1st December 2018

Some personal recollections of the late Professor Dr Eberhard G. Schmidt (1935–2018)

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Abstract. Some recollections and anecdotes from 1963 to present are provided and some highlights in odonatological work of ES are emphasized. An outline of his professional career and his bibliography are omitted.

Further key words. Odonata, history of German odonatology, *Sympecma* hibernation, J.W. Valvasor copper engravings

1st December 2018

New records of Odonata from Argentina

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Abstract. The present paper provides new records for Zygoptera and Anisoptera collected in the central and northern regions of western Argentina (23° to 30°S latitude), including the biogeographical provinces of Puna, Monte, Chaco and Yungas. Nineteen sampling sites were visited at least once. New geographical records for 20 species are reported, including three new national records for Argentina – *Gynacantha mexicana* Selys, *Rhionaeschna cornigera* (Brauer) and *Triacanthagyna caribbea* Williamson – and 19 new provincial records from 17 species. Two of them involve large range expansions since they were previously known only from the east of the country, viz. *Brachymesia herbida* (Gundlach) and *Macrothemis hemichlora* (Burmeister). Other records involve moderate to small range extensions for 15 species. Photographs of diagnostic characters are given for all the species.

Further key words. Dragonfly, damselfly, Neotropical, South America, Puna, Yungas, Monte, Chaco

1st December 2018

First record of *Orthetrum ransonnetii* in the Canary Islands (Odonata: Libellulidae)

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Abstract. An immature male *Orthetrum ransonnetii* was recorded in Barranco de Rio Cabras, on Fuerteventura, on 16-ii-2018. It is the first record of the species in the Canary Islands and in entire Macaronesia, making it also the first record for Spain and entire Europe.

Further key words. Dragonfly, Anisoptera, Fuerteventura, Spain

1st December 2018

Crocothemis sanguinolenta new for Iran – an example of influx of African Odonata across the Strait of Hormuz (Odonata: Libellulidae)

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Abstract. On 14-vii-2018, *Crocothemis sanguinolenta* (Burmeister, 1839) was found in a ditch with clear, cold, fast flowing water near Khabr in Kermān, southern Iran (28.7241°N, 56.3298°E; 1 979 m a.s.l.). A male was observed perching on a stone in the water and a pair in the wheel was collected. To our knowledge *C. sanguinolenta* is new for Iran and new for Asia outside of the Arabian Peninsula and the Levant. As winters are cold in the Hazaran Mountain region, reproduction may fail. We speculate that both *C. sanguinolenta* and *Zygonyx torridus* regularly establish bridgeheads across the Strait of Hormuz between Oman and southern Iran, supported by favourable weather during summer.

Further key words. Dragonfly, Anisoptera, Oman, *Zygonyx torridus*, *Trithemis arteriosa*

1st December 2018

Female colour form has no effect on copulation duration of the polymorphic *Ischnura fluviatilis* (Odonata: Coenagrionidae)

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Abstract. We studied a population of *Ischnura fluviatilis* Selys, 1876 in Mato Grosso do Sul (Brazil), to establish the range of female colour polymorphism and associated mating behaviour. We found three female colour forms: orange and brown, which were the immature and mature coloration of the commoner gynochrome morph, and a blue androchrome morph. We observed mating couples and analysed the relationship between copulation duration and phenotypic characteristics of males and females. There were significant differences between colours for female body size, fecundity, egg size and copulation duration, and in most cases the most deviant colour form was the immature orange. These females were significantly larger, and had the highest fecundity. Androchrome females produced smaller eggs. Copulations lasted on average 65 min, with the shortest copulation durations observed for brown females. Male size and the order of observation (indicative of seasonal effects) explained a significant proportion of variation in copulation duration, but female colour form, fecundity and size were not significant. We found evidence for assortative mating by size. Our results indicate that female colour does not explain variation in copulation duration, and therefore the possibility of cryptic male choice seems unlikely.

Further key words. Dragonfly, damselfly, Zygoptera, female colour morphs, polymorphism, body size, fecundity, egg size, mating behaviour

1st December 2018

Seasonal and annual variations on wing shape and wing size of eight damselfly species (Odonata: Calopterygidae, Coenagrionidae)

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Abstract. This study examined the effects of seasonal and annual variations on wing shape and wing size of eight damselfly species in central Texas. Comparisons included i) populations collected early in the flight season versus those collected late in the flight season, and ii) populations collected from the same locations during several annual flight seasons. We found widespread differences in both wing shape and body size in males and females among most species examined. Wing shape of male and female damselflies collected early varied significantly from those collected late in the flight season for all locations and years sampled. Damselflies emerging early in the flight season were significantly larger than those emerging late, except for *Enallagma civile* showing opposite results. Populations of six species sampled in different years at the same location were compared, and significant differences in wing shape and size occurred in no females and in males of only two species. Our results suggest that differences in seasonal and year-to-year environmental conditions frequently influence wing shape and body size in multiple damselfly species.

Further key words. Dragonfly, Zygoptera, annual**,** flight, geometric morphometrics, seasonal

1st December 2018

Reproductive behaviour of *Erythromma lindenii* in Northeast Algeria (Odonata: Coenagrionidae)

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Abstract. The reproductive behaviour of the Atlanto-Mediterranean *Erythromma lindenii* Selys has been studied before in Europe, but not in North Africa where the climate is warmer. We investigated the reproductive behaviour in a natural population in Northeast Algeria. We found that the species is non-territorial with quasi-exclusive underwater oviposition. The duration of underwater oviposition was positively correlated to the maximum water depth. We suggest that females predominantly lay eggs underwater to avoid water evaporation, which is common in North Africa. We discuss the differences in the reproductive behaviour between European populations and one in North Africa.

Further key words. Damselfly, Zygoptera, copulation, underwater oviposition, drought, North Africa

1st December 2018

Description of *Microgomphus phewataali* sp. nov. from Nepal (Odonata: Gomphidae)

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Abstract. *Microgomphus phewataali* sp. nov. is described from Phewa Taal (Lake), Pokhara, Kaski District, Nepal (28°12'9"N, 83°57'38"E, 742 m a.s.l.). Type locality is on south-east side of the lake shouldered by dense forest with small wetlands bordering the lake. A seasonal stream and seepages were found inside the forest. This is the first record of *Microgomphus* sp. from Nepal and it is compared with eleven other Asian species of this genus.

Further key words. Dragonfly, Anisoptera, new species

1st December 2018

A new species of *Eusynthemis* Förster, 1903 from the Cooloola sand-mass in south-eastern Queensland, Australia (Odonata: Synthemistidae)

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Abstract. *Eusynthemis cooloola* sp. nov. (Holotype ♂ from Searys Creek near Rainbow Beach, 25.975°S, 153.073°E) in the Cooloola sand-mass of south-eastern Queensland) is described, illustrated and discussed. It is considered to be the sister species of *Eusynthemis nigra* (Tillyard).

Further key words. Dragonfly, Anisoptera, endemic, *Eusynthemis nigra*

1st December 2018

The Odonata of Sulawesi and adjacent islands. Part 8. Revision of the genus *Rhinocypha* Rambur, 1842 (Chlorocyphidae)

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Abstract. All known species of the genus *Rhinocypha* Rambur (Odonata: Chlorocyphidae) from Sulawesi and adjacent islands are revised, with descriptions of both sexes, illustrations of key characters, distribution maps and a key to the species. This revision is mainly based on material held in Naturalis Biodiversity Center, Leiden. These specimens were collected from localities in many parts of Sulawesi by the authors during the 1980s and 1990s.

Eight species are distinguished, of which five are new to science, namely, *Rhinocypha flavipoda* sp. nov. (Central Sulawesi), *Rhinocypha pelengensis* sp. nov. (Peleng Islands), *Rhinocypha sangihensis* sp. nov. (Sangihe Islands), *R. togeanensis* sp. nov. (Togian Islands) and *Rhinocypha virgulata* sp. nov. (Central Sulawesi); and one new subspecies, *R. frontalis sulselensis* ssp. nov. (south-western Sulawesi). We also discuss the status, morphological variation and distribution of the previously described species and present a concise analysis of the phylogenetic relationships of the Sulawesi clade within the so-called *Rhinocypha tincta*-complex based partly on molecular characters.

Further key words. Sangihe Is., Togian (Togean) Is., Salayar, Buton, Kabaena, New Guinea, Malay archipelago, new species, new subspecies