

Odonata from Iraq, with three new records

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Abstract. Twenty-two taxa of Odonata were recorded between 2009 and 2013 in the Peramagroon Mountains (Zagros range) and the Central Marshes of Iraq. *Chalcolestes parvidens*, *Erythromma lindenii* and *Orthetrum chrysostigma* are new records for the country, bringing the national checklist to at least 44 species. The discovered population of *E. lindenii* showed characters transitory to ssp. *zernyi* Schmidt, 1939.

Further key words. Dragonfly, damselfly, Anisoptera, Zygoptera, adults

Vander Linden's name *Agrion pulchella*: a dating problem and its consequences (Odonata: Coenagrionidae)

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Abstract. *Coenagrion pulchellum* (Vander Linden) was originally described in 1825 as *Agrion pulchella*, but most synonymic and systematic catalogues and other publications on Odonata cite 1823 or even 1820. The reason for this discrepancy was an incorrect citation in H.A. Hagen's synonymic catalogue of the European Odonata from 1840. He referred to one of P.L. Vander Linden's preceding publications published in 1823, which had an extremely low circulation and were not easily to check but definitively don't include the name *pulchella*. A supposed junior synonym, *C. interruptum* (Charpentier), was also introduced in 1825. Lacking any information about precise imprint dates, both names have to be interpreted as simultaneously published synonyms. It is suggested that E. de Selys Longchamps be accepted as the First Reviser who determined their precedence; he fixed the name *pulchella* as the valid one in a monographic work on European Odonata published in 1840. His nomenclatural act corresponds to the current use.

Further key words. Damselfly, nomenclature, simultaneously published synonyms, First Reviser

Observation of wing-whirring behavior in a tropical perching dragonfly, *Micrathyria atra* (Odonata: Libellulidae)

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Abstract. Dragonflies are classified behaviorally as perchers or fliers. The thermoregulatory behavior of wing-whirring to generate heat is common in fliers but rare in perchers. On 25 January 2016, I observed and photographed a female *Micrathyria atra*, a percher, engaged in wing-whirring behavior while perched in the Cantarrana Swamp at La Selva Biological Station, Heredia Province, Costa Rica.

Further key words. Dragonfly, Anisoptera, thermoregulation

Additional Odonata records from Georgia, southern Caucasus eco-region, with the first record of *Ischnura fountaineae* (Odonata: Coenagrionidae)

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Abstract. Records of 57 odonate species group taxa obtained at 76 sampling sites during several field surveys between 2012 and 2016 are presented, corresponding to more than three quarters of the Georgian odonate fauna. *Ischnura fountaineae* is a new addition to the country's list. *Sympetrum arenicolor* was recorded for the second time and *Aeshna serrata* was found at two further lakes on the Javakheti volcanic plateau. For other species, such as *Cordulia aenea* and *Leucorrhinia pectoralis* only very limited and mainly old data was available. In addition, new records for *Coenagrion ponticum*, an endemic of the Caucasus region, as well as for *Coenagrion pulchellum* and *C. scitulum*, both rare in the Caucasus region, are given. Further information on the globally threatened gomphids *Onychogomphus assimilis* and *O. flexuosus* are presented, including the first exuviae records of the latter in Georgia. New findings of the nominate taxon of *Sympetrum vulgatum* provided indications on regional distribution pattern and spatial delimitation from ssp. *decoloratum*. Further records of *Pantala flavescens* suggested rather regular occurrence in Georgia, being an integral part of the Georgian dragonfly fauna. The existence of small isolated pockets of *Calopteryx splendens* ssp. *tschaldirica* inside the core area of ssp. *intermedia* in Georgia was confirmed as well as several individuals of ssp. *tschaldirica* from the Georgian stronghold of the taxon in the Javakheti volcanic plateau showing entirely hyaline wings, phenotypically resembling ssp. *waterstoni*. Against the background of general taxonomic difficulties with the *Calopteryx splendens* taxa complex, both phenomena are discussed.

Further key words. Dragonfly, damselfly, Anisoptera, Zygoptera, Khevsureti historical province

Diversity of dragonflies (Odonata: Anisoptera) of Rio Grande do Sul, Brazil, with five new records for the state

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Abstract. During a survey of Odonata in the summer 2004/2005 at the Araucaria forest reserve Pró-Mata in the Serra Geral mountain range, Rio Grande do Sul, Brazil, five species of Anisoptera new to the state were recorded. These are *Erythrodiplax diversa* (Navás, 1916), *Erythrodiplax ochracea* (Burmeister, 1839), *Micrathyria laevigata* Calvert, 1909, *Progomphus gracilis* Hagen in Selys, 1854 and *Rhionaeschna eduardoi* (Machado, 1984). These additions increase the number of dragonflies (Anisoptera) known from Rio Grande do Sul to 59 species. Further key words. Biodiversity, Mata Atlântica, new records, Pró-Mata

Note on a population of *Pseudagrion torridum* from the Yarkon River catchment, Tel-Aviv, Israel (Odonata: Coenagrionidae)

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Abstract. A new Israeli population of *Pseudagrion torridum*, discovered in summer 2013 near Tel-Aviv, Israel, is described. This population is highly heterogeneous, with individuals resembling the nominotypical subspecies and others, particularly females, resembling the subspecies *P. t. hulae*. The infraspecific taxonomy of *P. torridum* is critically discussed.

Further key words. Damselfly, Zygoptera, infraspecific taxonomy, melanism

Crepuscular collective flight of *Aeshna viridis* in Central Europe (Odonata: Aeshnidae)

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Abstract. Crepuscular flight activity was studied in *Aeshna viridis* at a woodland pond in NW Germany that harboured an isolated, relatively small breeding population. We observed twilight behaviour in 2014 and 2015 during 14 evenings and four mornings from early July until early September. In twilight, under a clear sky always before sunrise and after sunset, a substantial part of the population gathered at the breeding pond and performed a collective flight over Water Soldier *Stratiotes aloides*, the plant species which also served as habitat for diurnal oviposition and patrol flight. The collective flight usually started with hunting mosquitoes (feeding flight) but within few minutes it gradually changed to a linear and slow flight style performed densely above *Stratiotes* (cruising flight). Only feeding individuals in a higher abundance at dusk gave the impression of swarming. Cruising individuals occasionally formed mating wheels but exclusively at dawn. Generally, males prevailed during the collective flight. We attempt to offer first answers to the question why *A. viridis* regularly performs collective flight and discuss its relation to the vespertine mass swarms reported from Finland and western Siberia.

Further key words. Dragonfly, Anisoptera, flight style, matutinal and vespertine activity, swarming, mating tactic, *Stratiotes aloides*

***Trithemis kirbyi* colonizes the Atlantic Sahara (Odonata: Libellulidae)**

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Abstract. We report *Trithemis kirbyi* from the environs of Dakhla in the Atlantic (western) Sahara, currently an extension of South Morocco. In view of the peculiar distribution of this species in west and north-west Africa, and the recent changes in the desert environment brought about by man, we hypothesize that, as in the Iberian Peninsula, such change in distribution was triggered by recent habitat changes and that the origin of the invasion was more likely the Moroccan than the Sahelian populations. Further extension towards the south (the Senegal basin) is expected in the years ahead.

Further key words. Dragonfly, Anisoptera, damselfly, Zygoptera, new record

Migrating Odonata in the Colombian Andes

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Abstract. A migratory movement of Odonata at high elevations of the Colombian Andes, in the city of Bogotá at ca 2600 m a.s.l., is reported for the first time. The species involved were *Anax amazili* and *Pantala hymenaea*.

Further key words. Dragonfly, Anisoptera, *Anax amazili*, *Pantala hymenaea*, South America.