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Odonata (Zygoptera and Anisoptera) of the Sarnena Sredna Gora Mts

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Abstract. Checklist of the dragonflies (Order Odonata) of the Sarnena Sredna Gora and its adjacent areas contains 26 species from 7 families: Calopterygidae (2 sp.), Coenagrionidae (7 sp.), Lestidae (1 sp.), Platycnemididae (1 sp.), Aeshnidae (1 sp.), Gomphydae (4 sp.) and Libellulidae (10 sp.).

Key words: fauna, dragonflies, Sarnena Sredna Gora, Bulgaria.

Introduction

First data about Odonata of Sarnena Sredna Gora Mountains is found in the publication of Nedelkov (1909), but this insect order has not been subject of a special study in the region and the data is relatively scarce. Here we present a synopsis of all literature data with some new records. From all 71 species known to occur in Bulgaria (Gainzarain 2017), 26 species (36.6%) have been recorded in the region, including and *Sympetrum striolatum* (Charpentier, 1840), reported here as a new record.

Material and Methods

The information presented in this paper is from the followingsources: Nedelkov (1909, 1923), Beshovski (1964), Rusev *et al.* (1984), Yaneva & Rusev (1985), Mauersberger (1990). All new records are on the base of the authors observations. The species were identified by photographs. The valid species names are according to "Fauna Europaea".

The studied area is presented in Fig. 1.

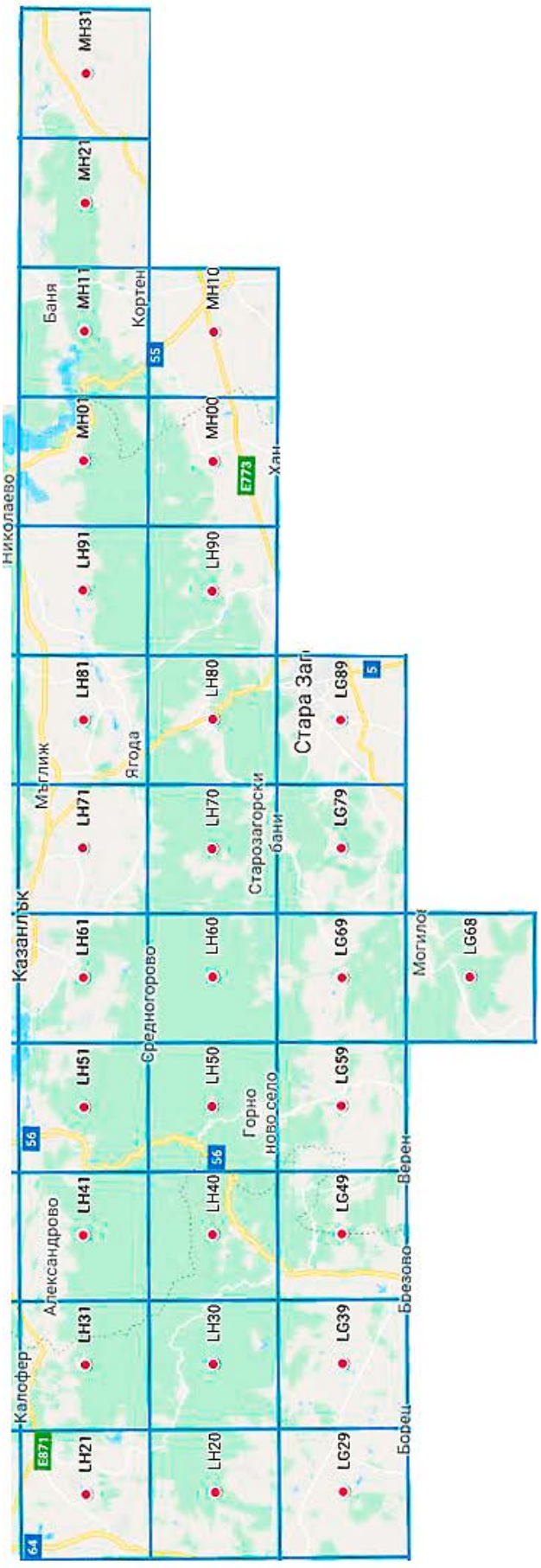

Fig. 1. Map of the studied area with 10x10 km UTM-squares.

Faunistic list

SUBORDER ZYGOPTERA

FAMILY CALOPTERYGIDAE

***Calopteryx splendens* (Harris, 1782)**

Literature data: Tundzha River by the village of Zimnitsa, UTM LH91 (Beshovski 1964); Town of Stara Zagora, UTM LG89 (Nedelkov 1909, 2023); Tundzha River, after the town of Kalofer (by the railway station) after the entering of the town's waste waters, UTM LH31 (Rusev *et al.* 1984); Tundzha River above the Koprinka Dam, UTM LH51 (Rusev *et al.* 1984); Tundzha River below the Koprinka Dam, UTM LH61 (Rusev *et al.* 1984); Tundzha River 3 km S from the town of Kazanlak, UTM LH61 (Rusev *et al.* 1984); Tundzha River after the entering of Eninska River, UTM LH61, (Rusev *et al.* 1984); Tundzha River by the village of Zimnitsa, UTM LH91 (Rusev *et al.* 1984); Town of Banya below the Zhrebchevo reservoir, UTM MH11 (Rusev *et al.* 1984); Tundzha River by the town of Pavel Banya, UTM LH51 (Yaneva & Rusev 1985)); Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: Near Banya Town, Stryama River, UTM LH21, 42.5415N, 24.8206E, 24.07.2019, 1 female (D. Bechev observation); Stryama River at the influx of Byala Reka River, UTM LH20, 42.5136N, 24.8455E, 13.06.2018 and 24.07.2019, male and female specimens (D. Bechev observation); Tundzha River before Zhrebchevo Dam, UTM MH02, 42.6372N, 25.8232E, 15.06.2018, male and female specimens (D. Bechev observation); West of Banya town, Stryama River, UTM LH21, 42.54277N, 24.81978E, 22.05.2019, 21 males and 10 females (D. Dimitrov observation); South of Gabarevo Village, Tundzha River, UTM LH41, 42.60844N, 25.14860E, 29.06.2019, 29 males and 13 females (D. Dimitrov observation); West of Banya town, Stryama River, UTM LH2, 42.541146N, 24.821214E, 01.06.2019, 30 males and 12 females (D. Dimitrov observation); Tundzha River before Koprinka Dam, UTM LH51, 42.608339N, 25.245617E, 08.07.2019, 4 males and 2 females (D. Dimitrov observation); Tundzha River to the bridge of Buzovgrad, UTM LH61, 42.594316N, 25.376120E, 16.7.2020, 9 males and 2 females (D. Dimitrov observation); Tundzha River near Rozovo vilige, UTM LH71, 42.575125N, 25.421014E, 03.08.2020, 10 males and 4 females (D. Dimitrov observation); Tundzha River west of Pavel Banya, UTM LH51, 42.603251N, 25.196234E, 21.08.2020, 2 females (D. Dimitrov observation).

***Calopteryx virgo* (Linnaeus, 1758)**

Literature data: Tundzha River by the town of Pavel Banya, UTM LH51 (Beshovski 1964); Tundzha River by the town of Pavel Banya (Rusev *et al.* 1984); Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: E of Beguntsi Village, Byala Reka River, UTM LH21, 42.547465N, 24.885341E, 20.05.2018, male and female specimens (D. Bechev observation); Stryama River at the influx of Byala Reka River, UTM LH20, 42.5136N, 24.8455E, 13.06.2018, male and female specimens (D. Bechev observation); S of Rozovets Village, Rahmanliyska River, UTM LH 40, 42.4462N, 25.0979E, 1.06.2019, 2 males (D. Bechev observation); Turiya Village, Turiyska River, UTM LH 51, 42.5732N, 25.1793E, 1.06.2019, 3 males (D. Bechev observation); South of Gabarevo Village, Tundzha River, UTM LH41, 42.60749N, 25.15598E, 29.06.2019, 11 males and 4 females (D. Dimitrov observation).

FAMILY COENAGRIONIDAE

Cercion lindenii (Selys, 1840)

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

Coenagrion ornatum (Selys, 1850)

Agrion ornatum Selys: Nedelkov (1923)

Coenagrion mercuriale: Rusev *et al.* (1984)

Literature data: Town of Kazanlak, UTM LH61 (Nedelkov 1923); Tundzha River below the Koprinka reservoir, UTM LH61 (Rusev *et al.* 1984).

Coenagrion puella (Linnaeus, 1758)

Agrion puella: Rusev *et al.* (1984)

Literature data: Town of Kazanlak, UTM LH61 (Nedelkov 1923); Town of Banya below the Zhrebchevo reservoir, UTM MH11 (Rusev *et al.* 1984); Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

Enallagma cyathigerum (Charpentier, 1840)

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger,1990).

Erythromma viridulum (Charpentier, 1840)

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: East of Gabarevo Village, small dam, UTM LH52, 42.624417N, 25.175030E, 09.08.2019, 1 male and 1 female (D. Dimitrov observation).

Ischnura elegans (Vander Linden, 1820)

Literature data: Tundzha River by the village of Zimnitsa, UTM LH91 (Yaneva & Rusev 1985); Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: Old fish farm near Byala Reka River, near Bany Town, UTM LH20, 42.5154N, 24.8529E, 24.07.2019, 2 females (D. Bechev observation); South of Gabarevo Village, Tundzha River, UTM LH41, 42.60866N, 25.15146E, 29.06.2019, 4 males and 1 females (D. Dimitrov observation); Tundzha River before Koprinka Dam, UTM LH51, 42.610190N, 25.244808E, 08.07.2019, 2 males (D. Dimitrov observation); Tundzha River to the bridge of Buzovgrad, UTM LH61, 42.593303N, 25.377821E, 16.7.2020, 1 male and 1 female (D. Dimitrov observation).

Ischnura pumilio (Charpentier, 1825)

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990)

FAMILY LESTIDAE

Sympecma fusca (Vander Linden, 1820)

Literature data: Town of Stara Zagora, UTM LG89 (Nedelkov 1909); Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

FAMILY PLATYCNEMIDIDAE

Platycnemis pennipes (Pallas, 1771)

Literature data: Town of Stara Zagora, UTM LG89 (Nedelkov 1909); Town of Banya below the Zhrebchevo reservoir, UTM MH11 (Rusev *et al.* 1984); Tundzha River near Gurkovo, UTM MH02 (Mauersberger 1990).

New data: Near Banya Town, Stryama River, UTM LH21, 42.5415N, 24.8206E, 24.07.2019, 2 females (D. Bechev observation); Old fish farm near Byala Reka River, near Bany Town, UTM LH20, 42.5154N, 24.8529E, 24.07.2019, male and female in copula (D. Bechev observation); West of Banya town, Stryama River, UTM LH21, 42.54202N, 24.82029E, 22.05.2019, 3 males and 1 female (D. Dimitrov observation); South of Gabarevo Village, Tundzha River, UTM LH41, 42.608486N, 25.153516E, 29.06.2019, 51 specimens (D. Dimitrov observation); Tundzha River near Rozovo vilige, UTM LH71, 42.575653N, 25.425870E, 03.08.2020, 18 males and 6 females (D. Dimitrov observation); Tundzha River west of Pavel Banya, UTM LH51, 42.603268N, 25.195670E, 21.08.2020, 2 males (D. Dimitrov observation).

SUBORDER ANISOPTERA

FAMILY AESHNIDAE

Anax imperator Leach, 1815

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: Old fish farm near Byala Reka River, near Bany Town, UTM LH20, 42.5154N, 24.8529E, 13.06.2018, 1 female in oviposition (D. Bechev observation).

FAMILY GOMPHIDAE

Gomphus flavipes (Charpentier, 1825)

Literature data: Tundzha River above the "Koprinka" Dam, UTM LH51 (Rusev *et al.* 1984).

Conservation status: Council Directive 92/43/EEC Anex IV.

Gomphus vulgatissimus (Linnaeus, 1758)

Literature data: Tundzha River by the town of Pavel Banya, UTM LH51 (Beshovski 1964); Tundzha River by the town of Pavel Banya, UTM LH51 (Rusev *et al.* 1984); Tundzha River above the Koprinka Dam, UTM LH51 (Rusev *et al.* 1984); town of Banya below the Zhrebchevo Dam, UTM MH11 (Rusev *et al.* 1984)**;** Tundzha River by the town of Pavel Banya, UTM LH51 (Yaneva & Rusev 1985).

Onychogomphus forcipatus (Linnaeus, 1758)

Literature data: Tundzha River by the town of Pavel Banya, UTM LH51 (Beshovski 1964); Tundzha River by the village of Zimnitsa, UTM LH91 (Beshovski 1964); Tundzha River after the entering of Eninska River, UTM LH61 (Rusev *et al.* 1984); Tundzha River by the village of Zimnitsa, UTM LH91 (Rusev *et al.* 1984); Tundzha River by the town of Pavel Banya, UTM LH51 (Yaneva & Rusev 1985); Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

***Ophiogomphus cecilia* (Fourcroy, 1785)**

Ophiogomphus serpentinus, Charpentier: Rusev *et al.* (1984).

Literature data: Tundzha River after Kalofer town (by the railway station) after the entering of the town's waste waters, UTM LH31 (Rusev *et al.* 1984); Tundzha River above the Koprinka Dam, UTM LH51 (Rusev *et al.* 1984).

Conservation status: Council Directive 92/43/EEC Anex II and IV; Bulgarian Biodiversity Conservation Act Anex II and III.

FAMILY LIBELLULIDAE

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

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: Tundzha River before Koprinka Dam, UTM LH51, 42.608737N, 25.238546E, 08.07.2019, 1 males (D. Dimitrov observation); Tundzha River near Rozovo vilige, UTM LH71, 42.575703N, 25.426189E, 03.08.2020, 1 males (D. Dimitrov observation).

***Libellula depressa* (Linnaeus, 1758)**

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: E of Beguntsi Village, Byala Reka River, UTM LH21, 42.547465N, 24.885341E, 20.05.2018, 1 male (D. Bechev observation); Turiya Village, Turiyska River, UTM LH 51, 42.5732N, 25.1793E, 1.06.2019, 1 male (D. Bechev observation); Pavel Banya, Tundzha River, UTM LH51, 42.6041N, 25.2048E, 1.06.2019, 2 males (D. Bechev observation).

***Orthethrum albistyllum* (Selys, 1848)**

Literature data: Tundzha River below the Koprinka Dam, UTM LH61 (Rusev *et al.* 1984); Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: Old fish farm near Byala Reka River, near Bany Town, UTM LH20, 42.5154N, 24.8529E, 13.06.2018, 1 male, and 24.07.2019, 1 female (D. Bechev observation).

***Orthetrum brunneum (*Fonscolombe, 1837)**

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: E of Beguntsi Village, Byala Reka River, UTM LH21, 42.547465N, 24.885341E, 20.05.2018, 1 male (D. Bechev observation); Tundzha River before Koprinka Dam, UTM LH51, 42.610979N, 25.243965E, 08.07.2019, 1 males (D. Dimitrov observation).

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

Literature data: Tundzha River below the Koprinka Dam, UTM LH61 (Rusev *et al.* 1984); Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: East of Gabarevo Village landed on sunflower, UTM LH52, 42.625539N, 25.170988E, 09.08.2019, 1 male (D. Dimitrov observation); Tundzha River to the bridge of Buzovgrad, UTM LH61, 42.593166N, 25.378231E, 16.7.2020, 1 female (D. Dimitrov observation); Tundzha River west of Pavel Banya, UTM LH51, 42.602879N, 25.192983E, 21.08.2020, 1 female (D. Dimitrov observation).

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

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

Conservation status: European Red List (VU).

***Sympetrum fonscolombii* (SELYS, 1840)**

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: Tundzha River to the bridge of Buzovgrad, UTM LH61, 42.574276N, 25.414394E, 3.8.2020, 1 male (D. Dimitrov observation).

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

Literature data: Town of Banya below the Zhrebchevo Dam, UTM LH61 (Rusev *et al.* 1984); Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

***Sympetrum sanguineum* (Muller, 1764)**

Literature data: Tundzha River near Gurkovo, UTM MH02, (Mauersberger 1990).

New data: East of Gabarevo Village near a small dam, UTM LH52, 42.624617N, 25.173182E 09.08.2019, 1 male (D. Dimitrov observation).

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

New data: South of Gabarevo Village, Tundzha River, UTM LH41, 42.60866N, 25.15146E, 29.06.2019, 1 female (D. Dimitrov observation); Tundzha River before Koprinka Dam, UTM LH51, 42.614314N, 25.246172E, 08.07.2019, 1 female (D. Dimitrov observation).

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