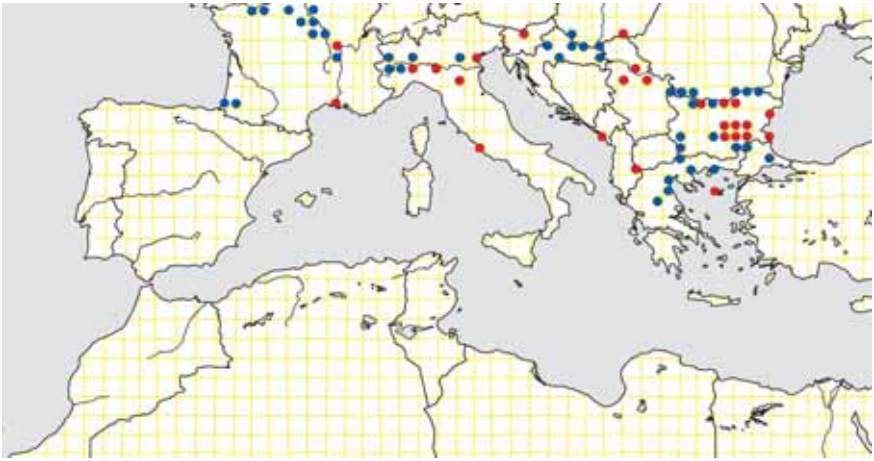


IUCN Red List Status		Record by countries
Global	LC	ISR, JOR, LBN, PSE, SYR, TUR
Mediterranean	LC	
North Africa		

Gomphus davidi occurs in a restricted range occurring from the Adana delta in Turkey to northern Jordan and West Bank. Previous records from Iraq refer to the closely related *G. kinzelbachi* (Schneider 1984a). Records from 1980 onwards refer only to the south of Turkey. Its present status along the Mediterranean in Syria, Lebanon, Israel, West Bank and Jordan is not documented, but the rapid degradation of rivers and adjacent wetlands in this area may have a serious impact on *G. davidi*.

***Gomphus davidi* male, Turkey (JPB).**

***Gomphus flavipes* (Charpentier, 1825)**



IUCN Red List Status		Record by countries
Global	NE	BGR, FRA, GRC, HRV, ITA, MKD, MNE, SRB, SVN, TUR
Mediterranean	NT	
North Africa		

Gomphus flavipes showed a strong decline in Europe during the 20th century due to pollution and destruction of river structure. It is now recovering in large parts of its range. The species is classified NT in the Mediterranean Red List. Its Anatolian and Asiatic counterpart is the closely related *G. ubadschii* Schmidt, 1953, which was formerly known as *G. f. lineatus* Bartenef, 1929. A record of *G. flavipes* from Limnos in the Aegean (Werner 1938) possibly refers to the latter taxon (Suhling & Müller 1996), but this remains to be confirmed.

***Gomphus flavipes* teneral female, Poland (BK).**

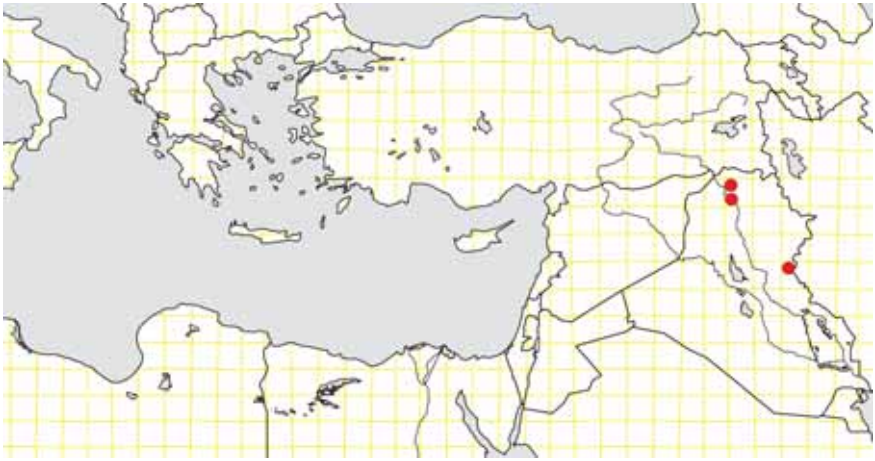
Gomphus graslinii Rambur, 1842

IUCN Red List Status		Record by countries
Global	NT	ESP, FRA, PRT
Mediterranean	EN	
North Africa		

Gomphus graslinii is endemic to southwestern France, Spain and Portugal. The species is rare in the Iberian Peninsula and its known distribution is fragmented, despite recent records in Portugal (Lohr 2005a). In France, the northernmost populations have undergone a severe decline during the 20th century due to pollution and poor river management, which brought many populations to extinction. *Gomphus graslinii* is classified NT in the Global Red List and EN in the Mediterranean Red List.

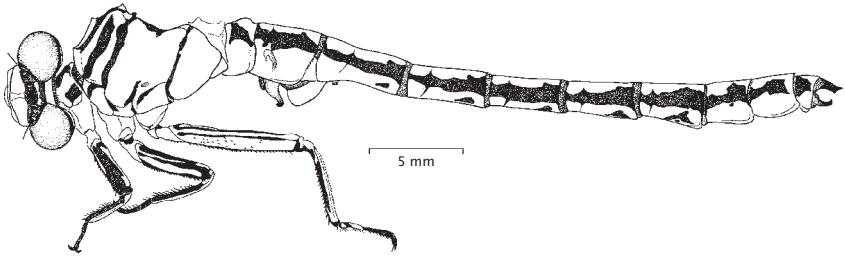
***Gomphus graslinii* male, France (JPB).**

Gomphus kinzelbachi Schneider, 1984



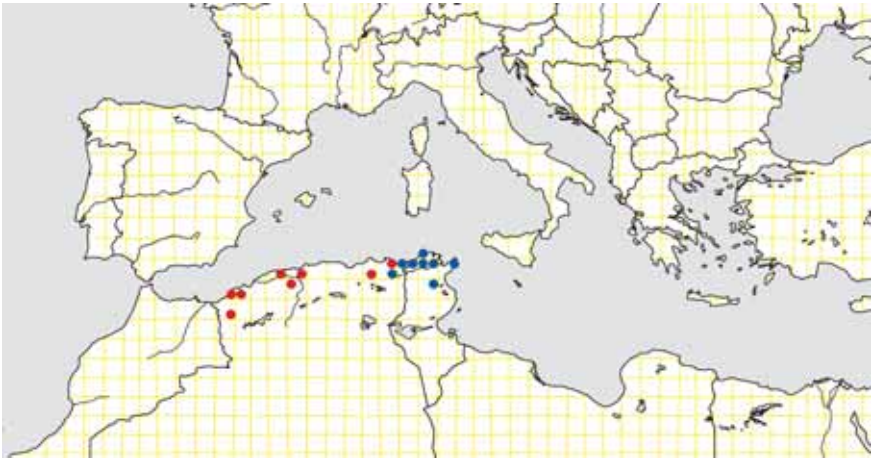
IUCN Red List Status		Record by countries
Global	DD	IRQ
Mediterranean		
North Africa		

Gomphus kinzelbachi is a southwestern Asian endemic known only from three localities in Iraq and from one in Iran, where it replaces *G. davidi*. The last record is from 1970 (Asahina 1973). The area where this species occurs is poorly investigated and details on habitat and distribution are lacking. However, brooks and rivers in the area are affected by anthropogenic impact and it is likely that the species is endangered.



Gomphus kinzelbachi male (holotype), Iraq (from Schneider 1986).

Gomphus lucasii Selys, 1849



IUCN Red List Status		Record by countries
Global	VU	DZA, TUN
Mediterranean	VU	
North Africa	VU	

Gomphus lucasii is endemic to the Maghreb. Some records of very pale «*G. simillimus maroccanus*» from eastern Morocco (Jacquemin & Boudot 1999) may pertain in fact to *G. lucasii*. The latter species and *G. simillimus* are very closely related and genetic studies are needed to establish if they should retain their species status. Most records from Algeria are old and refer to fieldwork done before 1936. In eastern Algeria 13 populations were probably lost in the last 100 years and only three are likely to still exist (Samraoui & Corbet 2000). Of the 17 known localities in Tunisia, only two are presently flourishing and at least one is now extinct (IUCN 2008). Several others experienced a strong decline in the last ten years and several went extinct mainly due to water extraction for irrigation purposes. *Gomphus lucasii* is classified VU in the Global, North African and Mediterranean Red Lists.

Gomphus lucasii male, Tunisia (JPB).

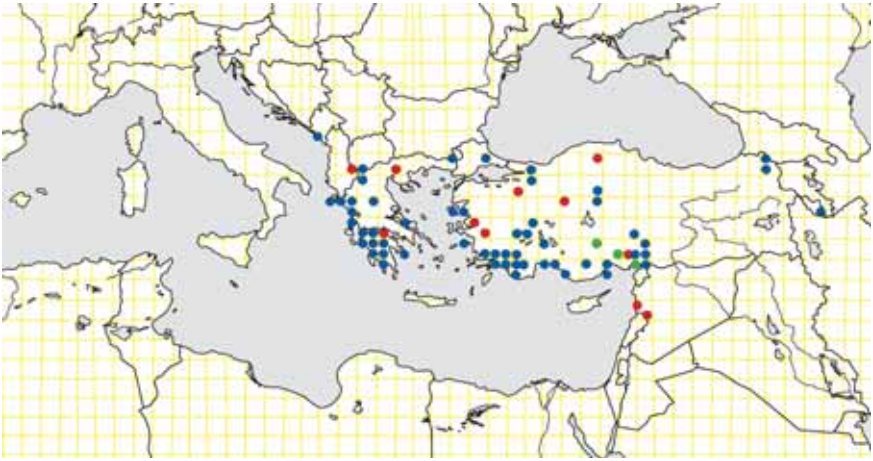
***Gomphus pulchellus* Selys, 1840**

IUCN Red List Status		Record by countries
Global	NE	AND, ESP, FRA, ITA, HRV, PRT
Mediterranean	LC	
North Africa		

Gomphus pulchellus is a western European species reaching northeast to the western half of Germany. Records from northern Italy and Croatia (Pirotta 1879; Schneider 1984) might pertain to vagrants or to a mix up of labels, as no populations are known in these areas.

***Gomphus pulchellus* male, Germany (BK).**

Gomphus schneiderii Selys, 1850

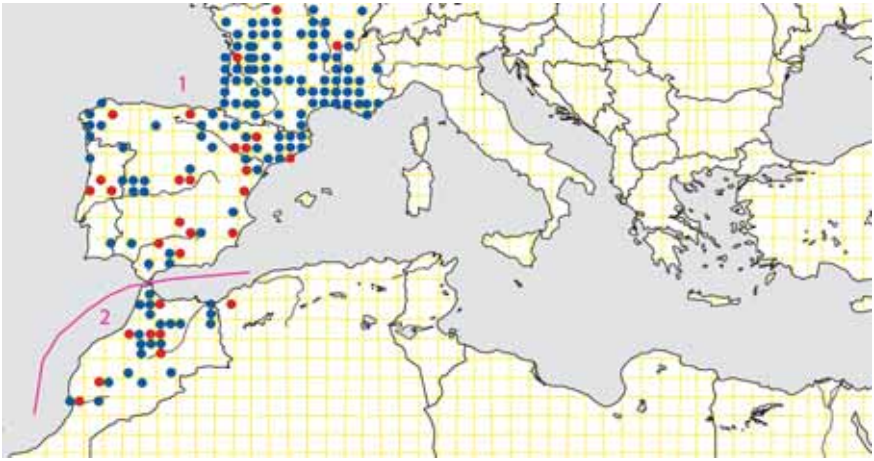


IUCN Red List Status		Record by countries
Global	NE	ALB, GRC, IRN, MKD, MNE, SYR, TUR
Mediterranean	LC	
North Africa		

Gomphus schneiderii is closely related to *G. vulgatissimus*, which it replaces in the Balkans. The areas of both species overlap in mainland Greece.

***Gomphus schneiderii* female, Turkey (RW).**

***Gomphus simillimus* Selys, 1840**

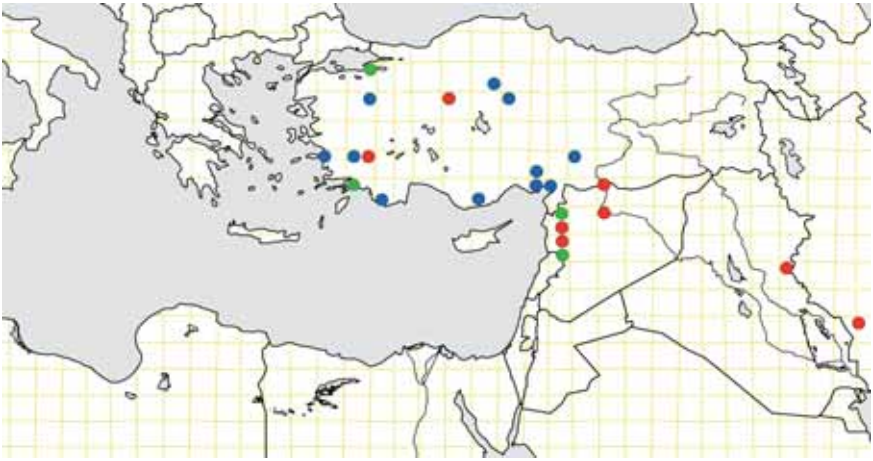


IUCN Red List Status		Record by countries
Global	NE	ESP, FRA, PRT (1: *Gomphus s. simillimus*)
Mediterranean	NT	
North Africa	NT	DZA, MAR (2: *Gomphus s. maroccanus*)

Gomphus simillimus is widespread in North Africa and southwestern Europe, reaching north to Belgium. The nominal subspecies (1) is widespread in southwestern and western France as well as in the Iberian Peninsula. Moroccan and western Algerian populations have been ascribed to a distinct but poorly differentiated subspecies, *G. s. maroccanus* Lieftinck, 1966 (2), which is widespread in mountainous areas (Lieftinck 1966; Dumont 1972; Jacquemin & Boudot 1999). *Gomphus simillimus* shows a general decline and is classified NT in the Mediterranean and the North African Red Lists.

Gomphus simillimus immature female, France (BK).

Gomphus ubadschii Schmidt, 1953

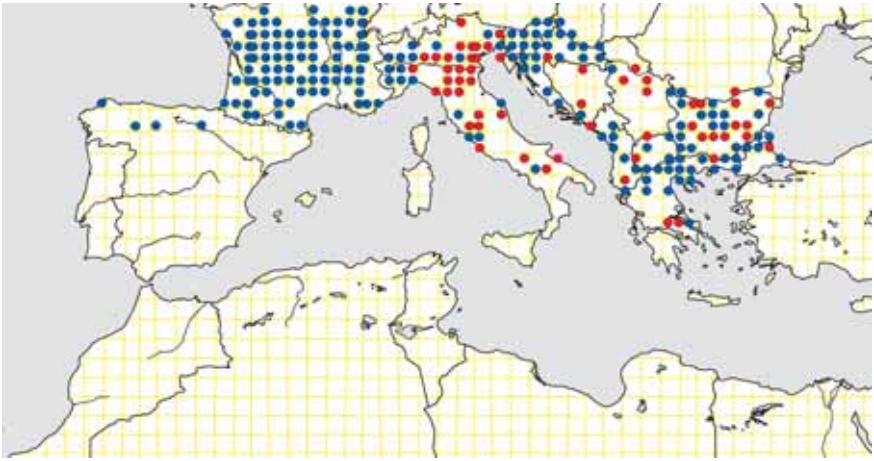


IUCN Red List Status		Record by countries
Global	NE	IRN, IRQ, LBN, SYR, TUR
Mediterranean	VU	
North Africa		

Gomphus ubadschii has been addressed until recently as *G. flavipes lineatus* Bartenef, 1929 (Suhling & Müller 2006). This species extends from Anatolia, Syria and Georgia to Afghanistan; its European counterpart is the closely related *G. flavipes*. *Gomphus ubadschii* is classified VU in the Mediterranean Red List.

***Gomphus ubadschii* male, Turkey (JPB).**

***Gomphus vulgatissimus* (Linnaeus, 1758)**



IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MKD, MNE, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

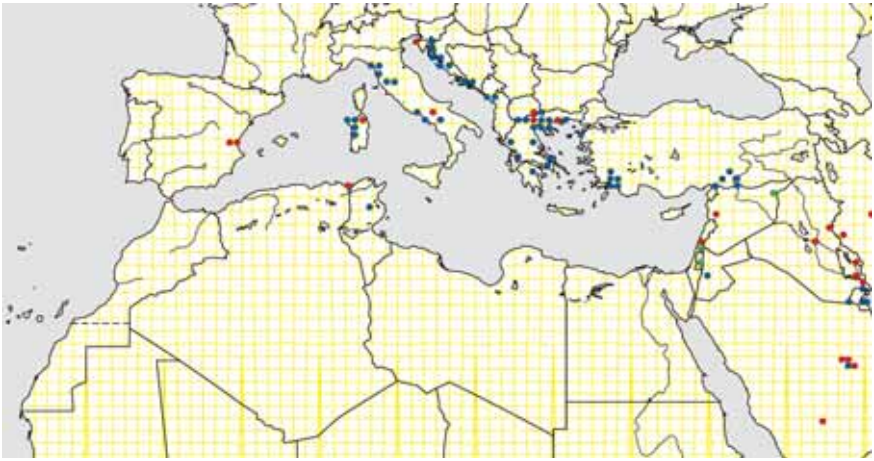
Gomphus vulgatissimus has a wide European range but is replaced by *G. schneiderii* in parts of the Balkans, where both species' ranges overlap in mainland Greece. An old record from Corfu probably pertains to *G. schneiderii* and has been mapped as such.

***Gomphus vulgatissimus* male, Germany (BK).**

Gomphus lucasii female, Tunisia (BK).

Gomphus simillimus maroccanus female, Morocco (JPB).

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



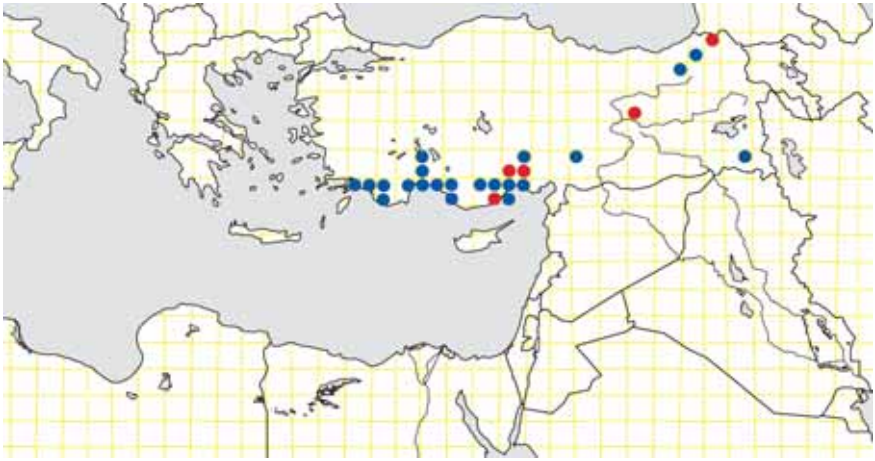
IUCN Red List Status		Record by countries
Global	NE	ALB, DZA*, ESP*, GRC, HRV, IRN, IRQ, ISR, ITA, JOR, KWT, MKD, MNE,
Mediterranean	NT	PSE, SAU, SVN, SYR, TUN, TUR
North Africa	CR	

The main distributional range of *Lindenia tetraphylla* is the eastern Mediterranean and the Middle East. The species shows strong tendencies to migrate and seems to have relatively few strong populations. Many records probably refer to temporary populations or wandering specimens. There is little information on the recent status of the species in the Middle East. At least the populations of the Jordan Valley are at risk if still in existence, as the last dated non-migrating record was taken in 1955 (De Marmels 1995). Several strong populations are known from the countries of the former Yugoslavia, Albania, Greece and Turkey. Recent records, some of which are based on exuviae, are also available from continental Italy and Sardinia (Utzeri et al. 2006). It is not clear if these records refer to temporary or to lasting populations. The species is rare in North Africa and was not seen in the Maghreb for over a century. However, it was found in Tunisia in 2000 (Kunz & Kunz 2001) and 2002 (JPB) and seems to be established there. The threat status of this species is difficult to assess as many records might only refer to vagrants. In several localities, which were known to hold viable populations, water pollution and the increased demand for water has resulted in a decrease of habitats and in some cases in the loss of the population. Examples of this are the Koronia lake in northern Greece and the Stimfalia lake in the Peloponnese, which were found almost dry during July 2008. *Lindenia tetraphylla* is classified CR in the North African Red List and NT in the Mediterranean Red List.

Lindenia tetraphylla male, Greece (JPB).

Lindenia tetraphylla old male, Tunisia (BK).

***Onychogomphus assimilis* (Schneider, 1845)**

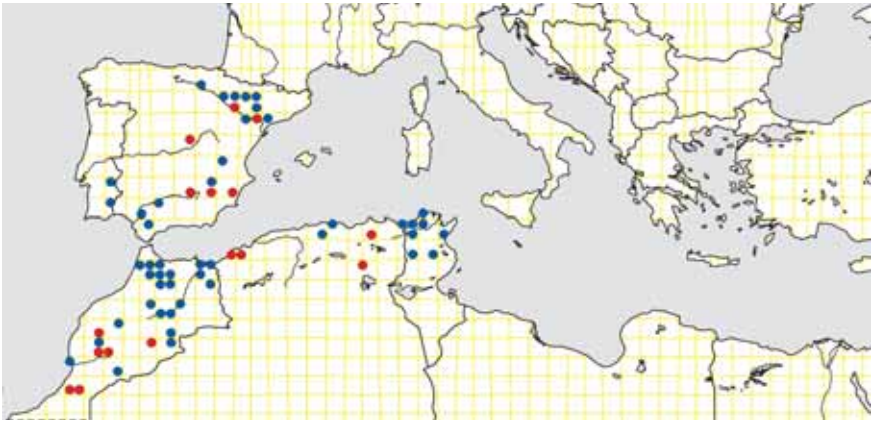


IUCN Red List Status		Record by countries
Global	VU	TUR
Mediterranean	EN	
North Africa		

Onychogomphus assimilis is confined to cold running water in southwestern and central Asia. It is fairly common in southwestern Turkey but is declining rapidly due to impact on the river banks by urbanisation and agriculture, and due to impact on the river course by gravel mining, pollution and an increased water demand. It is likely that *O. assimilis* will become very rare in this area over the next decades. The species is classified EN in the Mediterranean Red List.

***Onychogomphus assimilis* male, Turkey (JPB).**

Onychogomphus costae Selys, 1885

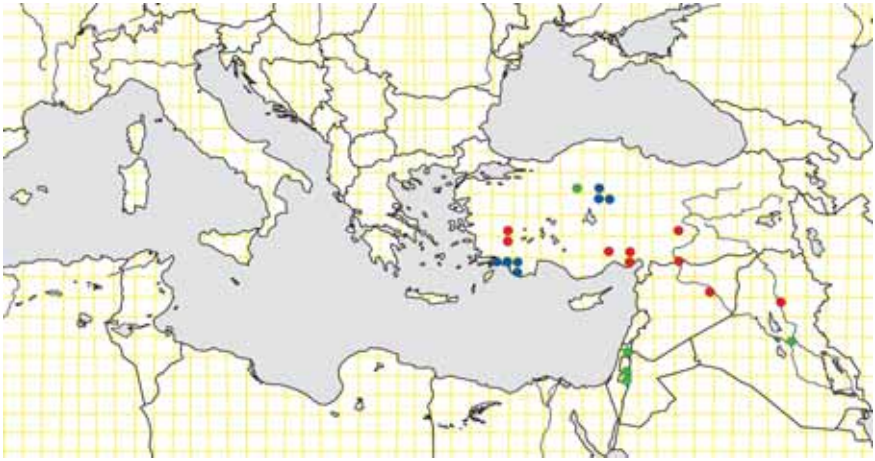


IUCN Red List Status		Record by countries
Global	VU	DZA, ESP, MAR, PRT, TUN
Mediterranean	NT	
North Africa	NT	

Onychogomphus costae is restricted to the Iberian Peninsula and the Maghreb. Recent localities from La Rioja in Spain, which significantly extend its known range to the northwest, are included in this atlas by courtesy of P.C. Rodriguez and the Zalandrana group. Old records from central Sahara and from the Tozeur area in Tunisia are ascribed to *Paragomphus genei*. *Onychogomphus costae* is more widely distributed in northern Morocco and in Tunisia than in Algeria, but flourishing populations are scarce in all three countries. Several populations have declined or are extinct due to pollution, excessive water use, lowering of groundwater tables and subsequent drying up of rivers. The species is rare in Europe, where it occurs in Portugal and Spain. A number of recent records from Spain seems to indicate that in some regions the species has been overlooked for a long time. *Onychogomphus costae* was classified VU in the Global Red List in 2006, but has been downgraded to NT in the North African and the Mediterranean Red Lists.

***Onychogomphus costae* male, Spain (JPB).**

***Onychogomphus flexuosus* (Schneider, 1845)**

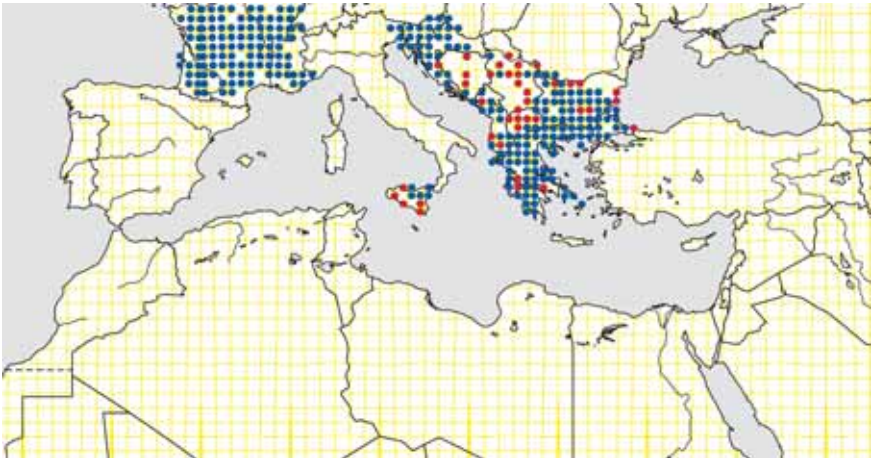


IUCN Red List Status		Record by countries
Global	NE	IRQ, ISR, JOR, PSE, SYR, TUR
Mediterranean	VU	
North Africa		

Onychogomphus flexuosus is an Asiatic species with a scattered distribution from Anatolia and the Jordan Valley to Tajikistan and Afghanistan, which is rare throughout its range. It is classified VU in Mediterranean Red List.

Onychogomphus flexuosus female, Turkey (PH).

***Onychogomphus f. forcipatus* (Linnaeus, 1758)**

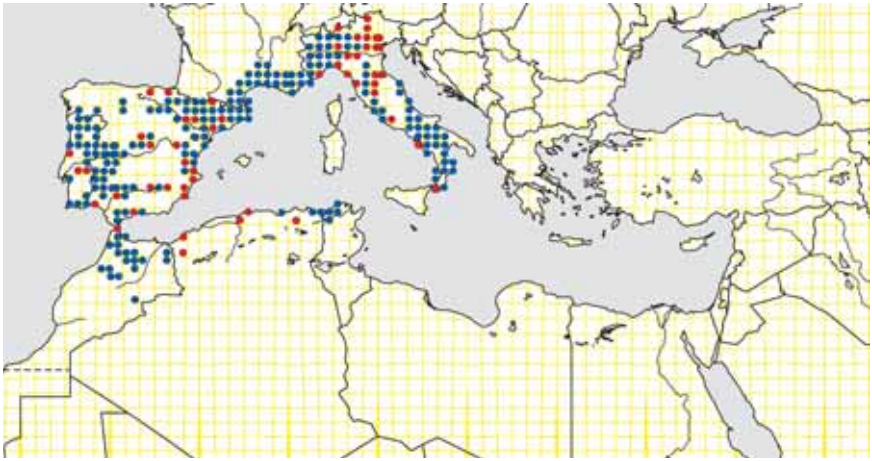


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, FRA, GRC, HRV, ITA, MKD, MNE, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

The three subspecies *Onychogomphus f. forcipatus*, *O. f. albotibialis* Schmidt, 1954 and *Onychogomphus f. unguiculatus* Vander Linden, 1823 show structural differentiation and do not seem to produce intermediate or hybrid populations in their contact areas. Hence, they appear to merit a full species rank, but genetic analysis should bring confirmation before definitive conclusion. All are widespread in their respective ranges.

Onychogomphus f. forcipatus female, Germany (BK).

***Onychogomphus f. unguiculatus* (Vander Linden, 1823)**

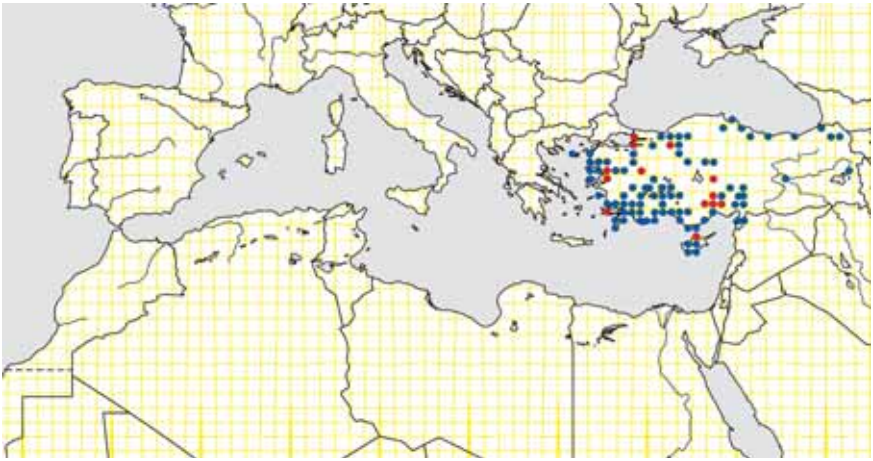


IUCN Red List Status		Record by countries
Global	NE	DZA, ESP, FRA, ITA, MAR, PRT, TUN
Mediterranean	LC	
North Africa	LC	

Onychogomphus f. unguiculatus replaces the nominal subspecies in most of the southwestern Mediterranean area. There is no record from any island.

Onychogomphus f. unguiculatus male, Tunisia (BK).

Onychogomphus f. albotibialis Schmidt, 1954

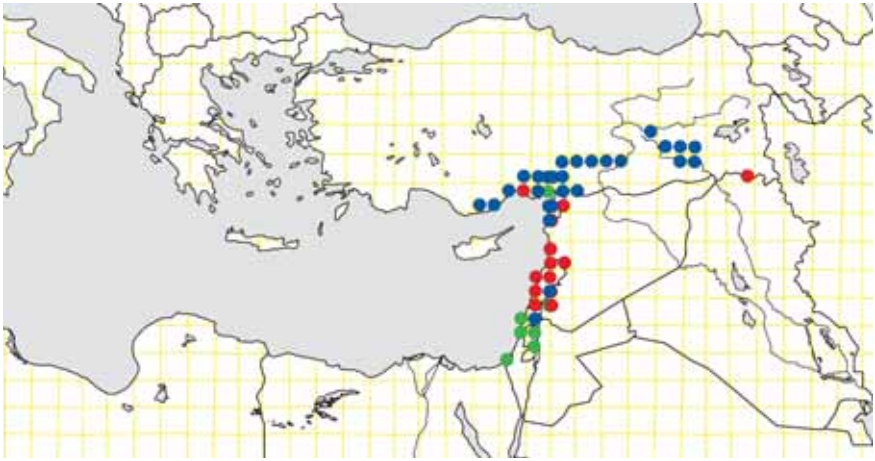


IUCN Red List Status		Record by countries
Global	NE	CYP, GRC, TUR
Mediterranean	LC	
North Africa		

Onychogomphus f. albotibialis occurs from the Aegean to Iran and Turkestan. The westernmost populations are known from the Aegean islands of Lesbos (Boudot et al. 1990), Limnos (Lopau 1999a) and Gökçeada (Hacet & Aktaç 2006). Apparently, there is no overlap of ranges with the nominal subspecies, which occurs on Thásos and Samothráki (Lopau 1999a).

Onychogomphus f. albotibialis male, Turkey (JPB).

***Onychogomphus lefebvrii* (Rambur, 1842)**

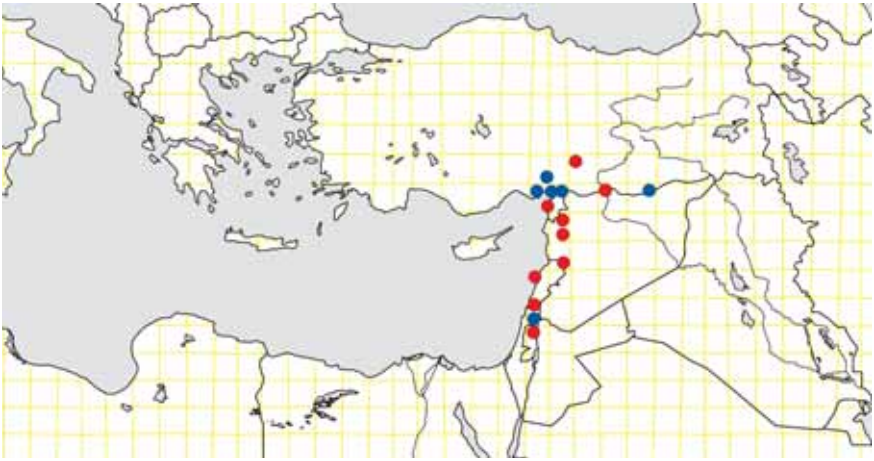


IUCN Red List Status		Record by countries
Global	NE	IRQ, ISR, LBN, PSE, SYR, TUR
Mediterranean	LC	
North Africa		

Onychogomphus lefebvrii is an Asiatic species occuring from Afghanistan to the south of Turkey and the Levant.

Onychogomphus lefebvrii male, Kazakhstan (ED).

Onychogomphus macrodon Selys, 1887

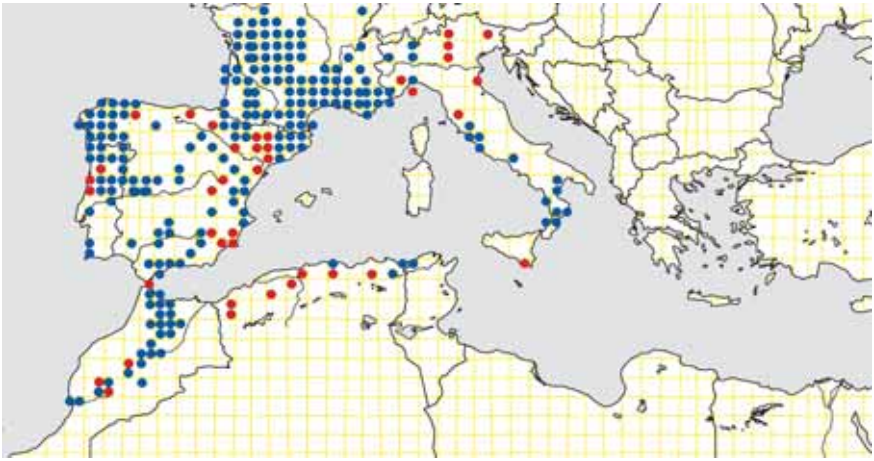


IUCN Red List Status		Record by countries
Global	VU	ISR, JOR, LBN, SYR, TUR
Mediterranean	VU	
North Africa		

Onychogomphus macrodon inhabits large rivers and has a very restricted range. Pollution, gravel mining and construction works, especially in Syria and Turkey, are a threat for the species. Some populations from northern Syria, close to the Turkish border, are now extinct due to dam construction. In Israel there are only a few localities in well-managed nature reserves (Dimentman et al. 1992). In view of the small number of localities from which the species is known and the continuing degradation of rivers by barrage lakes and irrigation schemes, the species is classified VU in the Global and Mediterranean Red Lists. Information on habitat, current distribution and status is not available and fieldwork is urgently needed.

Onychogomphus macrodon male, Syria (VJK).

***Onychogomphus uncatus* (Charpentier, 1840)**

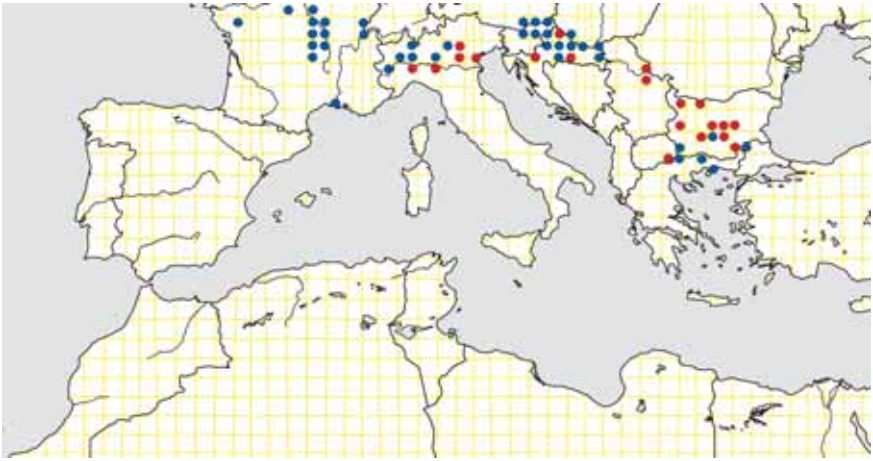


IUCN Red List Status		Record by countries
Global	NE	DZA, ESP, FRA, ITA, MAR, PRT, TUN
Mediterranean	LC	
North Africa	LC	

Onychogomphus uncatus is a widespread western Mediterranean species.

Onychogomphus uncatus male, France (JPB).

Ophiogomphus cecilia (Charpentier, 1840)



IUCN Red List Status		Record by countries
Global	NE	BGR, FRA, GRC, HRV, ITA, MKD, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

Records of larvae of *Ophiogomphus cecilia* in southern Spain and Portugal have been shown to originate from misidentified *Onychogomphus forcipatus unguiculatus* (Ferreira et al. 2006) and have been rejected. Although the species is assuredly well implanted in the River Po system in northern Italy, the old Tuscan records (Pirotta 1879; Bentivoglio 1901) originated from unreliable sources and were never confirmed despite intensive fieldwork in Tuscany. They have been omitted in the present atlas.

***Ophiogomphus cecilia* female, Germany (BK).**

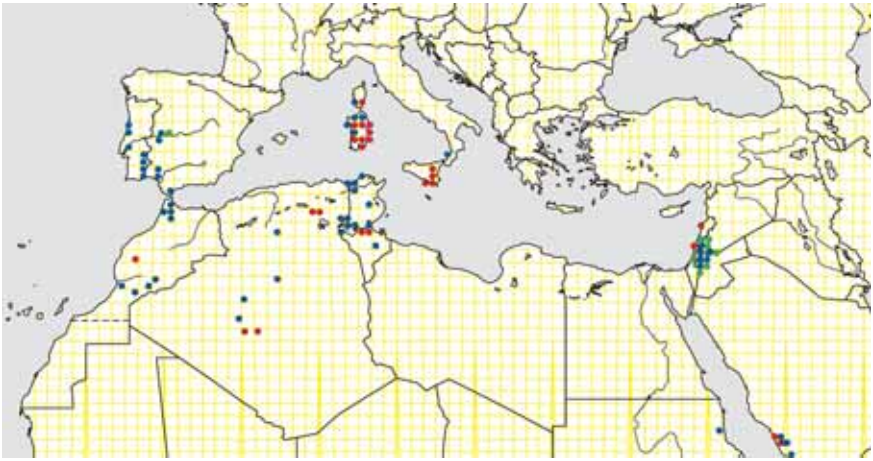
Ophiogomphus reductus Calvert, 1898

IUCN Red List Status		Record by countries
Global	NE	TUR*
Mediterranean		
North Africa		

A specimen of *Ophiogomphus reductus* was collected as '*O. serpentinus* (Charpentier, 1825)' prior to 1887 in eastern Turkey, but has not been found since (Kalkman et al. 2003). The closest records are from central Asia.

***Ophiogomphus reductus* male, Kazakhstan (ED).**

***Paragomphus genei* (Selys, 1841)**

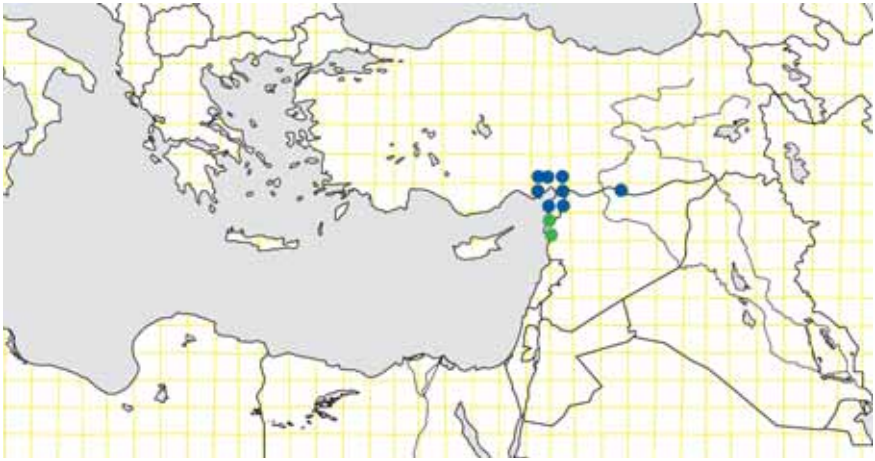


IUCN Red List Status		Record by countries
Global	LC	DZA, ESP, FRA, ISR, ITA, JOR, LBN, MAR, PRT, PSE, SAU, SDN, SYR,
Mediterranean	LC	TUN
North Africa	LC	

Paragomphus genei is a widespread Afrotropical species that reaches north to the Iberian Peninsula, Corsica and southern Italy. In the eastern Mediterranean it is well-established in the Jordan Valley, but does not go further north than the Libanon.

Paragomphus genei male, Spain (FP).

***Paragomphus lineatus* (Selys, 1850)**

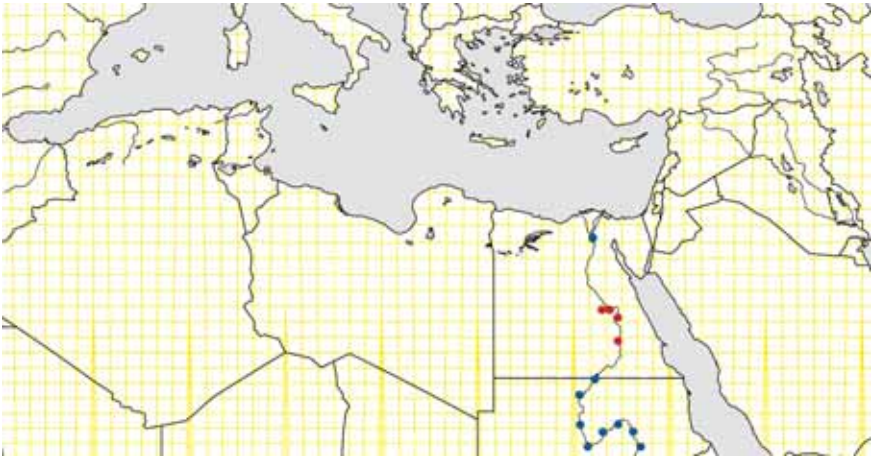


IUCN Red List Status		Record by countries
Global	NE	SYR, TUR
Mediterranean	DD	
North Africa		

Paragomphus lineatus has its main range in the Indian Peninsula and reaches west to southern Turkey and northern Syria.

***Paragomphus lineatus* male, Turkey (PS).**

***Paragomphus pumilio* (Rambur, 1842)**

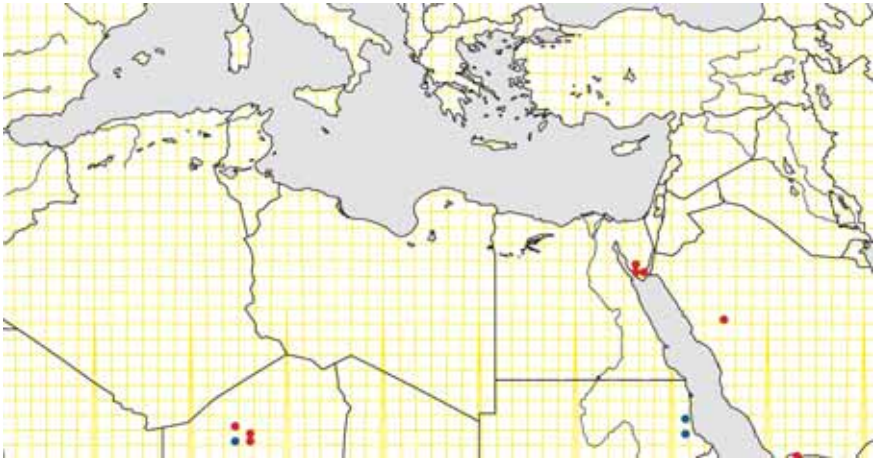


IUCN Red List Status		Record by countries
Global	LC	EGY, SDN
Mediterranean	LC	
North Africa	LC	

Paragomphus pumilio occurs from the Nile delta in Egypt south to northwestern Kenya. Only two recent records are available from Egypt (S.V. Ober pers. comm.), but Dumont & Martens (1984) found it to be common in Sudan.

Paragomphus genei male, Sardinia, Italy (BK).

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



IUCN Red List Status		Record by countries
Global	VU	EGY, NER, SAU, SDN
Mediterranean		
North Africa		

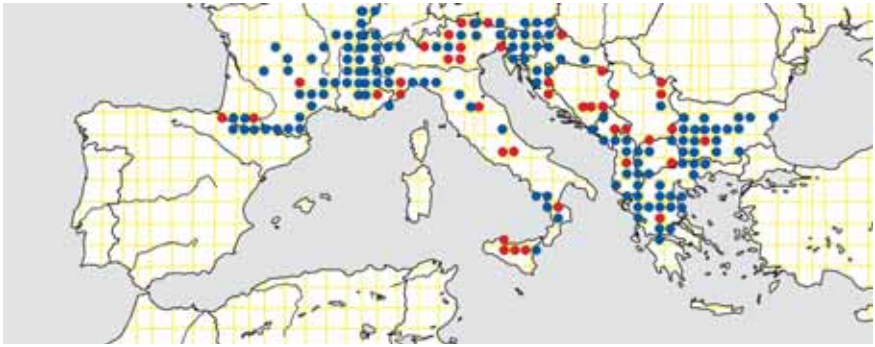
Paragomphus sinaiticus is restricted to the Arabian Peninsula, Sinai and the Sahara. The populations in the Aïr mountains in northern Niger are isolated from the main distributional range and might represent a relict of a former pluvial period. The species is classified VU in the Global Red List.

***Paragomphus sinaiticus* male, United Arab Emirates (BR).**

Onychogomphus costae copula, Tunisia (BK).

Cordulegastridae

Cordulegaster bidentata Selys, 1843



IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MKD, MNE, SRB, SVN
Mediterranean	NT	
North Africa		

Cordulegaster bidentata is endemic to Europe where it mainly occurs in lower mountains in the upper courses of brooks, springs and seepage waters. Spring habitats are highly sensitive to any transformation like acidification and shading of the water as a consequence of conifer plantation, water pollution, etc. Adults of populations in the Balkans and of some populations in northern Italy have a more extensive yellow pattern than those of the rest of Europe, except Sicily. The populations of Calabria ascribed to the Sicilian subspecies, *C. b. sicilica* Fraser, 1929, are heterogeneous and transitional towards the nominal subspecies (JPB). Hence, 'pure' *C. b. sicilica* should be regarded as confined to Sicily, where it is very rare. Genetic studies are in progress to better understand the systematic position of the various forms of this group. Due to its sensitivity to habitat changes, *C. bidentata* is classified NT in the Mediterranean Red List. However, *C. b. sicilica* is either close to extinction or has already become extinct, as the last records are from 1981 (Bucciarelli 1977; Galetti & Pavesi 1985, Verschuren 1989).

***Cordulegaster bidentata* larva, Germany (BK).**

Cordulegaster b. bidentata male, France (JPB).

Cordulegaster b. sicilica male, form of Calabria, Italy (JPB).

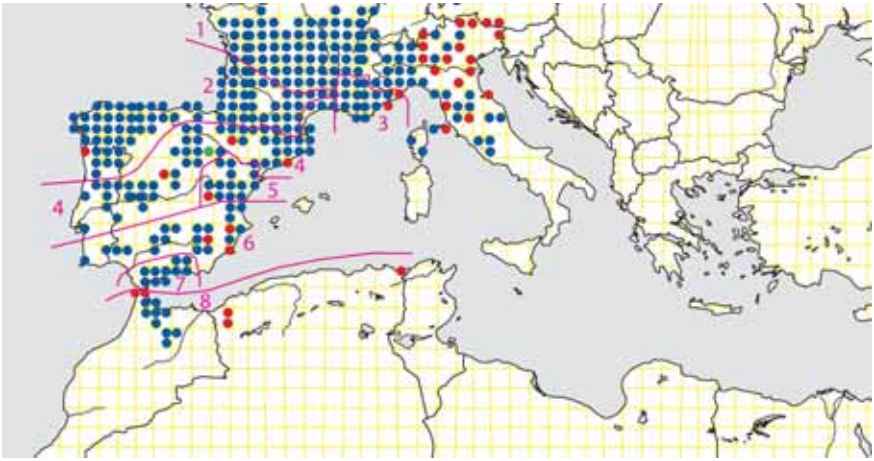
Codulegaster b. boltonii male, France (JPB).

Cordulegaster b. algirica male, Morocco (JPB).

Cordulegaster b. iberica male, Spain (JPB).

Cordulegaster b. immaculifrons male, France (JPB).

***Cordulegaster boltonii* (Donovan, 1807)**



IUCN Red List Status		Record by countries
Global	NE	AND, ESP, FRA, ITA, PRT
Mediterranean	LC	
North Africa	NT	DZA, ESP, GIB, MAR (*Cordulegaster b. algirica*)

A single voucher record of *Cordulegaster b. boltonii* from Corsica refers to a dead male found on a road in 1995 at Cirendino (Zonza) (Dommanget & Brusseaux 2004). An additional sight record refers to a male *Cordulegaster* patrolling over a brook in the Asco valley on 22-vii-2007 (D. Groenendijk pers. comm.), ascribed here to the same taxon due to its previously known occurrence, the lack of records of other *Cordulegaster* species and the low probability that *C. trinacriae* and *C. bidentata* can reach Corsica. Some individuals of *C. b. boltonii* from southwestern France, northwestern Spain and northern Portugal (2) are atypical – lacking the black bar on the front, with additional yellow dots at the end of the abdomen – but remain close to the nominal subspecies. Those of Liguria and the Apennine in Italy show a black occipital triangle generally with two yellow spots but are to be referred to the nominal subspecies as well. In addition to *C. b. boltonii*, three southern subspecies have been described, namely *C. b. immaculifrons* Selys, 1850 (3: southeastern France and northwestern Italy), *C. b. iberica* Boudot & Jaquemin, 1994 (6: southern Iberia) and *C. b. algirica* Morton, 1916 (8: southernmost Spain, Morocco, formerly Algeria). All subspecies are connected by heterogeneous hybrid populations (4, 5, 7) (Boudot & Jacquemin 1995; Boudot 2001). Genetic studies are in progress to better understand the phylogeny of this complex. The southernmost subspecies, *C. b. algirica*, is presently confined to southern Spain and to Morocco, as no records have been available from Algeria for almost a century. Climate change and habitat degradation are likely to cause this subspecies to decline in the future and it is classified NT in the North African Red List.

Cordulegaster insignis mzymtae male, Turkey (JPB).

Codulegaster b. boltonii larva, Gemany (BK).

***Cordulegaster helladica* (Lohmann, 1993)**

IUCN Red List Status		Record by countries
Global	VU	GRC
Mediterranean	EN	
North Africa		

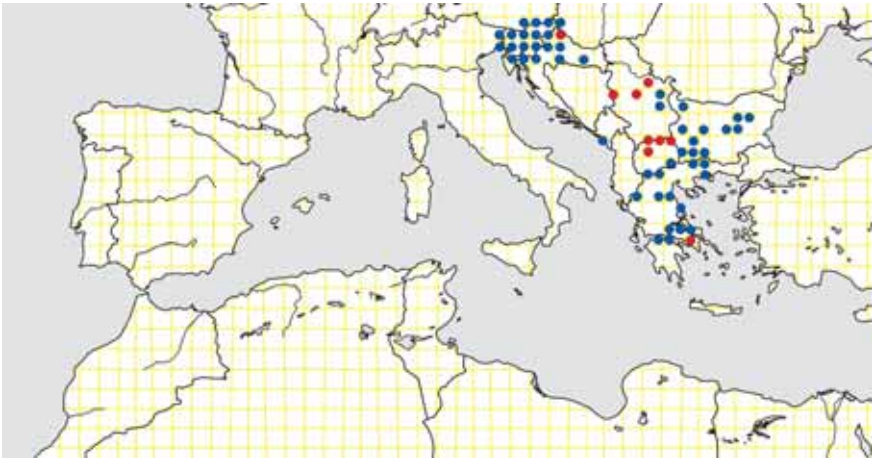
Cordulegaster helladica is a Greek endemic ranging from the south of continental Greece over the Peloponnese to the Cyclades. Three subspecies have been described, of which the nominal is found from the Peloponnese to Euboea, *C. h. buchholzi* (Lohmann, 1993) in three Cyclades Islands and *C. h. kastalia* (Lohmann, 1993) at the northern limit of the species' range. Genetic studies are in progress to better understand the phylogeny of this species. Some populations have been reduced or went extinct due to forest fires and the desiccation of streams. The species was classified VU (2006) in the Global Red List and has been upgraded to EN in the subsequent Mediterranean Red List.

***Cordulegaster h. helladica* male, Peloponnese, Greece (JPB).**

Cordulegaster h. buchholzi male, Naxos Island, Greece (JPB).

Cordulegaster h. kastalia male, Greece (JPB).

Cordulegaster heros Theischinger, 1979



IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, GRC, HRV, ITA, MKD, MNE, SRB, SVN
Mediterranean	VU	
North Africa		

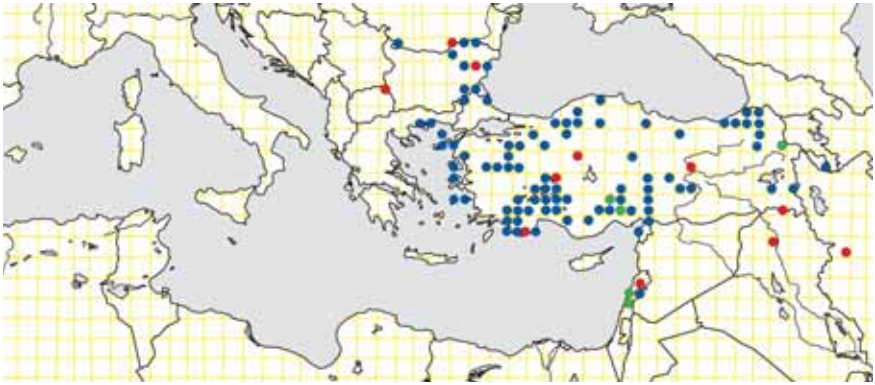
Cordulegaster heros is a chiefly southeastern European species ranging from Austria and Slovakia to a large part of the Balkans. Its eastern limit is unknown but it is likely that records of *C. boltonii* from the Ukraine (Gorb 1991) refer in fact to *C. heros*. It is locally common but scattered because of its specific habitat, mostly shaded rivulets in mountainous areas. In the Mediterranean region this species is currently decreasing due to habitat destruction, particularly by woodcutting, climate change and desiccation of streams. The species is classified VU in the Mediterranean Red List.

***Cordulegaster heros* male, Austria (WSH).**

Cordulegaster heros male, Greece (JPB).

Cordulegaster h. heros larva (above, with distinctive red head), compared to a larva of *C. b. boltonii* of the same stadium (F0), Austria (WSH).

Cordulegaster insignis Schneider, 1845

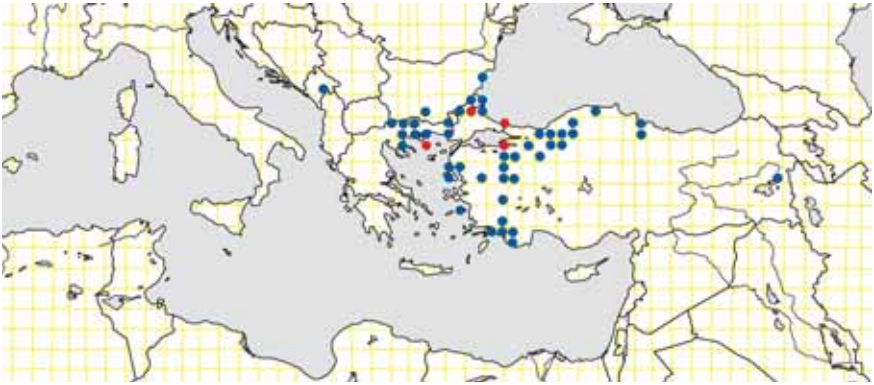


IUCN Red List Status		Record by countries
Global	NE	BGR, GRC, IRN, IRQ, LBN, TUR
Mediterranean	NT	
North Africa		

Cordulegaster insignis is restricted to southeastern Europe and southwestern Asia. This species shows a strong regional variation in the yellow pattern, which has led to the description of various subspecies. However, the characters and the range of many subspecies are poorly known and some subspecies have yet to be described. The *C. insignis* group is currently worked on by G.J. van Pelt. *Cordulegaster mzymtae*, which is found in the Pontic Alps in northeastern Turkey and in the southwestern Caucasian range, hybridizes with *C. insignis* and has recently been regarded as a dark subspecies of the latter (van Pelt 2006). This taxon is locally threatened due to water extraction and pollution and may suffer from desiccation of springs as a consequence of climate change. It is classified NT in the Mediterranean Red List.

***Cordulegaster insignis* male, Turkey (RW).**

Cordulegaster picta Selys, 1854

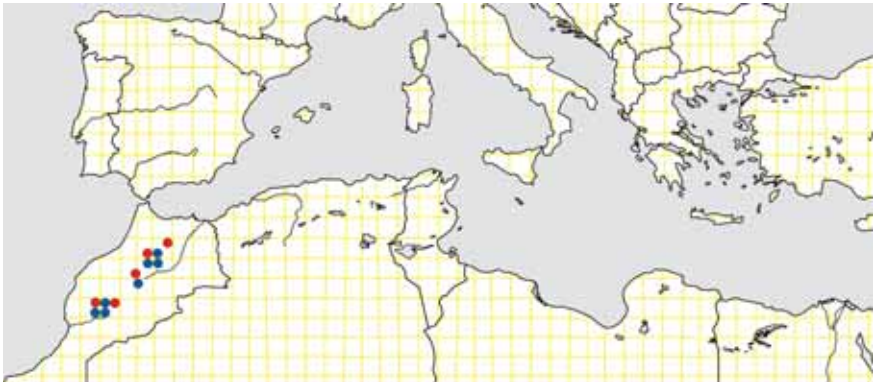


IUCN Red List Status		Record by countries
Global	NE	BGR, GRC, MNE, TUR
Mediterranean	VU	
North Africa		

Cordulegaster picta is an eastern Mediterranean species known from northeastern Greece and Bulgaria to Azerbaijan. A recent record from Montenegro extends the range 350 km to the north-west (Gligorović et al. 2008). Old records from north Italy and Dalmatia (Selys & Hagen 1858) are believed to be incorrect and are omitted here. Similarly, a record from the area of Athens in Greece (Theischinger 1979) is believed to be erroneous (van Pelt 2006) and has been omitted. Its habitat ranges from minute rivulets in dark forests to middle-sized rivers. Some localities are threatened due to climate change, habitat destruction and/or pollution. The species is classified VU in the Mediterranean Red List.

***Cordulegaster picta* male, Samos Island, Greece (JPB).**

Cordulegaster princeps Morton, 1916



IUCN Red List Status		Record by countries
Global	VU	MAR
Mediterranean	NT	
North Africa	NT	

Cordulegaster princeps is endemic to Morocco. This robust member of the '*boltonii* group' is confined to the Middle and High Atlas. Some old records refer to populations now extinct due to desiccation of streams, but fieldwork during 2007 (Boudot 2008) showed that most populations are still flourishing. Climate change, overgrazing, forest destruction and water extraction however constitute major threats for this species. It is classified VU in the Global Red List (2008), but has been downgraded to NT in the Mediterranean and North African Red Lists.

***Cordulegaster princeps* male, Morocco (JPB).**

Cordulegaster trinacriae Waterston, 1976

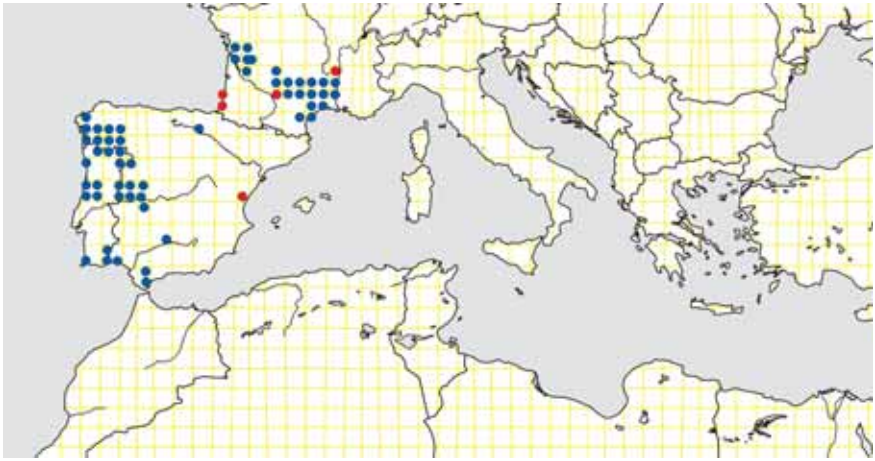
IUCN Red List Status		Record by countries
Global	VU	ITA
Mediterranean	NT	
North Africa		

Cordulegaster trinacriae replaces *C. b. boltonii* in the southern half of Italy and in Sicily. Its precise northern limit remains unclear. Some populations were recently found by JPB during 2008 to be flourishing, particularly in nature reserves, but some old localities are now destroyed due to urbanisation, water pollution and desiccation of streams. The species is classified VU in the Global Red List (2008), but has been downgraded to NT in the Mediterranean Red List.

***Cordulegaster trinacriae* male, Italy (JPB).**

Macromiidae

Macromia splendens Pictet, 1843



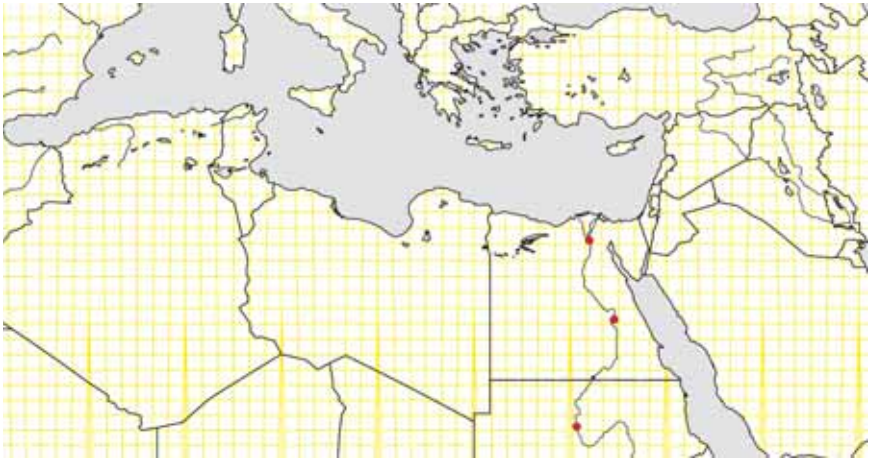
IUCN Red List Status		Record by countries
Global	VU	ESP, FRA, PRT
Mediterranean	VU	
North Africa		

Macromia splendens is a famous and mythical southwestern European endemic with a range from southern and southwestern France to Spain and Portugal. The species shows a disjunct distribution with the largest populations in southern France and the northwestern parts of the Iberian Peninsula. An old record from the province Valencia (Navás 1924) has never been confirmed. This species inhabits rivers and is generally rare and easily overlooked. In the last decade several new populations have been found throughout its range, which shows that it is much less rare than formerly believed. Contrary to many other running water species it is not affected by the construction of hydroelectric dams and might even have profited from it (Cordero Rivera et al. 1999). However, a general degradation of water quality is noted almost everywhere throughout the species' range and is probably impacting the populations. In some French rivers the introduction of invasive crayfish during the last decade led to a strong decrease of local *M. splendens* populations (JLD). In addition, the repeated droughts, which the Iberian Peninsula and the French Mediterranean have been increasingly suffering from, will inevitably lead to the reduction of many populations in the future. *Macromia splendens* is classified VU in the Global and Mediterranean Red Lists.

Macromia splendens female, France (JPB).

Macromia splendens male, France (JPB).

***Phyllomacromia africana* (Selys, 1871)**



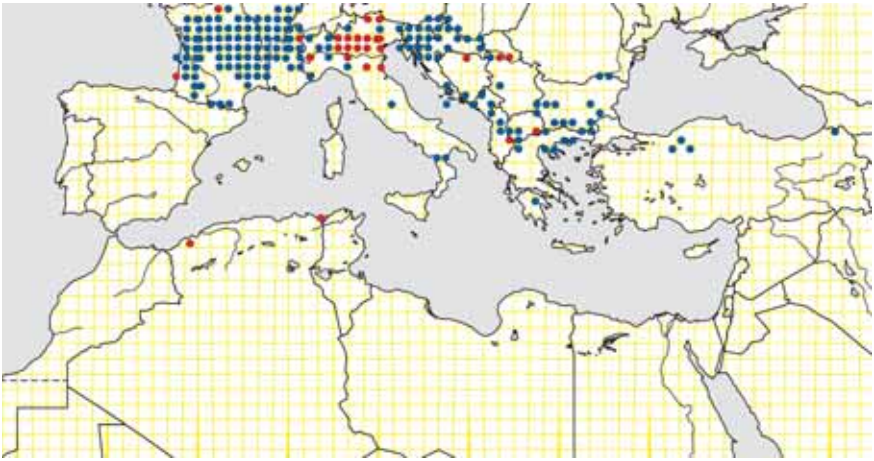
IUCN Red List Status		Record by countries
Global	LC	EGY*, SDN*
Mediterranean	RE	
North Africa	RE	

The last published record of the African *Phyllomacromia africana* in the region covered by this atlas was published by Andres (1928). The species has been classified RE in the North African Red List.

Phyllomacromia africana male, Chad (VJK).

Corduliidae

Cordulia aenea (Linnaeus, 1758)

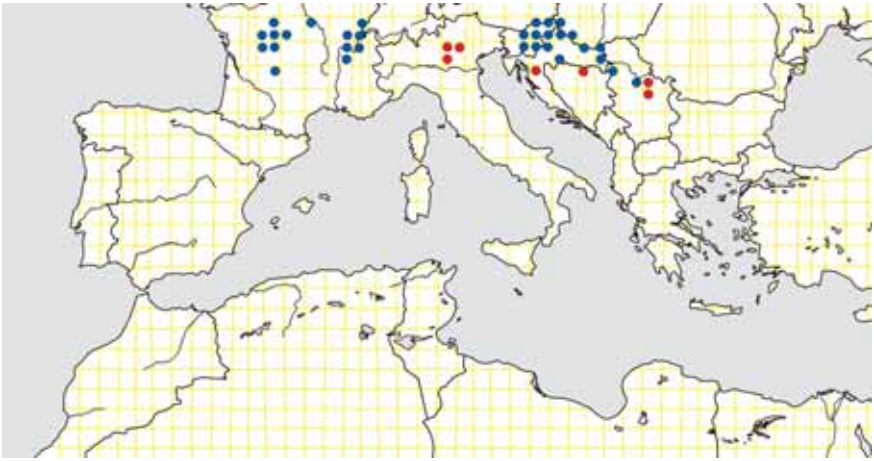


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, DZA*, ESP, FRA, GRC, HRV, ITA, MKD, MNE, SRB, SVN,
Mediterranean	NT	TUR
North Africa	EX	

Cordulia aenea is common in the temperate parts of Europe but becomes scarce towards the Mediterranean. Two old records from the Maghreb (Selys 1871; Martin 1910) have never been confirmed. It is classified NT in the Mediterranean Red List and EX in the North African Red List.

Cordulia aenea male, Germany (BK).

Epitheca bimaculata (Charpentier, 1825)

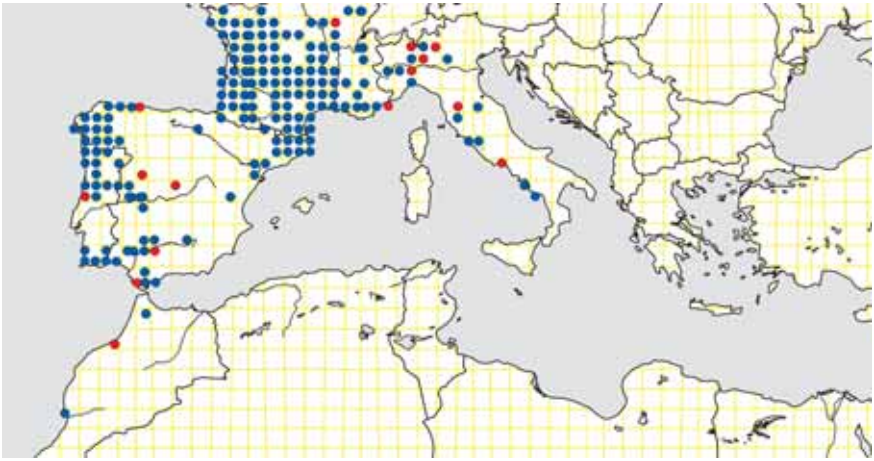


IUCN Red List Status		Record by countries
Global	NE	BIH, FRA, HRV, ITA*, SRB, SVN
Mediterranean	DD	
North Africa		

Epitheca bimaculata has a patchy distribution in central Europe. Within the area covered by this atlas it has a marginal presence in France, Slovenia, Croatia and Serbia. With the last record taken in 1897, it is considered to be extinct in Italy (Utzeri & D'Antonio 2005). The species is easily overlooked and searching for exuviae in late April and May is the most effective recording method.

Epitheca bimaculata teneral female, France (JPB).

Oxygastra curtisii (Dale, 1834)

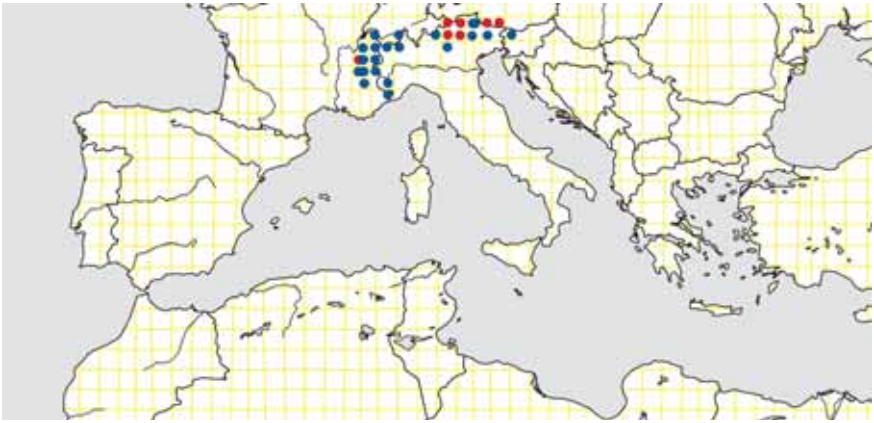


IUCN Red List Status		Record by countries
Global	NT	ESP, FRA, ITA, MAR, PRT
Mediterranean	LC	
North Africa	CR	

The distribution of *Oxygastra curtisii* is limited to Morocco and western Europe where it currently reaches north to Belgium. It is common in the French Mediterranean and in western and northeastern parts of the Iberian Peninsula. It is however much more scattered in Italy, where only five localities are known since 1990 (D'Andrea 1994; Utzeri et al. 1999; Hardersen 2004; IUCN 2008). In Morocco three localities, one probably lost, have been reported (Jacquemin & Boudot 1999). Poor water management, pollution, irrigation and climate change with subsequent frequent summer drought will affect the species throughout its range. *Oxygastra curtisii* is classified NT in the Global Red List and CR in the North African Red List.

Oxygastra curtisii male, France (JPB).

***Somatochlora alpestris* (Selys, 1840)**

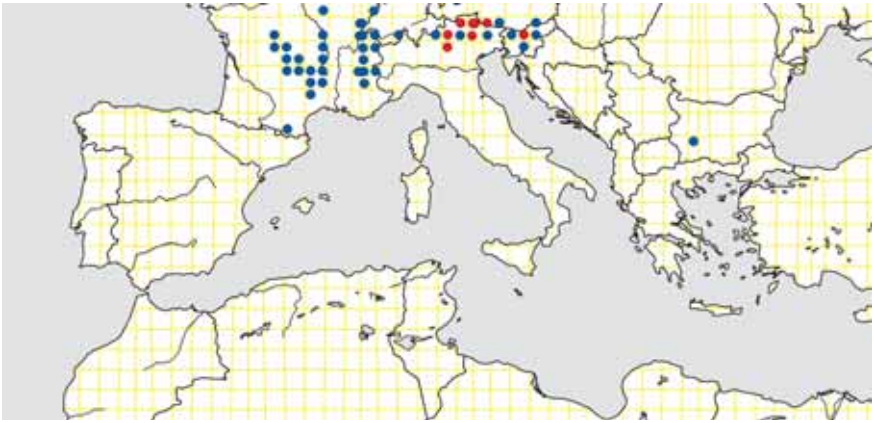


IUCN Red List Status		Record by countries
Global	NE	FRA, ITA, SVN
Mediterranean	NT	
North Africa		

Somatochlora alpestris is a boreoalpine species that is chiefly confined to *Sphagnum* peat bogs. In the area covered by this atlas it is restricted to high altitudes in the Alps, where it is not uncommon, although each population generally has a low number of individuals. At some localities the habitat of *S. alpestris* is suffering from degradation due to livestock and tourism. Altitudinal movement constraints as a result of climate change may result in local extinction of some Alpine populations. The species is classified NT in the Mediterranean Red List.

***Somatochlora alpestris* female, France (JPB).**

Somatochlora arctica (Zetterstedt, 1840)



IUCN Red List Status		Record by countries
Global	NE	BGR, FRA, ITA, SVN
Mediterranean	NT	
North Africa		

Somatochlora arctica is a boreoalpine species that is largely confined to peat bogs. Compared to *S. alpestris*, it occurs at lower altitudes and is therefore more widespread in the area covered by this atlas. The species is known from all mountain areas in France, Italy and Slovenia, and from a relatively isolated population in Bulgaria (Marinov 2004). Some localities are suffering from degradation by livestock and tourism development. *Somatochlora arctica* is likely to experience future habitat loss due to global warming and habitat desiccation. It is classified NT in the Mediterranean Red List.

***Somatochlora arctica* male, France (JPB).**

***Somatochlora borisi* Marinov, 2001**

IUCN Red List Status		Record by countries
Global	NT	BGR, GRC, TUR
Mediterranean	VU	
North Africa		

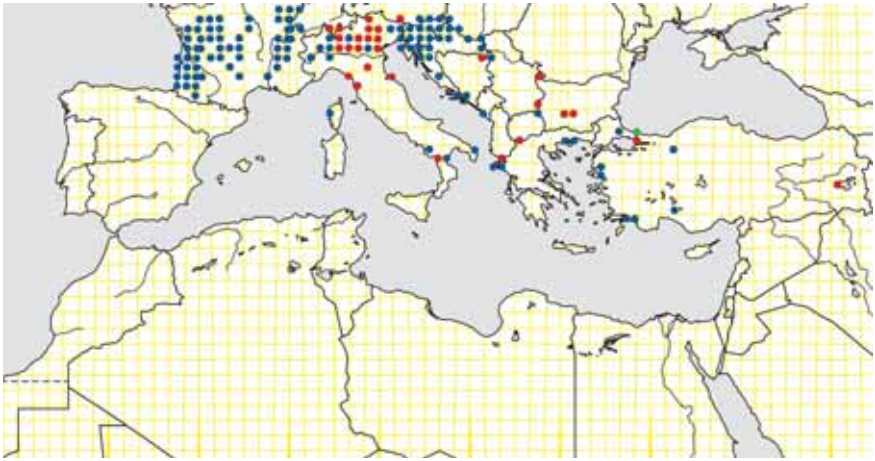
Somatochlora borisi is known only from a small part of Thrace and the eastern Rhodope Mountain region of Greece, Bulgaria and European Turkey (Marinov 2001c; Boudot et al. 2004; Grebe et al. 2005; Lopau 2005; Fleck et al. 2007). This area has a hot and humid climate and has a high portion of forest that is used for wood production and extensive traditional rearing of goats and sheep. The traditional human activities in the area pose no threat to *S. borisi*. Expected future intensification of agriculture and the spread of conifer plantations may represent notable threats for the future. Although this species mainly inhabits larger rivers, it is also threatened by global warming and the desiccation of streams. The Bulgarian type locality was found to be dry in September 2003 and in Greece by as early as the end of July in 2008 the most important streams for *S. borisi* did not show any running water; only deep pools remaining in the river bed allowed the survival of larvae. The species was classified NT in the Global Red List in 2006 but has been upgraded to VU in 2008 in the Mediterranean Red List.

Marinov & Seidenbusch (2007) placed *S. borisi* into the newly described monotypic genus *Corduliochlora*. The adult has some morphological characters that set it apart from *Somatochlora*, but the larva does not show any characters distinct from *Somatochlora*. As long as no phylogenetic study of the Corduliidae has been undertaken, we refrain from using *Corduliochlora*.

Somatochlora borisi male, Greece (JPB).

Somatochlora borisi female, Greece (JPB).

***Somatochlora flavomaculata* (Vander Linden, 1825)**

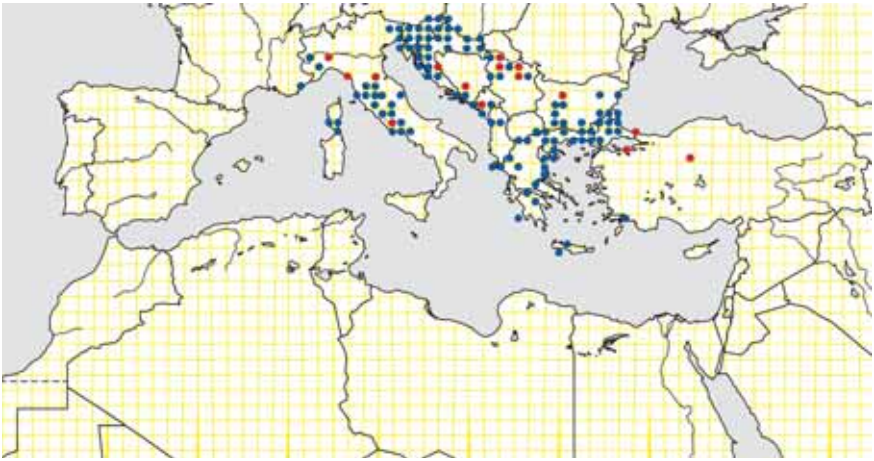


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, FRA, GRC, HRV, ITA, MKD, MNE, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

Somatochlora flavomaculata is a reasonably common and widespread species across large parts of central and northern Europe. In the Mediterranean it is chiefly confined to the north with scattered populations in the southern parts of Italy, the Balkans and Turkey.

Somatochlora flavomaculata male, France (JPB).

Somatochlora meridionalis Nielsen, 1935

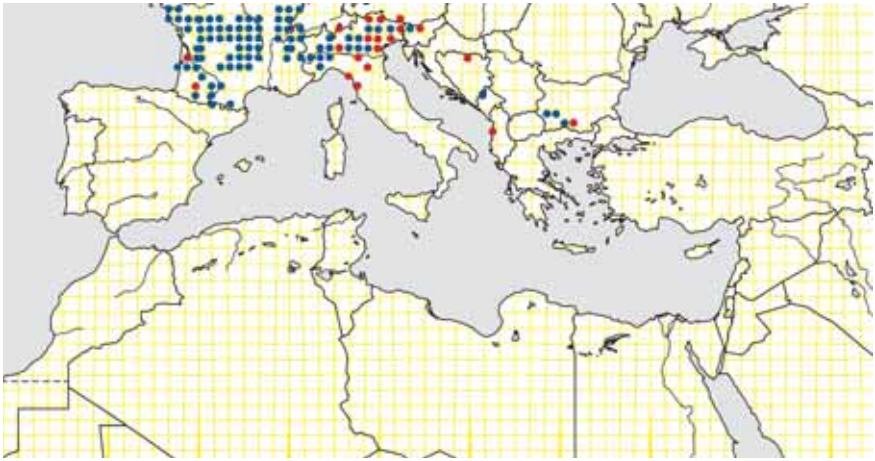


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, FRA, GRC, HRV, ITA, MKD, MNE, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

Somatochlora meridionalis and *S. metallica* are closely related and are separated only by minor morphological differences of both adults and larvae. For this reason *S. meridionalis* is regarded as a subspecies of *S. metallica* by some authors.

***Somatochlora meridionalis* female, Greece (JPB).**

***Somatochlora metallica* (Vander Linden, 1825)**



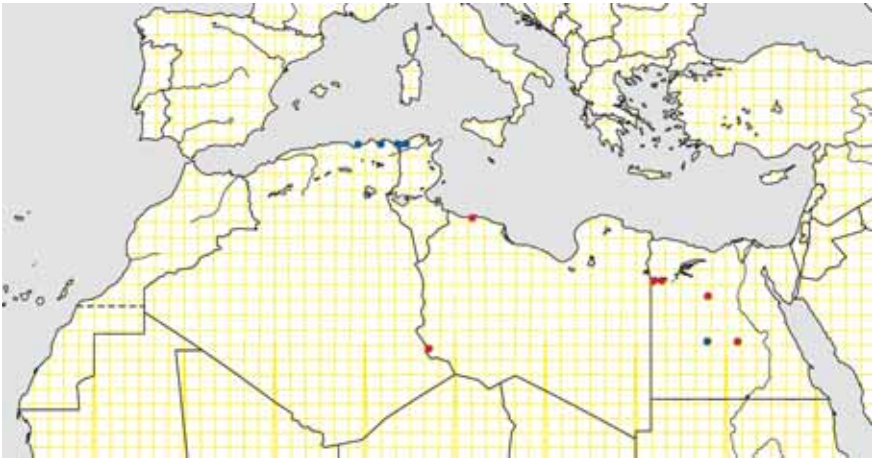
IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, ESP, FRA, ITA, MNE, SVN
Mediterranean	NT	
North Africa		

Somatochlora metallica is found over much of Europe, but is replaced by *S. meridionalis* in large parts of southeastern Europe. Where the two species overlap, *S. meridionalis* is confined to low altitude and *S. metallica* generally to high altitude. However, both taxa are sometimes found syntopically and intermediate specimens have been recorded in their contact areas. A record from 1918 taken in Albania possibly refers to *S. meridionalis* (Bilek 1966). *Somatochlora metallica* is classified NT in the Mediterranean Red List.

***Somatochlora metallica* male, Germany (BK).**

Libellulidae

Acisoma panorpoides ascalaphoides Rambur, 1842

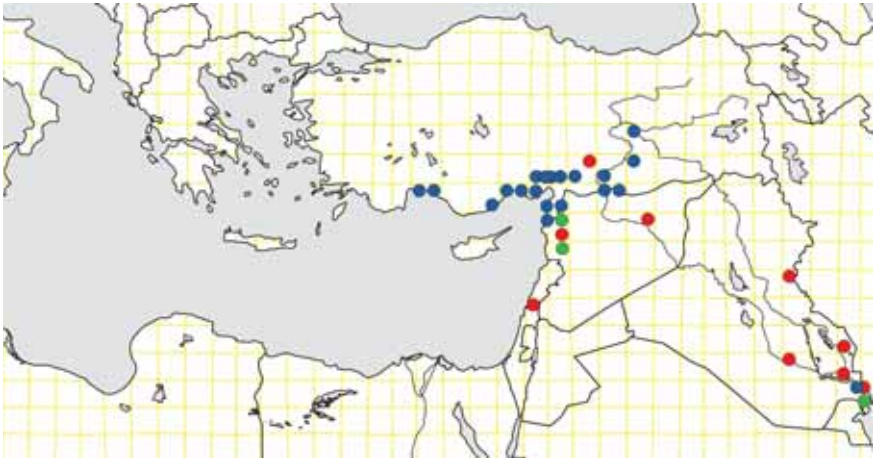


IUCN Red List Status		Record by countries
Global	LC	DZA, EGY, LBY
Mediterranean	EN	
North Africa	EN	

Acisoma panorpoides ascalaphoides is a widespread Afrotropical species, which has a string of relict populations in Algeria, Libya and Egypt in coastal wetlands and Saharan oases. Libyan populations are probably extinct but the species is still present in Algeria. There is only one record from Egypt after 1990 but information on this country is scarce and *A. p. ascalaphoides* might be more common than records suggest. The species is classified EN in the Mediterranean and North African Red Lists.

***Acisoma panorpoides ascalaphoides* female (left) and male, Botswana (JK).**

***Brachythemis fuscopalliata* (Selys, 1887)**

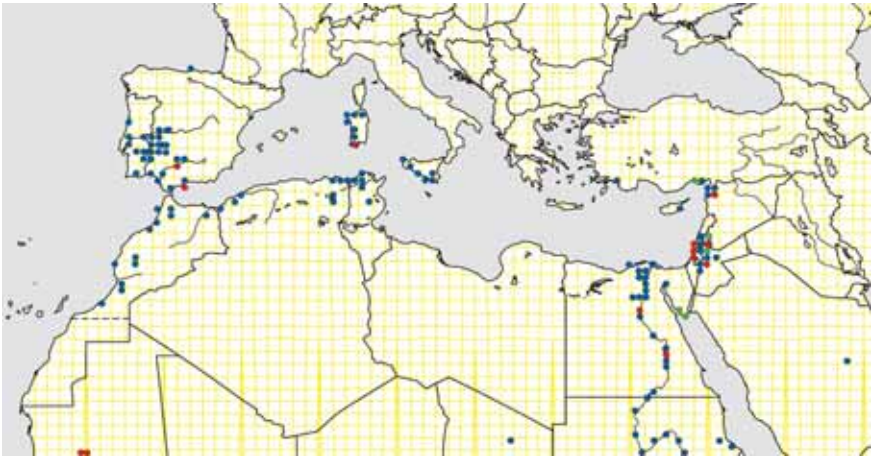


IUCN Red List Status		Record by countries
Global	VU	IRN, IRQ, ISR, SYR, TUR
Mediterranean	VU	
North Africa		

Brachythemis fuscopalliata seems to have its main distribution along the river systems of the Euphrates and the Tigris in Iraq and ranges west to southern Turkey and the Levant. It is likely that a significant number of populations have nearly become extinct during the last 30 years due to agricultural pollution from pesticides, drainage and water extraction for irrigation and the desiccation of the lower Iraqi swamps. The management of water resources for human use in the whole Middle East constitutes a threat for the future of this species across its range. The species is classified VU in the Global and Mediterranean Red Lists.

Brachythemis fuscopalliata female, Turkey (JPB).

***Brachythemis leucosticta* (Burmeister, 1839)**



IUCN Red List Status		Record by countries
Global	LC	CYP, DZA, EGY, ESP, ISR, ITA (Sardinia, Sicily), JOR, MAR, PRT, SAU,
Mediterranean	LC	SDN, SYR, TUN, TUR
North Africa	LC	

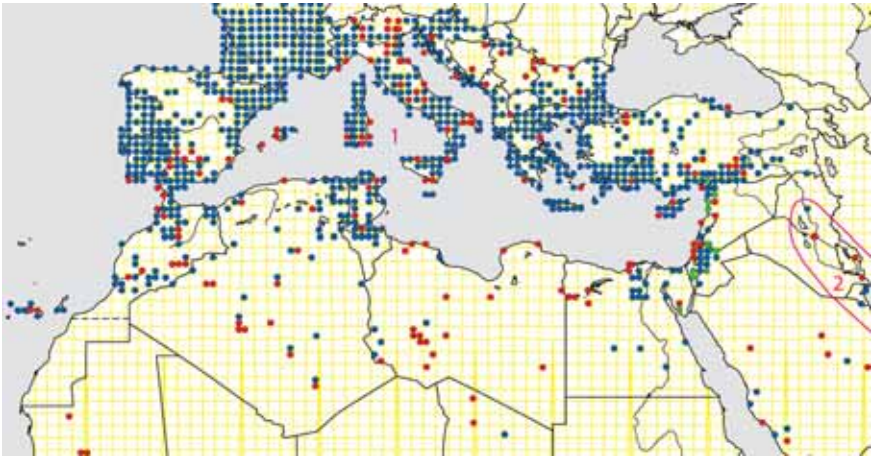
Brachythemis leucosticta is a widespread Afrotropical species extending to southern Europe. The species has recently expanded in the Iberian Peninsula, and records suggest that the same is happening in the eastern Mediterranean. It profits from the construction of dams. Populations from the Maghreb and from western Mediterranean Europe are strongly disjunct from the main range of the species and could be remnants of past pluvial periods, during which the Sahelian and Saharan belts allowed an easy expansion of Afrotropical species to the north through a significant hydrographical network. The aridification of the north and the east of Africa during the second half of the Holocene led to the fragmentation of the initial range. However, the eastern Mediterranean populations may be continuously connected to the main range of the species via the Nile corridor, where it is currently common.

Brachythemis leucosticta female, Tunisia (BK).

Brachythemis fuscopalliata immature male, Turkey (RW).

Brachythemis leucosticta immature male, Tunisia (BK).

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

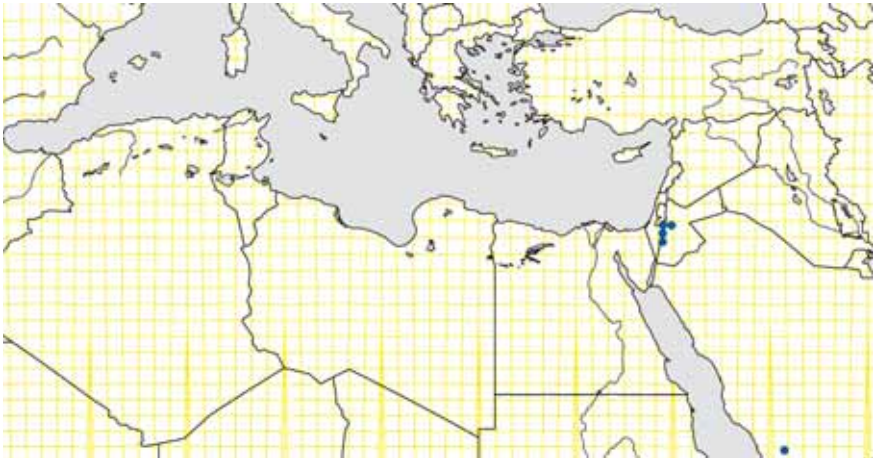


IUCN Red List Status		Record by countries
Global	LC	ALB, BGR, BIH, CYP, DZA, EGY, ESP, FRA, GRC, HRV, ISR, ITA, JOR,
Mediterranean	LC	KWT, LBN, LBY, MAR, MKD, MLT, MNE, MRT, PRT, SAU, SRB, SVN, SYR,
North Africa	LC	TCD, TUN, TUR

Crocothemis erythraea is a widespread and common Afrotropical species, which has expanded its European range strongly to the north in the last decades (Ott 2001). Some populations from the countries bordering the Persian Gulf have been ascribed to a distinct subspecies, *C. e. chaldaeorum* Morton, 1920, which is poorly known and whose taxonomic status is unclear.

Crocothemis erythraea male, Tunisia (BK).

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

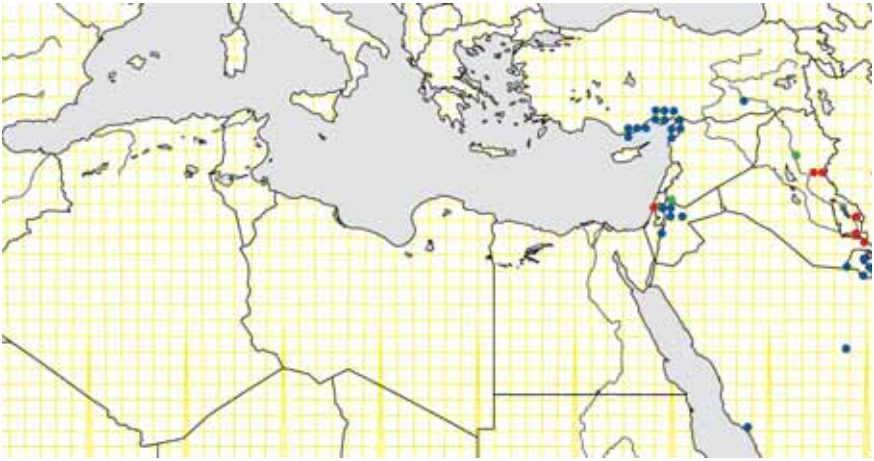


IUCN Red List Status		Record by countries
Global	LC	ISR, JOR, SAU
Mediterranean	LC	
North Africa		

Crocothemis sanguinolenta is a widespread African species that reaches into the Arabian Peninsula and has relict populations in the Levant. A former record from Libya has been shown to pertain in fact to *C. e. erythraea* (S.V. Ober pers. comm.).

***Crocothemis sanguinolenta* male, South Africa (ERN).**

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

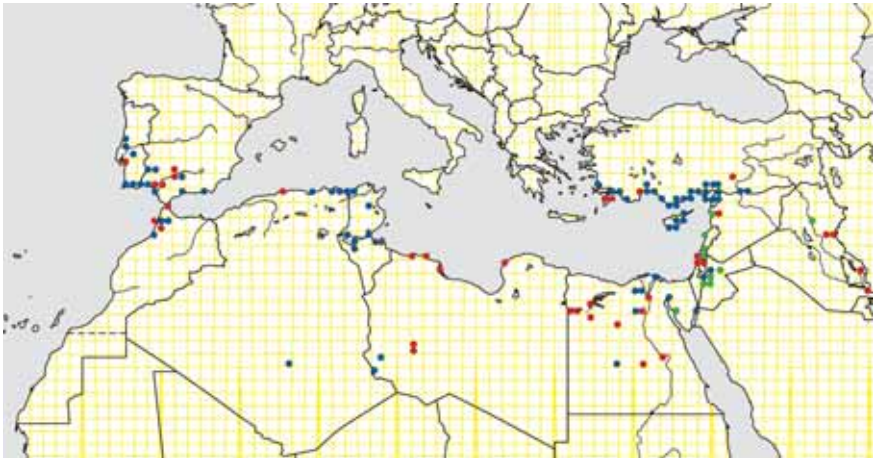


IUCN Red List Status		Record by countries
Global	NE	IRQ, ISR, JOR, KWT, SAU, TUR
Mediterranean	LC	
North Africa		

Crocothemis servilia is a widespread and common Oriental species that extends west to southern Turkey and the Levant. It is closely related to *C. erythraea* and identification of the two species in the field is difficult and often impossible. In the eastern Mediterranean *C. servilia* is apparently much scarcer than *C. erythraea.*

Crocothemis servilia female, Turkey (RW).

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

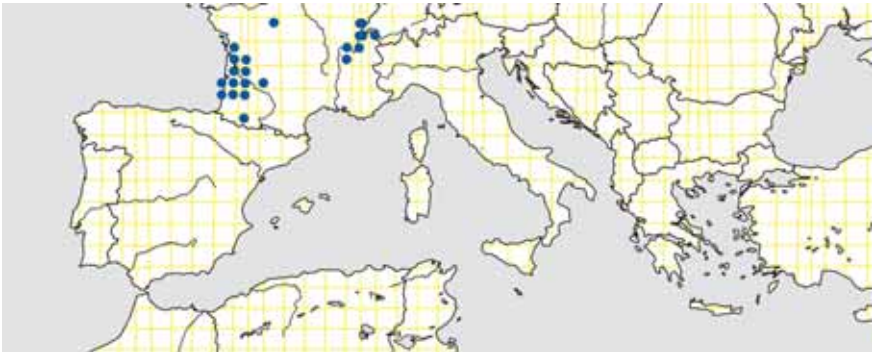


IUCN Red List Status		Record by countries
Global	LC	CYP, DZA, EGY, ESP, GRC, IRQ, ISR, JOR, LBN, LBY, MAR, PRT, SYR,
Mediterranean	LC	TUN, TUR
North Africa	LC	

Diplacodes lefebvrii is a widespread and common Afrotropical species that extends to southern Europe. Populations from the central Sahara, the Maghreb and the Iberian Peninsula are disjunct from the main range of the species and might represent relicts of past pluvial periods.

***Diplacodes lefebvrii* old female, Tunisia (BK).**

Leucorrhinia albifrons (Burmeister, 1839)

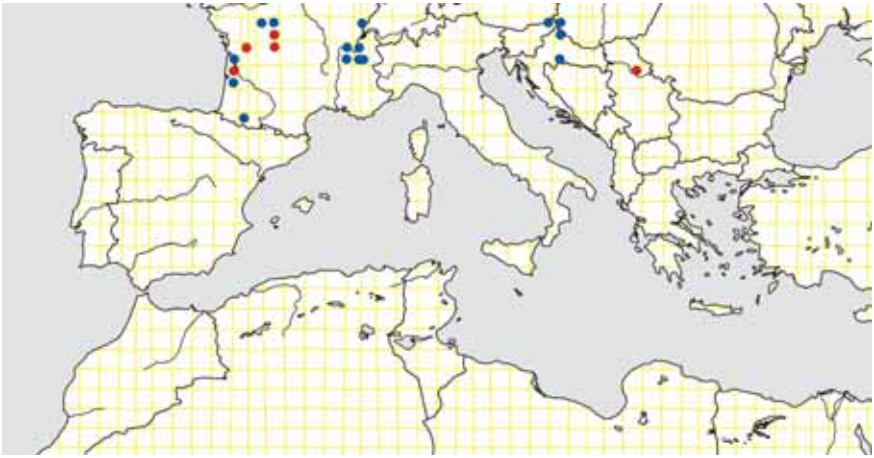


IUCN Red List Status		Record by countries
Global	LC	FRA
Mediterranean	EN	
North Africa		

Leucorrhinia albifrons is a Palaearctic species with its southernmost populations in France and southern Switzerland. It occurs in *Sphagnum* peat bogs as well as in acid, neutral and alkaline lakes. The waters inhabited either are free of fish or provide larval microhabitats where predation risk by fish might be low. Populations are generally small to medium in size. An overall decreasing trend for this species is evident throughout western Europe, and particularly in the southernmost part of its range. This is caused by pollution and destruction of microhabitats. In Switzerland only one population survived (Maibach 2005). Some recently discovered localities in the French Alps have already been destroyed by nautical activities (Deliry 2008). The populations surviving in the area involved in this atlas are isolated from the main range of the species, which is classified EN in the Mediterranean Red List.

Leucorrhinia albifrons male, France (JPB).

Leucorrhinia caudalis (Charpentier, 1840)

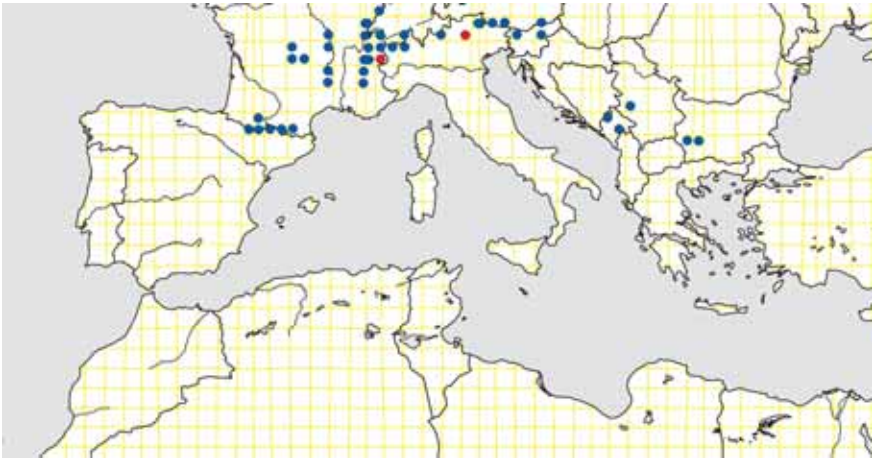


IUCN Red List Status		Record by countries
Global	LC	FRA, HRV, SRB*, SVN
Mediterranean	NT	
North Africa		

Leucorrhinia caudalis is a Palaearctic species whose southern range just reaches the area covered by this atlas. Here it is scattered from southwestern France to Serbia, where it is regarded as extinct (Jović et al. 2008b). It favours ponds, lakes and river backwaters with *Nymphaea alba* in more or less forested landscapes. It is classified NT in the Mediterranean Red List.

Leucorrhinia caudalis male, France (JPB).

Leucorrhinia dubia (Vander Linden, 1825)

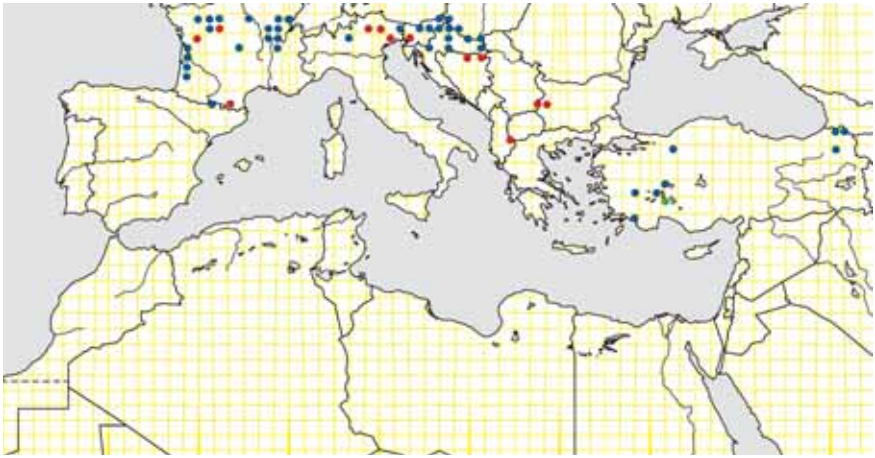


IUCN Red List Status		Record by countries
Global	NE	BGR, ESP, FRA, ITA, MNE, SRB, SVN
Mediterranean	NT	
North Africa		

In southern Europe, *Leucorrhinia dubia* is restricted to high mountains – the Pyrenees, the Massif Central, the Alps, the Dinaric Alps and the Rhodope Mountains – where it is confined to *Sphagnum* peat bogs and acid ponds and lakes. Natural succession like peat bog closure as well as climate change and fish farming are the main threats for *L. dubia* in this part of its range. The species is classified NT in the Mediterranean Red List.

***Leucorrhinia dubia* male, Germany (BK).**

***Leucorrhinia pectoralis* (Charpentier, 1825)**



IUCN Red List Status		Record by countries
Global	NE	BGR, BIH, ESP, FRA, HRV, ITA, MKD, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

The main range of *Leucorrhinia pectoralis* is northern Europe. In southern Europe, *L. pectoralis* ranges from western and southwestern France to eastern Turkey and, where present, is sometimes abundant. It reproduces in acid *Sphagnum* peat bogs but also in neutral lakes that either are free of fish or provide larval microhabitats where predation risk by fish might be low. Natural succession like peat bog closure as well as climate change and fish farming are the main threats for *L. pectoralis* in this part of its range.

Leucorrhinia pectoralis male, France (JPB).

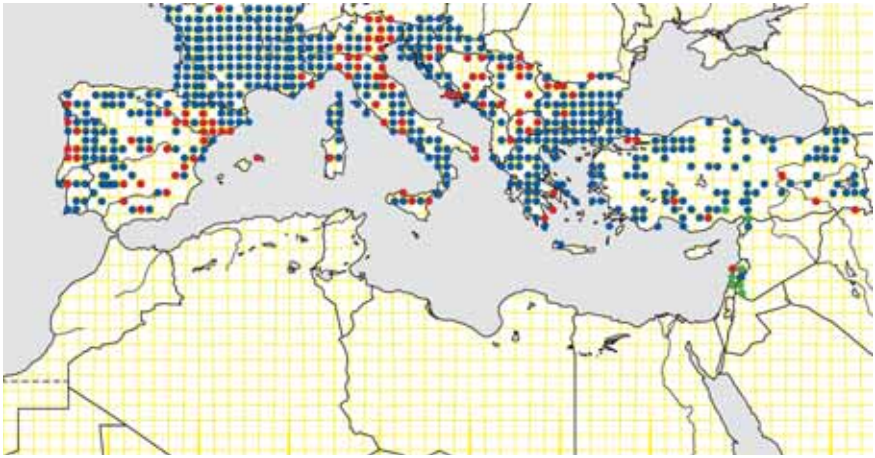
Leucorrhinia rubicunda (Linnaeus, 1758)

IUCN Red List Status		Record by countries
Global	NE	FRA*
Mediterranean		
North Africa		

Only one very old record (Martin 1887) of *Leucorrhinia rubicunda* is available in the area covered by this atlas for this chiefly northern European species. The record was not checked in recent times, and it is not clear whether it refers to a vagrant or maybe to a misidentification.

Leucorrhinia rubicunda male, France (JPB).

Libellula depressa Linnaeus, 1758

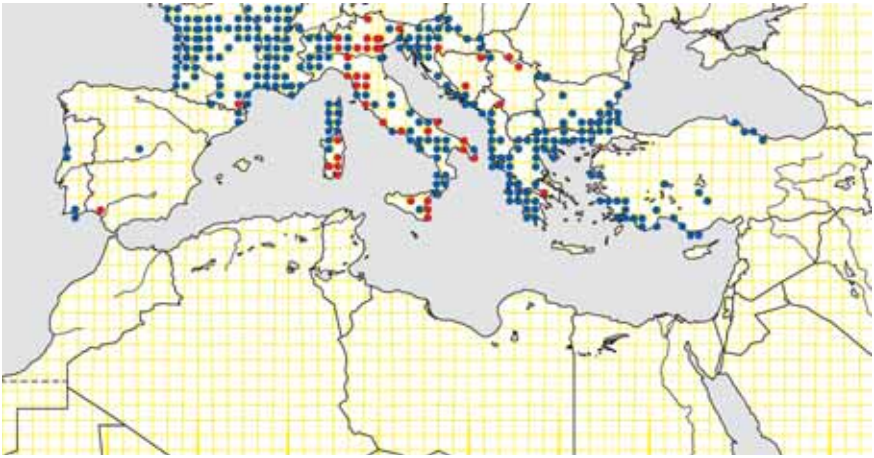


IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, ESP, FRA, GRC, HRV, IRQ, ISR, ITA, LBN, MKD, MNE, PRT, SRB, SVN, SYR, TUR
Mediterranean	LC	
North Africa		

Libellula depressa is common and widespread in large parts of Europe and the eastern Mediterranean, but does not occur in North Africa.

Libellula depressa copula, Germany (BK).

Libellula fulva O.F. Müller, 1764

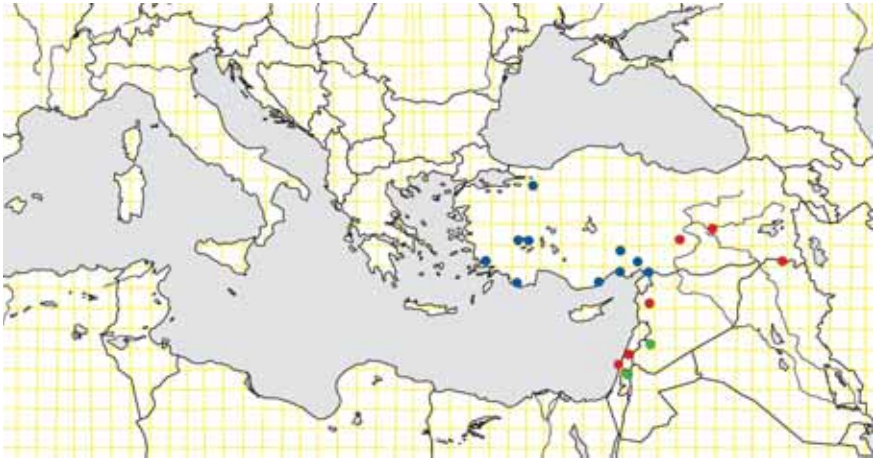


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MKD, MNE, PRT, SRB, SVN,
Mediterranean	LC	TUR
North Africa		

Libellula fulva is relatively common and widespread in many central European countries. In southern Europe it is not uncommon but it is rare in the Iberian Peninsula.

Libellula fulva male, France (BK).

***Libellula pontica* Selys, 1887**

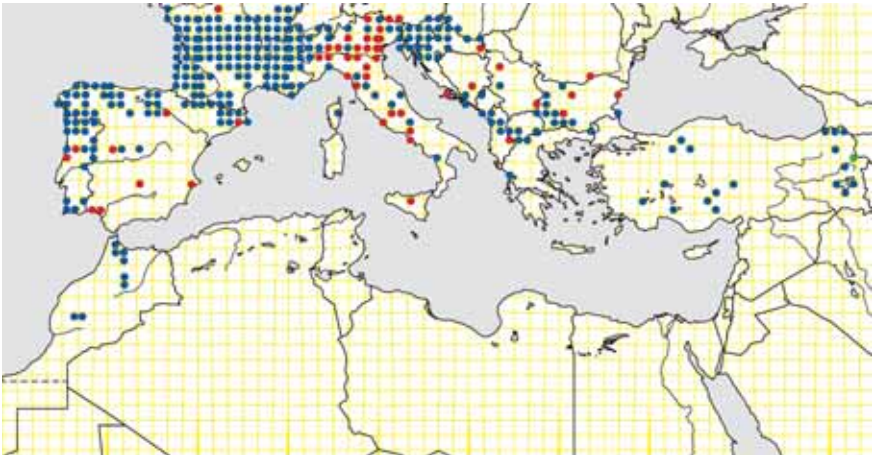


IUCN Red List Status		Record by countries
Global	NT	IRN, IRQ, ISR, JOR, SYR, TUR
Mediterranean	NT	
North Africa		

Libellula pontica has a range reaching from central Asia to Turkey and to the Persian Gulf in Iran. It is a rare to very rare species throughout its range, where less than 20 localities are presently known. *Libellula pontica* is classified NT in the Global and Mediterranean Red Lists.

***Libellula pontica* male, Turkey (MC).**

Libellula quadrimaculata Linnaeus, 1758

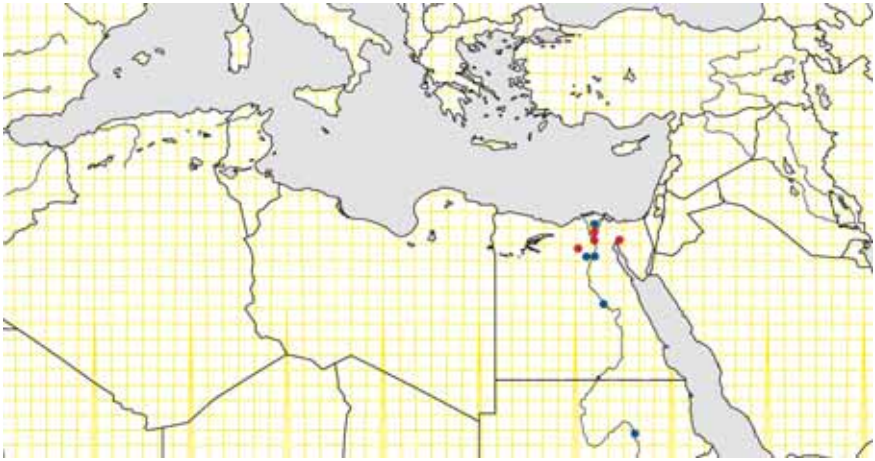


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MAR, MKD, MNE, PRT, SRB,
Mediterranean	LC	SVN, TUR
North Africa	VU	

Libellula quadrimaculata is a very common species in Eurasia. In Sicily it was found only in the 19th century (Utzeri & D'Antonio 2005), which probably refers to a single record (Minà Palumbo 1858) and may be erroneous. In Africa the species is known with certainty only from Morocco (Jacquemin & Boudot 1999). It is classified VU in the North African Red List.

***Libellula quadrimaculata* male (f. praenubila), France (JPB).**

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



IUCN Red List Status		Record by countries
Global	NE	EGY, SDN
Mediterranean	EN	
North Africa	EN	

Nesciothemis farinosa is a common Afrotropical species that was able to reach the Mediterranean coast in Egypt probably via the Nile corridor. It is classified EN in the Mediterranean and North African Red Lists.

***Nesciothemis farinosa* male, Botswana (JK).**

Nesciothemis farinosa immature male, Botswana (JK).

Orthetrum chrysostigma immature male, Tunisia (BK).

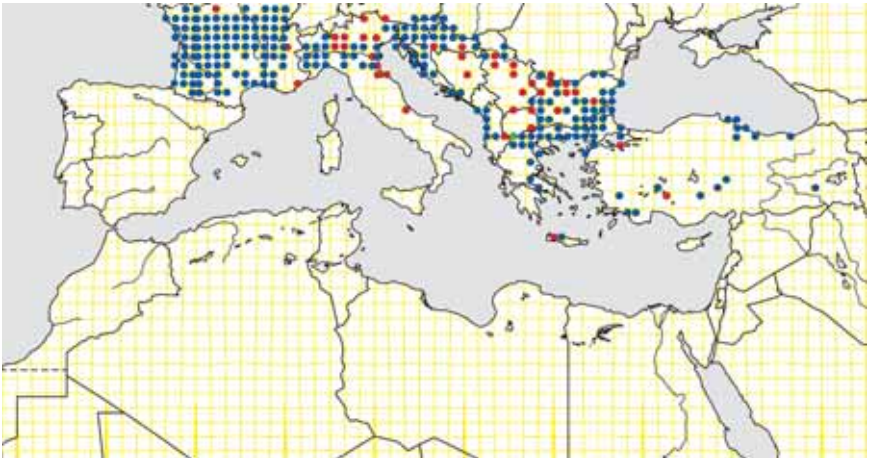
Orthetrum abbotti Calvert, 1892

IUCN Red List Status		Record by countries
Global	LC	JOR
Mediterranean	DD	
North Africa		

Orthetrum abbotti is an Afrotropical species with an isolated population on the eastern shore of the Dead Sea. From this area it is known from a Museum specimen collected in 1941 (Dumont 1977d, 1991) and from a record in April 2008, included in this atlas by the courtesy of C. Monnerat (pers. comm.).

Orthetrum abbotti male, Malawi (VJK).

Orthetrum albistylum (Selys, 1848)



IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, FRA, GRC, HRV, ITA, MKD, MNE, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

Orthetrum albistylum is a Palaearctic species ranging from the Atlantic coast of France to China and Japan. It seems to be currently expanding its range north of the Alps due to climate change (Buczyński et al. 2002; Weihrauch et al. 2003).

***Orthetrum albistylum* immature female, Greece (BK).**

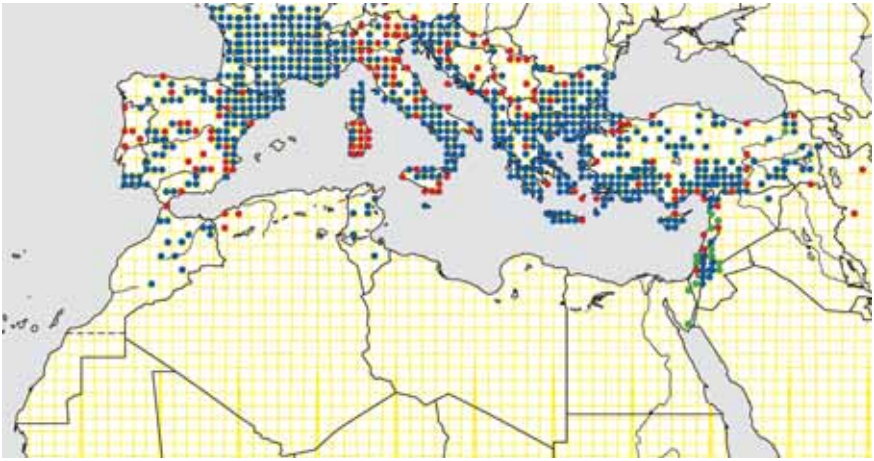
***Orthetrum brachiale* (Palisot de Beauvois, 1817)**

IUCN Red List Status		Record by countries
Global	LC	EGY*
Mediterranean		
North Africa		

There are only three records of the Afrotropical *Orthetrum brachiale* in the area covered by this atlas, which are all based on citations in Kneucker (1909). These records could well be erroneous and the material should be checked.

***Orthetrum brachiale* male, Botswana (JK).**

Orthetrum brunneum (Fonscolombe, 1837)

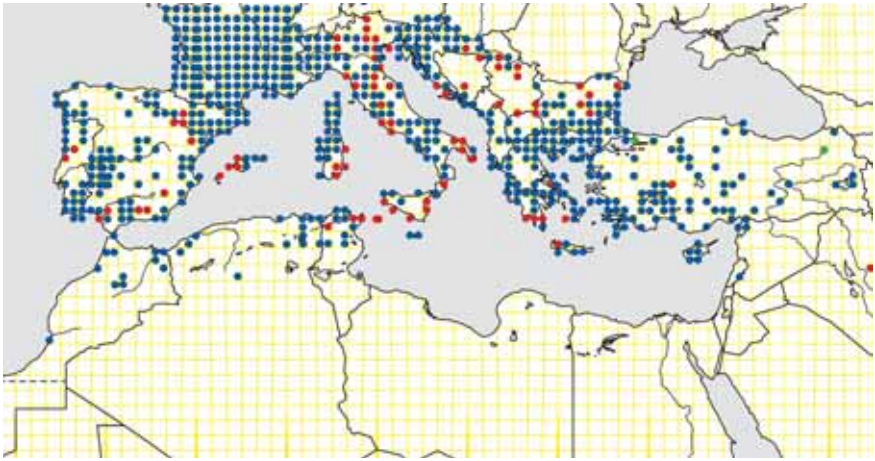


IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, CYP, DZA, EGY, ESP, FRA, GRC, HRV, IRN, IRQ,
Mediterranean	LC	ISR, ITA, JOR, LBN, MAR, MKD, MLT, MNE, PRT, PSE, SRB, SVN, SYR,
North Africa	LC	TUN, TUR

Orthetrum brunneum is common and widespread in large parts of Europe and the Mediterranean.

Orthetrum brunneum male, Germany (BK).

***Orthetrum cancellatum* (Linnaeus, 1758)**

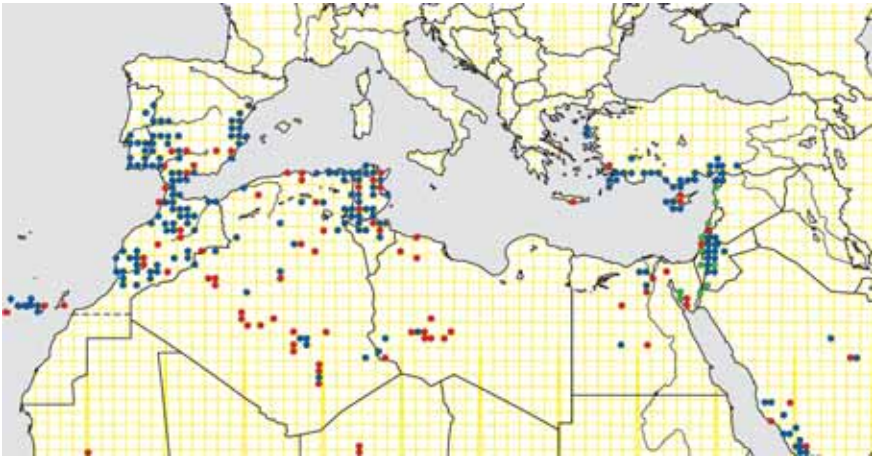


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, DZA, ESP, FRA, GRC, HRV, IRQ, ITA, LBN, MAR,
Mediterranean	LC	MKD, MLT, MNE, PRT, SRB, SVN, TUN, TUR
North Africa	LC	

Orthetrum cancellatum is common and widespread in large parts of Europe and the Mediterranean.

Orthetrum cancellatum male, Germany (BK).

Orthetrum chrysostigma (Burmeister, 1839)

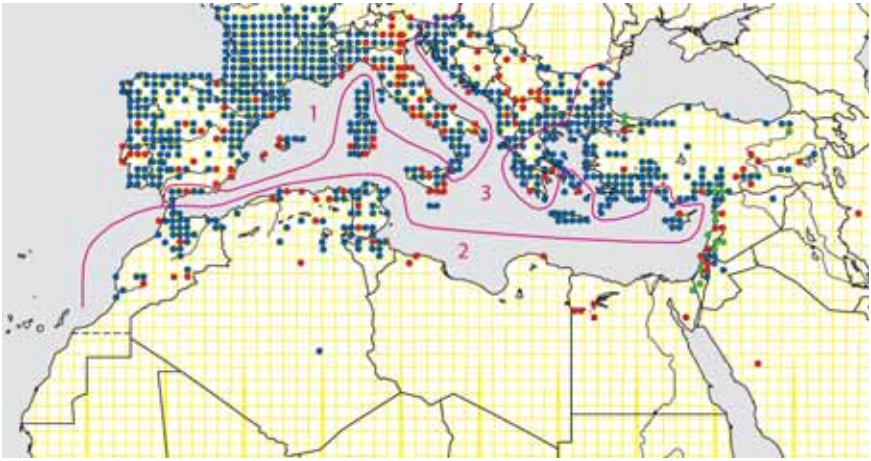


IUCN Red List Status		Record by countries
Global	LC	CYP, DZA, EGY, ESP, GRC, ISR, JOR, LBN, LBY, MAR, PRT, PSE, SAU,
Mediterranean	LC	SYR, TUN, TUR
North Africa	LC	

Orthetrum chrysostigma is a common and widespread Afrotropical species, extending north up to the Ebro delta in Spain and to the south of Anatolia. Its larva is able to survive in moist sand of wadis, enabling the species to occur throughout the Saharan belt.

Orthetrum chrysostigma copula, Tunisia (BK).

***Orthetrum coerulescens* (Fabricius, 1798)**

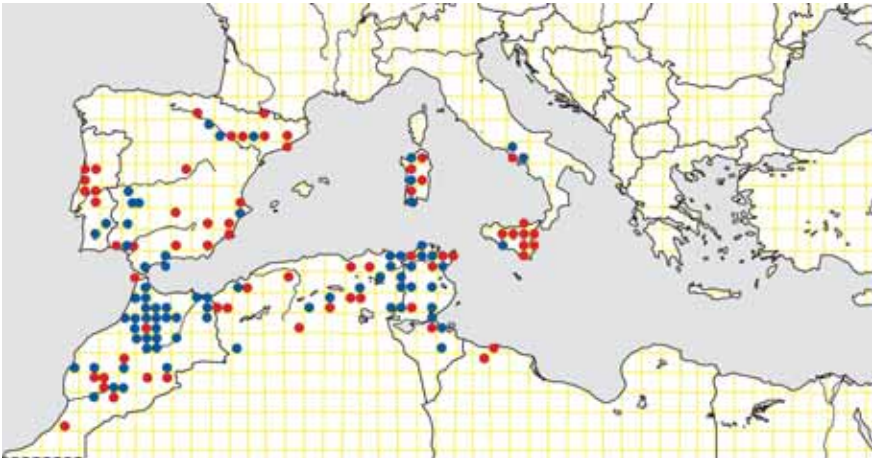


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, DZA, EGY, ESP, FRA, GRC, HRV, IRN, ISR, ITA,
Mediterranean	LC	JOR, LBN, LBY, MAR, MKD, MLT, MNE, PRT, PSE, SAU, SRB, SVN, SYR,
North Africa	LC	TUN, TUR

The nominal subspecies *of Orthetrum coerulescens* (1) and *O. c. anceps* (Schneider, 1845) (2) are connected by a continuum of intermediate phenotypes (3). A detailed study is provided by Mauersberger (1994).

Orthetrum coerulescens anceps male, Sardinia, Italy (BK).

***Orthetrum nitidinerve* (Selys, 1841)**

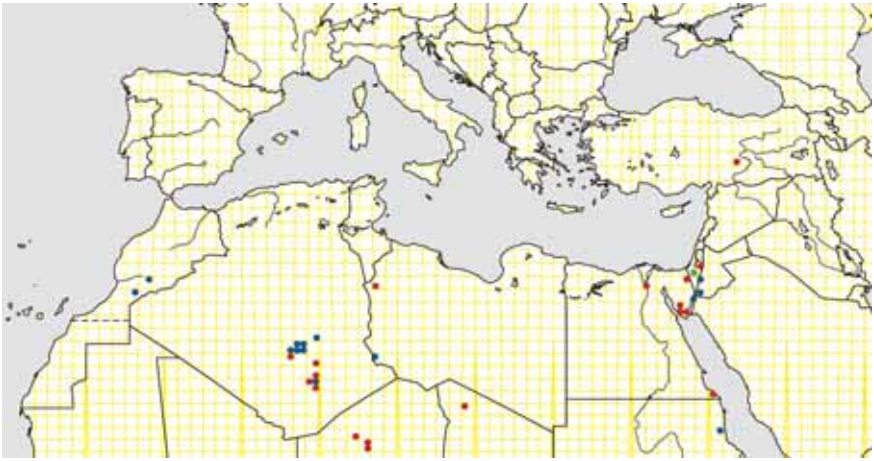


IUCN Red List Status		Record by countries
Global	NE	DZA, ESP, ITA, LBY, MAR, PRT, TUN
Mediterranean	LC	
North Africa	LC	

Orthetrum nitidinerve is a western Mediterranean endemic confined to the Maghreb, where it is generally common, and to the southwest of Europe, where it is rare with only a small number of large populations.

Orthetrum nitidinerve copula, Tunisia (BK).

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

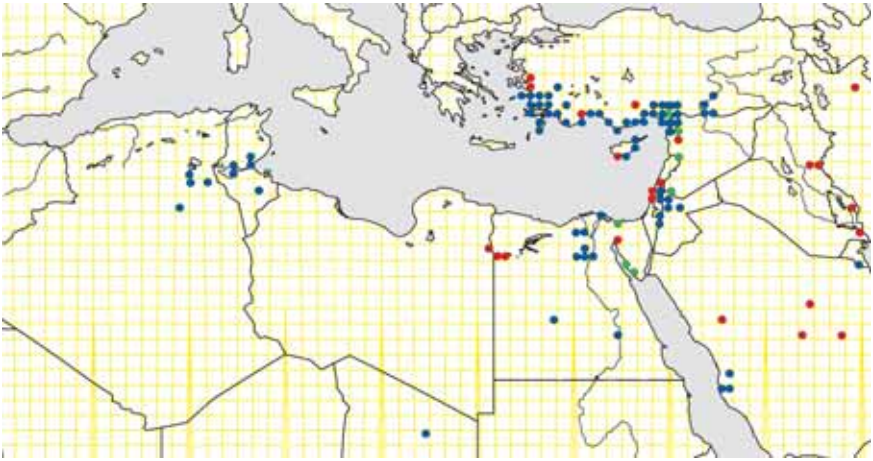


IUCN Red List Status		Record by countries
Global	NE	DZA, EGY, ISR, JOR, LBY, MAR, NER, SDN, TCD, TUR*
Mediterranean	LC	
North Africa	DD	

Orthetrum ransonnetii inhabits desert areas and ranges from North Africa through the Arabian Peninsula to central Asia. The species is poorly known and generally seems to be rare throughout its range. The recent records of *O. ransonnetii* in Libya and Jordan are still unpublished and are included here by courtesy of S.V. Ober and C. Monnerat (pers. comm.), respectively. Recently, *O. ransonnetii* was discovered in Morocco (Juillerat & Monnerat 2009) and found to be not uncommon in the United Arab Emirates (Feulner et al. 2007).

***Orthetrum ransonnetii* copula, United Arab Emirates (GF).**

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

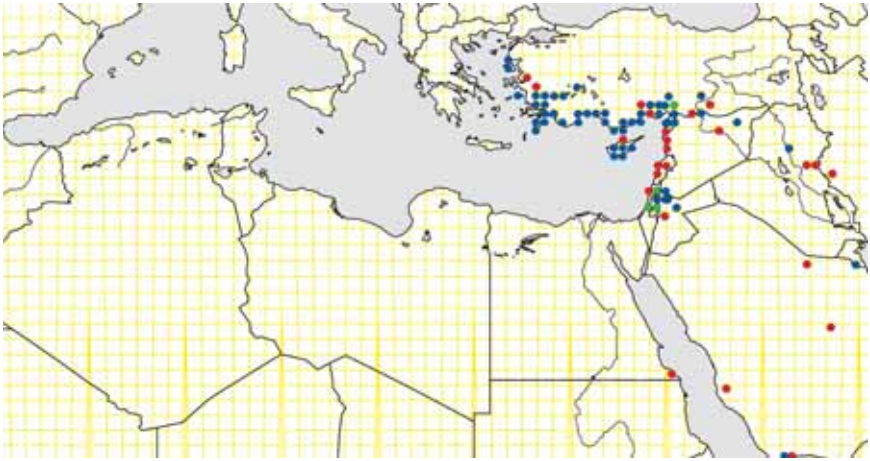


IUCN Red List Status		Record by countries
Global	NE	CYP, DZA, EGY, GRC, IRQ, ISR, JOR, KWT, LBN, LBY, SAU, SYR, TCD,
Mediterranean	LC	TUN, TUR
North Africa	LC	

Orthetrum sabina is an Oriental species reaching eastern Algeria to the west. The westernmost populations of the species are apparently isolated by the Libyan Desert from its main range and, if confirmed by more field investigations in Libya, may be regarded as a remnant of an eastern invasion during a former Holocene pluvial period.

Orthetrum sabina female, Tunisia (BK).

***Orthetrum taeniolatum* (Schneider, 1845)**

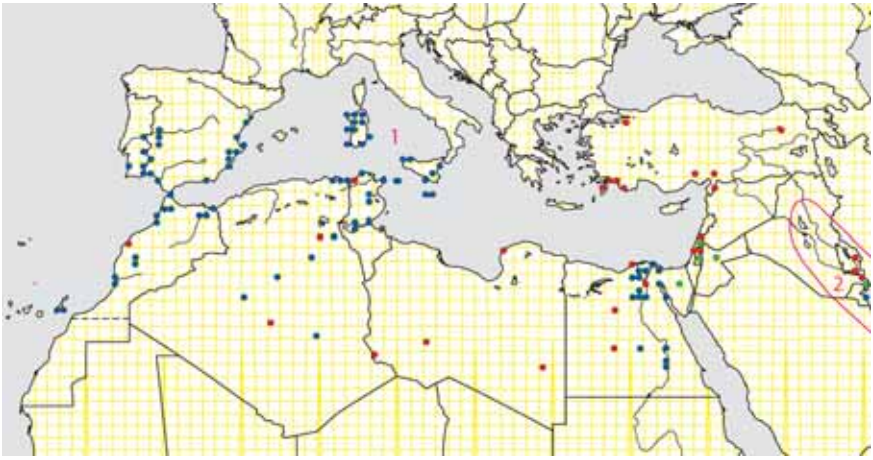


IUCN Red List Status		Record by countries
Global	NE	CYP, EGY, GRC, IRN, IRQ, ISR, JOR, KWT, LBN, SAU, SYR, TUR
Mediterranean	LC	
North Africa		

Orthetrum taeniolatum is an Oriental species that occurs west to the eastern Mediterranean and the Red Sea shores. This small *Orthetrum* is mainly Asian in distribution and is replaced in Africa by its sister taxon *O. kollmannspergeri* Buchholz, 1959. All North African records of *O. taeniolatum* need re-examination (Clausnitzer & Dijkstra 2005; Dumont & Veschuren 2005), including that from the Sudanese-Egyptian coast of the Red Sea.

Orthetrum taeniolatum male, Turkey (JPB).

***Orthetrum trinacria* (Selys, 1841)**

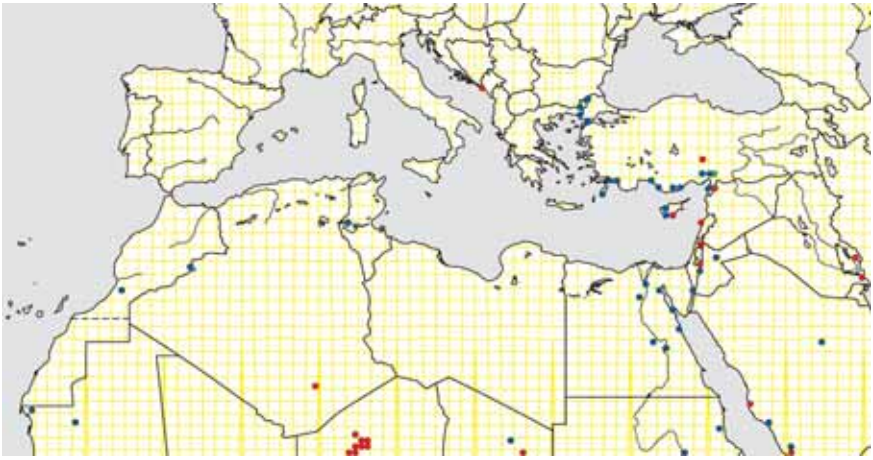


IUCN Red List Status		Record by countries
Global	LC	DZA, EGY, ESP, GRC, IRQ, ISR, ITA (Pantelleria, Sardinia, Sicily), JOR,
Mediterranean	LC	KWT, LBY, MAR, MLT, PRT, PSE, SYR, TUN, TUR
North Africa	LC	

Orthetrum trinacria (1) is a common and widespread Afrotropical species, which extends north up to the Ebro delta in Spain and to the Middle East. A recent, as yet unpublished record from Fuerteventura, Canary Islands, has been included by courtesy of M. Crewe (pers. comm.). Records from Turkey have never been confirmed and are considered as doubtful. Populations from southern Iraq and Kuwait have been ascribed to a poorly differentiated subspecies, *O. t. igarashii* Asahina, 1973 (2), of which the taxonomic status needs clarification.


***Orthetrum trinacria* immature male, Fuerteventura, Spain (MC).**

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

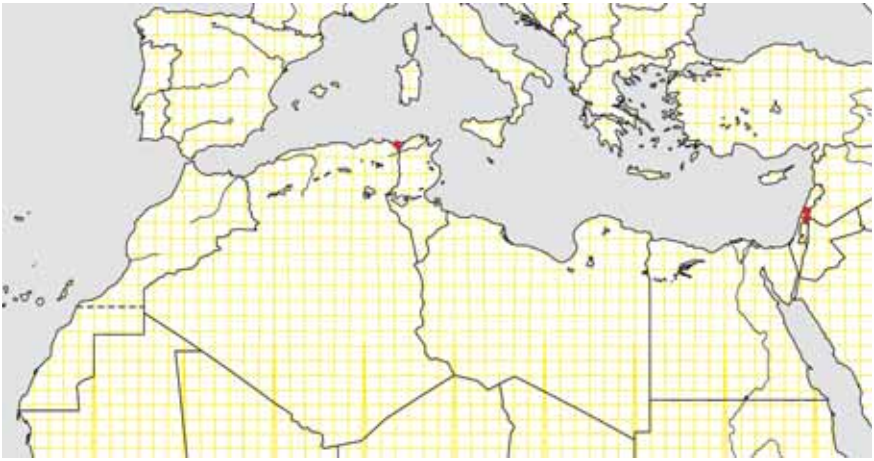


IUCN Red List Status		Record by countries
Global	LC	CYP, DZA, EGY, GRC, IRQ, ISR, JOR, LBN, MAR, MNE, MRT, NER, SAU,
Mediterranean	NE	SDN, TCD, TUN, TUR
North Africa	NE	

Pantala flavescens is a well-known circumtropical migrant, which is rare in North Africa and in the eastern Mediterranean. Within Europe records have been published from Montenegro (Ober 2008), northeastern Greece (Laister 2005) and the European part of Turkey (Hacet & Aktaç 2004, 2006). The species has been mentioned from France and Spain, which is most likely based on a misinterpretation of Jurzitza (1967) by Aguesse (1968).

***Pantala flavescens* male, Mauritius (DG).**

Rhyothemis semihyalina (Desjardins, 1832)

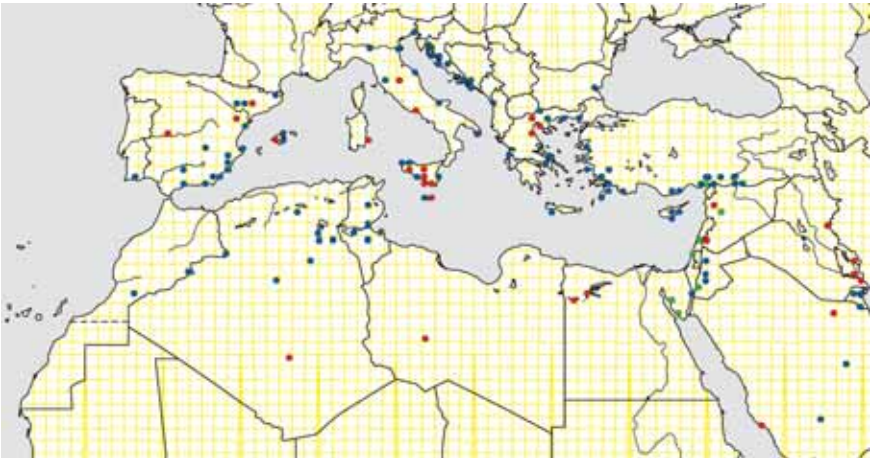


IUCN Red List Status		Record by countries
Global	LC	DZA*, ISR*
Mediterranean	RE	
North Africa	RE	

Rhyothemis semihyalina is a widespread Afrotropical species of which the two Palaearctic populations might refer to relicts of more humid periods in either the Pleistocene or Holocene. One of these populations was found in northeastern Algeria and the second in northern Israel. The latter population was described as a poorly distinct subspecies *R. s. syriaca* (Selys, 1849). Both populations have been extinct since at least 1950 (Dumont 1991). *Rhyothemis semihyalina* is classified RE in the Mediterranean and North African Red Lists.

***Rhyothemis semihyalina* male, Botswana (JK).**

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



IUCN Red List Status		Record by countries
Global	NE	BGR, CYP, DZA, EGY, ESP, GRC, HRV, IRQ, ISR, ITA, JOR, KWT, LBY,
Mediterranean	LC	MAR, MLT, MNE, PRT, SAU, SYR, TUN, TUR
North Africa	LC	

The range of *Selysiothemis nigra* reaches from North Africa and the western Mediterranean through the Arabian Peninsula to central Asia. *Selysiothemis nigra* is a strong migrant and probably has a short larval phase, which allows its reproduction in ephemeral water bodies. In addition, the larvae are able to survive under high ionic stress – therefore it is able to colonize coastal as well as desert waters. In recent years *S. nigra* was found in several new areas and countries (e.g., Lohr 2005b; Tailly & Tabarroni 2006; Matushkina 2007; J.J. Mekkes pers. comm.). Northernmost records are from the extreme north of Spain, at no more than 25 km south of the French border, the north of Italy, the east of Bulgaria, Ukraine and the southwest of the Ural. It has been recently found in Morocco, where it was discovered all along the northern Saharan margin (Boudot 2008; Juillerat & Monnerat 2009; A. François pers. comm.).

Selysiothemis nigra female, Tunisia (BK).

Sympetrum arenicolor Jödicke, 1994

IUCN Red List Status		Record by countries
Global	NE	IRQ, SYR, TUR
Mediterranean		
North Africa		

Sympetrum arenicolor is a central Asian species reaching to eastern Turkey and to Iraq in the west. These areas are poorly investigated and only a few records are available.

Sympetrum arenicolor female, Azerbaijan (AW).

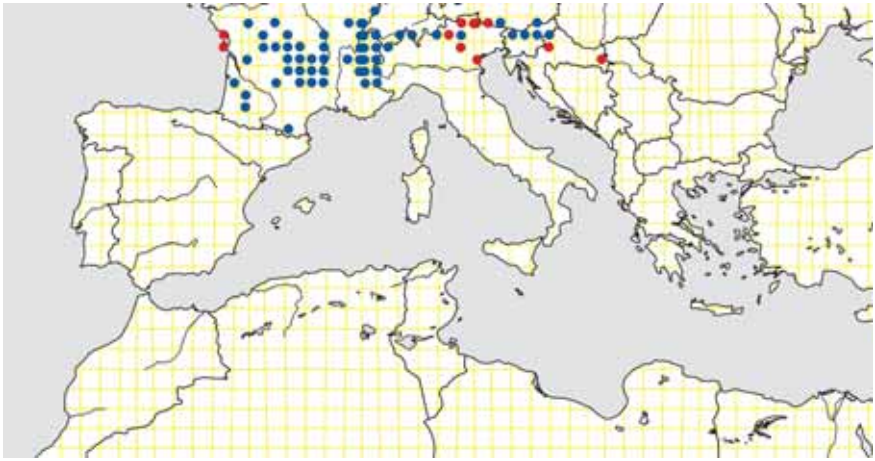
Sympetrum arenicolor male, Azerbaijan (AW).

Sympetrum arenicolor female, Azerbaijan (AW).

Sympetrum sinaiticum male, Tunisia (BK).

Sympetrum sinaiticum female, Tunisia (BK).

***Sympetrum danae* (Sulzer, 1776)**

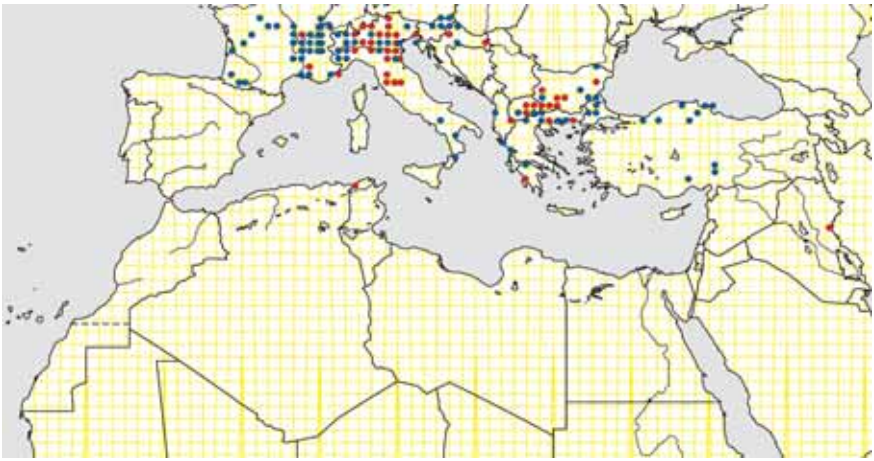


IUCN Red List Status		Record by countries
Global	NE	FRA, HRV, ITA, SVN
Mediterranean	LC	
North Africa		

Sympetrum danae is a widespread and common species in most of northern Europe. In the Mediterranean it is confined to the mountains of France and northern Italy. In the Alps it is rather common, but it occurs only locally in the French Pyrenees. It mainly inhabits acid *Sphagnum* peat bogs and acid lakes, sometimes neutral to alkaline lakes. Vagrants have been reported from the western lowlands of France. It may suffer in the future from climate change and desiccation of its habitats.

Sympetrum danae male, Germany (BK).

***Sympetrum depressiusculum* (Selys, 1841)**

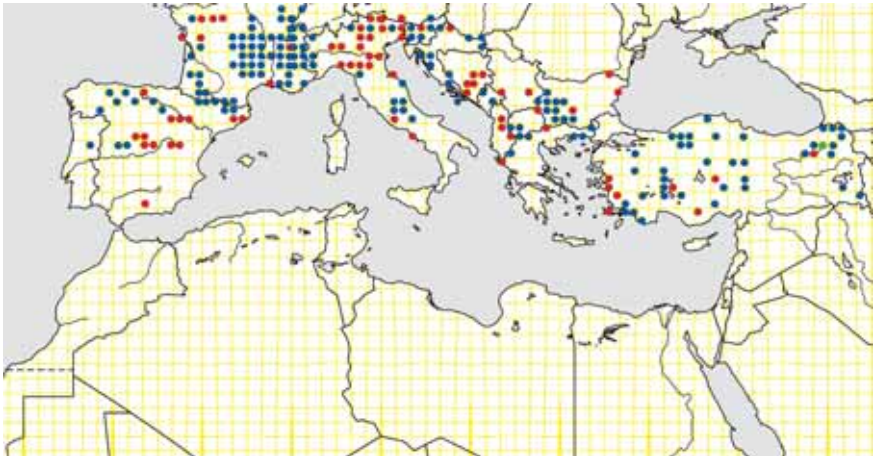


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, DZA, FRA, GRC, HRV, IRQ, ITA, MKD, SVN, TUR
Mediterranean	VU	
North Africa		

Sympetrum depressiusculum has a wide range from western Europe to Japan. In Europe it has a scattered distribution. Locally it can be very numerous and it prefers rice paddles, fish ponds, swamps and seasonally dry water bodies. *Sympetrum depressiusculum* was widespread and abundant in rice fields of the Rhône delta and of the Po plain, but has suffered a serious decline due to changes in management. Records of *S. depressiusculum* from Sardinia and Sicily are old and originate from unreliable sources (Minà Palumbo 1871; Bentivoglio 1905), for which reason they have been omitted. An old record from northeastern Algeria (Martin 1910) has never been confirmed and probably either refers to vagrants or to a misidentification. Major threats for *S. depressiusculum* are changes in wetland management and habitat degradation induced by climate change. The species is classified VU in the Mediterranean Red List.

***Sympetrum depressiusculum* male, France (JPB).**

Sympetrum flaveolum (Linnaeus, 1758)

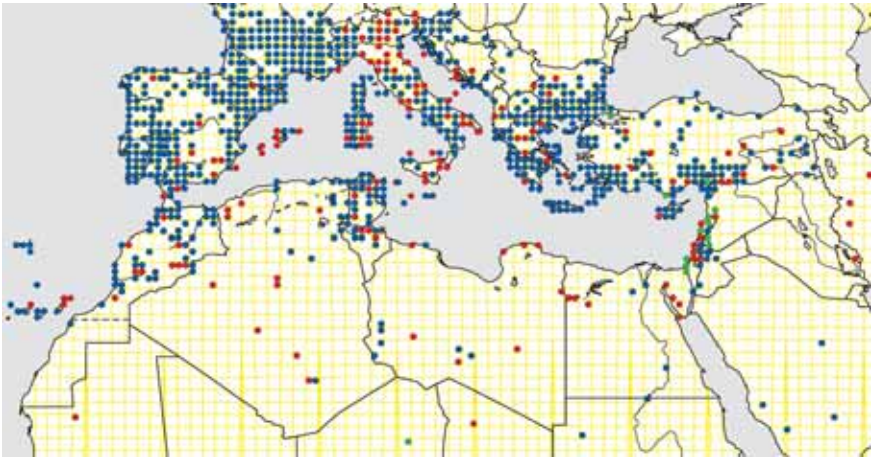


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, ESP, FRA, GRC, HRV, ITA, MKD, MNE, PRT, SRB, SVN,
Mediterranean	LC	TUR
North Africa		

Sympetrum flaveolum is common in large parts of northeastern Europe but has a fragmented permanent distribution in the Mediterranean, where it is largely confined to elevated areas. A record from the Sierra Nevada in southern Spain included in this atlas is uncertain (Ocharan Larrondo 1987). Preferred habitats include shallow, well-vegetated waters that can dry up during summer. In some years *S. flaveolum* migrates in high numbers and can colonise and reproduce in habitats in lowland areas, however most of these populations only survive for one or a few years.

***Sympetrum flaveolum* teneral male, Germany (BK).**

Sympetrum fonscolombii (Selys, 1840)

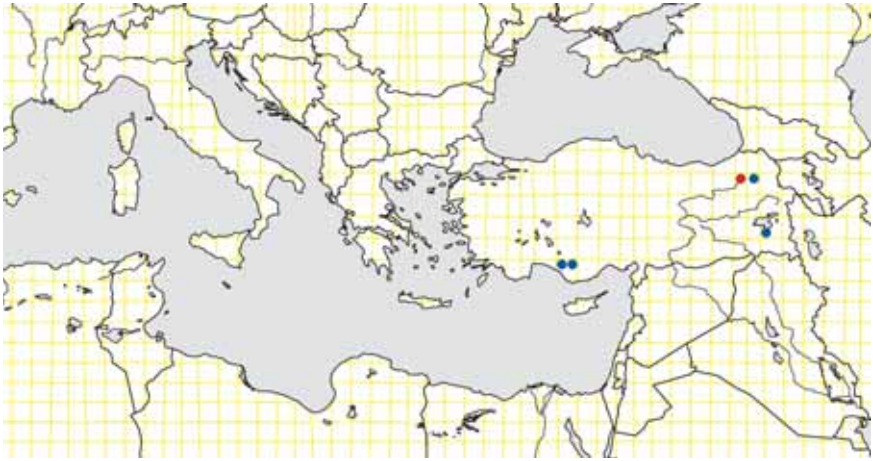


IUCN Red List Status		Record by countries
Global	LC	ALB, BGR, BIH, CYP, DZA, EGY, ESP, FRA, GIB, GRC, HRV, IRN, IRQ,
Mediterranean	LC	ISR, ITA, JOR, LBN, LBY, MAR, MKD, MLT, MNE, MRT, NER, PRT, PSE,
North Africa	LC	SAU, SDN, SRB, SVN, SYR, TCD, TUN, TUR

Sympetrum fonscolombii is a migratory species that is widespread in Africa, southwestern Asia and southern Europe. In Europe it has strongly expanded its range to the north. In the area covered by this atlas it is common and widespread and can be found in very high densities.

Sympetrum fonscolombii female, Germany (BK).

***Sympetrum haritonovi* Borisov, 1983**

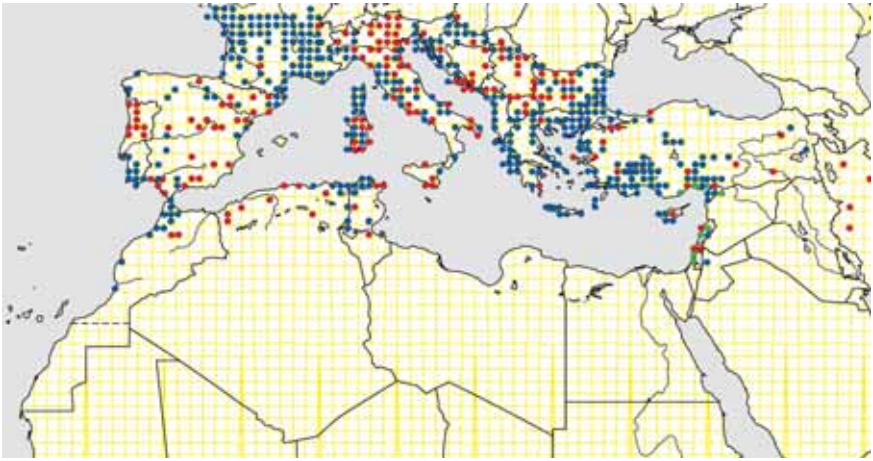


IUCN Red List Status		Record by countries
Global	NE	TUR
Mediterranean	CR	
North Africa		

Sympetrum haritonovi is a central Asian species that extends west to Turkey. The species is confined to seepage waters at high elevation. In Turkey it is only known from a small number of localities in the Taurus range. The low number of records might be due to the fact that its habitats are only found in remote areas that are difficult to access. Other localities are known from Iran, Afghanistan, Uzbekistan, Kirghizstan and Tajikistan. The habitats of *S. haritonovi* are easily destroyed by livestock and overgrazing. It is classified CR in the Mediterranean Red List.

Sympetrum haritonovi male, Turkey (JPB).

***Sympetrum meridionale* (Selys, 1841)**

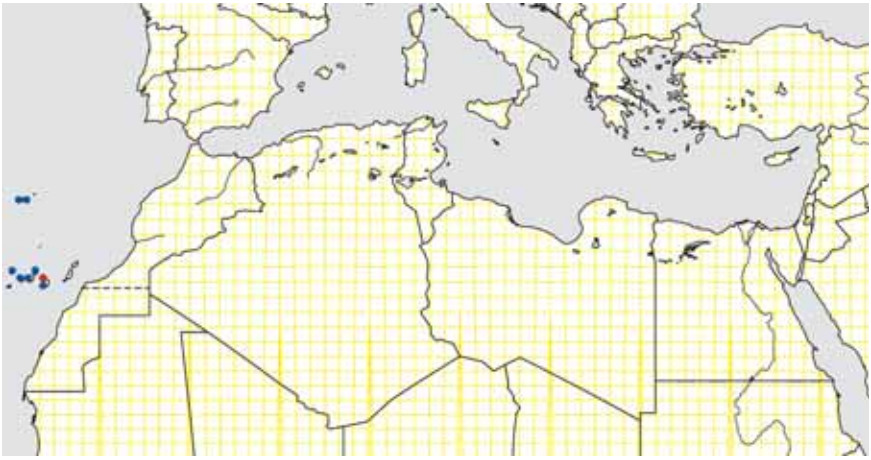


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, CYP, DZA, ESP, FRA, GRC, HRV, IRN, ISR, ITA, JOR, LBN,
Mediterranean	LC	MAR, MKD, MNE, PRT, SRB, SVN, SYR, TUN, TUR
North Africa	LC	

Sympetrum meridionale mainly reproduces in shallow, often temporary waters. It is common across large parts of the Mediterranean.

Sympetrum meridionale male, Germany (BK).

***Sympetrum nigrifemur* (Selys, 1884)**

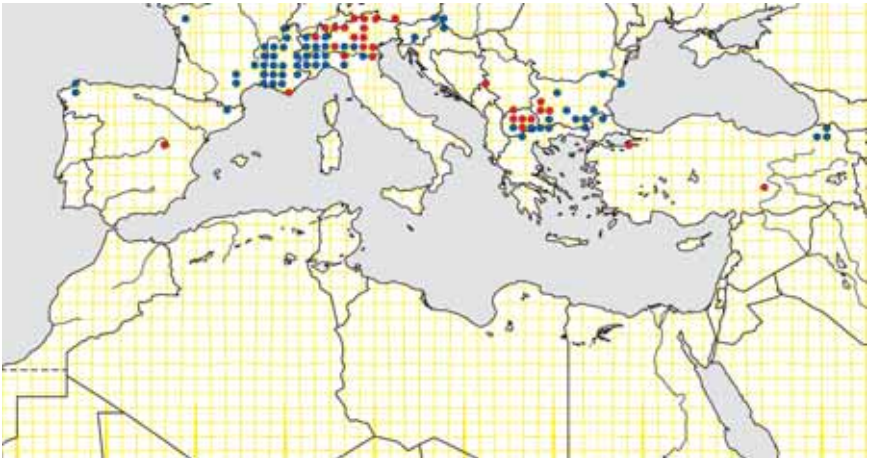


IUCN Red List Status		Record by countries
Global	EN	ESP (Canary Islands), PRT (Madeira archipelago)
Mediterranean		
North Africa		

Sympetrum nigrifemur is endemic to the Canary Islands and the Madeira archipelago. Recent records show that this species is flourishing in some of these islands, in spite of the degradation of many streams (e.g., Bemmerle 2005; Brauner 2007). The species is classified EN in the Global Red list.

***Sympetrum nigrifemur* copula, La Gomera, Spain (OB).**

***Sympetrum pedemontanum* (O.F. Müller in Allioni, 1766)**

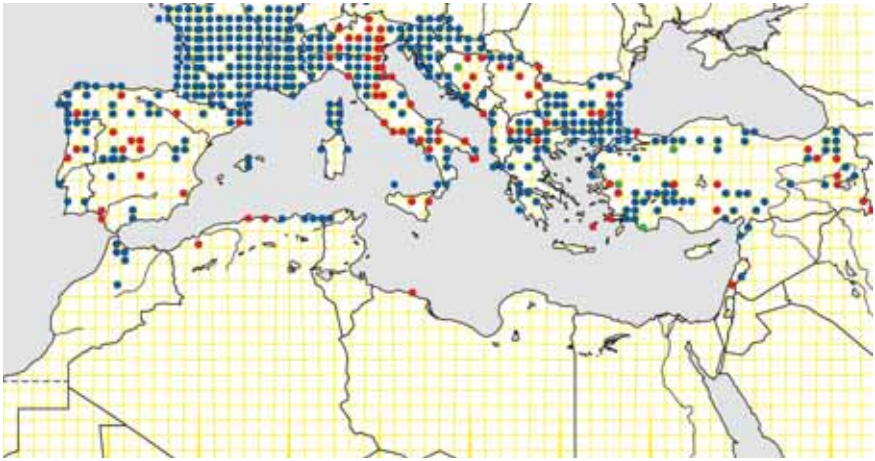


IUCN Red List Status		Record by countries
Global	NE	BGR, ESP, FRA, GRC, HRV, ITA, MKD, SRB, SVN, TUR
Mediterranean	LC	
North Africa		

The records of *Sympetrum pedemontanum* from Galicia in northwestern Spain (J. Hoffmann in Jödicke 1996) probably refer to vagrants; similar isolated records due to vagrants are available for northwestern France and Wales (Grand & Boudot 2006). An old record from the Girona province in Catalonia was recently confirmed, when a population was found by Lockwood (2007). The old record from Cuenca (Benitez Morera 1950) in Spain has never been confirmed.

***Sympetrum pedemontanum* male, France (JPB).**

***Sympetrum sanguineum* (O.F. Müller, 1764)**

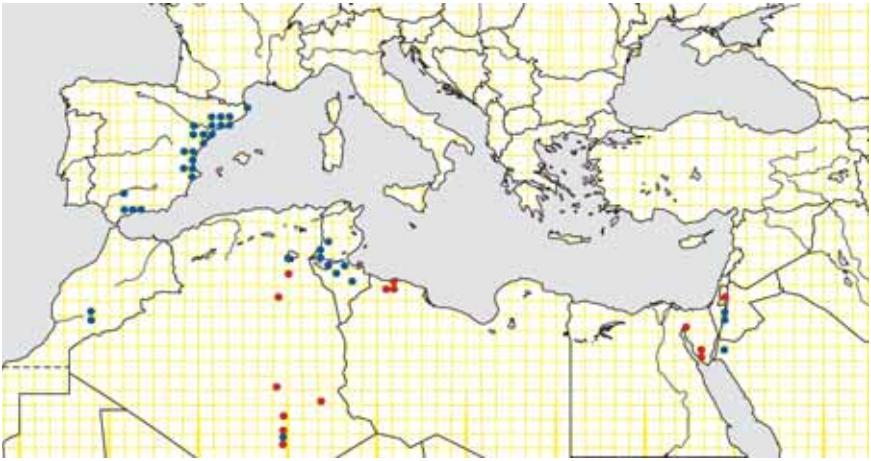


IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, BIH, DZA, ESP, FRA, GRC, HRV, ISR*, ITA, LBN, LBY, MAR,
Mediterranean	LC	MKD, MNE, PRT, SRB, SVN, TUN*, TUR
North Africa	VU	

Sympetrum sanguineum is a common species in most parts of Europe, showing a very scattered distribution in the Maghreb. It is classified VU in the North African Red List.

Sympetrum sanguineum male, Germany (BK).

Sympetrum sinaiticum Dumont, 1977

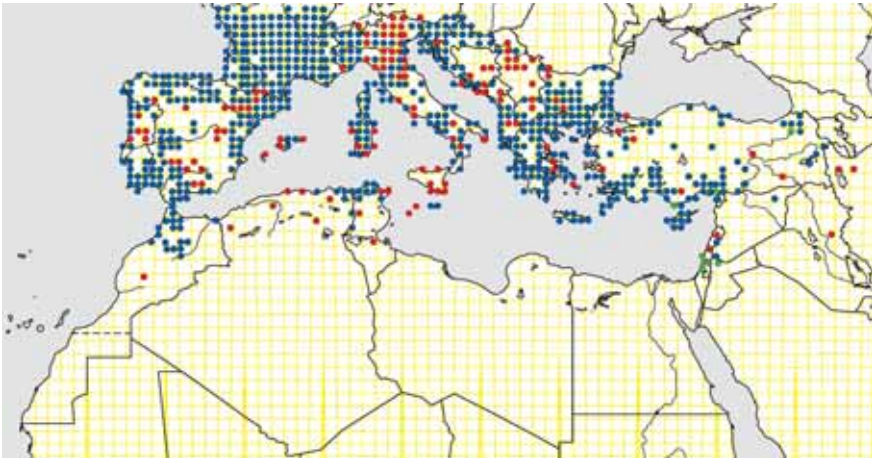


IUCN Red List Status		Record by countries
Global	NE	DZA, EGY, ESP, JOR, LBY, MAR, PSE, SAU, TUN
Mediterranean	LC	
North Africa	LC	

The range of *Sympetrum sinaiticum* spreads from the Levant to North Africa and Spain. It was recently discovered at emergence in Morocco (Juillerat & Monnerat 2009). In North Africa the reproductive activity of this species happens during winter (Jödicke 2003), which is why it may have been under-recorded as little fieldwork is done in this period.

***Sympetrum sinaiticum* male, Spain (JPB).**

***Sympetrum striolatum* (Charpentier, 1840)**

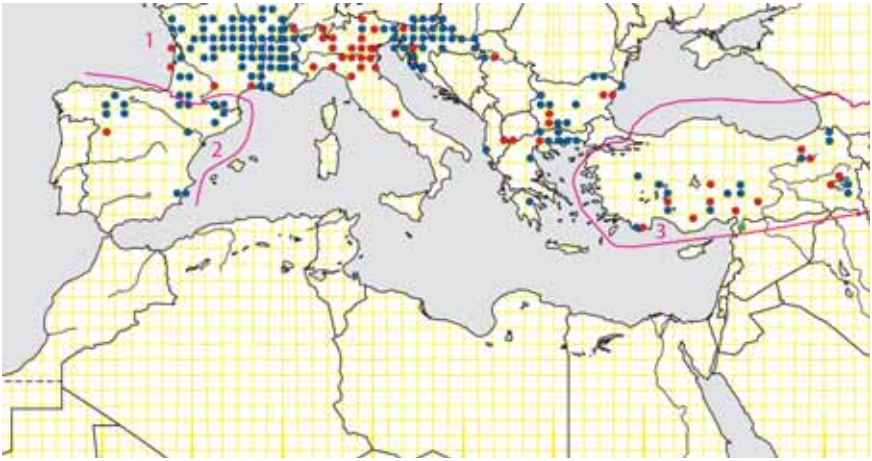


IUCN Red List Status		Record by countries
Global	NE	ALB, AND, BGR, BIH, CYP, DZA, ESP, FRA, GRC, HRV, IRN, IRQ, ISR,
Mediterranean	LC	ITA, JOR, LBN, MAR, MKD, MLT, MNE, PRT, SRB, SVN, SYR, TUN, TUR
North Africa	LC	

Sympetrum striolatum is common and widespread in large parts of Europe and the Mediterranean.

Sympetrum striolatum ovipositing in tandem, Germany (BK).

Sympetrum vulgatum (Linnaeus, 1758)



IUCN Red List Status		Record by countries
Global	NE	ALB, BGR, FRA, GRC, HRV, ITA, MKD, SRB, SVN
Mediterranean	NT	AND, ESP, FRA (*S. v. ibericum*)
Mediterranean	DD	TUR (*S. v. decoloratum*)

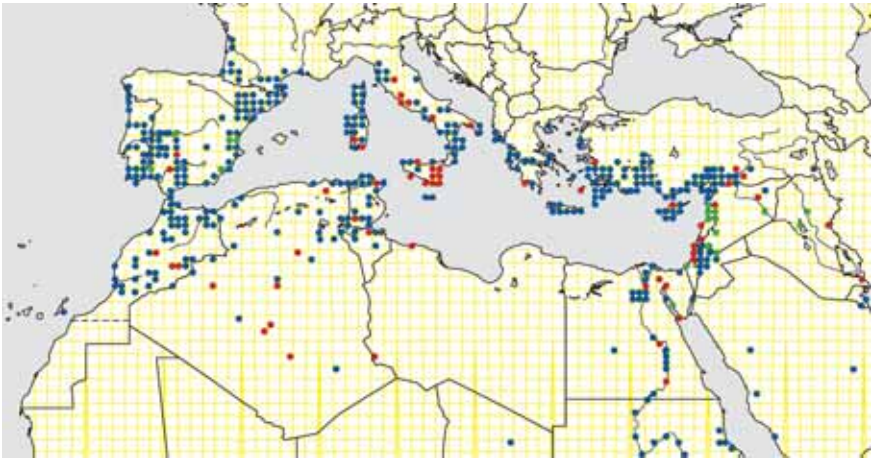
Records of *Sympetrum vulgatum* in Pantelleria, Sardinia, Sicily and satellite islands date from the 19th century and originate from unreliable sources (cf. Utzeri & D'Antonio 2005), for which reason they have been omitted. Iberian populations and several populations in the French eastern Pyrenees pertain to the subspecies *S. v. ibericum* Ocharan, 1985 (2). The specimens collected in the Spanish Alta Cerdanya have been reported to be larger than typical *S. v. ibericum*, but have the same colour features (Lockwood 2007) and refer to true *S. v. ibericum* (R. Jödicke pers. comm.). Two records by Baixeras et al. (2006) from the Valencia province, without indications of a subspecies rank, fall out of the known range of the species and should be confirmed. In the west of the French Pyrenees only the nominal subspecies is known. A third subspecies, *Sympetrum v. decoloratum* Selys, 1884 (3) replaces the nominal subspecies (1) in Asia Minor. *Sympetrum vulgatum* sensu lato is classified NT in the Mediterranean Red List.


***Sympetrum v. decoloratum* male, Turkey (JPB).**

Sympetrum v. vulgatum male, Germany (BK).

Sympetrum v. ibericum male, France (DG).

***Trithemis annulata* (Palisot de Beauvois, 1805)**

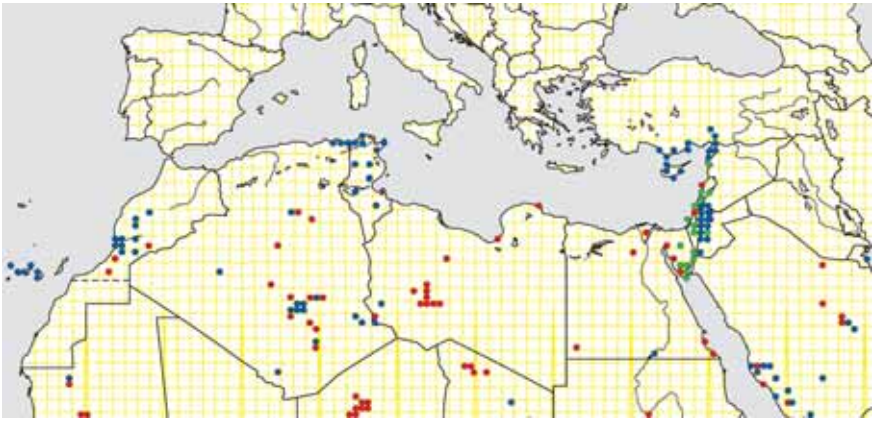


IUCN Red List Status		Record by countries
Global	LC	CYP, DZA, EGY, ESP, FRA, GRC, IRQ, ISR, ITA, JOR, KWT, LBN, LBY,
Mediterranean	LC	MAR, MLT, PRT, PSE, SAU, SDN, SYR, TCD, TUN, TUR
North Africa	LC	

Trithemis annulata is a widespread and common Afrotropical species that has expanded its range in southwestern Europe rapidly in recent decades. It crossed the whole of the Iberian Peninsula from 1978 onwards and was found in southwestern France for the first time in 1994 (Grand 1994). It is now regularly recorded from the Garonne estuary to the Rhône delta (Grand & Boudot 2006). A recent, as yet unpublished record from Fuerteventura, Canary Islands, has been included by courtesy of M. Crewe (pers. comm.). Climate change seems to be the main driver of this expansion.

Trithemis annulata immature male, Fuerteventura, Spain (MC).

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

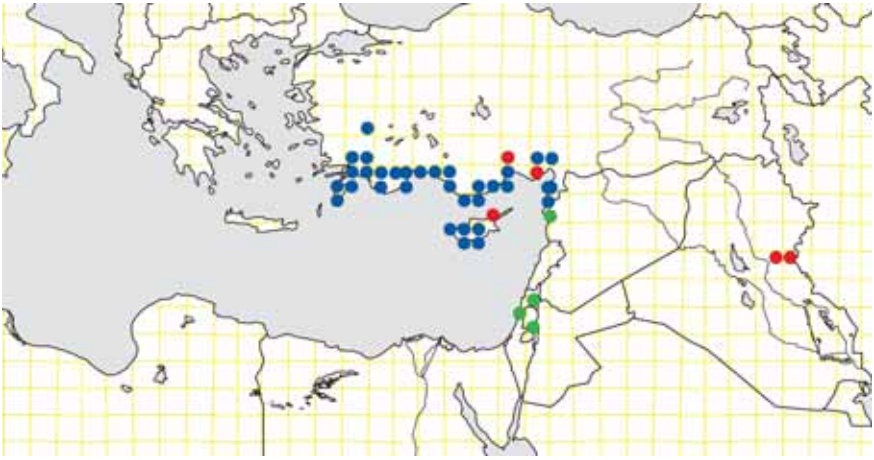


IUCN Red List Status		Record by countries
Global	LC	CYP, DZA, EGY, ESP (Canary Islands), ISR, JOR, KWT, LBN, LBY, MAR,
Mediterranean	LC	MLT, MRT, NER, PSE, SAU, SDN, SYR, TCD, TUN, TUR
North Africa	LC	

Trithemis arteriosa is a widespread and common Afrotropical species reaching the southern Mediterranean coast as well as southern Anatolia. A record of this species from «Tripoli» by Andres (1928) refers almost certainly to an incorrect citation of the single record available at that time from Dernah (Ris 1911) and is therefore omitted. Two records from Rhodes have been rejected by Lopau & Wendler (1995). The number of records in the eastern Mediterranean seems to be increasing. The identity of a female specimen from Malta, published as T. arteriosa (Ebejer et al. 2008), pertains most likely to *T. annulata* (Sciberras, 2008) and has been omitted here.

***Trithemis arteriosa* old female, Tunisia (BK).**

***Trithemis festiva* (Rambur, 1842)**

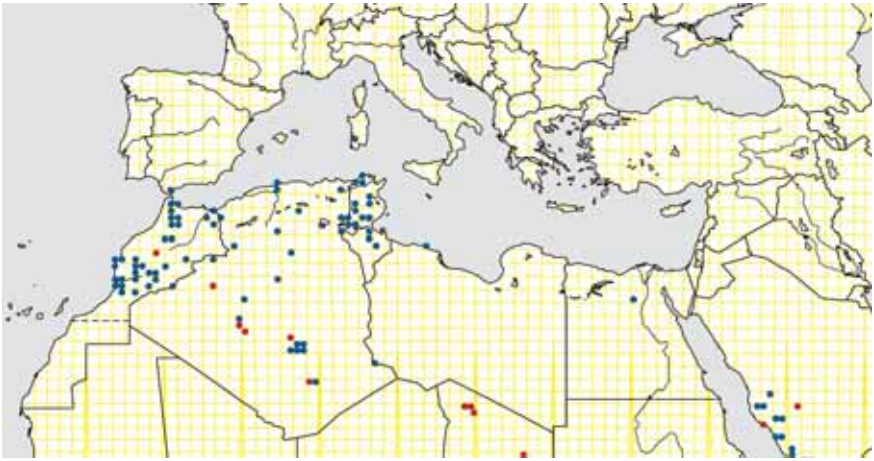


IUCN Red List Status		Record by countries
Global	NE	CYP, GRC, IRQ, ISR, SYR, TUR
Mediterranean	LC	
North Africa		

Trithemis festiva is a widespread Oriental species of running waters, extending westwards to the Levant, Cyprus, southwestern Turkey and Rhodes.

Trithemis festiva male, Rhodes, Greece (BK).

***Trithemis kirbyi* Selys, 1891**

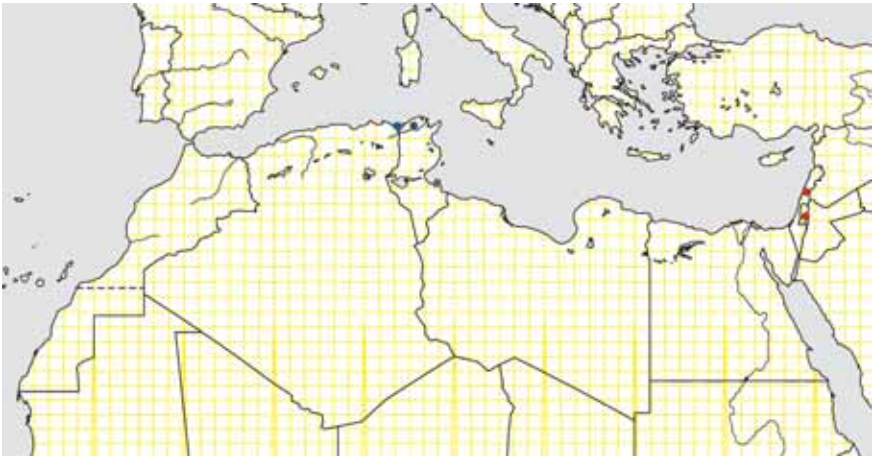


IUCN Red List Status		Record by countries
Global	LC	DZA, EGY, ESP, ITA (Sardinia), LBY, MAR, SAU, TCD, TUN
Mediterranean	LC	
North Africa	LC	

Trithemis kirbyi is widespread in Africa, Arabia and the Indian Peninsula and reaches the southern Mediterranean coast. Recently the species has been found in Sardinia in 2003 (Holuša 2008) and in southern Spain in 2008 (Chelmick & Pickess 2008), which might be a prelude to an expansion of its range to southern Europe.

Trithemis kirby male, Tunisia (BK).

Urothemis edwardsii (Selys, 1849)

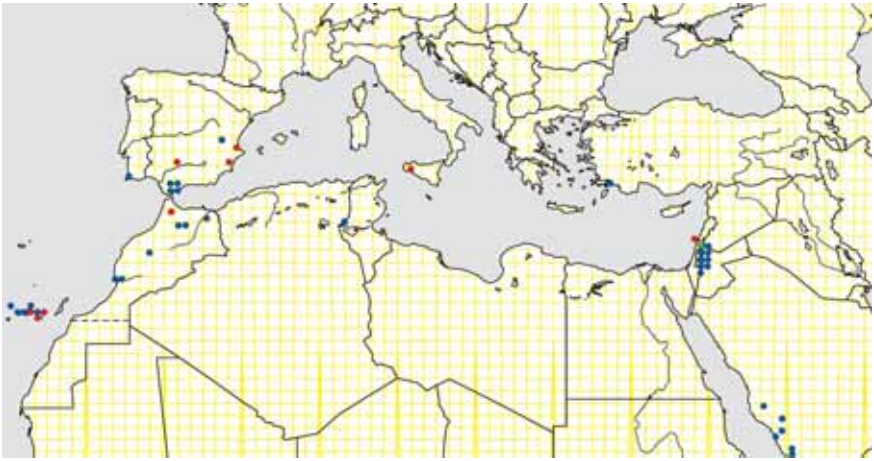


IUCN Red List Status		Record by countries
Global	LC	DZA, ISR*, PSE, TUN
Mediterranean	CR	
North Africa	CR	

Urothemis edwardsii is an Afrotropical species that has two isolated relict populations in the Mediterranean, one in northeastern Algeria and one in northern Israel. An isolated record from northwestern Tunisia (Jödicke et al. 2000) of a single specimen at a stream probably refers to a vagrant. The Algerian population is now much reduced and the Levantine population went extinct due to the drainage and the eutrophication of its habitat (Dumont 1975, 1991). The species is classified CR in the Mediterranean and North African Red Lists.

***Urothemis edwardsii* male, Botswana (JK).**

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



IUCN Red List Status		Record by countries
Global	LC	ESP, ISR, ITA (Sicily), JOR, MAR, PRT, PSE, SAU, TUN, TUR
Mediterranean	NT	
North Africa	NT	

Zygonyx torridus is widespread in tropical Africa, Arabia and reaches India. In the Mediterranean it has a very patchy distribution. It has colonised the Canary Islands, where it is present on La Palma, La Gomera, Tenerife and Gran Canaria (Kunz et al. 2006). Perennial populations are present in Morocco, Spain and the Levant. Only single records are known for Tunisia, Sicily, southern Portugal and Turkey (Kunz et al. 2006). Given its strong mobility, the paleoclimatic significance of the Mediterranean range of *Z. torridus* is not as evident as it is in sedentary species like North African *Pseudagrion*. Although the 'early Holocene relict interpretation' may still apply to this species, regular replenishment of the Mediterranean population by tropical immigrants cannot be ruled out (Kunz et al. 2006). *Zygonyx torridus* is classified NT in the Mediterranean and North African Red Lists.

Zygonyx torridus male, Morocco (PS).

References

Adamović Ž. (1948) Liste des demoiselles (Odonata Fabr.) de l'Institut biologique à Sarajevo. *Godišnjak Biološkog Instituta u Sarajevu* 1: 79–84 [in Serbian; French abstract]

Adamović Ž. (1949) La liste des Odonates du Muséum d'Histoire Naturelle du Pays Serbe. *Glasnik Prirodnjačkog Muzeja Srpske Zemlje* (B) 1/2: 275–293 [in Serbian; French abstract]

Adamović Ž. (1990) Odonata collected in Strumička Kotlina, Macedonia, Yugoslavia. *Glasnik Prirodnjačkog Muzeja u Beogradu* (B) 45: 47–59

Aguesse, P. (1968) Les Odonates de l'Europe occidentale, du Nord de l'Afrique et des îles atlantiques. Masson et Cie, Paris

Aguesse P. & J.P. Pruja (1958) Odonates récoltés par M. Ch. Rungs au Maroc, au Sahara, en Mauritanie et au Sénégal. *Comptes Rendus des Séances Mensuelles de la Société des Sciences Naturelles et Physiques du Maroc* 24: 103–106

Anđus Lj. (1992) New data on the distribution of Odonata in Serbia. *Glasnik Prirodnjačkog Muzeja u Beogradu* (B) 47: 149–170

Andres A. (1928) The dragonflies of Egypt. *Mémoires de la Société Royale Entomologique d'Égypte* 3: 1–43, tab. II, pls I–V

Andres A. (1929) Note on the Egyptian dragonflies. *Bulletin de la Société Royale Entomologique d'Égypte* 29: 9

Asahina S. (1973) The Odonata of Iraq. *Japanese Journal of Zoology* 17: 17–36

Azpilicueta Amorín M., C. Rey Rañó Docampo, F. Barrueco, X.L. Rey Muñiz & A. Cordero Rivera (2007) A preliminary study of biodiversity hotspots for odonates in Galicia, NW Spain. *Odonatologica* 36: 1–12

Baixeras J., J.M. Michelena, P. González, F.[J.] Ocharan, C. Quirce, M.A. Marcos, E. Soler, J. Domingo, S. Montagud, A. Gutiérrez & M. Arles (2006) Les libèl·lules de la Comunitat Valenciana. Generalitat Valenciana, Conselleria de Territori i Habitatge, Valencia

Battin T. (1992) Geographic variation analysis among populations: the case of Platycnemis pennipes (Pallas, 1771) (Insecta: Odonata: Zygoptera) in the Aegean. *Journal of Biogeography* 19: 391–400

Bemmerle B. (2005) Zygonyx torridus auf La Gomera, Kanarische Inseln (Odonata: Libellulidae). *Libellula* 24: 249–256

Ben Azzouz B., R. Guemmouh & P. Aguesse (1989) A propos des Coenagrion du groupe mercuriale (Charpentier, 1840) et de la présence de C. castellani Roberts, 1984 au Maroc (Zygoptera: Coenagrionidae). *Odonatologica* 18: 279–283

Benítez-Donoso A. (1990) Los Odonatos de Extremadura. Licenciatura Thesis, Universidad de Oviedo

Benitez Morera A. (1950) Los Odonatos de España. Instituto Español de Entomología, Madrid

Bentivoglio T. (1901) Contribuzione allo studio dei Pseudoneurotteri della Toscana. Libellulidi di Massa-Carrara. *Atti della Società dei Naturalisti e Matematici di Modena* (IV) 2: 86–91

Bentivoglio T. (1905) Libellulidi della Sardegna esistenti nel Museo Zoologico della R. Università di Napoli. *Annuario del Museo Zoologico dell'Università di Napoli* (NS) 1 (35): 1–7

Bentivoglio T. (1920) Nuove osservazioni sui libellulidi della Sardegna. *Atti della Società dei Naturalisti e Matematici di Modena* 51: 19–20

Bernard R. & H. Wildermuth (2005) Nehalennia speciosa (Charpentier, 1840) in Europe: A case of a vanishing relict (Zygoptera: Coenagrionidae). *Odonatologica* 34: 335–378

Beschovski V.L. (1994) Fauna Bulgarica. 23. Insecta, Odonata. Bulgarian Academy of Sciences, Sofia [in Bulgarian]

Bilek A. (1964) Beobachtungen über Odonaten in Südfrankreich mit besonderer Berücksichtigung der Färbungsstadien von Anax parthenope Sélys. *Nachrichtenblatt der Bayerischen Entomologen* 13: 59–64

Bilek A. (1966) Ergebnisse der Albanien-Expedition 1961 des Deutschen Entomologischen Institutes. 46. Beitrag: Odonata. *Beiträge zur Entomologie* 16: 327–346

Boano G., R. Sindaco, E. Riservato, S. Fasano & R. Barbero (2007) Atlante degli Odonati del Piemonte e della Valle d'Aosta. *Memorie dell'Associazione Naturalistica Piemontese* 6: 1–160

Börzsöny L. (1996) Erstnachweis von Anormogomphus kiritshenkoi Bartenev für die Türkei (Anisoptera: Gomphidae). *Libellula* 15: 185–190

Boudot J.-P. (2001) Les Cordulegaster du Paléarctique occidental: identification et répartition (Odonata, Anisoptera, Cordulegastridae). *Martinia* 17: 1–34

Boudot J.-P. (2008) Selysiothemis nigra (Vander Linden, 1825), nouveau pour le Maroc, et autres observations sur les Odonates du Maghreb nord-occidental (Odonata: Anisoptera: Libellulidae). *Martinia* 24: 3–29

Boudot J.-P. & G. Jacquemin (1995) Revision of Cordulegaster boltonii (Donovan, 1807) in southwestern Europe and northern Africa, with description of *C. b. iberica* ssp. nov. from Spain (Anisoptera, Cordulegastridae). *Odonatologica* 24: 149–173

Boudot J.-P., D. Grand, B. Grebe, N. Hacet & M. Marinov (2004) Description of the female of Somatochlora borisi with distributional notes on the species (Odonata: Corduliidae). *International Journal of Odonatology* 7: 431–438

Boudot J.-P., G. Jacquemin & H.J. Dumont (1990) Revision of the subspecies of Onychogomphus forcipatus (Linnaeus, 1758) in Europe and Asia Minor, and the true distribution of Onychogomphus forcipatus unguiculatus (Vander Linden, 1823) (Odonata, Gomphidae). *Bulletin et Annales de la Société Royale Belge d'Entomologie* 126: 95–111

Brauer F. (1864) Erster Bericht über die auf der Weltfahrt der kais. Fregatte Novara gesammelten Neuropteren. *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien* 14: 159–164

Brauer F. (1900) Über die von Prof. O. Simony auf den Canaren gefundenen Neuroptera und Pseudoneuroptera (Odonata, Corrodentia et Ephemeridae) *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Classe, Abtheilung I*, 109: 464–477

Brauner O. (2007) Winterbeobachtungen von Libellen auf La Gomera und La Palma, Kanarische Inseln (Odonata). *Libellula* 26: 213–232

Bucciarelli I. (1977) Dati preliminari sul popolamento odonatologico di Calabria, Sicilia e Sardegna (VIII contributo alla conoscenza degli Odonati). *Annali del Museo Civico di Storia Naturale "Giacomo Doria"* 81 (1976–1977): 374–386

Bucciarelli I., P. A. Galletti & M. Pavesi (1983) Attuali conoscenze sul popolamento odonatologico della Sardegna. *Lavori della Societá Italiana di Biogeografia* (NS) 8 [1980, Il popolamento animale e vegetale della Sardegna]: 466–544

Buchholz K. (1963) Odonaten aus Mazedonien. *Opuscula Zoologica* 70: 1–16

Buczyński P., A. Zawal & E. Filipiuk (2002) Neue Nachweise von Orthetrum albistylum in Nordpolen: Erweitert sich sein Verbreitungsgebiet in Mitteleuropa? (Odonata: Libellulidae). *Libellula* 21: 15–24

Carchini G., E. Rota & C. Utzeri (1985) Lista aggiornata degli odonati italiani e loro distribuzione regionale. *Fragmenta Entomologica*, Roma 18: 91–103

Cecconi G. (1895) Ricordi zoologici di un viaggio all'isola de Candiá. *Bollettino della Società Entomologica Italiana* 27: 169–222

Chelmick D. & B.P. Pickess (2008) Trithemis kirbyi Selys in southern Spain (Anisoptera: Libellulidae). *Notulae Odonatologicae* 7: 4–5

Clausnitzer V. & K.-D.B. Dijkstra (2005) The dragonflies (Odonata) of Ethiopia, with notes on the status of endemic taxa and the description of a new species. *Entomologische Zeitschrift* 115: 117–130

Compte Sart A. (1963) Revisión de los Odonatos de Baleares. *Publicaciones del Instituto de Biología Aplicada de Barcelona* 35: 33–81

Compte Sart A. (1965) Distribución ecología y biocenosis de los Odonatos ibéricos. *Publicaciones del Instituto de Biología Aplicada de Barcelona* 39: 33–64

Corbet P.S. (1999) Dragonflies: behaviour and ecology of Odonata. Harley, Colchester

Cordero Rivera A., C. Utzeri & S. Santolamazza Carbone (1999) Emergence and adult behaviour of Macromia splendens in Galicia (Northwestern Spain) (Anisoptera: Corduliidae). *Odonatologica* 28: 333–342

Cottle N. (2007) Brachythemis leucosticta (Burmeister, 1839) (Anisoptera: Libellulidae): a new dragonfly species for Cyprus and Trithemis arteriosa (Burmeister, 1839) (Anisoptera: Libellulidae):

a rarely recorded dragonfly species in Cyprus. *The Bulletin of the Amateur Entomologists' Society* 66: 59–63

Cowley J. (1940) A list of the Odonata of the islands of the western [sic!] Mediterranean area. *Proceedings of the Royal Entomological Society of London* (B) 9: 172–178

D'Andrea M. (1994) Segnalazioni faunistiche italiane. 247. Oxygastra curtisii (Dale, 1834) (Odonata: Corduliidae). *Bollettino della Società Entomologica Italiana* 126 (1): 76

Deliry C. (2008) (ed.) Atlas illustré des libellules de la région Rhône-Alpes. Biotope, Mèze

De Marmels J. (1995) Some dragonfly records from central and northern Israel (Odonata). *Opuscula Zoologica Fluminensia* 128: 1–9

Degabriele G. (1992) Aspects in the ecology of Maltese Odonata. B. Ed. Dissertation, University of Malta

Dekeyser P.L. & A. Villiers (1956) Contribution à l'étude du peuplement de la Mauritanie. Notations écologiques et biogéographiques sur la faune de l'Adrar. *Mémoires de l'Institut Français d'Afrique Noire* 44: 1–222

Dijkstra K.-D.B. (2008) The Systematist's Muse — two new damselfly species from 'Elisabetha' in the Congo Basin (Odonata: Chlorocyphidae, Platycnemididae). *Zoologische Mededelingen* 82 (3): 15–27

Dimentman C., H.J. Bromley & F.D. Por (1992) Lake Hula. Reconstruction of the fauna and hydrobiology of a lost lake. The Israel Academy of Sciences and Humanities, Jerusalem

Dommanget J.-L. (1987) Étude faunistique et bibliographique des odonates de France. Collection Inventaires de Faune et de Flore 36. Secrétariat Faune/Flore, Muséum National d'Histoire Naturelle, Paris

Dommanget J.-L. (1994) (ed.) Atlas préliminaire des Odonates de France. État d'avancement au 31/12/93. Collection Patrimoines Naturels, vol. 16. Secrétariat Faune/Flore, Muséum National d'Histoire Naturelle, Société Française d'Odonatologie & Ministère de l'Environnement, Paris

Dommanget J.-L. & G. Brusseaux (2004) Découverte en Corse d'un individu mort de Cordulegaster boltonii (Donovan, 1807) (Odonata, Anisoptera, Cordulegastridae). *Martinia* 20: 179

Dumont H.J. (1972) Contribution à la connaissance des Odonates du Maroc. *Mémoires de la Société des Sciences Naturelles et Physiques du Maro*c 52: 149–179

Dumont H.J. (1973) The genus Pseudagrion Sélys in Israel and Egypt with a key to the regional species (Insecta: Odonata). *Israel Journal of Zoology* 22: 169–195

Dumont H.J. (1974) Agriocnemis sania Nielsen, 1959 (Odonata: Zygoptera), with a redescription of the species and distributional and ecological notes. *Israel Journal of Zoology* 23: 125–134

Dumont H.J. (1975) Endemic dragonflies of late Pleistocene age of the Hula Lake Area (Northern Israel), with notes on the Calopterygidae of the rivers Jordan (Israel, Jordan) and Litani (The Lebanon) and description of Urothemis edwardsi hulae subspec. nov. (Libellulidae). *Odonatologica* 4: 1–9

Dumont H.J. (1976) Odonata from South Morocco, Rio de Oro and Mauretania with biogeographical notes. *Odonatologica* 5: 107–117

Dumont H.J. (1977a) An analysis of the Odonata of Tunesia. *Bulletin et Annales de la Société Royale Belge d'Entomologie* 113: 63–94

Dumont, H.J. (1977b) A review of the dragonfly fauna of Turkey and adjacent Mediterranean islands (Ins. Odonata). *Bulletin et Annales de la Société Royale Belge d'Entomologie* 113: 119–171

Dumont H.J. (1977c) Sur une collection d'Odonates de Yougoslavie, avec notes sur la faune des territoires adjacents de Roumanie et de Bulgarie. *Bulletin et Annales de la Société Royale Belge d'Entomologie* 113: 187–209

Dumont H.J. (1977d) Orthetrum abbotti Calvert, 1892, a new Ethopian representative in the palaearctic fauna (Anisoptera: Libellulidae). *Odonatologica* 6: 199–203

Dumont H.J. (1978a) Addition à la faune des Odonates de Mauritanie. *Bulletin et Annales de la Société Royale Belge d'Entomologie* 114: 29–34

Dumont H.J. (1978b) Odonata from Niger with special reference to the Aïr Mountains. *Revue de Zoologie Africaine* 92: 303–316

Dumont H.J. (1980) The dragonfly fauna of Egypt, and the role of the Nile in its origin and composition (Insecta: Odonata). *The Journal of Water Supply and Management* 4: 29–34

Dumont H.J. (1982) Relict distribution patterns of aquatic animals: another tool in evaluating late Pleistocene climate changes in the Sahara and Sahel. In: Coetzee J.A.& E.M. Van Zinderen Bakker (eds) Palaeoecology of Africa and the surrounding islands, vol. 14: 1–24. Balkema, Rotterdam

Dumont H.J. (1991) Fauna Palaestina. Insecta V – Odonata of the Levant. The Israel Academy of Sciences and Humanities, Jerusalem

Dumont H.J. (2007) Odonata from the Mouydir Plateau (North Central Sahara, Algeria). *Bulletin et Annales de la Société Royale Belge d'Entomologie* 143: 164–168

Dumont H.J. & O. Fossati (1990) On some dragonflies from the Nile valley in Egypt. *Bulletin et Annales de la Société Royale Belge d'Entomologie* 126: 184–186

Dumont H.J. & K. Martens (1984) Dragonflies (Insecta, Odonata) from the Red Sea Hills and the main Nile in Sudan. *Hydrobiologia* 110: 181–190

Dumont H.J. & D. Verschuren (2005) Odonata from the Ennedi and Ounianga regions of northern Chad, with a note on the status of Orthetrum kollmannspergeri Buchholz, and a checklist of species currently known from the Republic of Chad. *Odonatologica* 34: 291–297

Dumont H.J., J. Mertens & A. Miho (1993) A contribution to the knowledge of the Odonata of Albania. *Opuscula Zoologica Fluminensia* 113: 1–10

Dumont H.J., W. Schneider, D. Verschuren & M. Pavesi (1995) Coenagrion lindenii zernyi (Schmidt), an East Mediterranean taxon threatened with extinction by introgression from the west (Zygoptera: Coenagrionidae). *Odonatologica* 24: 451–459

Ebejer M.J., G. Degabriele & A. Sciberras (2008) An annotated checklist of Odonata of the Maltese Islands, with evidence for a recent influx of species. *Libellula* 27: 133–145

Ferreira S. & F. Weihrauch (2005) Annotated bibliography of odonatological literature from continental Portugal, Madeira, and the Azores (Odonata). *Libellula* 24: 109–128

Ferreira S. & F. Weihrauch (2008) Odonata. In: Borges P.A.V., C. Abreu, A.M.F. Aguiar, P. Carvalho, R. Jardim, I. Melo, P. Oliveira, A.R.M. Serrano & P. Vieira (eds) A list of the terrestrial fungi, flora and fauna of Madeira and Selvagens archipelagos: 294. Direcção Regional do Ambiente da Madeira and Universidade dos Açores, Funchal and Angra do Heroísmo

Ferreira S., J.M. Grosso-Silva, M. Lohr, F. Weihrauch & R. Jödicke (2006) A critical checklist of the Odonata of Portugal. *International Journal of Odonatology* 9: 133–150

Ferreras Romero M. (1976) Los odonatos de las Marismas del Bajo Guadalquivir. Licenciatura Thesis, Universidad de Sevilla

Ferreras Romero M. (1980) Los odonatos de Sierra Morena Central (Córdoba). Dissertation, Universidad de Sevilla

Ferreras Romero M. (1991) Los odonatos de Andalucía (España). Análisis zoogeográfico. *Miscel·lània Zoològica* 13 [1989]: 63–71

Ferreras Romero M. (1999) Biodiversity of rheophilous Odonata in southern Spain. *Odonatologica* 28: 417–420

Ferreras Romero M. & V. Puchol Caballero (1984) Los insectos odonatos en Andalucía. Bases para su estudio faunístico. Servicio de Publicaciones de la Universidad de Córdoba, Córdoba

Feulner G.R., R.W. Reimer & R.J. Hornby (2007) An updated illustrated checklist of dragonflies and damselflies of the UAE. *Tribulus* 17: 37–62

Fleck G., D. Grand & J.-P. Boudot (2007) Description of the last stadium larva of Somatochlora borisi, with comparison to that of Somatochlora metallica meridionalis (Odonata: Corduliidae). *International Journal of Odonatology* 10: 43–52

Franković M. (1994) Popis vretenaca Hrvatske. Online on the Internet (16–i–2009), URL: <http://www.botanic.hr/cisb/doc/fauna/odonata/odopornovi.htm> [in Croatian]

Franković M., A. Belančić, T. Bogdanović, M. Ljuština, N. Mihoković & B. Vitas (2008). Red Book of Croatian Dragonflies. State Institute for Nature Protection, Zagreb

Fraser F.C. (1952) Contribution à l'étude du peuplement de la Mauritanie. Odonata, Neuroptera, Nemoptera and Ephemeroptera. *Bulletin de l'Institut Français d'Afrique Noire* 14: 479–484

Gadeau de Kerville H. (1908) Odonates. In: Gadeau de Kerville H. (ed.) Voyage zoologique en Khroumirie (Tunisie) mai–juin 1906: 59–61. Baillère, Paris

Galletti P.A. & M. Pavesi (1985) Ulteriori considerazioni sui Cordulegaster italiani (Odonata: Cordulegasteridae). *Giornale Italiano di Entomologia* 2: 307–326

Galletti P.A., M. Pavesi & F.P. Romano (1987) Brachythemis leucosticta (Burm.) e considerazioni su altri odonati nuovi per la Sicilia. *Naturalista Siciliano* (IV) 11: 27–46

Gardner A.E. (1960) Odonata from the Azores and Madeira. *Boletim do Museu Municipal do Funchal* 13 (41): 119–122

Gardner A.E. (1963) Report on the insects collected by E. W. Classey and A. E. Gardner expedition to Madeira in December 1957 (With special reference to the life–history of Sympetrum nigrifemur (Selys)). Part III. Odonata. *Proceedings of the South London Entomological and Natural History Society* 1962: 62–85, pls III–VI

Geene R. (1994) Notes on dragonflies in Egypt, spring 1990. In: Meininger P.L. & G.A.M Atta (eds) Ornithological studies in Egyptian wetlands 1989/90. Appendix III. Foundation for Ornithological Research in Egypt (FORE), Vlissingen: 391–395 [also online on the internet (16–i–2009), URL: < www.libellen.org/epallage/>]

Ghiliani V. (1842) Catalogus insectorum Siciliae. *Atti dell'Accademia Gioenia di Scienze Naturali in Catania* 18: 42

Gligorović, B., V. Pečić & A. Zeković (2008) A contribution to the knowledge of dragonflies (Odonata) of the area of Gornji Crnci – Piperi (Montenegro). *Acta Entomologica Serbica* 13: 1–7

Gorb S. (1991) The dragonfly Cordulegaster boltoni Donovan, 1807 (Odonata, Cordulegastridae) in the Ukraine. *Acta Hydroentomologica Latvica* 1: 24–27

Grand D. (1994) Sur Trithemis annulata (Palisot de Beauvois, 1805) en France continentale et en Espagne du nord–est (Odonata, Anisoptera, Libellulidae). *Martinia* 10: 65–71

Grand D. & J.–P. Boudot (2006) Les libellules de France, Belgique et Luxembourg. Biotope, Mèze

Grebe B., B. Baierl & E. Baierl (2005) Libellen der Flusstäler Nordost–Griechenlands. Erstnachweis von Somatochlora borisi für Griechenland (Odonata: Corduliidae) *Libellula Supplement* 6: 1–14

Grozeva S. & M. Marinov (2007) Cytogenetic study of Somatochlora borisi Marinov, 2001 (Odonata: Corduliidae), and three relative species. *Acta Zoologica Bulgarica* 59: 53–58

Hacet N. & N. Aktaç (2004) Considerations on the odonate fauna of Turkish Thrace, with some taxonomic notes. *Odonatologica* 33: 253–270

Hacet N. & N. Aktaç (2006) The Odonata of Gökçeada Island, Turkey: a biogeographical assessment. *Entomological News* 117: 357–368

Hämäläinen M. (1986) Note on the misidentification of the first Zygoptera material from the Canary Islands. *Notulae Odonatologicae* 2: 131–132

Hardersen S. (2004) The dragonflies: species, phenology, larval habitats (Odonata). In: Cerretti P., S.

Hardersen, F. Mason, G. Nardi, M. Tisato & M. Zapparoli (eds) Invertebrati di una foresta della Pianura Padana, Bosco della Fontana, Secondo contributo: 29–50. Conservazione Habitat Invertebrati 3. Cierre Grafica, Verona

Heidari H. & H.J. Dumont (2002) An annotated check–list of the Odonata of Iran. *Zoology in the Middle East* 26: 133–150

Hope P. (2007) The dragonflies of eastern Muğla province, Southwest Turkey. Land of light publishing, Fethiye

Holuša O. (2008) Trithemis kirbyi auf Sardinien: Erstnachweis für Europa (Odonata: Libellulidae). *Libellula* 27: 111–115

IUCN (2008) The IUCN Red List of threatened species. Online on the internet (20–i–2009), URL: <http:// http://www.iucnredlist.org>

Jacquemin G. & J.-P. Boudot (1999) Les libellules (Odonates) du Maroc. Société Française d'Odonatologie, Bois d'Arcy

Jödicke R. (1996) (ed.) Studies on Iberian Dragonflies. *Advances in Odonatology*, *Supplement* 1

Jödicke R. (2003) Mid-winter occurrence of dragonflies in southern Tunisia (Insecta: Odonata). *Kaupia* 12: 119–128

Jödicke R. (2005) Bemerkungen zu Coenagrion intermedium (Odonata: Coenagrionidae). *Libellula Supplement* 6: 15–24

Jödicke R., J. Arlt, B. Kunz, W. Lopau & R. Seidenbusch (2000) The Odonata of Tunisia. *International Journal of Odonatology* 3: 41–71

Jović M., L. Anđus, M. Bedjanič & S. Santovac (2008a) Review of the Odonata fauna of Montenegro. *Opuscula Zoologica Fluminensia* 224: 1–27

Jović M., S. Santovac & Lj. Anđus (2008b) Leucorrhinia caudalis (Charpentier, 1840) – a new or an ex Dragonfly species in Serbian Fauna? *Bulletin of the Natural History Museum in Belgrade* 1: 161–171

Juillerat L. & C. Monnerat (2009) Odonata in southern Morocco, with first records of Orthetrum ransonnetii and Sympetrum sinaiticum (Odonata : Libellulidae). *Libellula* 28: [in press]

Jurzitza G. (1961) Sympecma paedisca Brauer in Frankreich (Odonata). *Nachrichtenblatt der Bayerischen Entomologen* 10: 103–104

Jurzitza G. (1967) Odonatologische Impressionen in der Camargue: Mistral. *Entomologische Zeitschrift* 77: 145–151

Kalkman V.J. (2000) Records on the dragonfly fauna of northwestern Albania (Odonata) *Libellula* 19: 107–111

Kalkman V.J. (2005) On the distribution of the genus Ceriagrion in the Balkans, including C. georgifreyi, a species new for the European fauna (Odonata: Coenagrionidae). *Libellula Supplement* 6: 25–32

Kalkman V.J. (2006) Key to the dragonflies of Turkey. *Brachytron* 10: 3–82

Kalkman V.J. & W. Lopau (2006) Identification of Pyrrhosoma elisabethae with notes on its distribution and habitat (Odonata: Coenagrionidae). *International Journal of Odonatology* 9: 175–184

Kalkman V.J. & J.T. Smit (2002) Platycnemis subdilatata Sel., new to the Canary Islands? (Zygoptera: Platycnemididae). *Notulae Odonatologicae* 5: 128

Kalkman V.J. & G.J. van Pelt (2006) The distribution and flight period of the dragonflies of Turkey. *Brachytron* 10: 83–153

Kalkman V.J., M. Wasscher & G.J. van Pelt (2003) An annotated checklist of the Odonata of Turkey. *Odonatologica* 32: 215–236

Kalkman V.J., G.J. van Pelt, H.J. Dumont, A. Haritonov & M. Tailly (2004) Critical species of Odonata in Turkey, Iran and the Caucasus. In: Clausnitzer V. & R. Jödicke (eds), Guardians of the watershed. Global status of dragonflies: critical species, threat and conservation. *International Journal of Odonatology* 7: 139–147

Karaman B. (1969) Contribution a la connaissance de la faune des Odonates en Macédoine. *Fragmenta Balcanica*, Skopje 7: 93–102

Katbeh-Bader A., Z. Amr & W. Schneider (2002) Odonata of Jordan. *Fragmenta Entomologica*, Roma 34: 147–170

Katbeh-Bader A., Z. Amr, M. Abu Baker & A. Mahasneh (2004) The dragonflies (Insecta: Odonata) of Jordan. *Denisia* 14: 309–317

Kiauta B. (1963) Additions to the Cyprus list of Odonata, with some notes on the annotated list given by K.J. Valle. *Societas Scientiarum Fennica, Commentationes Biologicae* 26 (8): 1–6

Kimmins D.E. (1950) Results of the Armstrong College expedition to Siwa oasis (Libyan desert) 1935, under the leadership of Prof. J. Omer-Cooper. Odonata and Neuroptera. *Bulletin de la Société Fouad 1er d'Entomologie* 34: 151–157

Kneucker A. (1909) Odonata. Determiniert von Herrn Professor Förster in Bretten in Baden. In: Zoologische Ergebnisse zweier in den Jahren 1902 und 1904 durch die Sinaihalbinsel unternommener botanischer Studienreisen, nebst zoologischen Beobachtungen aus Ägypten, Palästina und Syrien: 120. *Verhandlungen des Naturwissenschaftlichen Vereins in Karlsruhe* 21: 79–165

Kosterin O.E. (2005) Western range limits and isolates of eastern odonate species in Siberia and their putative origins. *Odonatologica* 34: 219–242

KOTARAC M. (1997) Atlas of the dragonflies (Odonata) of Slovenia with the Red Data List. Atlas Faunae et Florae Sloveniae 1. Center za kartografijo favne in flore, Miklavž na Dravskem polju

KUNZ B. & D. KUNZ (2001) Lindenia tetraphylla: Wiederfund für Nordafrika (Odonata: Gomphidae). *Libellula* 20: 79–85

KUNZ B., S.V. OBER & R. JÖDICKE (2006) The distribution of Zygonyx torridus in the Palaearctic (Odonata: Libellulidae). *Libellula* 25: 89–108

LACROIX J.L. (1925) Quelques Névroptères (sens. lat.) d'Afrique. *Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord* 16: 258–263

LAISTER G. (2005) Pantala flavescens auf Rhodos, mit einem Überblick über den Status der Art in Europa (Odonata: Libellulidae). *Libellula Supplement* 6: 33–40

LE ROI O. (1915) Odonaten aus der Algerischen Sahara von der Reise von Freiherrn H. Geyr von Schweppenburg. Mit einer Übersicht der Nordafrikanischen Odonaten-Fauna. *Deutsche Entomologische Zeitschrift* 1915: 609–634

LIEFTINCK M.A. (1966) A survey of the dragonfly fauna of Morocco (Odonata). *Bulletin et Annales de la Société Royale Belge d'Entomologie* 42: 1–63

LOCKWOOD M. (2007) Rediscovery of Sympetrum pedemontanum (Müller in Allioni) and S. vulgatum (L.) in Catalonia, NE Spain (Anisoptera: Libellulidae). *Notulae Odonatologicae* 6: 115–118

LOHMANN H. (1989) Ischnura fountainei Morton auf der Insel Pantelleria, Italien: Erstnachweis für Europa (Zygoptera: Coenagrionidae). *Notulae Odonatologicae* 3: 61

LOHMANN H. (1993) Coenagrion vanbrinki spec. nov. und C. persicum spec. nov. aus Vorderasien (Zygoptera: Coenagrionidae). *Odonatologica* 22: 203–211

LOHR M. (2005a) Libellenbeobachtungen in Südportugal (Odonata). *Libellula* 24: 87–107

LOHR M. (2005b) Selysiothemis nigra (Vander Linden, 1825) new for Portugal (Anisoptera: Libellulidae). *Notulae Odonatologicae* 6: 57–58

LOPAU W. (1999a) Die Libellenfauna der griechischen Inseln Thássos, Samothráki und Límnos. *Libellula Supplement* 2: 43–61

LOPAU W. (1999b) Bisher unveröffentlichte Libellenbeobachtungen aus Griechenland. *Libellula Supplement* 2: 91–131

LOPAU W. (2000) Bisher unveröffentlichte Libellenbeobachtungen aus Griechenland II (Odonata). *Libellula Supplement* 3: 81–116

LOPAU W. (2005) Bisher unveröffenlichte Libellenbeobachtungen aus Griechenland III (Odonata). *Libellula Supplement* 6: 49–84

LOPAU W. & J. ADENA (2002) Die Libellenfauna von Cypern. *Naturkundliche Reiseberichte* 19: 1–73

LOPAU W. & A. WENDLER (1995) Arbeitsatlas zur Verbreitung der Libellen in Griechenland und den umliegenden Gebieten. *Naturkundliche Reiseberichte* 5: 1–109

MAIBACH A. (1986) Révision systématique du genre Calopteryx Leach (Odonata, Zygoptera) pour l'Europe occidentale. II. Analyses morphologiques et synthèse. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 59: 389–406

MAIBACH A. (1987) Révision systématique du genre Calopteryx Leach (Odonata, Zygoptera) pour l'Europe occidentale. III. Révision systématique, étude bibliographique, désignation des types et clé de détermination. *Odonatologica* 16: 145–174

MAIBACH A. (2005) Leucorrhinia albifrons (Burmeister, 1839) – Östliche Moosjungfer – Leucorrhine à front blanc. In: WILDERMUTH H., Y. GONSETH & A. MAIBACH (eds) Odonata. Les Libellules de Suisse. Fauna Helvetica 11: 290–293. Centre Suisse de Cartographie de la Faune & Schweizerische Entomologische Gesellschaft, Neuchâtel

MALMQVIST B., A.N. NILSSON, M. BAEZ, P.D. ARMITAGE & J. BLACKBURN (1993) Stream macroinvertebrate communities in the island of Tenerife. *Archiv für Hydrobiologie* 128: 209–235

MARINOV M. (2000) Pocket field guide to the dragonflies of Bulgaria. Eventus Publishing House, Sofia [in Bulgarian]

MARINOV M. (2001a) The Orthetrum coerulescens complex in Bulgaria (Odonata: Libellulidae). *International Journal of Odonatology* 4: 35–40.

MARINOV M. (2001b) Does Coenagrion mercuriale (Charpentier, 1840) occur in Bulgaria? *Exuviae* 8: 13–19.

Marinov M. (2001c) Somatochlora borisi spec. nov., a new European dragonfly species from Bulgaria (Anisoptera: Corduliidae). *IDF-Report* 3: 46–53

Marinov M. (2003) [Chorology, biotope and habitat commitment of the insects of the order Odonata in Bulgaria.] Dissertation, Institute of Zoology, Bulgarian Academy of Sciences [in Bulgarian]

Marinov M. (2004) Somatochlora arctica (Zett.) and Leucorrhinia dubia (Vander L.) new for the fauna of Bulgaria (Anisoptera: Corduliidae, Libellulidae). *Notulae Odonatologicae* 6: 34–35

Marinov M. & R. Seidenbusch (2007) Corduliochlora gen. nov. from the Balkans (Odonata: Corduliidae). *IDF-Report* 10: 1–13

Martens A. (1996) Die Federlibellen Europas. Platycnemididae. Die Neue Brehm-Bücherei 626. Westarp, Magdeburg & Spektrum, Heidelberg

Martens A. (1997) Platycnemis pennipes on European islands (Zygoptera: Platycnemididae). *Odonatologica* 26: 17–33

Martens K. & H.J. Dumont (1983) Description of the larval stages of the desert dragonfly Paragomphus sinaiticus (Morton) with notes on the larval habitat and a comparison with three related species (Anisoptera: Gomphidae) *Odonatologica* 12: 285–296

Martín F.J. (1983) Contribución al estudio de los Zigópteros (Odon.) de la provincia de Madrid. *Boletín de la Asociación Española de Entomología* 6 (2): 159–172

Martin R. (1887) Les odonates du département de l'Indre. *Revue Entomologique* 5: 231–251

Martin R. (1910) Contribution à l'étude des Nevroptères de l'Afrique. II. Les odonates du département de Constantine. *Annales de la Société Entomologique de France* 79: 95–104

Martin R. (1915) Insecta Pseudoneuroptera. II. Odonata. In: Alluaud Ch. & R. Jeannel (eds) Voyage de Ch. Alluaud et R. Jeannel en Afrique orientale (1911–1912). Résultats scientifiques 2: 19–50, pls I–III. Librairie Sciences Naturelle, Paris

Martín Casacuberta R. (2004) Odonatos de Cataluña: catálogo y análisis geográfico. *Boletín de la Asociación Española de Entomología* 28 (1–2): 55–69

Matushkina N.A. (2007) Selysiothemis nigra Vander L.) new for the fauna of the Ukraine (Anisoptera: Libellulidae). *Notulae Odonatologicae* 6: 118–119

Mauersberger R. (1994) Zur wirklichen Verbreitung von Orthetrum coerulescens (Fabricius) und O. ramburi (Selys) = O. anceps (Schneider) in Europa und die Konsequenzen für deren taxonomischen Rang (Odonata, Libellulidae). *Deutsche Entomologische Zeitschrift* (NF) 41: 235–256

McLachlan R. (1882) The Neuroptera of Madeira and the Canary Islands. *Journal of the Linnean Society* (*Zoology*) 16: 149–183

McLachlan R. (1899) Remarques sur quelques odonates de l'Asie Mineure meridionale comprenant une espèce nouvelle pour la faune palearctique. *Annales de la Société Entomologique de Belgique* 43: 301–302

Micevski N., B. Micevski & M. Bedjanič (2008) Aeshna cyanea and A. juncea, new for the fauna of Macedonia (Odonata: Aeshnidae). *Libellula* 27: 267–274

Minà Palumbo F. (1858) Escursione entomologica nelle Madonie. *Palingenesi*, Palermo 1: 112

Minà Palumbo F. (1871) Neurotteri della Sicilia. In: Biblioteca del Naturalista siciliano, Entomologia, 9: 1–23. Palermo

Monetti L., R.A. Sanchez-Guillén & A. Cordero Rivera (2002) Hybridization between Ischnura graellsii (Vander Linder) and I. elegans (Rambur) (Odonata: Coenagrionidae) are they different species? *Biological Journal of the Linnean Society* 76: 225–235

Morton K.J. (1914) Notes on a collection of Odonata from Van, Turkey in Asia. *The Entomologist's Monthly Magazine* 50: 56–59

Morton K.J. (1929) Odonata from the Sinai Peninsula, Suez and Palestine, including a new species of Mesogomphus. *The Entomologist's Monthly Magazine* 65: 60–63

Müller O. (2008) Larval habitats and life history of the Crete Island endemic *Boyeria cretensis* (Odonata: Aeshnidae). *International Journal of Odonatology* 11: 195–207

Murányi D. (2007) Contribution to the Odonata fauna of Albania. *Folia Entomologica Hungarica* 68: 41–53

Navás L. (1906a) Neurópteros de España y Portugal. *Brotéria* 5: 145–184, pls ix–xi

Navás L. (1906b) Catálogo descriptivo de los insectos Neurópteros de las Islas Canarias. *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales de Madrid* 4: 687–706, 1 pl.

Navás L. (1907) Neurópteros de España y Portugal (continuado). *Brotéria, Série Zoológica* 6: 43–100, 1 pl.

Navás L. (1908) Neurópteros de España y Portugal (continuado). *Brotéria, Série Zoológica* 7: 5–131, pls ii–vi

Navás L. (1910) Mis excursiones entomológicas durante el verano de 1909 (2 Julio–3 Agosto). *Butlletí de la Institució Catalana d'Història Natural* 10: 32–56, 74–75

Navás L. (1914) Notas entomológicas (2ª Serie). 10. Neurópteros de Mallorca. *Boletín de la Sociedad Aragonesa de Ciencias Naturales* 13: 185–192

Navás L. (1924) Sinopsis de los Paraneurópteros (Odonatos) de la península ibérica. *Memorias de la Sociedad Entomológica de España* 1: 1–69

Navás L. (1928) Risultati zoologici della missione inviata dalla R. Società Geografica Italiana per l'esplorazione dell'Oasi di Giarabub (1926–1927). Insectos de la Cirenaica. *Annali del Museo Civico di Storia Naturale Giacomo Doria* 52: 461–464
Navás L. (1929)

Navás L. (1930) Comunicaciones entomológicas. 11. Insectos de la Cirenaica. *Revista de la Academia de Ciencias Exactas, Fisico–Químicas y Naturales de Zaragoza* (I) 13 [1929]: 13–28

Navás L. (1932) Spedizione scientifica all'Oasi di Cufra (Marzo–Luglio 1931). Insetti Neurotteri ed affini. *Annali del Museo Civico di Storia Naturale Giacomo Doria* 55: 409–421

Navás L. (1934) Insectes del Marroc. *Treballs del Museu de Ciències Naturals de Barcelona* 11 (8): 1–7

Nielsen C. (1935a) Missione scientifica del prof. Edoardo Zavatarri nel Sahara Italiano 1933–34. *Bollettino della Società Entomologica Italiana* 67 (3) 43–44

Nielsen C. (1935b) Odonati del Fezzan raccolti dal Prof. G. Scortecci (missione della R. Società Geografica) e catalogo delle specie finora catturate. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale in Milano* 74: 372–382

Nielsen C. (1959) Una nuova specie del genere Agriocnemis Selys (Odonata) di Gat (Fezzan). *Rivista di Biologia Coloniale* 16 [1956–1958]: 33–40

Nocentini A.M. (1963) Strutture differenziali della fauna macrobentonica litorale del Lago Maggiore. *Memorie dell'Istituto Italiano di Idrobiologia "Dott. Marco De Marchi"* 16: 189–274

Ober S.V. (2008) First record of Pantala flavescens for the western Balkans (Odonata: Libellulidae). *Libellula* 27: 117–121

Ocharan–Larrondo F.J. (1987) Los odonatos de Asturias y de España. Aspectos sistemáticos y faunísticos. Dissertation, Universidad de Oviedo

Ocharan [Larrondo] F.J. (1988) Composición de la odonatofauna Ibérica. *Revista de Biología de la Universidad de Oviedo* 6: 83–93

Olias M. (2005) Lestes parvidens am Südostrand Mitteleuropas: Erste Nachweise aus Österreich, der Slowakei, Ungarn und Rumänien (Odonata: Lestidae). *Libellula* 24: 155–161

Olias M., F. Weihrauch, M. Bedjanič, N. Hacet, M. Marinov & A. Šalamun (2007) Lestes parvidens and L. viridis in southeastern Europe: a chorological analysis (Odonata: Lestidae). *Libellula* 26: 243–272

Ott J. (2001) Expansion of Mediterranean Odonata in Germany and Europe – consequences of climatic changes. In: Walther G.–R., C.A. Burga & P.J. Edwards (eds) "Fingerprints" of climate change. Adapted behaviour and shifting species range: 89–111. Kluwer Academic/Plenum Publishers, New York

Pelny H.–J. (2006) Erster Nachweis von Anax parthenope auf dem Madeira–Archipel (Odonata: Aeshnidae). *Libellula* 25: 27–30

Pérez–Bote J.L., J.M. Torrejón, F. Ferri, A.J. Romero, J.M. García & A. Gil (2006) Aproximación al atlas odonatológico de Extremadura (SO de la Península Ibérica) (Odonata). *Boletín de la Sociedad Entomológica Aragonesa* 39: 329–343

Peters G. & A. Günther (2000) Frühjahrsbeobachtungen an Anax ephippiger auf Rhodos nebst Anmerkungen über den Invasionsraum der Art. *Libellula Supplement* 3: 49–61

Peters G. & H. Hackethal (1986) Notizen über die Libellen (Odonata) in Mazedonien. *Acta Musei Macedonici Scientiarum Naturalium Skopje* 18 (5/151): 125–157

Petit M.M. & Grangaud (1965) Les étangs de Commelles et d'Arzay près la Côte Saint-André. *Bulletin de la Société Dauphinoise d'Etudes Biologiques et de Protection de la Nature* (NS) 16 (2) [1964]: 40–42

Pirotta R. (1879) Libellulidi Italiani. *Annali del Museo Civico di Storia Naturale "Giacomo Doria"* 14: 401–489

Pongrácz A. (1911) Insectorum messis in insula Creta a Lud. Biró congregata. III. Pseudoneuroptera et Neuroptera. *Annales Historico-Naturales Musei Nationalis Hungarici* 9: 324–326

Ris F. (1911) Libellen von Tripolis und Barka. Gesammelt von Dr. Bruno Klaptocz. *Zoologische Jahrbücher, Abteilung für Systematik, Geographie und Biologie der Tiere* 30: 643–650

Salur A. & S. Kiyak (2006) Additional records for the Odonata fauna of east Mediterranean region of Turkey. *Munis Entomology & Zoology* 1: 239–252

Salur A. & S. Kiyak (2007) Additional records for the Odonata fauna of south-western Anatolia t I: Anisoptera. *Munis Entomology & Zoology* 2: 63–78

Samraoui B. & P.S. Corbet (2000) The Odonata of Numidia. Part I: status and distribution. *International Journal of Odonatology* 3: 11–25

Samraoui B. & R. Menai (1999) A contribution to the study of Algerian Odonata. *International Journal of Odonatology* 2: 145–165

Samraoui B., P.H.H. Weekers & H.J. Dumont (2002) The Enallagma of the western and central Palaearctic (Zygoptera: Coenagrionidae). *Odonatologica* 31: 371–381

Samraoui B., P.H.H. Weekers & H.J. Dumont (2003) Two taxa within the North African Lestes virens complex (Zygoptera: Lestidae). *Odonatologica* 32: 131–142

Schmidt E. (1939) Odonaten aus Syrien und Palästina (Ergebnisse der zoologischen Studienreise von R. Ebner [1928] mit Unterstützung der Akademie der Wissenschaften in Wien, mit Berücksichtigung der Ausbeuten von M. Aigner, G. Amsel und E. Enslin). *Sitzungsberichte der Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Klasse, Abteilung I*, 147 [1938]: 135–159

Schmidt E. (1952) Libellensammelreise nach Sizilien, 1951. *Entomologische Zeitschrift* 62: 6–14

Schmidt E. (1954) Die Libellen Irans. *Sitzungsberichte der Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Klasse, Abteilung I*, 163: 223–260, 1 pl.

Schmidt E. (1961) Ergebnisse der Deutschen Afghanistan-Expedition 1956 der Landessammlungen für Naturkunde Karlsruhe sowie der Expeditionen J. Klapperich, Bonn 1952–53 und Dr. K. Lindberg, Lund (Schweden) 1957–60. Libellen (Odonata). *Beiträge zur Naturkundlichen Forschung in Südwestdeutschland* 19: 399–435

Schmidt E. (1967) Versuch einer Analyse der Ischnura elegans-Gruppe (Odonata, Zygoptera). *Entomologisk Tidskrift* 88: 188–216

Schneider T. & O. Müller (2006) Der Endemit Boyeria cretensis: Beobachtungen zur Verhaltensbiologie der Imagines (Odonata: Aeshnidae). *Libellula* 25: 135–146

Schneider W. (1982) Man-induced changes in the dragonfly fauna of the Jordan valley. *Advances in Odonatology* 1: 244–249

Schneider W. (1984a) Beschreibung von Gomphus kinzelbachi n. sp. aus dem Iraq (Odonata: Anisoptera: Gomphidae). *Entomologische Zeitschrift* 94: 1–16

Schneider W. (1984b) Zum Nachweis von Gomphus pulchellus Sélys, 1840 in Jugoslawien (Odonata: Anisoptera: Gomphidae). *Entomologische Zeitschrift* 94: 109–111

Schneider W. (1986) Systematik und Zoogeographie der Odonata der Levante unter besonderer Berücksichtigung der Zygoptera. Dissertation, Universität Mainz

Schneider W. (2004) Critical species of Odonata in the Levant. *International Journal of Odonatology* 7: 399–407

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

Schneider W. & F. Krupp (1993) Dragonflies from Saudi Arabia with an annotated checklist of the species from the Arabian Peninsula (Insecta: Odonata). *Fauna of Saudi Arabia* 13: 63–78

Sciberras A. (2008) A contribution to the knowledge of Odonata in the Maltese Islands. *The Central Mediterranean Naturalist* 4: 275–288

Sciberras A. & M. Sammut (2008) On the occurrence of Calopteryx virgo meridionalis (Selys, 1873) (Odonata: Calopterygidae) in the Maltese Islands. *The Central Mediterranean Naturalist* 4: 334–337

Selys Longchamps E. de (1871) Nouvelle révision des Odonates de l'Algérie. *Annales de la Société Entomologique de Belgique* 14: 9–20

Selys Longchamps E. de (1876) Synopsis des Agrionines (suite de la 5e Légion: Agrion). *Bulletins de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique* (II) 41: 1233–1309

Selys Longchamps E. de (1887) Odonates de l'Asie Mineure et révision de ceux des autres parties de la faune dite Européenne. *Annales de la Société Entomologique de Belgique* 31: 1–85

Selys Longchamps E. de & H.A. Hagen (1850) Revue des Odonates ou Libellules d'Europe. *Mémoires de la Société Royale des Sciences de Liège* 6: i–xxii, 1–408, pls 1–11

Selys Longchamps E. de & H.A. Hagen (1858) Monographie des Gomphines. *Mémoires de la Société Royale des Sciences de Liège* 11: 257–720, pls 1–5

Smit J.T. (1998) De Zoogeografie van de libellen en de zweefvliegen van Madeira (Odonata & Diptera; Syrphidae). Afstudeerscriptie [final study thesis], Hogeschool van Utrecht, vakgroep Biologie

Spuris Z. (1988) [The species composition of the dragonfly fauna of the USSR.] *Latvijas Entomologs* 31: 5–24 [in Russian]

St. Quentin D. (1964) Odonaten aus Anatolien und dem Irak. *Entomologische Mitteilungen des Zoologischen Staatsinstituts und Zoologischen Museums Hamburg* 3 (50): 5–7

Stauder A. (1991) Water fauna of a Madeiran stream with notes on the zoogeography of the Macaronesian Islands. *Boletim do Museu Municipal do Funchal* 43 (235): 243–299

Suhling F. & O. Müller (1996): Die Flussjungfern Europas. Gomphidae. Die Neue Brehm-Bücherei 628. Westarp, Magdeburg & Spektrum, Heidelberg

Suhling F. & O. Müller (2006) Gomphus Leach, 1815 – Clubtails. In: Dijkstra K.-D.B. & R. Lewington (eds) Field guide to the dragonflies of Britain and Europe: 180–193. British Wildlife Publishing, Gillingham

Tailly M. & A. Tabarroni (2006) Crocothemis servilia (Dru.) added to the Armenian fauna and new records of Lindenia tetraphylla (Vander L.) and Selysiothemis nigra (Vander L.) from Azerbaijan (Anisoptera: Gomphidae, Libellulidae). *Notulae Odonatologicae* 6: 93–95

Theischinger G. (1979) Cordulegaster heros sp. nov. und Cordulegaster heros pelionensis ssp. nov., zwei neue Taxa des Cordulegaster boltoni (Donovan)-Komplexes aus Europa (Anisoptera: Cordulegastridae). *Odonatologica* 8: 23–38

Torralba Burrial A. & F.J. Ocharan (2005) Catálogo de los odonatos de Aragón. *Catalogus de la Entomofauna Aragonesa* 32: 3–25

Utzeri C. & C. D'Antonio (2005) Odonata. In: Ruffo S. & F. Stoch (eds) Checklist e distribuzione della fauna italiana. *Memorie del Museo Civico di Storia Naturale di Verona* (2), *Sezione Scienze della Vita* 16: 77–78

Utzeri C., L. dell'Anna, F. Landi, E. de Matthaeis & M. Cobolli (1994) Nota preliminare sulla distribuzione di Chalcolestes viridis (Vander Linden, 1825) e C. parvidens (Artobolevski, 1929) in Italia (Zygoptera: Lestidae). *Notulae Odonatologicae* 4: 46–50

Utzeri C., M.V. di Giovanni, E. Goretti, F. Terzani, A. Speziale, M. Mei, S. Santolamazza Carbone & A. Cordero (1999) Updated information on the distribution of Somatochlora meridionalis Nielsen, 1935, in central Italy (Anisoptera: Corduliidae). *Notulae Odonatologicae* 5: 43–47

Utzeri C., C. Belfiore & F. Peels (2006) Some new records of Lindenia tetraphylla (Vander Linden) in Italy (Anisoptera: Gomphidae). *Notulae Odonatologicae* 6: 90–92

Valle K.J. (1952) On the insect fauna of Cyprus. Results of the expedition of 1939 by Harald, Håkan and P.H. Lindberg. 7. Die Odonatenfauna von Zypern. *Societas Scientiarum Fennica, Commentationes Biologicae* 13 (5): 1–8

Valletta A. (1949) A preliminary list of the Odonata of the Maltese Islands. *The Entomologist* 82: 85–87

Valletta A. (1957) Second contribution to the Odonata of the Maltese Islands. *The Entomologist* 90: 306–307

van Pelt G.J. (2006) Cordulegaster Leach 1815 – Goldenrings. In: Dijkstra K.-D.B. & R. Lewington (eds) Field guide to the Dragonflies of Britain and Europe: 210–221. British Wildlife Publishing, Gillingham

van Pelt G.J. & V.J. Kalkman (2004) Research on dragonflies in Turkey: present status and future aims (Odonata). *Libellula Supplement* 5: 167–192

Verschuren D. (1989) Revision of the larvae of West-Palaearctic Cordulegaster Leach, 1815 (Odonata, Cordulegastridae), with a key to the considered taxa and a discussion on their affinity. *Bulletin et Annales de la Société Royale Belge d'Entomologie* 125: 5–35

Waterston A.R. & A.R. Pittaway (1991) The Odonata or dragonflies of Oman and neighbouring territories. *Journal of Oman Studies* 10 [1989]: 131–168

Weekers P.H.H, J.F. De Jonckheere & H.J. Dumont (2001) Phylogenetic relationships inferred from ribosomal ITS sequences and biogeographic patterns in representatives of the genus Calopteryx (Insecta: Odonata) of the West Mediterranean and adjacent West European zone. *Molecular Phylogenetics and Evolution* 20: 89–99

Weihrauch F. & S. Weihrauch (2003) Spring Odonata records from Alentejo (Portugal), Andalusia and Extremadura (Spain). *Opuscula Zoologica Fluminensia* 207: 1–18

Weihrauch F., K. Burbach, U. Hölken, H.J. Netz & C. Stettmer (2003) Neue Nachweise von Orthetrum albistylum aus Bayern (Odonata: Libellulidae). *Libellula Supplement* 4: 59–70

Werner F. (1938) Ergebnisse der achten zoologischen Forschungsreise nach Griechenland (Euboea, Tinos, Skiathos, Thasos usw.). *Sitzungsberichte der Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Klasse, Abteilung I*, 147: 151–173

Manuskripteingang: 23. Dezember 2008

Appendix 1: Check-list of the Odonata of the Mediterranean and North Africa. — Country names and their abbreviations fit the ISO 3166-1 alpha3 nomenclature (Codes for the representation of names of countries and their subdivisions – part 1: Country codes). The authors do not endorse any political considerations regarding country definition, nomination and delineation. The country definitions have been chosen according to United Nations specifications. For the six major islands or archipelagos with endemic species or a fauna distinct from the political mainlands, separate abbreviations in small letters are used.

Subspecies are only listed separately when their allocation to the various countries is possible without ambiguity; otherwise they are pooled under species rank with the indication 'sensu lato' [s.l.]. All records in the databases have been carefully checked and are assessed in four categories: A verified and undeniable record is indicated by 'x' in the check-lists. A record pertaining only to a single specimen taken in a distinct country or found with an according labelling in a collection is indicated by 's'. The extinction of a species in a distinct country, indicated by 'o', has to be in accordance with at least one of the IUCN definitions for extinction: i) the species has not been recorded for at least 100 years in the respective country; ii) a long-term search for the species has been performed without success; iii) proven habitat destruction of the species. Furthermore, in a few cases there are records that need some explanation. These records are indicated with an asterisk and numbered in the check-list, and refer to the annotations that are listed below. Ultimately, many doubtful or implausible records that have been haunting the literature for many years without confirmation have been consequently omitted from the check-list.

Annotations to the check-list:

Appendix 1a:
*1 *Calopteryx splendens* (Harris, 1780) in Sicily
Old records of *C. xanthostoma* from Sicily (Ghiliani 1842; Pirotta 1879; Galletti et al. 1987) have never been confirmed, are doubtful and refer most likely to C. splendens sensu lato.

*2 *Ischnura fountaineae* Morton, 1905 in Pantelleria:
The only European locality of the species is the small Italian island of Pantelleria (Lohmann 1989). *Ischnura fountaineae* is listed here under the nearby Sicily.

Appendix 1b:
*3 *Orthetrum trinacria* (Selys, 1841) in Turkey:
Records of the species from Turkey have never been confirmed and are considered here as doubtful.

Appendix 1d:
*4 *Ischnura saharensis* Aguesse, 1958 in Madeira:
Besides *I. pumilio*, records of a still unidentified second *Ischnura* species from the Madeira archipelago have been mentioned by Selys & Hagen (1850) under «*Agrion Maderae*» (nom. nud.), and by Gardner (1963) misleadingly under *I. senegalensis*. Although all these specimens are lost today and hence are pending actual specification, Ferreira et al. (2006: 144) suppose that they pertain most likely to *I. saharensis* and are mapped accordingly here.

*5 *Platycnemis subdilatata* (Selys, 1849) in the Canary Islands:
A specimen of this species, detected by Kalkman & Smit (2002) in the RMNH collection and labelled «Canary Islands, Tenerife, Puerto de la Cruz, 28 March 1971, J.H. Stocks» refers probably to a single vagrant favoured by African winds.

*6 *Aeshna cyanea* (O.F. Müller, 1764) in Morocco
The record of «*Aeshna cyanea* Latreille» by Navás (1934) from Morocco near Ceuta is the only record known from that country. The fact that Latreille was given as authority instead of O.F. Müller makes a confusion with *Aeshna mixta* Latreille, 1805 possible. However, here we have assumed that the record is correct and indeed pertains to *A. cyanea*, which regularly occurs on the Spanish side of the Gibraltar Strait.

*7 *Gomphus lucasii* Selys, 1849 in Morocco
Some records of very pale «*G. simillimus maroccanus*» from eastern Morocco (Jacquemin & Boudot 1999) may pertain in fact to *G. lucasii*. The latter species and *G. simillimus* are very closely related and genetic studies are needed to establish if they should retain their species status. Most records from Algeria are old and refer to fieldwork prior to 1936.

*8 *Orthetrum taeniolatum* (Schneider, 1845) in Egypt
This small *Orthetrum* is mainly Asian in distribution and is replaced in Africa by its sister taxon *O. kollmannspergeri* Buchholz, 1959. All North African records of *O. taeniolatum* need re-examination (Clausnitzer & Dijkstra 2005; Dumont & Verschuren 2005), including that from the Sudanese-Egyptian coast of the Red Sea.

Appendix 1a. Check-list of the Odonata of the western European Mediterranean. For France, only records south of 47°N are included in the check-list. — **AND** Andorra; **ESP** continental Spain incl. the Baleares; **FRA** France; **cor** Corsica; **ITA** Italy; **sar** Sardinia incl. all minor Tyrrhenian Islands; **sic** Sicily incl. Pantelleria; **MLT** Malta; **PRT** continental Portugal; **o** extinct; **s** only record of a single specimen available; **numbered asterisk** see notes on page 235.

TAXON	AND	ESP	FRA	cor	ITA	sar	sic	MLT	PRT
Calopteryx									
exul Selys, 1853									
haemorrhoidalis (Vander Linden, 1825)		x	x	x	x	x	x		x
hyalina Martin, 1909									
splendens (Harris, 1780) [s.l.]			x	x	x	x	*1		
syriaca Rambur, 1842									
virgo (Linnaeus, 1758) [s.l.]	x	x	x	x	x	o	o		x
waterstoni Schneider, 1984									
xanthostoma (Charpentier, 1825)		x	x		x		*1		x
Epallage									
fatime (Charpentier, 1840)									
Lestes									
barbarus (Fabricius, 1798)		x	x	x	x	x	x		x
dryas Kirby, 1890	x	x	x		x		x		x
macrostigma (Eversmann, 1836)		x	x	x	x	x	o		x
numidicus Samraoui, Weekers & Dumont 2003									
parvidens Artobolevskii, 1929				x	x		x		
sponsa (Hansemann, 1823)	x	x	x		x				
virens (Charpentier, 1825) [s.l.]		x	x	x	x	x	x		x
viridis (Vander Linden, 1825)		x	x	x	x	x	x		x
Sympecma									
fusca (Vander Linden, 1820)		x	x	x	x	x	x		x
paedisca (Brauer, 1877)			o		x				
Agriocnemis									
exilis Selys, 1872									
sania Nielsen, 1959									
Ceriagrion									
georgifreyi Schmidt, 1953									
glabrum (Burmeister, 1839)									
tenellum (Villers, 1789)		x	x	x	x	x	x		x
Coenagrion									
caerulescens (Fonscolombe, 1838)		x	x	x	x	x	x		x
hastulatum (Charpentier, 1825)		x	x		x				
intermedium Lohmann, 1990									
lunulatum (Charpentier, 1840)			x						
mercuriale (Charpentier, 1840)		x	x		x		x		x
ornatum (Selys, 1850)			x		x				
ponticum (Bartenef, 1929)									
puella (Linnaeus, 1758)		x	x	x	x	x	x		x
pulchellum (Vander Linden, 1825)		x	x	x	x				x
scitulum (Rambur, 1842)		x	x	x	x	x	x		x

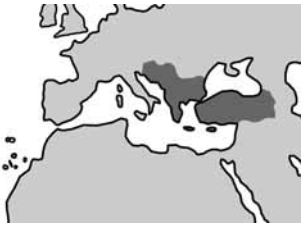
TAXON	AND	ESP	FRA	cor	ITA	sar	sic	MLT	PRT
Coenagrion (continued)									
syriacum (Morton, 1924)									
vanbrinkae Lohmann, 1993									
Enallagma									
cyathigerum (Charpentier, 1840)	x	x	x	x	x		x		x
deserti (Selys, 1871)									
Erythromma									
lindenii lindenii (Selys, 1840)		x	x	x	x	x	x		x
l. zernyi (Schmidt, 1938)									
najas (Hansemann, 1823)			x		x				
viridulum (Charpentier, 1840)		x	x	x	x	x	x		x
Ischnura									
elegans (Vander Linden, 1820) [s.l.]		x	x		x				
evansi Morton, 1919									
fountaineae Morton, 1905							*2		
genei (Rambur, 1842)				x		x	x	x	
graellsii (Rambur, 1842)		x	o						x
intermedia Dumont, 1974									
pumilio (Charpentier, 1825)	x	x	x	x	x	x	x		x
saharensis Aguesse, 1958									
senegalensis (Rambur, 1842)									
Nehalennia									
speciosa (Charpentier, 1840)			o		x				
Pseudagrion									
hamoni Fraser, 1955									
niloticum Dumont, 1978									
nubicum Selys, 1876									
sublacteum sublacteum (Karsch, 1893)									
s. mortoni Schmidt in Ris, 1936									
syriacum (Morton, 1924)									
torridum Selys, 1876									
Pyrrhosoma									
elisabethae Schmidt, 1948									
nymphula (Sulzer, 1776)	x	x	x		x		x		x
Mesocnemis									
robusta (Selys, 1886)									
Platycnemis									
acutipennis Selys, 1841		x	x						x
dealbata Selys, 1863									
kervillei (Martin, 1909)									
latipes Rambur, 1842		x	x						x
pennipes pennipes (Pallas, 1771)		x	x		x				
p. nitidula (Brullé, 1832)									
subdilatata Selys, 1849									
Aeshna									
affinis Vander Linden, 1820		x	x	x	x	x	x		x
caerulea (Ström, 1783)			x		x				
cyanea (O.F. Müller, 1764)	x	x	x	x	x		x		x
grandis (Linnaeus, 1758)			x		x				
isoceles (O.F. Müller, 1767)		x	x	x	x	x	x		x
juncea (Linnaeus, 1758)	x	x	x		x				x
mixta Latreille, 1805		x	x	x	x	x	x	x	x

TAXON	AND	ESP	FRA	cor	ITA	sar	sic	MLT	PRT
Aeshna (continued)									
serrata Hagen, 1856									
subarctica elisabethae Djakonov, 1922			x						
viridis Eversmann, 1836									
Anax									
ephippiger (Burmeister, 1839)		x	x	x	x	x	x	x	x
immaculifrons Rambur, 1842									
imperator Leach, 1815		x	x	x	x	x	x	x	x
parthenope (Selys, 1839)		x	x	x	x	x	x	x	x
Boyeria									
cretensis Peters, 1991									
irene (Fonscolombe, 1838)		x	x	x	x	x			x
Brachytron									
pratense (O.F. Müller, 1764)		x	x	x	x	x			x
Caliaeschna									
microstigma (Schneider, 1845)									
Anormogomphus									
kiritshenkoi Bartenef, 1913									
Gomphus									
davidi Selys, 1887									
flavipes (Charpentier, 1825)			x		x				
graslinii Rambur, 1842		x	x						x
kinzelbachi Schneider, 1984									
lucasii Selys, 1849									
pulchellus Selys, 1840	x	x	x		s				x
schneiderii Selys, 1850									
simillimus simillimus Selys, 1840		x	x						x
s. maroccanus Lieftinck, 1966									
ubadschii Schmidt, 1953									
vulgatissimus (Linnaeus, 1758)		x	x		x				
Lindenia									
tetraphylla (Vander Linden, 1825)		o			x	x			
Onychogomphus									
assimilis (Schneider, 1845)									
costae Selys, 1885		x							x
flexuosus (Schneider, 1845)									
forcipatus forcipatus (Linnaeus, 1758)			x		x		x		
f. albotibialis Schmidt, 1954									
f. unguiculatus Vander Linden, 1823		x	x		x				x
lefebvrii (Rambur, 1842)									
macrodon Selys, 1887)									
uncatus (Charpentier, 1840)		x	x		x		x		x
Ophiogomphus									
cecilia (Fourcroy, 1785)			x		x				
reductus Calvert, 1898									
Paragomphus									
genei (Selys, 1841)		x		x	x	x	x		x
lineatus (Selys, 1850)									
pumilio (Rambur, 1842)									
sinaiticus (Morton, 1929)									
Cordulegaster									
bidentata bidentata Selys, 1843	x	x	x		x				
b. sicilica Fraser, 1929					x		x		

TAXON	AND	ESP	FRA	cor	ITA	sar	sic	MLT	PRT
Cordulegaster (continued)									
boltonii boltonii (Donovan, 1807)	x	x	x	x	x				x
b. algirica Morton, 1916		x							
b. iberica Boudot & Jaquemin 1994		x							x
b. immaculifrons Selys, 1850		x	x		x				x
helladica helladica (Lohmann, 1993)									
h. buchholzi (Lohmann, 1993)									
h. kastalia (Lohmann, 1993)									
heros Theischinger, 1979 [s.l.]					x				
insignis Schneider, 1845 [s.l.]									
picta Selys, 1854									
princeps Morton, 1916									
trinacriae Waterston, 1976					x		x		
Macromia									
splendens (Pictet, 1843)		x	x						x
Phyllomacromia									
africana (Selys, 1871)									
Cordulia									
aenea (Linnaeus, 1758)		x	x		x				
Epitheca									
bimaculata (Charpentier, 1825)			x		o				
Oxygastra									
curtisii (Dale, 1834)		x	x		x				x
Somatochlora									
alpestris (Selys, 1840)			x		x				
arctica (Zetterstedt, 1840)			x		x				
borisi Marinov, 2001									
flavomaculata (Vander Linden, 1825)			x	x	x				
meridionalis Nielsen, 1935			x	x	x				
metallica (Vander Linden, 1825)		x	x		x				
Acisoma									
panorpoides ascalaphoides Rambur, 1842									
Brachythemis									
fuscopalliata (Selys, 1887)									
leucosticta (Burmeister, 1839)		x				x	x		x
Crocothemis									
erythraea erythraea (Brullé, 1832)		x	x	x	x	x	x	x	x
e. chaldaeorum Morton, 1920									
sanguinolenta (Burmeister, 1839)									
servilia (Drury, 1773)									
Diplacodes									
lefebvrii (Rambur, 1842)		x							x
Leucorrhinia									
albifrons (Burmeister, 1839)			x						
caudalis (Charpentier, 1840)			x						
dubia (Vander Linden, 1825)		x	x		x				
pectoralis (Charpentier, 1825)		x	x		x				
rubicunda (Linnaeus, 1758)			o						
Libellula									
depressa Linnaeus, 1758	x	x	x	x	x	x	x		x
fulva O.F. Müller, 1764		x	x	x	x	x	x		x

TAXON	AND	ESP	FRA	cor	ITA	sar	sic	MLT	PRT
Libellula (continued)									
pontica Selys, 1887									
quadrimaculata Linnaeus, 1758		x	x	x	x		s		x
Nesciothemis									
farinosa (Förster, 1898)									
Orthetrum									
abbotti Calvert, 1892									
albistylum (Selys, 1848)			x		x				
brachiale (Palisot de Beauvois, 1817)									
brunneum (Fonscolombe, 1837)	x	x	x	x	x	x	x	x	x
cancellatum (Linnaeus, 1758)		x	x	x	x	x	x	x	x
chrysostigma (Burmeister, 1839)		x							x
coerulescens (Fabricius, 1798) [s.l.]		x	x	x	x	x	x	x	x
nitidinerve (Selys, 1841)		x			x	x	x		x
ransonnetii (Brauer, 1865)									
sabina (Drury, 1773)									
taeniolatum (Schneider, 1845)									
trinacria trinacria (Selys, 1841)		x				x	x	x	x
t. igarashii Asahina, 1973									
Pantala									
flavescens (Fabricius, 1798)									
Rhyothemis									
semihyalina semihyalina (Desjardins, 1832)									
s. syriaca (Selys, 1849)									
Selysiothemis									
nigra (Vander Linden, 1825)		x			x	x	x	x	x
Sympetrum									
arenicolor Jödicke, 1994									
danae (Sulzer, 1776)			x		x				
depressiusculum (Selys, 1841)			x		x				
flaveolum (Linnaeus, 1758)		x	x		x				x
fonscolombii (Selys, 1840)		x	x	x	x	x	x	x	x
haritonovi Borisov, 1983									
meridionale (Selys, 1841)		x	x	x	x	x	x		x
nigrifemur (Selys, 1884)									
pedemontanum (O.F. Müller in Allioni, 1766)		x	x		x				
sanguineum (O.F. Müller, 1764)		x	x	x	x	x	x		x
sinaiticum Dumont, 1977		x							
striolatum (Charpentier, 1840)	x	x	x	x	x	x	x	x	x
vulgatum vulgatum (Linnaeus, 1758)			x		x				
v. decoloratum Selys, 1884									
v. ibericum Ocharan, 1985	x	x	x						
Trithemis									
annulata (Palisot de Beauvois, 1805)		x	x	x	x	x	x	x	x
arteriosa (Burmeister, 1839)									
festiva (Rambur, 1842)									
kirbyi Selys, 1891		x				x			
Urothemis									
edwardsii (Selys, 1849)									
Zygonyx									
torridus (Kirby, 1889)		x					x		x
number of species per country or island(s)	15	80	91	44	87	42	50	14	65

Appendix 1b. Check-list of the Odonata of the eastern European Mediterranean. — **ALB** Albania; **BGR** Bulgaria; **BIH** Bosnia and Herzegovina; **CYP** Cyprus; **GRC** Greece incl. all islands except **cre** Crete; **HRV** Croatia; **MKD** The former Yugoslav Republic of Macedonia; **MNE** Montenegro; **SRB** Serbia; **SVN** Slovenia; **TUR** Turkey. **o** extinct; **s** only record of a single specimen available; **numbered asterisk** see notes on page 235.



TAXON	ALB	BGR	BIH	CYP	GRC	cre	HRV	MKD	MNE	SRB	SVN	TUR
Calopteryx												
exul Selys, 1853												
haemorrhoidalis (Vander Linden, 1825)												
hyalina Martin, 1909												
splendens (Harris, 1780) [s.l.]	x	x	x	x	x	x	x	x	x	x	x	x
syriaca Rambur, 1842												
virgo (Linnaeus, 1758) [s.l.]	x	x	x	x	x	o	x	x	x	x	x	x
waterstoni Schneider, 1984												x
xanthostoma (Charpentier, 1825)												
Epallage												
fatime (Charpentier, 1840)		x		x	x			x				x
Lestes												
barbarus (Fabricius, 1798)	x	x	x	x	x	x	x	x	x	x	x	x
dryas Kirby, 1890		x	x		x	o	x	x	x	x	x	x
macrostigma (Eversmann, 1836)	x	x		x	x		x	x	x	x	x	x
numidicus Samraoui, Weekers & Dumont 2003												
parvidens Artobolevskii, 1929	x	x		x	x	x	x		x	x	x	x
sponsa (Hansemann, 1823)	x	x	x		x		x		x	x	x	x
virens (Charpentier, 1825) [s.l.]	x	x	x		x		x	x	x	x	x	x
viridis (Vander Linden, 1825)	x	x	x		x		x	x	x	x	x	x
Sympecma												
fusca (Vander Linden, 1820)	x	x	x	x	x	x	x	x	x	x	x	x
paedisca (Brauer, 1877)												x
Agriocnemis												
exilis Selys, 1872												
sania Nielsen, 1959												
Ceriagrion												
georgifreyi Schmidt, 1953					x							x
glabrum (Burmeister, 1839)												
tenellum (Villers, 1789)	x		x		x		x		x		x	
Coenagrion												
caerulescens (Fonscolombe, 1838)												
hastulatum (Charpentier, 1825)		x							x	x	x	
intermedium Lohmann, 1990						x						
lunulatum (Charpentier, 1840)												x
mercuriale (Charpentier, 1840)												
ornatum (Selys, 1850)	x	x	x		x		x	x	x	x	x	x
ponticum (Bartenef, 1929)												x
puella (Linnaeus, 1758)	x	x	x		x		x	x	x	x	x	x
pulchellum (Vander Linden, 1825)	x	x	x		x		x	x	x	x	x	x
scitulum (Rambur, 1842)		x	x		x	x	x	x		x	x	x

TAXON	ALB	BGR	BIH	CYP	GRC	cre	HRV	MKD	MNE	SRB	SVN	TUR
Coenagrion (continued)												
syriacum (Morton, 1924)												x
vanbrinkae Lohmann, 1993												x
Enallagma												
cyathigerum (Charpentier, 1840)	x	x	x		x	x	x	x	x	x	x	x
deserti (Selys, 1871)												
Erythromma												
lindenii lindenii (Selys, 1840)	x	x	x	x	x	x	x	x	x	x	x	x
l. zernyi (Schmidt, 1938)												x
najas (Hansemann, 1823)		x	x		x		x	x	x	x	x	
viridulum (Charpentier, 1840)	x	x		x	x	x	x	x	x	x	x	x
Ischnura												
elegans (Vander Linden, 1820) [s.l.]	x	x	x	x	x	x	x	x	x	x	x	x
evansi Morton, 1919												
fountaineae Morton, 1905												x
genei (Rambur, 1842)												
graellsii (Rambur, 1842)												
intermedia Dumont, 1974												x
pumilio (Charpentier, 1825)	x	x	x	x	x	x	x	x	x	x	x	x
saharensis Aguesse, 1958												
senegalensis (Rambur, 1842)												
Nehalennia												
speciosa (Charpentier, 1840)												
Pseudagrion												
hamoni Fraser, 1955												
niloticum Dumont, 1978												
nubicum Selys, 1876												
sublacteum sublacteum (Karsch, 1893)												
s. mortoni Schmidt in Ris, 1936												
syriacum (Morton, 1924)												x
torridum Selys, 1876												
Pyrrhosoma												
elisabethae Schmidt, 1948	x				x							
nymphula (Sulzer, 1776)	x	x	x		x		x	x	x	x	x	x
Mesocnemis												
robusta (Selys, 1886)												
Platycnemis												
acutipennis Selys, 1841												
dealbata Selys, 1863												x
kervillei (Martin, 1909)												x
latipes Rambur, 1842												
pennipes pennipes (Pallas, 1771)		x	x		x		x	x	x	x	x	x
p. nitidula (Brullé, 1832)	x				x				x			
subdilatata Selys, 1849												
Aeshna												
affinis Vander Linden, 1820	x	x	x	x	x	x	x	x	x	x	x	x
caerulea (Ström, 1783)											x	
cyanea (O.F. Müller, 1764)	x	x	x		x		x	x	x	x	x	x
grandis (Linnaeus, 1758)							x		x		x	
isoceles (O.F. Müller, 1767)	x	x	x		x		x	x	x	x	x	x
juncea (Linnaeus, 1758)		x	x					x	x	x	x	x
mixta Latreille, 1805	x	x	x	x	x	x	x	x	x	x	x	x

TAXON	ALB	BGR	BIH	CYP	GRC	cre	HRV	MKD	MNE	SRB	SVN	TUR
Aeshna (continued)												
serrata Hagen, 1856												x
subarctica elisabethae Djakonov, 1922		x									x	
viridis Eversmann, 1836							x				x	
Anax												
ephippiger (Burmeister, 1839)	x	x	x	x	x	x	x	x	x	x	x	x
immaculifrons Rambur, 1842				x	x							x
imperator Leach, 1815	x	x	x	x	x	x	x	x	x	x	x	x
parthenope (Selys, 1839)	x	x		x	x	x	x	x	x	x	x	x
Boyeria												
cretensis Peters, 1991						x						
irene (Fonscolombe, 1838)												
Brachytron												
pratense (O.F. Müller, 1764)	x	x	x		x		x	x	x	x	x	x
Caliaeschna												
microstigma (Schneider, 1845)	x	x	x	x	x		x	x	x			x
Anormogomphus												
kiritshenkoi Bartenef, 1913												x
Gomphus												
davidi Selys, 1887												x
flavipes (Charpentier, 1825)		x			x		x	x	x	x	x	x
graslinii Rambur, 1842												
kinzelbachi Schneider, 1984												
lucasii Selys, 1849												
pulchellus Selys, 1840							s					
schneiderii Selys, 1850	x				x			x	x			x
simillimus simillimus Selys, 1840												
s. maroccanus Lieftinck, 1966												
ubadschii Schmidt, 1953												x
vulgatissimus (Linnaeus, 1758)	x	x	x		x		x	x	x	x	x	x
Lindenia												
tetraphylla (Vander Linden, 1825)	x				x		x	x	x		x	x
Onychogomphus												
assimilis (Schneider, 1845)												x
costae Selys, 1885												
flexuosus (Schneider, 1845)												x
forcipatus forcipatus (Linnaeus, 1758)	x	x	x		x		x	x	x	x	x	x
f. albotibialis Schmidt, 1954				x	x							x
f. unguiculatus Vander Linden, 1823												
lefebvrii (Rambur, 1842)												x
macrodon Selys, 1887)												x
uncatus (Charpentier, 1840)												
Ophiogomphus												
cecilia (Fourcroy, 1785)		x			x		x	x		x	x	x
reductus Calvert, 1898												o
Paragomphus												
genei (Selys, 1841)												
lineatus (Selys, 1850)												x
pumilio (Rambur, 1842)												
sinaiticus (Morton, 1929)												
Cordulegaster												
bidentata bidentata Selys, 1843	x	x	x		x		x	x	x	x	x	
b. sicilica Fraser, 1929												

TAXON	ALB	BGR	BIH	CYP	GRC	cre	HRV	MKD	MNE	SRB	SVN	TUR
Cordulegaster (continued)												
boltonii boltonii (Donovan, 1807)												
b. algirica Morton, 1916												
b. iberica Boudot & Jaquemin 1994												
b. immaculifrons Selys, 1850												
helladica helladica (Lohmann, 1993)					x							
h. buchholzi (Lohmann, 1993)					x							
h. kastalia (Lohmann, 1993)					x							
heros Theischinger, 1979 [s.l.]	x	x			x		x	x	x	x	x	
insignis Schneider, 1845 [s.l.]		x			x							x
picta Selys, 1854		x			x				x			x
princeps Morton, 1916												
trinacriae Waterston, 1976												
Macromia												
splendens (Pictet, 1843)												
Phyllomacromia												
africana (Selys, 1871)												
Cordulia												
aenea (Linnaeus, 1758)	x	x	x		x		x	x	x	x	x	x
Epitheca												
bimaculata (Charpentier, 1825)			x				x			x	x	
Oxygastra												
curtisii (Dale, 1834)												
Somatochlora												
alpestris (Selys, 1840)											x	
arctica (Zetterstedt, 1840)		x									x	
borisi Marinov, 2001		x			x							x
flavomaculata (Vander Linden, 1825)	x	x			x		x	x	x	x	x	x
meridionalis Nielsen, 1935	x	x	x		x	x	x	x	x	x	x	x
metallica (Vander Linden, 1825)	x	x	x						x		x	
Acisoma												
panorpoides ascalaphoides Rambur, 1842												
Brachythemis												
fuscopalliata (Selys, 1887)												x
leucosticta (Burmeister, 1839)				x								x
Crocothemis												
erythraea erythraea (Brullé, 1832)	x	x	x	x	x	x	x	x	x	x	x	x
e. chaldaeorum Morton, 1920												
sanguinolenta (Burmeister, 1839)												
servilia (Drury, 1773)												x
Diplacodes												
lefebvrii (Rambur, 1842)				x	x							x
Leucorrhinia												
albifrons (Burmeister, 1839)												
caudalis (Charpentier, 1840)							x			o	x	
dubia (Vander Linden, 1825)		x							x	x	x	
pectoralis (Charpentier, 1825)		x	x				x	x		x	x	x
rubicunda (Linnaeus, 1758)												
Libellula												
depressa Linnaeus, 1758	x	x	x		x	x	x	x	x	x	x	x
fulva O.F. Müller, 1764	x	x	x		x		x	x	x	x	x	x

TAXON	ALB	BGR	BIH	CYP	GRC	cre	HRV	MKD	MNE	SRB	SVN	TUR
Libellula (continued)												
pontica Selys, 1887												x
quadrimaculata Linnaeus, 1758	x	x	x		x		x	x	x	x	x	x
Nesciothemis												
farinosa (Förster, 1898)												
Orthetrum												
abbotti Calvert, 1892												
albistylum (Selys, 1848)	x	x	x		x		x	x	x	x	x	x
brachiale (Palisot de Beauvois, 1817)												
brunneum (Fonscolombe, 1837)	x	x	x	x	x	x	x	x	x	x	x	x
cancellatum (Linnaeus, 1758)	x	x	x	x	x	x	x	x	x	x	x	x
chrysostigma (Burmeister, 1839)				x	x							x
coerulescens (Fabricius, 1798) [s.l.]	x	x	x	x	x	x	x	x	x	x	x	x
nitidinerve (Selys, 1841)												
ransonnetii (Brauer, 1865)												o
sabina (Drury, 1773)				x	x							x
taeniolatum (Schneider, 1845)				x	x							x
trinacria trinacria (Selys, 1841)												*3
t. igarashii Asahina, 1973												
Pantala												
flavescens (Fabricius, 1798)				x	x				x			x
Rhyothemis												
semihyalina semihyalina (Desjardins, 1832)												
s. syriaca (Selys, 1849)												
Selysiothemis												
nigra (Vander Linden, 1825)		x		x	x	x	x		x			x
Sympetrum												
arenicolor Jödicke, 1994												x
danae (Sulzer, 1776)							x				x	
depressiusculum (Selys, 1841)	x	x			x		x	x			x	x
flaveolum (Linnaeus, 1758)	x	x	x		x		x	x	x	x	x	x
fonscolombii (Selys, 1840)	x	x	x	x	x	x	x	x	x	x	x	x
haritonovi Borisov, 1983												x
meridionale (Selys, 1841)	x	x	x	x	x	x	x	x	x	x	x	x
nigrifemur (Selys, 1884)												
pedemontanum (O.F. Müller in Allioni, 1766)		x			x		x	x		x	x	x
sanguineum (O.F. Müller, 1764)	x	x	x		x		x	x	x	x	x	x
sinaiticum Dumont, 1977												
striolatum (Charpentier, 1840)	x	x	x	x	x	x	x	x	x	x	x	x
vulgatum vulgatum (Linnaeus, 1758)	x	x			x		x	x		x	x	
v. decoloratum Selys, 1884												x
v. ibericum Ocharan, 1985												
Trithemis												
annulata (Palisot de Beauvois, 1805)				x	x	x						x
arteriosa (Burmeister, 1839)				x								x
festiva (Rambur, 1842)				x	x							x
kirbyi Selys, 1891												
Urothemis												
edwardsii (Selys, 1849)												
Zygonyx												
torridus (Kirby, 1889)												s
number of species per country or island(s)	55	68	50	36	79	30	66	59	63	60	71	103

Appendix 1c. Check-list of the Odonata of the Levant and the Arabian Peninsula. Saudi Arabia, Kuwait, Iraq and Iran are only partly included in this atlas; only the Mediterranean species that are also present in the other countries are considered in their check-lists.— **IRN** Islamic Republic of Iran; **IRQ** Iraq; **ISR** Israel; **JOR** Jordan; **KWT** Kuwait; **LBN** Lebanon; **PSE** Occupied Palestinian Territory [West Bank and Gaza strip]; **SAU** Saudi Arabia; **SYR** Syrian Arab Republic and occupied Golan area. **o** extinct; **s** only record of a single specimen available.

TAXON	IRN	IRQ	ISR	JOR	KWT	LBN	PSE	SAU	SYR
Calopteryx									
exul Selys, 1853									
haemorrhoidalis (Vander Linden, 1825)									
hyalina Martin, 1909			x			x			x
splendens (Harris, 1780) [s.l.]	x	x							x
syriaca Rambur, 1842			x	x		x	x		x
virgo (Linnaeus, 1758) [s.l.]									
waterstoni Schneider, 1984									
xanthostoma (Charpentier, 1825)									
Epallage									
fatime (Charpentier, 1840)		x	x	x		x	x		x
Lestes									
barbarus (Fabricius, 1798)	x	x	x			x	x		x
dryas Kirby, 1890									
macrostigma (Eversmann, 1836)			x						
numidicus Samraoui, Weekers & Dumont 2003									
parvidens Artobolevskii, 1929			x	x		x			x
sponsa (Hansemann, 1823)									
virens (Charpentier, 1825) [s.l.]			x			x			x
viridis (Vander Linden, 1825)									
Sympecma									
fusca (Vander Linden, 1820)	x		x			x			x
paedisca (Brauer, 1877)	x	x							
Agriocnemis									
exilis Selys, 1872									
sania Nielsen, 1959			x						
Ceriagrion									
georgifreyi Schmidt, 1953			x						x
glabrum (Burmeister, 1839)								x	
tenellum (Villers, 1789)									
Coenagrion									
caerulescens (Fonscolombe, 1838)									
hastulatum (Charpentier, 1825)									
intermedium Lohmann, 1990									
lunulatum (Charpentier, 1840)									
mercuriale (Charpentier, 1840)									
ornatum (Selys, 1850)						x			x
ponticum (Bartenef, 1929)									
puella (Linnaeus, 1758)									
pulchellum (Vander Linden, 1825)									o
scitulum (Rambur, 1842)			x	x		x			x

TAXON	IRN	IRQ	ISR	JOR	KWT	LBN	PSE	SAU	SYR
Coenagrion (continued)									
syriacum (Morton, 1924)			x			x			x
vanbrinkae Lohmann, 1993									
Enallagma									
cyathigerum (Charpentier, 1840)									x
deserti (Selys, 1871)									
Erythromma									
lindenii lindenii (Selys, 1840)			x						x
l. zernyi (Schmidt, 1938)			x						x
najas (Hansemann, 1823)									
viridulum (Charpentier, 1840)			x			x			x
Ischnura									
elegans (Vander Linden, 1820) [s.l.]	x		x	x		x	x		x
evansi Morton, 1919		x	x	x	x		x	x	x
fountaineae Morton, 1905		x	x	x			x	x	x
genei (Rambur, 1842)									
graellsii (Rambur, 1842)									
intermedia Dumont, 1974									x
pumilio (Charpentier, 1825)	x		x	x		x			x
saharensis Aguesse, 1958									
senegalensis (Rambur, 1842)	x	x	x	x			x		
Nehalennia									
speciosa (Charpentier, 1840)									
Pseudagrion									
hamoni Fraser, 1955								x	
niloticum Dumont, 1978									
nubicum Selys, 1876									
sublacteum sublacteum (Karsch, 1893)									
s. mortoni Schmidt in Ris, 1936			x	x			x		x
syriacum (Morton, 1924)			x	x		x	x		x
torridum Selys, 1876			x						
Pyrrhosoma									
elisabethae Schmidt, 1948									
nymphula (Sulzer, 1776)	x								
Mesocnemis									
robusta (Selys, 1886)									
Platycnemis									
acutipennis Selys, 1841									
dealbata Selys, 1863	x	x	x	x		x	x		x
kervillei (Martin, 1909)		x	x			x			x
latipes Rambur, 1842									
pennipes pennipes (Pallas, 1771)						o			o
p. nitidula (Brullé, 1832)									
subdilatata Selys, 1849									
Aeshna									
affinis Vander Linden, 1820									
caerulea (Ström, 1783)									
cyanea (O.F. Müller, 1764)									
grandis (Linnaeus, 1758)									
isoceles (O.F. Müller, 1767)			x			x			
juncea (Linnaeus, 1758)									
mixta Latreille, 1805		x	x			x			x

TAXON	IRN	IRQ	ISR	JOR	KWT	LBN	PSE	SAU	SYR
Aeshna (continued)									
serrata Hagen, 1856									
subarctica elisabethae Djakonov, 1922									
viridis Eversmann, 1836									
Anax									
ephippiger (Burmeister, 1839)	x	x	x	x	x	x	x	x	x
immaculifrons Rambur, 1842						x	x		x
imperator Leach, 1815		x	x	x		x		x	x
parthenope (Selys, 1839)		x	x	x	x	x		x	
Boyeria									
cretensis Peters, 1991									
irene (Fonscolombe, 1838)									
Brachytron									
pratense (O.F. Müller, 1764)									
Caliaeschna									
microstigma (Schneider, 1845)	x	x	x			x			x
Anormogomphus									
kiritshenkoi Bartenef, 1913		x							x
Gomphus									
davidi Selys, 1887			x	x		x	x		x
flavipes (Charpentier, 1825)									
graslinii Rambur, 1842									
kinzelbachi Schneider, 1984		x							
lucasii Selys, 1849									
pulchellus Selys, 1840									
schneiderii Selys, 1850	x								x
simillimus simillimus Selys, 1840									
s. maroccanus Lieftinck, 1966									
ubadschii Schmidt, 1953	x	x				x			x
vulgatissimus (Linnaeus, 1758)									
Lindenia									
tetraphylla (Vander Linden, 1825)	x	x	x	x	x		x	x	x
Onychogomphus									
assimilis (Schneider, 1845)									
costae Selys, 1885									
flexuosus (Schneider, 1845)		x	x	x			x		x
forcipatus forcipatus (Linnaeus, 1758)									
f. albotibialis Schmidt, 1954									
f. unguiculatus Vander Linden, 1823									
lefebvrii (Rambur, 1842)		x	x			x	x		x
macrodon Selys, 1887)			x	x		x			x
uncatus (Charpentier, 1840)									
Ophiogomphus									
cecilia (Fourcroy, 1785)									
reductus Calvert, 1898									
Paragomphus									
genei (Selys, 1841)			x	x		x	x	x	x
lineatus (Selys, 1850)									x
pumilio (Rambur, 1842)									
sinaiticus (Morton, 1929)								x	
Cordulegaster									
bidentata bidentata Selys, 1843									
b. sicilica Fraser, 1929									

Taxon	IRN	IRQ	ISR	JOR	KWT	LBN	PSE	SAU	SYR
Cordulegaster (continued)									
boltonii boltonii (Donovan, 1807)									
b. algirica Morton, 1916									
b. iberica Boudot & Jaquemin 1994									
b. immaculifrons Selys, 1850									
helladica helladica (Lohmann, 1993)									
h. buchholzi (Lohmann, 1993)									
h. kastalia (Lohmann, 1993)									
heros Theischinger, 1979 [s.l.]									
insignis Schneider, 1845 [s.l.]	x	x				x			
picta Selys, 1854									
princeps Morton, 1916									
trinacriae Waterston, 1976									
Macromia									
splendens (Pictet, 1843)									
Phyllomacromia									
africana (Selys, 1871)									
Cordulia									
aenea (Linnaeus, 1758)									
Epitheca									
bimaculata (Charpentier, 1825)									
Oxygastra									
curtisii (Dale, 1834)									
Somatochlora									
alpestris (Selys, 1840)									
arctica (Zetterstedt, 1840)									
borisi Marinov, 2001									
flavomaculata (Vander Linden, 1825)									
meridionalis Nielsen, 1935									
metallica (Vander Linden, 1825)									
Acisoma									
panorpoides ascalaphoides Rambur, 1842									
Brachythemis									
fuscopalliata (Selys, 1887)	x	x	x						x
leucosticta (Burmeister, 1839)			x	x				x	x
Crocothemis									
erythraea erythraea (Brullé, 1832)			x	x	x	x		x	x
e. chaldaeorum Morton, 1920		x							
sanguinolenta (Burmeister, 1839)			x	x				x	
servilia (Drury, 1773)		x	x	x	x			x	
Diplacodes									
lefebvrii (Rambur, 1842)		x	x	x		x			x
Leucorrhinia									
albifrons (Burmeister, 1839)									
caudalis (Charpentier, 1840)									
dubia (Vander Linden, 1825)									
pectoralis (Charpentier, 1825)									
rubicunda (Linnaeus, 1758)									
Libellula									
depressa Linnaeus, 1758		x	x			x			x
fulva O.F. Müller, 1764									

TAXON	IRN	IRQ	ISR	JOR	KWT	LBN	PSE	SAU	SYR
Libellula (continued)									
pontica Selys, 1887	x	x	x	x					x
quadrimaculata Linnaeus, 1758									
Nesciothemis									
farinosa (Förster, 1898)									
Orthetrum									
abbotti Calvert, 1892				x					
albistylum (Selys, 1848)									
brachiale (Palisot de Beauvois, 1817)									
brunneum (Fonscolombe, 1837)	x	x	x	x		x	x		x
cancellatum (Linnaeus, 1758)		x				x			
chrysostigma (Burmeister, 1839)			x	x		x	x	x	x
coerulescens (Fabricius, 1798) [s.l.]	x		x	x		x	x	x	x
nitidinerve (Selys, 1841)									
ransonnetii (Brauer, 1865)			x	x					
sabina (Drury, 1773)		x	x	x	x	x		x	x
taeniolatum (Schneider, 1845)	x	x	x	x	x	x		x	x
trinacria trinacria (Selys, 1841)			x	x			x		x
t. igarashii Asahina, 1973		x			x				
Pantala									
flavescens (Fabricius, 1798)		x	x	x		x		x	
Rhyothemis									
semihyalina semihyalina (Desjardins, 1832)									
s. syriaca (Selys, 1849)			o						
Selysiothemis									
nigra (Vander Linden, 1825)		x	x	x	x			x	x
Sympetrum									
arenicolor Jödicke, 1994		x							x
danae (Sulzer, 1776)									
depressiusculum (Selys, 1841)		x							
flaveolum (Linnaeus, 1758)									
fonscolombii (Selys, 1840)	x	x	x	x		x	x	x	x
haritonovi Borisov, 1983									
meridionale (Selys, 1841)	x		x	x		x			x
nigrifemur (Selys, 1884)									
pedemontanum (O.F. Müller in Allioni, 1766)									
sanguineum (O.F. Müller, 1764)			x			x			
sinaiticum Dumont, 1977				x			x	x	
striolatum (Charpentier, 1840)	x	x	x	x		x			x
vulgatum vulgatum (Linnaeus, 1758)									
v. decoloratum Selys, 1884									
v. ibericum Ocharan, 1985									
Trithemis									
annulata (Palisot de Beauvois, 1805)		x	x	x	x	x	x	x	x
arteriosa (Burmeister, 1839)			x	x	x	x	x	x	x
festiva (Rambur, 1842)		x	x						x
kirbyi Selys, 1891								x	
Urothemis									
edwardsii (Selys, 1849)			o				x		
Zygonyx									
torridus (Kirby, 1889)			x	x			x	x	
number of species per country or island(s)	23	40	64	43	12	46	27	26	62

Appendix 1d. Check-list of the Odonata of North Africa, the Canary Islands and the Madeira archipelago. For North Africa, only records north of 18°N are included. African Odonata species occuring south of this line are not considered in the check-lists of the various countries. — **DZA** Algeria; **EGY** Egypt; **ESH** Western Sahara; **can** Canary Islands; **LBY** Libya; **MAR** Morocco; **MRT** Mauritania; **NER** Niger; **mad** Madeira archipelago; **SDN** Sudan; **TCD** Chad; **TUN** Tunisia. **o** extinct; **s** only record of a single specimen available; **numbered asterisk** see notes on page 235 f.

TAXON	can	DZA	EGY	ESH	LBY	mad	MAR	MRT	NER	SDN	TCD	TUN
Calopteryx												
exul Selys, 1853		x					x					x
haemorrhoidalis (Vander Linden, 1825)		x					x					x
hyalina Martin, 1909												
splendens (Harris, 1780) [s.l.]												
syriaca Rambur, 1842												
virgo (Linnaeus, 1758) [s.l.]		x					x					
waterstoni Schneider, 1984												
xanthostoma (Charpentier, 1825)												
Epallage												
fatime (Charpentier, 1840)												
Lestes												
barbarus (Fabricius, 1798)		x			x		x					x
dryas Kirby, 1890							x					
macrostigma (Eversmann, 1836)												
numidicus Samraoui, Weekers & Dumont 2003		x										
parvidens Artobolevskii, 1929												
sponsa (Hansemann, 1823)												
virens (Charpentier, 1825) [s.l.]		x					x					x
viridis (Vander Linden, 1825)		x					x					x
Sympecma												
fusca (Vander Linden, 1820)		x	x				x					x
paedisca (Brauer, 1877)												
Agriocnemis												
exilis Selys, 1872			o									
sania Nielsen, 1959			x		o							
Ceriagrion												
georgifreyi Schmidt, 1953												
glabrum (Burmeister, 1839)			o									
tenellum (Villers, 1789)		x					x					x
Coenagrion												
caerulescens (Fonscolombe, 1838)		x			x		x					x
hastulatum (Charpentier, 1825)												
intermedium Lohmann, 1990												
lunulatum (Charpentier, 1840)												
mercuriale (Charpentier, 1840)		x					x					x
ornatum (Selys, 1850)												
ponticum (Bartenef, 1929)												
puella (Linnaeus, 1758)		x					x					o
pulchellum (Vander Linden, 1825)												
scitulum (Rambur, 1842)		x					x					x

TAXON	can	DZA	EGY	ESH	LBY	mad	MAR	MRT	NER	SDN	TCD	TUN
Coenagrion (continued)												
syriacum (Morton, 1924)												
vanbrinkae Lohmann, 1993												
Enallagma												
cyathigerum (Charpentier, 1840)							x					
deserti (Selys, 1871)		x					x					x
Erythromma												
lindenii lindenii (Selys, 1840)		x					x					x
l. zernyi (Schmidt, 1938)												
najas (Hansemann, 1823)												
viridulum (Charpentier, 1840)		x					x					x
Ischnura												
elegans (Vander Linden, 1820) [s.l.]												
evansi Morton, 1919			x							x		
fountaineae Morton, 1905		x	x		x		x					x
genei (Rambur, 1842)												
graellsii (Rambur, 1842)		x			x		x					x
intermedia Dumont, 1974												
pumilio (Charpentier, 1825)		x				x	x					x
saharensis Aguesse, 1958	x	x			x	*4	x	x	x			x
senegalensis (Rambur, 1842)			x		x			x			x	
Nehalennia												
speciosa (Charpentier, 1840)												
Pseudagrion												
hamoni Fraser, 1955		x			x			x				
niloticum Dumont, 1978			x							x		
nubicum Selys, 1876			x									
sublacteum sublacteum (Karsch, 1893)							x					
s. mortoni Schmidt in Ris, 1936												
syriacum (Morton, 1924)												
torridum Selys, 1876			x							x		
Pyrrhosoma												
elisabethae Schmidt, 1948												
nymphula (Sulzer, 1776)							x					
Mesocnemis												
robusta (Selys, 1886)			x							x		
Platycnemis												
acutipennis Selys, 1841												
dealbata Selys, 1863			x									
kervillei (Martin, 1909)												
latipes Rambur, 1842												
pennipes pennipes (Pallas, 1771)												
p. nitidula (Brullé, 1832)												
subdilatata Selys, 1849	*5	x					x					x
Aeshna												
affinis Vander Linden, 1820		x					x					x
caerulea (Ström, 1783)												
cyanea (O.F. Müller, 1764)		x					*6					
grandis (Linnaeus, 1758)												
isoceles (O.F. Müller, 1767)		x					x					x
juncea (Linnaeus, 1758)												
mixta Latreille, 1805		x	x				x					x

TAXON	can	DZA	EGY	ESH	LBY	mad	MAR	MRT	NER	SDN	TCD	TUN
Aeshna (continued)												
serrata Hagen, 1856												
subarctica elisabethae Djakonov, 1922												
viridis Eversmann, 1836												
Anax												
ephippiger (Burmeister, 1839)	x	x	x	x	x	x	x	x		x	x	x
immaculifrons Rambur, 1842												
imperator Leach, 1815	x	x	x		x	x	x	x	x	x		x
parthenope (Selys, 1839)	x	x	x		x	x	x			x		x
Boyeria												
cretensis Peters, 1991												
irene (Fonscolombe, 1838)		x					x					x
Brachytron												
pratense (O.F. Müller, 1764)												
Caliaeschna												
microstigma (Schneider, 1845)												
Anormogomphus												
kiritshenkoi Bartenef, 1913												
Gomphus												
davidi Selys, 1887												
flavipes (Charpentier, 1825)												
graslinii Rambur, 1842												
kinzelbachi Schneider, 1984												
lucasii Selys, 1849		x					*7					x
pulchellus Selys, 1840												
schneiderii Selys, 1850												
simillimus simillimus Selys, 1840												
s. maroccanus Lieftinck, 1966		x					x					
ubadschii Schmidt, 1953												
vulgatissimus (Linnaeus, 1758)												
Lindenia												
tetraphylla (Vander Linden, 1825)		o										x
Onychogomphus												
assimilis (Schneider, 1845)												
costae Selys, 1885		x					x					x
flexuosus (Schneider, 1845)												
forcipatus forcipatus (Linnaeus, 1758)												
f. albotibialis Schmidt, 1954												
f. unguiculatus Vander Linden, 1823		x					x					x
lefebvrii (Rambur, 1842)												
macrodon Selys, 1887)												
uncatus (Charpentier, 1840)		x					x					x
Ophiogomphus												
cecilia (Fourcroy, 1785)												
reductus Calvert, 1898												
Paragomphus												
genei (Selys, 1841)		x					x			x		x
lineatus (Selys, 1850)												
pumilio (Rambur, 1842)			x							x		
sinaiticus (Morton, 1929)			x						x	x		
Cordulegaster												
bidentata bidentata Selys, 1843												
b. sicilica Fraser, 1929												

TAXON	can	DZA	EGY	ESH	LBY	mad	MAR	MRT	NER	SDN	TCD	TUN
Cordulegaster (continued)												
boltonii boltonii (Donovan, 1807)												
b. algirica Morton, 1916												
b. iberica Boudot & Jaquemin 1994		x					x					
b. immaculifrons Selys, 1850												
helladica helladica (Lohmann, 1993)												
h. buchholzi (Lohmann, 1993)												
h. kastalia (Lohmann, 1993)												
heros Theischinger, 1979 [s.l.]												
insignis Schneider, 1845 [s.l.]												
picta Selys, 1854												
princeps Morton, 1916							x					
trinacriae Waterston, 1976												
Macromia												
splendens (Pictet, 1843)												
Phyllomacromia												
africana (Selys, 1871)		o								o		
Cordulia												
aenea (Linnaeus, 1758)		o										
Epitheca												
bimaculata (Charpentier, 1825)												
Oxygastra												
curtisii (Dale, 1834)							x					
Somatochlora												
alpestris (Selys, 1840)												
arctica (Zetterstedt, 1840)												
borisi Marinov, 2001												
flavomaculata (Vander Linden, 1825)												
meridionalis Nielsen, 1935												
metallica (Vander Linden, 1825)												
Acisoma												
panorpoides ascalaphoides Rambur, 1842		x	x		x							
Brachythemis												
fuscopalliata (Selys, 1887)												
leucosticta (Burmeister, 1839)		x	x				x			x		x
Crocothemis												
erythraea erythraea (Brullé, 1832)	x	x	x		x		x	x			x	x
e. chaldaeorum Morton, 1920												
sanguinolenta (Burmeister, 1839)												
servilia (Drury, 1773)												
Diplacodes												
lefebvrii (Rambur, 1842)		x	x		x		x					x
Leucorrhinia												
albifrons (Burmeister, 1839)												
caudalis (Charpentier, 1840)												
dubia (Vander Linden, 1825)												
pectoralis (Charpentier, 1825)												
rubicunda (Linnaeus, 1758)												
Libellula												
depressa Linnaeus, 1758												
fulva O.F. Müller, 1764												

TAXON	can	DZA	EGY	ESH	LBY	mad	MAR	MRT	NER	SDN	TCD	TUN
Libellula (continued)												
pontica Selys, 1887												
quadrimaculata Linnaeus, 1758							x					
Nesciothemis												
farinosa (Förster, 1898)			x							x		
Orthetrum												
abbotti Calvert, 1892												
albistylum (Selys, 1848)												
brachiale (Palisot de Beauvois, 1817)			o									
brunneum (Fonscolombe, 1837)		x	x				x					x
cancellatum (Linnaeus, 1758)		x					x					x
chrysostigma (Burmeister, 1839)	x	x	x		x		x					x
coerulescens (Fabricius, 1798) [s.l.]		x	x		x		x					x
nitidinerve (Selys, 1841)		x			x		x					x
ransonnetii (Brauer, 1865)		x	x		x		x		x	x	x	
sabina (Drury, 1773)		x	x		x						x	x
taeniolatum (Schneider, 1845)			*8									
trinacria trinacria (Selys, 1841)	x	x	x		x		x					x
t. igarashii Asahina, 1973												
Pantala												
flavescens (Fabricius, 1798)		x	x				x	x	x	x	x	s
Rhyothemis												
semihyalina semihyalina (Desjardins, 1832)		o										
s. syriaca (Selys, 1849)												
Selysiothemis												
nigra (Vander Linden, 1825)		x	x		x		x					x
Sympetrum												
arenicolor Jödicke, 1994												
danae (Sulzer, 1776)												
depressiusculum (Selys, 1841)		s										
flaveolum (Linnaeus, 1758)												
fonscolombii (Selys, 1840)	x	x	x	x	x	x	x	x		x	x	x
haritonovi Borisov, 1983												
meridionale (Selys, 1841)		x					x					x
nigrifemur (Selys, 1884)	x					x						
pedemontanum (O.F. Müller in Allioni, 1766)												
sanguineum (O.F. Müller, 1764)		x			x		x					o
sinaiticum Dumont, 1977		x	x		x		x					x
striolatum (Charpentier, 1840)		x					x					x
vulgatum vulgatum (Linnaeus, 1758)												
v. decoloratum Selys, 1884												
v. ibericum Ocharan, 1985												
Trithemis												
annulata (Palisot de Beauvois, 1805)	x	x	x		x		x			x	x	x
arteriosa (Burmeister, 1839)	x	x	x		x		x	x	x	x	x	x
festiva (Rambur, 1842)												
kirbyi Selys, 1891		x	x		x		x				x	x
Urothemis												
edwardsii (Selys, 1849)		x										s
Zygonyx												
torridus (Kirby, 1889)	x						x					x
number of species per country or island(s)	13	65	38	2	27	7	61	9	6	18	10	54

This atlas was made possible by the support of IUCN Mediterranean and the European Invertebrate Survey – The Netherlands, and was funded by Ministerio de Asuntos Exteriores y de Cooperación and MAVA, fondation pour la Nature.

Photographs were kindly provided by:

OB Oliver Brauner, **VC** Viola Clausnitzer, **MC** Mike Crewe, **ED** Eugene Davkaev, **GF** Gary Feulner, **DG** Daniel Grand, **PH** Peter Hoppenbrouwers, **GJ** Gilles Jacquemin, **JK** Jens Kipping, **BK** Bernd Kunz, **KM** Keith Morris†, **DM** Dirk Motshagen, **ERN** Erland R. Nielsen, **HN** Harm Niesen, **FP** Fons Peels (© DragonflyPix.com), **BR** Bob Reimer, **GR** Graham Reels, **SS** Saurabh Sawant, **PS** Paul Schrijvershof, **WSH** Wolfgang Schweighofer, **MT** Marc Tailly, **AW** Arnold Wijkers, and **RW** Roy Woodward.

Photographs taken by authors are credited to **JPB** Jean-Pierre Boudot, **VJK** Vincent J. Kalkman, and **ER** Elisa Riservato.

Abbreviations and symbols

IUCN status

EX	Extinct	**NT**	Near Threatened
RE	Regionally Extinct	**LC**	Least Concern
CR	Critically Endangered	**DD**	Data Deficient
EN	Endangered	**NA**	Not Applicable
VU	Vulnerable	**NE**	Not Evaluated

Country names and abbreviations

according to the ISO 3166-1 alpha3 nomenclature. The authors do not endorse any political considerations regarding country definition, nomination and delineation.

ALB	Albania	**MKD**	The former Yugoslav Republic of Macedonia
AND	Andorra	**MLT**	Malta
BIH	Bosnia and Herzegovina	**MNE**	Montenegro
BGR	Bulgaria	**MRT**	Mauritania
CYP	Cyprus	**NER**	Niger
DZA	Algeria	**PRT**	Portugal
EGY	Egypt	**PSE**	Occupied Palestinian Territory [West Bank and Gaza strip]
ESH	Western Sahara	**SAU**	Saudi Arabia
ESP	Spain	**SDN**	Sudan
FRA	France	**SRB**	Serbia
GRC	Greece	**SVN**	Slovenia
HRV	Croatia	**SYR**	Syrian Arab Republic and occupied Golan area
IRN	Islamic Republic of Iran	**TCD**	Chad
IRQ	Iraq	**TUN**	Tunisia
ISR	Israel	**TUR**	Turkey
ITA	Italy	*	extinct
JOR	Jordan		
KWT	Kuwait		
LBN	Lebanon		
LBY	Libyan Arab Jamahiriya		
MAR	Morocco		

Archipelago/island names and abbreviations

For the six major archipelagos and islands in the area involved, the following abbreviations are used:

can	Canary Islands	**mad**	Madeira archipelago
cor	Corsica	**sar**	Sardinia
cre	Crete	**sic**	Sicily

o species extinct in the relevant country
● record prior to 1980
● record from 1980 onwards
● record without known date

LIBELLULA

Zeitschrift der Gesellschaft deutschsprachiger Odonatologen (GdO) e.V.
ISSN 0723 - 6514 2009

Atlas of the Odonata of the Mediterranean and North Africa