

NEW RECORDS OF *SELYSIOTHEMIS NIGRA* (VANDER LINDEN, 1825) AND *ERYTHROMMA VIRIDULUM* (CHARPENTIER, 1840) FROM CEPHALONIA ISLAND (GREECE) WITH AN UPDATED CHECKLIST OF THE ODONATOFAUNA OF THE ISLAND

Francesca Graziani¹, Filippo Ceccolini² & Fabio Cianferoni^{3,*}

¹Zoological Section "La Specola", Natural History Museum of the University of Florence - Via Romana 17, I-50125 Florence, Italy. E-mail: francescagraziani78@gmail.com – ORCID: <https://orcid.org/0000-0001-9200-9720>

²Zoological Section "La Specola", Natural History Museum of the University of Florence - Via Romana 17, I-50125 Florence, Italy. E-mail: ceccolinif@virgilio.it – ORCID: <https://orcid.org/0000-0002-1476-914X>

³Zoological Section "La Specola", Natural History Museum of the University of Florence - Via Romana 17, I-50125 Florence, Italy. Research Institute on Terrestrial Ecosystems, CNR - National Research Council of Italy - Via Madonna del Piano, 10, I-50019 Sesto Fiorentino (FI), Italy. E-mail: fabio.cianferoni@unifi.it, cianferoni.fabio@gmail.com – ORCID: <https://orcid.org/0000-0003-3170-0774>

* Corresponding author: Fabio Cianferoni, E-mail: fabio.cianferoni@unifi.it, cianferoni.fabio@gmail.com

ABSTRACT

Selysiotthemis nigra (Vander Linden, 1825) and *Erythromma viridulum* (Charpentier, 1840) are recorded from the Greek island of Cephalonia for the first time, on the basis of photographic data. With the present note we also give an updated checklist of the odonatofauna for the island.

Key words: Balkans; faunistics; first records; Cephalonia; Odonata.

RESUMEN

Nuevos registros de *Selysiotthemis nigra* (Vander Linden, 1825) y *Erythromma viridulum* (Charpentier, 1840) de la isla de Cefalonia (Grecia) con una lista actualizada de la odonatofauna de la isla

Selysiotthemis nigra (Vander Linden, 1825) y *Erythromma viridulum* (Charpentier, 1840) se citan en la isla griega de Cefalonia por primera vez, sobre la base de datos fotográficos. Con la presente nota también se proporciona una lista actualizada de la odonatofauna de la isla.

Palabras clave: Balcanes; faunística; primeras citas; Cefalonia; Odonata.

Recibido/Received: 06/05/2019; **Aceptado/Accepted:** 17/06/2019; **Publicado en línea/Published online:** 18/07/2019

Cómo citar este artículo/Citation: Graziani, F., Ceccolini, F. & Cianferoni, F. 2019. New records of *Selysiotthemis nigra* (Vander Linden, 1825) and *Erythromma viridulum* (Charpentier, 1840) from Cephalonia Island (Greece) with an updated checklist of the odonatofauna of the island. *Graellsia*, 75(2): e093. <https://doi.org/10.3989/graellsia.2019.v75.242>

Copyright: © 2019 SAM & CSIC. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International (CC BY 4.0) License.

Introduction

Cephalonia (also spelled Kefalonia, Kefallinia or Kephallenia) is a medium-large island (773 km²) belonging to the Ionian Archipelago in western Greece. Occurrence records of dragonflies in the island are known

from the general works of Lopau (2006, 2010), Boudot *et al.* (2009), and Maroulis & Xanthakis (2015). The only dedicated paper about the odonatofauna of Cephalonia is by Manger (2013). The present work summarizes the faunistic data from the island, giving an updated checklist of these insects, including new records.

Material and methods

The examined material originates from occasional samplings (specimens photographed and, in one case, collected) conducted in 2018. All the listed material was identified by the authors.

Nomenclature and taxonomy follow Schorr & Paulson (2019). General distribution is indicated according to Boudot *et al.* (2009).

For each site, the following information is given: locality, coordinates, elevation, date, photographer or collectors, number of specimens and sex, possible repository. Geographical coordinates are in decimal degrees (datum WGS84). The uncertainty of data (in metres) was indicated according to the point-radius method (Wieczorek *et al.*, 2004).

Listed species

ZYGOPTERA

Platynemididae

Platynemis pennipes (Pallas, 1771)

MATERIAL EXAMINED: Katelios, 38.07959°N, 20.75462°E (uncertainty = 10 m), 55 m a.s.l., 1 ♂, photo by F. Graziani.

GENERAL DISTRIBUTION. Widespread in Europe, common in the Mediterranean area.

Coenagrionidae

Enallagma cyathigerum (Charpentier, 1840)

MATERIAL EXAMINED: Tzanata, near unnamed east lake, 38.13299°N 20.75431°E (uncertainty = 50 m), 65 m a.s.l., 23.VII.2018, 1 ♀, photo by F. Graziani.

GENERAL DISTRIBUTION. Common and widespread species in large parts of Europe.

Erythromma viridulum (Charpentier, 1840)

MATERIAL EXAMINED: Tzanata, near unnamed east lake, 38.13299°N 20.75431°E (uncertainty = 50 m), 65 m a.s.l., 23.VII.2018, 1 ♂ (Fig. 1), photo by F. Graziani.

GENERAL DISTRIBUTION. Common and widespread species in large parts of Europe and the Mediterranean.

REMARKS. First record for Cephalonia.

Ischnura elegans (Vander Linden, 1820)

MATERIAL EXAMINED: Limni Avithos, 38.17147°N, 20.71112°E (uncertainty = 50 m), 290 m a.s.l., 26.VII.2018, 1 ♂, photo by F. Graziani.



Fig. 1.— Male of *Erythromma viridulum* from the east lake of Tzanata, Cephalonia island (photo by F. Graziani).

Fig. 1.— Macho de *Erythromma viridulum* del lago del este de Tzanata, isla de Cefalonia (foto de F. Graziani).

GENERAL DISTRIBUTION. Widespread in Europe.

ANISOPTERA

Aeshnidae

Anax imperator (Leach, 1815)

MATERIAL EXAMINED: Tzanata, near unnamed east lake, 38.13299°N 20.75431°E (uncertainty = 50 m), 65 m a.s.l., 23.VII.2018, 1 ♂, photo by F. Graziani.

GENERAL DISTRIBUTION. Common and widespread in Europe, western Asia and parts of Africa.

Gomphidae

Onychogomphus forcipatus (Linnaeus, 1758)

MATERIAL EXAMINED: Limni Avithos, 38.17147°N, 20.71112°E (uncertainty = 50 m), 290 m a.s.l., 26.VII.2018, 1 ♂, photo by F. Graziani.

GENERAL DISTRIBUTION. The species occurs in North Africa, continental Europe and southwest Asia.

Libellulidae

Crocothemis erythraea (Brullé, 1832)

MATERIAL EXAMINED: Tzanata, near unnamed east lake, 38.13299°N 20.75431°E (uncertainty = 50 m), 65 m a.s.l., 1 ♂, photo by F. Graziani.

GENERAL DISTRIBUTION. Afrotropical species whose range has recently expanded and is now widespread in Europe and in the Mediterranean basin.

Ortethrum brunneum (Fonscolombe, 1837)

MATERIAL EXAMINED: Tzanata, near unnamed east lake, 38.13299°N 20.75431°E (uncertainty = 50 m), 65 m a.s.l., 23.VII.2018, 1 ♀, photo by F. Graziani.

GENERAL DISTRIBUTION. Common and widespread species in large parts of Europe and the Mediterranean.

Ortethrum cancellatum (Linnaeus, 1758)

MATERIAL EXAMINED: Tzanata, near unnamed west lake, 38.13602°N 20.75075°E (uncertainty = 120 m), 65 m a.s.l., 23.VII.2018, 1 ♀, F. Cianferoni, F. Ceccolini,

F. Graziani leg., Collection F. Ceccolini (Rassina, Arezzo, Italy).

GENERAL DISTRIBUTION. Common and widespread species in large parts of Europe and the Mediterranean.

Ortethrum coerulescens (Fabricius, 1798)

MATERIAL EXAMINED: Limni Avithos, 38.17147°N, 20.71112°E (uncertainty = 50 m), 290 m a.s.l., 26.VII.2018, 1 ♂, photo by F. Graziani.

GENERAL DISTRIBUTION. Common and widespread species in large parts of Europe and the Mediterranean.

Selysiothemis nigra (Vander Linden, 1825)

MATERIAL EXAMINED: Tzanata, near unnamed east lake, 38.13299°N 20.75431°E (uncertainty = 50 m), 65 m a.s.l., 23.VII.2018, 2 ♀♀ (Fig. 2), photos by F. Graziani.

GENERAL DISTRIBUTION. Distributed in the western Mediterranean (including Maghreb), with northernmost record in north east Italy. The species distribution areal is currently expanding (Uboni *et al.*, 2015).

REMARKS. First record for Cephalonia.

Sympetrum fonscolombii (Sélys, 1840)

MATERIAL EXAMINED: Tzanata, near unnamed east lake, 38.13299°N 20.75431°E (uncertainty = 50 m), 65 m a.s.l., 23.VII.2018, 1 ♀, photo by F. Graziani.



Fig. 2.— Female of *Selysiothemis nigra* from the east lake of Tzanata, Cephalonia island (photo by F. Graziani).

Fig. 2.— Hembra de *Selysiothemis nigra* del lago del este de Tzanata, isla de Cefalonia (foto de F. Graziani).

GENERAL DISTRIBUTION. Common in southern Europe. In Europe it has strongly expanded its range to the north.

Trithemis annulata (Palisot de Beauvois, 1807)

MATERIAL EXAMINED: Tzanata, near unnamed west lake, 38.13602°N 20.75075°E (uncertainty = 120 m), 65 m a.s.l., 23.VII.2018, 1 ♂ 1 ♀, photos by F. Graziani.

GENERAL DISTRIBUTION. Widespread and common Afrotropical species that has expanded its range in southwestern Europe rapidly in recent decades.

Checklist of the Odonata from Cephalonia

Based on Lopau (2006, 2010), Boudot *et al.* (2009), Manger (2013), Maroulis & Xanthakis (2015), and the present work.

ZYGOPTERA

Calopterygidae

Calopteryx splendens (Harris, 1780)

Lestidae

Chalcolestes parvidens (Artobolevsky, 1929)

Lestes barbarus (Fabricius, 1798)

Lestes macrostigma (Eversmann, 1836)

Platycnemididae

Platycnemis pennipes (Pallas, 1771)

Coenagrionidae

Coenagrion pulchellum (Vander Linden, 1825)

Coenagrion scitulum (Rambur, 1842)

Enallagma cyathigerum (Charpentier, 1840)

Erythromma viridulum (Charpentier, 1840)

Ischnura elegans (Vander Linden, 1820)

ANISOPTERA

Aeshnidae

Aeshna isoceles (O.F. Müller, 1767)

Anax ephippiger (Burmeister, 1839)

Anax imperator Leach, 1815

Anax parthenope (Sélys, 1839)

Gomphidae

Onychogomphus forcipatus (Linnaeus, 1758)



Fig. 3.— The east lake of Tzanata, Cephalonia island (photo by F. Graziani).

Fig. 3.— Lago del este de Tzanata, isla de Cefalonia (foto de F. Graziani).

Libellulidae

- Crocothemis erythraea* (Brullé, 1842)
Libellula fulva O.F. Müller, 1764
Orthetrum brunneum (Fonscolombe, 1837)
Orthetrum cancellatum (Linnaeus 1758)
Orthetrum coerulescens (Fabricius 1798)
Selysiotthemis nigra (Vander Linden, 1825)
Sympetrum fonscolombii (Sélys, 1840)
Sympetrum meridionale (Sélys, 1841)
Sympetrum striolatum (Charpentier, 1840)
Trithemis annulata (Palisot de Beauvois, 1807)

Discussion

To date 25 species of Odonata have been recorded for Cephalonia (see checklist), two of which resulted as new for the island from our records: *Selysiotthemis nigra* (Vander Linden, 1825), which was previously found in the nearby island of Corfu (Sutton, 2009), and *Erythromma viridulum* (Charpentier, 1840).

These two species were both photographed on the shore of an artificial lake in the southeastern part of the island, near the village of Tzanata, with rocky bottom and little vegetation on the shores (Fig. 3).

Selysiotthemis nigra (Fig. 2) is a nomadic and migrant species, which breeds in both permanent and ephemeral fresh or brackish water bodies (Dow, 2013). The species distribution range is currently expanding, and recent evidence suggests that the increase of artificial water basins (like the Tzanata lake where we found the adult specimens on the shore) could be a positive factor for the species increase in Europe (Uboni *et al.*, 2015). The species conservation status is classified as Least Concern (LC) according to the IUCN Red List of Threatened Species (Dow, 2013).

Erythromma viridulum (Fig. 1) occurs in both flowing and brackish water (Boudot, 2014) and it is common and widespread in Europe, where it has been expanding northwest since the 80-90s, event probably favored by global warming (see Groppali, 2009). The species conservation status is classified as LC according to the IUCN Red List (Boudot, 2014).

References

- Boudot, J.-P., 2014. *Erythromma viridulum*. The IUCN Red List of Threatened Species 2014: e.T165478A19159607. <http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T165478A19159607.en> [Downloaded on 30 April 2019]
- Boudot, J.-P., Kalkman, V. J., Azpilicueta Amorín, M., Bogdanović, T., Rivera, A. C., Degabriele, G., Dommanget, J. L., Ferreira, S., Garrigó, B., Jović, M., Kotarac, M., Lopau, W., Marinov, M., Mihoković, N., Riservato, E., Samraoui, B. & Schneider, W., 2009. Atlas of the Odonata of the Mediterranean and North Africa. *Libellula Supplement*, 9: 1–256.
- Dow, R. A., 2013. *Selysiotthemis nigra*. The IUCN Red List of Threatened Species 2013: e.T165471A17537803. <http://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T165471A17537803.en> [Downloaded on 25 September 2018]
- Groppali, R., 2009. Odonati europei e riscaldamento globale. *Studi Trentini di Scienze Naturali*, 86: 115–118.
- Lopau, W., 2006. Die Libellenfauna der Ionischen Inseln/ Griechenland: Kefalloniá, Kérkira (Korfu), Lefkáda und Zákinthos. *Naturkundliche Reiseberichte*, 32: 1–37.
- Lopau, W., 2010. Verbreitungsatlas der Libellen in Griechenland (Odonata). *Libellula Supplement*, 10: 5–153.
- Manger, R., 2013. Libellen in Kefalonia (Griekenland, Greece) 2013. *LWD Nieuwsbrief 2013, Libellenwerkgroep Drenthe, Assen*: 239-242.
- Maroulis, C. & Xanthkis, M., 2015. [Contribution to insect biodiversity of Cephalonia island, Greece.] *Proceedings of the 17th Panhellenic Forestry Congress, Oct. 4–7, Argostoli, Cephalonia*: 752-761. [in Greek]
- Schorr, M. & Paulson, D., 2019. World Odonata list. <https://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/dragonflies/world-odonata-list2/> [last revision: 28 April 2019]
- Sutton, P. G., 2009. A checklist of the dragonflies (Odonata) of Corfu (Kérkira) including a new record for the Ionian Islands, the Black Pennant *Selysiotthemis nigra* (Vander Linden, 1825). *Bulletin of the Amateur Entomologists' Society*, 68(485): 136–144.
- Uboni, C., Nadalon, G. & Schröter, A., 2015. Evidence of breeding of *Selysiotthemis nigra* in the regions of Friuli Venezia Giulia and Veneto, northeastern Italy (Odonata: Libellulidae). *Notulae odonatologicae*, 8(5): 117–155.
- Wieczorek, J., Guo, Q. & Hijmans, R. J., 2004. The point-radius method for georeferencing locality descriptions and calculating associated uncertainty. *International Journal of Geographical Information Science*, 18(8): 745–767.