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A progress study of the Odonata from Azerbaijan in summer 2019

Nataly Yu. Snegovaya

Zoological Institute NAS of Azerbaijan, proezd 1128, kvartal 504, Baku, AZ 1073, Azerbaijan. Email: snegovaya@yahoo.com

Abstract
This paper presents the results of a study conducted on the odonate fauna of Azerbaijan covering 15 localities in seven districts (Guba, Khachmaz, Goygol, Samukh, Gusar, Siyazan, Shabran). A total of 36 species was recorded.

Key words: Odonata, fauna, Azerbaijan, Lestes macrostigma, Ischnura fountaineae, Coenagrion scitulum, Lindenia tetraphylla, Sympetrum vulgatum

Introduction

From the 70 administrative districts (rayonlar) in Azerbaijan after 2000 24 districts (Aghjabadi, Agstafa, Agsu, Baku (city), Balakan, Shabran, Gadamay, Goygol, Hajigabul, Imishli, Ismailli, Kurdamir, Lankaran, Masally, Neftchala, Guba, Gusar, Salyn, Shamakhi, Samukh, Siyazan, Khachmaz, Yardymli, Yevlakh) are covered by dragonfly research activities, and additionally all districts of the Nakhichevan Autonomic Republic (Fig. 1). Significant parts of the country still remain unstudied.

In most cases within a district only a few localities had been studied. In 2019, a further study (yellow districts in Fig. 1) was conducted. The results of this study are presented here.

Material and Methods
Sampling sites
Collection of odonate specimens was carried out – partly only occasionally - between 10-VI and 25-VIII, while the focus time was in July 2019, where habitats were studied. The following materials also include unpublished collections that were made earlier (2016 - 2018) at some of the localities studied in 2019.
Figure 1. Status of treatment of the Azerbaijan odonate fauna by district.

All photos were taken by the author using Canon EOS 5D Mark III, with Tamron SP 90mm, F/2.8 Macro lens, in natural condition. Specimens are deposited in the Laboratory of Terrestrial Invertebrates of the Zoological Institute NAS of Azerbaijan, Baku.

Figure 2. Map of localities.
Figure 3. Siyazan, near Caspian Sea coast, freshwater spills.

Figure 4. Siyazan, Galaalti, mixed forest and forest meadows along the road.

Figure 5. Siyazan, Galaalti, small pond in the forest.
Figure 6. Khachmaz, Nabran vill., coast, numerous spills on the shores of the Caspian Sea.

Figure 7. Khachmaz, Nabran vill., coast, numerous vegetation from various species of Juncus horset, reeds (Phragmites), rush (Scirpus), cattail (Thypa) and saltwort (Salsola sp.).

Figure 8. Khachmaz, Nabran vill., flat forest with numerous small rivers and streams.
Localities

Localities can be taken from Figure 2 and are detailed in this chapter.

**Loc. 1.** Siyazan, near Caspian Sea coast, freshwater spills with sparse reeds (Phragmites) and Juncus horsetails (N40°58'31.68"; E49°15'17.02"; -19 m a.s.l.) (Fig. 3).

**Loc. 2.** Siyazan, Galaalti, mixed forest and forest meadows along the road (N41°4'50.94"; E48°56'45.98"; 714 m a.s.l.) (Fig. 4).

**Loc. 3.** Siyazan, Galaalti, small pond in the forest (N41°5'54.42"; E48°55'54.7"; 626 m a.s.l.) (Fig. 5).

**Loc. 4.** Khachmaz, Nabran vill., coast, numerous spills on the shores of the Caspian Sea, small rivers flowing into the sea, numerous vegetation from various species of Juncus horsetails, reeds (Phragmites), rush (Scirpus), cattail (Typha), saltwort (Salsola sp.) (N 41°46'5.3", E 48°41'27.2", -27 m a.s.l.) (Fig. 6-7).
Figure 11. Gusar district, along Gusarchay River, a small pond next near the river.

Figure 12. Gusar (Qusar) district, Laza vill., small pond on the way to the waterfall.

Loc. 5. Khachmaz, Nabran vill., lowland forest (relict liana forests) with numerous small rivers and streams, large glades in the forest (N 41°45'23.78", E 48°40'53.51"; -6 m a.s.l.) (Fig. 8-9).
Figure 13. Guba (Quba) district, Afurja vill., small ponds overgrown with rush (Scirpus), reeds (Phragmites), cattail (Thypha).

Figure 14. Guba (Quba) district, Afurdja vill., along Velvelchay River.

Figure 15. Samukh (Samux), bank of the Kura River, not far from the Yenikend reservoir.
Figure 16. A section of the Kura River between the Yenikend and Shamkir reservoirs, near Samed Vurgun settl.: a stream flowing between the area overgrown with trees (Salix, Elaeagnus); water spills in the grass.

Figure 17. A section of the Kura River between the Yenikend and Shamkir reservoirs, near Samed Vurgun settl.: plot near the banks of the Kura River.

**Loc. 6.** Gusar district, along Gusarchay River, small spills along the river bed, a small pond next near the river (N41°20′16.74″; E48°12′31.9″; 1084 m a.s.l.) (Fig. 10-11).

**Loc. 7.** Gusar (Qusar) district, Laza vill., small pond on the way to the waterfall (N41°17′43.92″; E48°6′56.78″; 1742 m a.s.l.) (Fig. 12).

**Loc. 8.** Guba (Quba) district, Afurja (Afurça) vill., small ponds overgrown with rush (Scirpus) and cattail (Typha) (N41°09′07.0″; E48°36′25.5″; 883 m a.s.l.) (Fig. 13).

**Loc. 9.** Guba (Quba) district, Afurdja (Afurça) vill., along Velvelechay (Vəlveləçəy) River (N41°10′5.56″; E48°37.8′8.12″; 1101 m a.s.l.) (Fig. 14).
Figure 18. Goygol National park: Goygol (Göygöl) lake.

Figure 19. Goygol National park: Maralgol (Maralgöl) lake.

**Loc. 10.** Samukh (Samux), bank of the Kura River, not far from the Yenikend reservoir (N40°54′59.9″; E46°16′30.8″; 125 m a.s.l.) (Fig. 15).

**Loc. 11.** A section of the Kura River between the Yenikend and Shamkir reservoirs, near Samed Vurgun settl.: Small ponds; a stream flowing between the area overgrown
with trees (Salix, Elaeagnus); water spills in the grass; plot near the banks of the Kura River (N40°56'1.5"; E46°11'45.99"; 123 m a.s.l.) (Fig. 16-17).

**Loc. 12.** Goygol distr., Goygol National park: Goygol (Göygöl) lake (N40°24'41.56"; E46°18'51.42"; 1778 m a.s.l.) (Fig. 18).
Figure 22. Shabran distr., Divichi estuary: reed channels.

**Loc. 13.** Goygol distr., Goygol National park: Maralgol (Maralgöl) lake (N40°22'43.36"; E46°18'46.26"; 1901 m a.s.l.) (Fig. 19).

**Loc. 14.** Goygol distr., Goygol National park: Jamish (Camış) lake (N40°23'5.85"; E46°18'38.25"; 1823 m a.s.l.) (Fig. 20).

**Loc. 15.** Shabran distr., Divichi estuary sites with sand dunes and thicket of bulrush near the Caspian coast; canals overgrown with reeds; areas with shallow ponds and dried out, densely covered with reeds (N41°13'43.15"; E49°7'57.57"; -28m a.s.l.) (Fig. 21-22).

**Results**
Records from 36 species were made. These are specified in the following chapter.

**Recorded species**

**Calopterygidae**

*Calopteryx splendens intermedia* (Selys, 1887) (Figs. 23-24)

**Loc. 4:** 2-5.07.2019, 1♂; **Loc. 5:** 2-5.07.2019, 5♂♂, 3♀♀; **Loc. 11:** 23.07.2019, 2♂♂, 1♀.

**Lestidae**

*Lestes dryas* Kirby, 1890 (Figs. 25-26)

**Loc. 3:** 10-12.06.2019, 4♂♂, 2♀♀; **Loc. 8:** 8-11.07.2019, 7♂♂, 2♀♀.
Figure 23. *Calopteryx splendens intermedi*dia, group of males (Loc. 4).

Figure 24. *Calopteryx splendens intermedi*dia, male (Loc. 5).

Figure 25. *Lestes dryas*, male (Loc. 3).

Figure 26. *Lestes dryas*, female (Loc. 3).

Figure 27. *Lestes virens*, male (Loc. 8).

Figure 28. *Lestes barbarus*, male (Loc. 1).
Lestes virens Rambur, 1842 (Fig. 27)

Loc. 8: 8-11.07.2019, 7♂♂, 1♀.

Lestes barbarus (Fabricius, 1798) (Fig. 28)

Loc. 1: 03.08.2017, 1♂, 1♀, leg. I. Kerimova; 27.06.2018, 1♀, leg. I. Kerimova; 5.07.2019, 6♂♂, 2♀♀; Loc. 8: 8-11.07.2019, 1♂, 3♀♀; Loc. 10: 23.07.2019, 2♀♀; Loc. 15: 24-25.08.2017, 1♀, leg. I. Kerimova.

Lestes macrostigma Eversmann, 1836


Lestes sponsa Hansemann, 1823


Sympecma fusca (Vander Linden, 1820)

Loc. 4: 2-5.07.2019, 3♂♂; Loc. 5: 2-5.07.2019, 1♂; Loc. 8: 8-11.07.2019, 2♂♂, 2♀♀.

Coenagrionidae

Ischnura pumilio (Charpentier, 1825) (Fig. 29)

Loc. 1: 23.07.2017, 3♂♂, 7♀♀, leg. I. Kerimova; 5.07.2019, 6♂♂, 2♀♀; Loc. 6: 03.07.2019, 1♂;
Loc. 7: 03.07.2019, 2♂♂; Loc. 8: 8-11.07.2019, 2♂♂, 3♀♀; Loc. 11: 22.07.2019, 6♂♂;

Ischnura elegans (Vander Linden, 1820) (Fig. 30)

Loc. 1: 5.07.2019, 7♂♂, 13♀♀; 03.08.2019, 1♀; Loc. 4: 2-5.07.2019, 6♂♂, 3♀♀; Loc. 10: 23.07.2019, 3♂♂, 7♀♀; Loc. 11: 22.07.2019, 3♂♂, 4♀♀; Loc. 15: 19.07.2019, 1♂, 1♀.

Ischnura fontaineae Morton, 1905


Coenagrion puella (Linnaeus, 1758) (Figs. 31-32)

Loc. 3: 10-12.06.2019, 5♂♂, 1♀; Loc. 4: 2-5.07.2019, 1♂; Loc. 6: 03.07.2019, 14♂♂, 3♀♀;
Loc. 7: 03.07.2019, 7♂♂, 1♀; Loc. 8: 8-11.07.2019, 8♂♂, 2♀♀.

Figure 29. Ischnura pumilio, female (Loc. 8). Figure 30. Ischnura elegans, male (Loc. 4)
Coenagrion scitulum (Rambur, 1842) (Fig. 33)

**Loc. 8**: 8-11.07.2019, 1♂, 1♀.

Enallagma cyathigerum (Charpentier, 1840) (Fig. 34)

**Loc. 13**: 15.08.2016, 5♂, 1♀, leg. I. Kerimova; 25.07.2019, 6♂, 1♀; **Loc. 14**: 25.07.2019, 7♂, 6♀.

Erythromma viridulum (Charpentier, 1840)

**Loc. 4**: 2-5.07.2019, 1♂.
Platycnemididae

*Platycnemis dealbata* Selys in Selys and Hagen, 1850 (Fig. 35)

**Loc. 4:** 2-5.07.2019, 7♂♂, 3♀♀; **Loc. 11:** 22.07.2019, 8♂♂, 3♀♀.

*Platycnemis pennipes* (Pallas, 1771) (Fig. 36)

**Loc. 4:** 2-5.07.2019, 7♂♂, 4♀♀; **Loc. 5:** 2-5.07.2019, 1♂, 2♀♀.

Aeshnidae

*Aeshna affinis* Vander Linden, 1820

**Loc. 2:** 10-12.06.2019, 1♂; **Loc. 9:** 11.07.2019, 1♂, 1♀.

*Anaciaeschna isoeceles* (Müller, 1764)

**Loc. 4:** 4.07.2019. Visual observation.

*Anax imperator* Leach, 1815

**Loc. 2:** 10-12.06.2019, 1♂; **Loc. 5:** 2-5.07.2019, 1♀; **Loc. 13:** 15.08.2016, 1♂.

*Anax parthenope* (Selys, 1839)

**Loc. 1:** 03.08.2017, 1♂, 2♀♀, leg. I. Kerimova.
**Gomphidae**

*Gomphus vulgatissimus* (Linnaeus, 1758)

**Loc. 5:** 2-5.07.2019, 3♂, 1♀.

*Lindenia tetraphylla* (Vander Linden, 1825) (Fig. 37)

**Loc. 1:** 23.07.2017, 1♂, 3♀, leg. I. Kerimova; 24.07.2018, 1♀, leg. I. Kerimova; **Loc. 4:** 2-5.07.2019, 1♂, 1♀.

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**Figure 38. Libellula depressa**, male (Loc. 3).  
**Figure 39. Orthetrum coerulescens**, old female (Loc. 5).  
**Figure 40. Orthetrum brunneum**, males (Loc. 4).  
**Figure 41. Sympetrum sanguineum**, male (Loc. 14).
Libellulidae

Libellula depressa Linnaeus, 1758 (Fig. 38)

**Loc. 3:** 10-12.06.2019, 3♂; **Loc. 7:** 03.07.2019, 1♂.

Orthetrum cancellatum (Linnaeus, 1758)

**Loc. 1:** 27.06.2018, 3♂, 1♀, leg. I. Kerimova.

Orthetrum brunneum (Fonscolombe, 1837)

**Loc. 1:** 23.07.2017, 9♀, leg. I. Kerimova; 03.08.2017, 7♂♂, 1♂, leg. I. Kerimova; 5.07.2019, 1♂, 1♀; **Loc. 3:** 10-11.06.2019, 1♂; **Loc. 4:** 2-5.07.2019, 2♂♂, 1♀; **Loc. 5:** 2-5.07.2019, 1♂; **Loc. 6:** 03.07.2019, 2♂♂; **Loc. 9:** 11.07.2019, 2♂♂; **Loc. 15:** 24-25.08.2017, 1♀, leg. I. Kerimova; 19.07.2019, 1♂, 3♀♀.

Orthetrum coerulescens (Fabricius, 1798) (Figs. 39-40)

**Loc. 4:** 2-5.07.2019, 6♂♂, 4♀♀; **Loc. 5:** 2-5.07.2019, 6♂♂, 7♀♀; **Loc. 10:** 23.07.2019, 1♂; **Loc. 11:** 22.07.2019, 6♂♂, 2♀; **Loc. 15:** 24-25.08.2017, 1♀, leg. I. Kerimova; 19.07.2019, 2♂♂.

Orthetrum sabina (Drury, 1773)

**Loc. 11:** 23.07.2019, 1♀; **Loc. 15:** 19.07.2019, 1♂, 1♀.

Sympetrum flaveolum (Linnaeus, 1758)

**Loc. 1:** 23.07.2017, 1♀, leg. I. Kerimova; 03.08.2017, 2♂♂, leg. I. Kerimova; **Loc. 13:** 15.08.2016, 2♂♂, 2♀♀, leg. I. Kerimova; **Loc. 14:** 25.07.2019, 5♂♂; **Loc. 15:** 24-25.08.2017, 1♂, leg. I. Kerimova.

Sympetrum fonscolombii (Selys, 1840)

**Loc. 1:** 03.08.2017, 3♀♀, leg. I. Kerimova; 5.07.2019, 10♂♂, 6♀♀; **Loc. 7:** 03.07.2019, 1♂; **Loc. 8:** 8-11.07.2019, 3♂♂; **Loc. 11:** 23.07.2019, 1♀; **Loc. 15:** 19.07.2019, 2♂♂.

Sympetrum sanguineum (Muller, 1764) (Fig. 41)

**Loc. 1:** 5.07.2019, 1♀; **Loc. 3:** 10-12.06.2019, 1♂, 1♀; **Loc. 4:** 2-5.07.2019, 2♂♂; **Loc. 8:** 8-11.07.2019, 2♂♂, 1♀; **Loc. 14:** 25.07.2019, 1♂, 1♀.

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Figure 42. Sympetrum striolatum, female (Loc. 1).

Figure 43. Crocothemis erythraea, male (Loc. 4).
**Sympetrum meridionale** (Selys, 1841)

**Loc. 1**: 03.08.2017, 2♀

**Sympetrum striolatum** (Charpentier, 1840) (Fig. 42)

**Loc. 1**: 5.07.2019, 2♂, 1♀; **Loc. 3**: 10-12.06.2019, 3♂, 3♀; **Loc. 4**: 2-5. 07.2019, 1♂, 1♀; **Loc. 8**: 8-11.07.2019, 1♂; **Loc. 14**: 25.07.2019, 5♂, 2♀.

**Sympetrum vulgatum** Linnaeus, 1758

**Loc. 13**: 15.08.2016, 1♀, leg. I. Kerimova.

**Crocothemis erythraea** (Brullé, 1832) (Fig. 43)

**Loc. 1**: 5.07.2019, 1♂, 2♀; **Loc. 5**: 2-5.07.2019, 3♂, 1♀; **Loc. 10**: 23.07.2019, 1♂; **Loc. 15**: 19.07.2019, 2♀.

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


**Pantala flavescens** (Fabricius, 1798)

**Loc. 1**: 03.08.2017, 1♂, 1♀, leg. I. Kerimova.

**Discussion**

Below information on some rare species sampled during this study is provided.

*Lestes macrostigma* was recorded on the Caspian Sea coast in the Siyazan region. Prior, this species was recorded by Dumont (2004) in the Masalsky district and Durand (2019) in the Salyan district.

*Ischnura fountaineae* was found in the Absheron peninsular (Skvortsov & Snegovaya 2014) and in the vicinity of the Mingachevir water reservoir (Skvortsov & Snegovaya 2015), by Dumont (2004) in the Salyan district and Durand (2019) in the Salyan and Neftchala districts. Here, we document a record from the Caspian coast in the Siyazan district.

*Coenagrion scitulum* was recorded in the Shamakhy and Gadabay districts (Dumont 2004; Skvortsov & Snegovaya 2015). In this report we give a new locality for this species in the village Afurja of the Guba district.

*Lindenia tetraphylla* was known from the Absheron peninsular (Dumont, 2004; Skvotsoy & Snegovaya 2014) and the Yevlakh District (Tailly & Tabarroni 2006). During recent studies we have recorded this species in two localities on the Caspian coast: in the Siyazan district, opposite the Beshbarmak mountain and the Khachmaz district in the village of Nabran. Unlike previous collections, we have found both males and females. An old record from Lenkoran/Lankaran is documented by Selys-Longchamps (1887).

The larva of *Sympetrum vulgatum* was indicated by Kasymov (1972); in previous researches we caught this species on the Absheron peninsula and in the Shamakhi district. In this report we present information about our findings near Lake Maralgol (Goygol district).
Pantala flavescens was previously recorded by us in the Lankaran district. Prior, it was recorded at the same place by Bartenev (1910) at the beginning of the twentieth century. We caught it on the coast of the Caspian Sea in the Siyazan district.

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