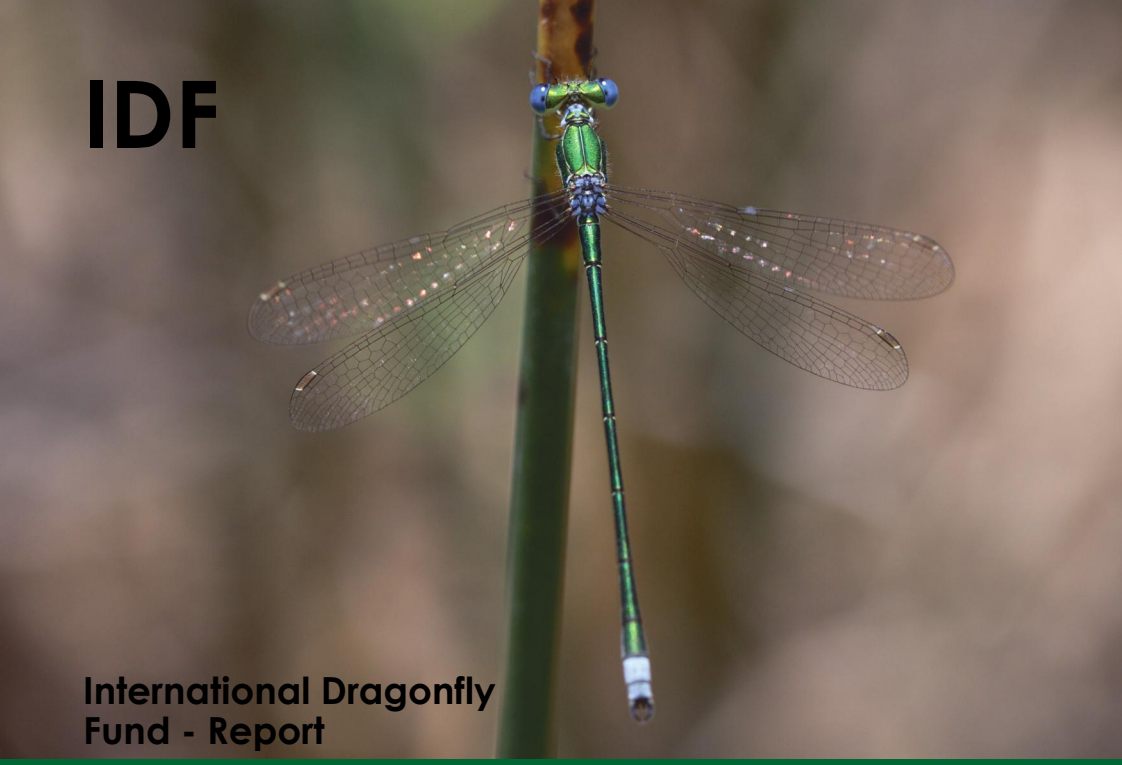

IDF

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1- 28

Nataly Yu. Snegovaya

Odonata collected in summer 2020 in Azerbaijan, including a new record of *Stylurus ubadschii* (Gomphidae) and the confirmation of *Aeshna cyanea* (Aeshnidae) for Azerbaijan

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Odonata collected in summer 2020 in Azerbaijan, including a new record of *Stylurus ubadschii* (Gomphidae) and the confirmation of *Aeshna cyanea* (Aeshnidae) for Azerbaijan

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Abstract

In summer 2020, 35 localities in eleven districts and the vicinity of the two cities Mingechevir and Baku were studied odonatologically. A total of 39 species from 8 families was recorded. *Stylurus ubadschii* Schmidt, 1953 is reported as new for the fauna of Azerbaijan. The first certified find of *Aeshna cyanea* (Müller, 1764) is also reported.

Keywords: Odonata, fauna, Azerbaijan, *Stylurus ubadschii, Aeshna cyanea, Onychogomphus assimilis*

Introduction

In 2020, we continued to investigate the dragonfly fauna of Azerbaijan. Despite the difficulties arising from the SARS-CoV 2-pandemic, we were able to conduct a full study in the summer of 2020. 11 districts (Neftchala, Agdash, Ghakh, Zagatala, Evlakh, Astara, Yardimli, Ismayilli, Gabala, Gedabek, Tovuz) and environs of two cities (Baku and Mingechevir) were surveyed, making a total of 35 sampling locations. In a previous work (Snegovaya 2020), we indicated that since the year 2000 24 out of 70 administrative districts and additionally all districts of the Nakhichevan Autonomic Republic in Azerbaijan were covered by dragonfly research activities. Research carried out this year added six more districts to this list (Agdash, Ghakh, Evlakh, Astara, Gabala, Tovuz).

Material and Methods

Sampling sites

Collection of odonate specimens was carried out from June 1 to August 11, in Baku as well as at the beginning of October. As in the previous work (Snegovaya 2020), we supplement the material collected in 2020 with unpublished material collected in 2016 in the Gabala district.

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

Localities (Fig. 1)

Neftchala district:

Loc. 1. Neftchala (Neftçala) city vicinity (N39°22'41.34" E49°15'31.28"; -26 m a.s.l.), environs of Neftchala city, a semi-desert area with hodgepodge vegetation (*Salsola* sp.) accompanying a channel with a width of about 2 m; the banks harbour *Phragmites* (reed), and *Tamarix* (tamarisk). There is a small brackish water spill not far from the canal (Fig. 2).

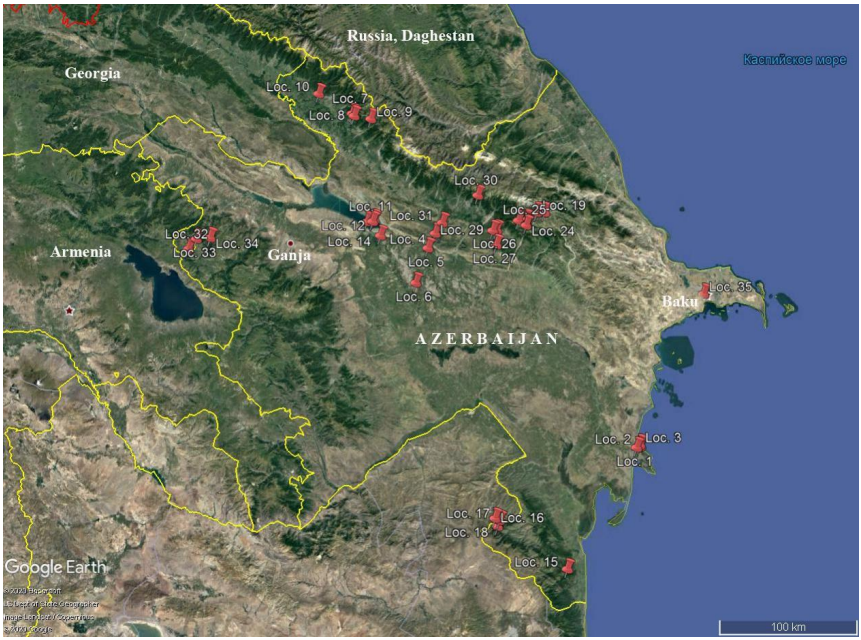

Figure 1. Map of localities.

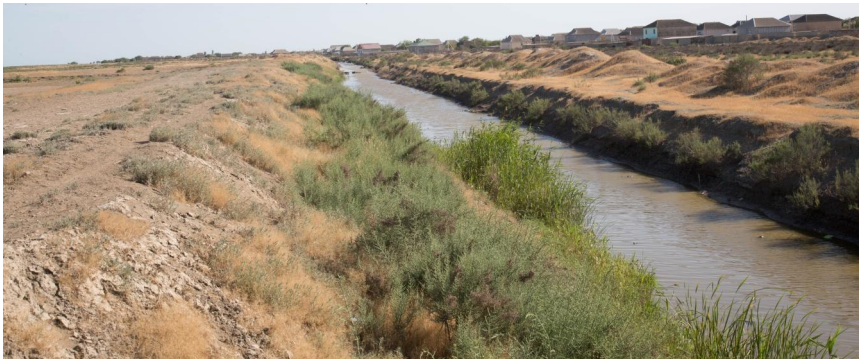

Figure 2. Neftchala district, environs of Neftchala city, channel in a semi-desert area.

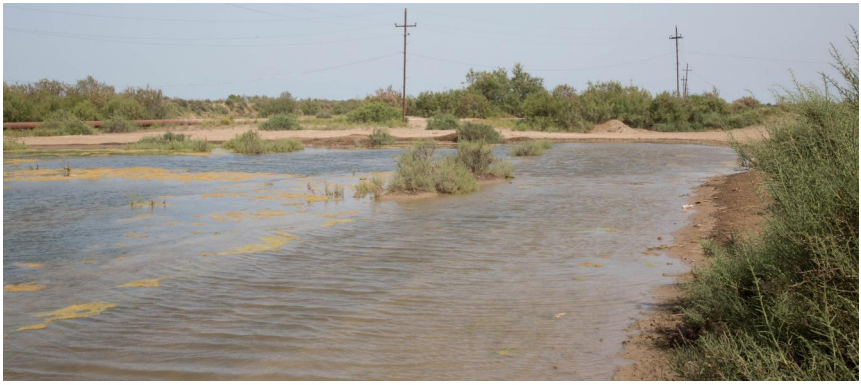

Figure 3. Neftchala district, freshwater and slightly salted floods near Kura coast.

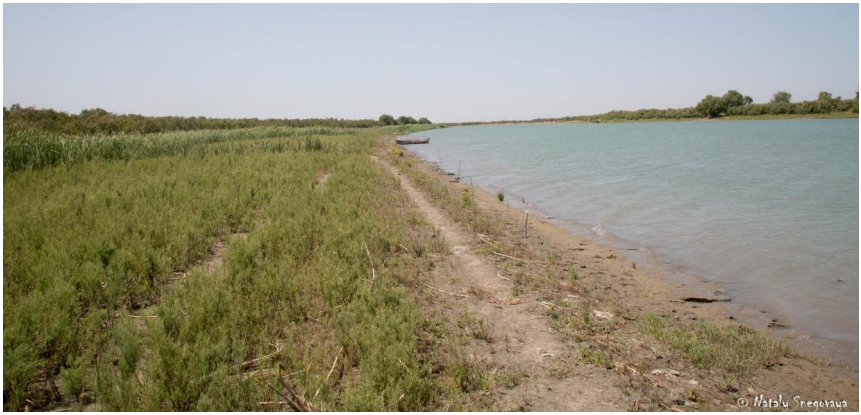

Figure 4. Neftchala district, bank of the Kura river.

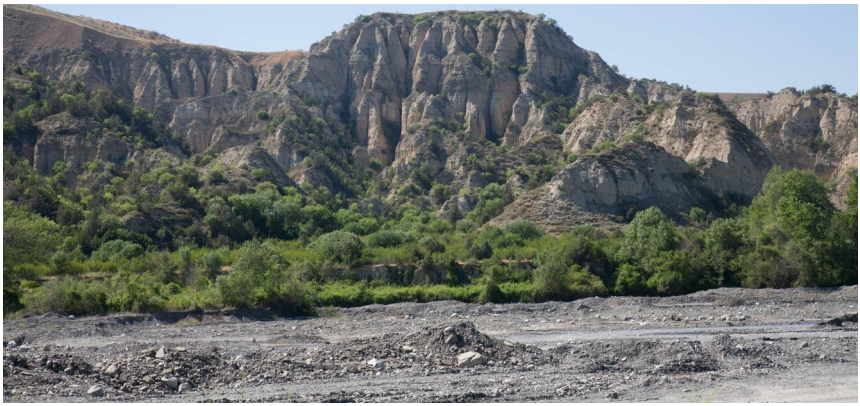

Figure 5. Agdash district, the banks of the Turianchai River in the Turianchai State reserve.

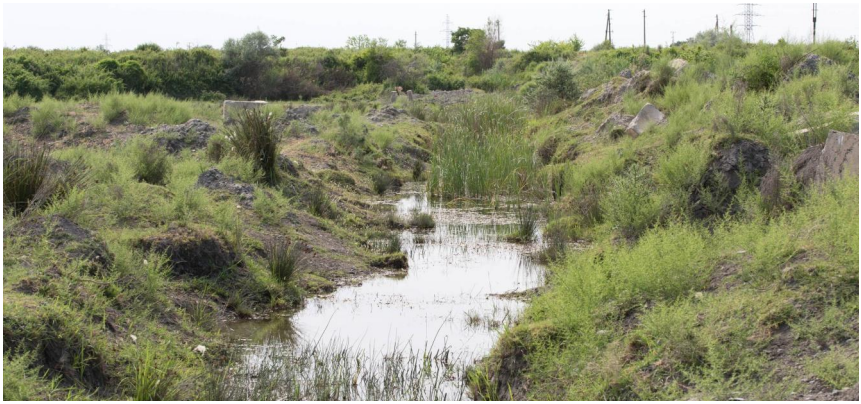

Figure 6. Agdash district, a small canal with fresh water near Gurjuva village.

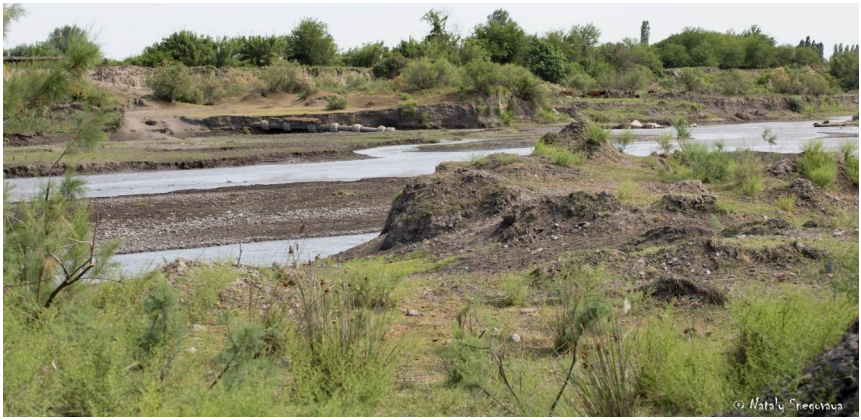

Figure 7. Agdash district, the alluvium of the Turianchai River near Gurjuva village.

Figure 8. Agdash district, Agzibir village, a system of oxbow lakes near the Kura River.

Figure 9. Ghakh district, Girkhbulag, a small forest river.

Figure 10. Ghakh district, Suskend, ponds in trout fish farm.

Loc. 2. Yenikend village, along the right bank of the Kura River (N39°23'11.52" E49°17'24.4"; -28 m a.s.l.), river banks with patches of *Phragmites*, *Tamarix*, *Juncus* (rushes). Nearby there are freshwater and slightly salted floods with tamarisk thickets, blackberry (*Rubus*) thickets, *Salsola* bushes, and sometimes *Phragmites* thickets (Fig. 3).

Loc. 3. Along the left bank of the Kura River (N39°23'45.58" E49°17'07.37"; -28 m a.s.l.), nearly the same site as the previous one, in places with denser thickets of *Tamarix* and *Rubus* (Fig. 4).

Agdash district:

Loc. 4. Turianchay State Reserve (N40°43'4.61" E47°33'8.83"; 119 m a.s.l.), a part of the reserve reaches the banks of the Turianchai River which are quite steep. The vegetation in the investigated area consists of pomegranate (*Punica*) trees, juniper (*Juniperus*) forests, wild pistachios (*Pistacia*), blackberry thickets (Fig. 5).

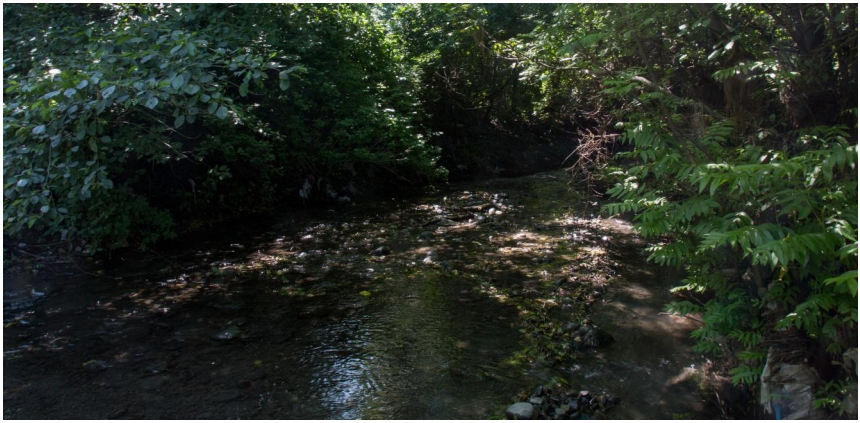

Figure 11. Zagatala district, near Abaeli village, small river with gravel banks.

Figure 12. Zagatala district, near Abaeli village, agricultural fields with forest belts; the locality of *Onychogomphus assimilis*.

Figure 13. Zagatala district, near Abaeli village, small narrow ditch-channel.

Loc. 5. Along Turianchay River, near Gurjuva village (N40°37'23.6" E47°29'44.82"; 24 m a.s.l.). The banks of the river are clayey, with shrubs of tamarisk, camel thorns (*Alhagi persarum*) and in some places thickets of blackberries, with small patches of horsetail (*Equisetum*). Nearby there is a site densely overgrown with rushes. A small canal with freshwater flows nearby, sections of water in the canal are completely overgrown with pondweed (*Potamogeton*), along the banks of the canal there are small areas of *Phragmites*, cattail (*Typha*), and camel thorn (Figs. 6-7).

Loc. 6. Agzibir village (N40°23'59.8" E47°24'6.49"; 15 m a.s.l.), a system of akhmaz lakes, that is oxbow lakes, near the Kura river. The shores are densely overgrown with various shrubs dominated by blackberries. Nearby there are pomegranate orchards, open areas are densely overgrown with camel thorns (Fig. 8).

Ghakh district:

Loc. 7. Girkhbulag (N41°28'14.6" E46°49'0.66"; 258 m a.s.l.), a meandering rivulet, flowing through a forest area. Near an open meadow with thickets of meadow vegetation (Fig. 9).

Loc. 8. Suskend, trout fish farm (N41°27'19.66" E46°50'04.49"; 285 m a.s.l.), fish ponds, shores with herbaceous vegetation, sometimes cattails, often willow (*Salix*) trees and bushes, and horsetail thickets in wetlands (Fig. 10).

Loc. 9. Ghakhbash village (N41°26'22.39" E46°58'41.7"; 821 m a.s.l.), environs of Ghakhbash village, a small stream near the village, mown meadows with areas of the garden.

Zagatala district:

Loc. 10. Near Abaeli village (N41°35'26.19" E46°31'23.89"; 286 m a.s.l.), agricultural fields with plots of alfalfa (*Medicago*), corn (*Zea mays*) and other crops, as well as meadows with herbs. Between the plots, there are forest belts where a small river with gravel banks flows. Not far from this place there is a small narrow ditch-channel, adjacent to the forest part (Figs. 11-13).

Loc. 11. Mingechevir city, scientific base of the Institute of Zoology (N40°46'55.67" E47°1'26.97"; 58 m a.s.l.), fish ponds, the banks of a large pond with *Phragmites* thickets.

Figure. 14. Mingechevir water reservoir shore near Mingechevir city.

Loc. 12. Mingechevir city, Mingechevir water reservoir beach (N40°47'37.6" E47°2'11.02"; 82 m a.s.l.), banks are rocky, at a short distance from the lakeside there are areas with camel thorns and hodgepodge (Fig. 14).

Loc. 13. Mingechevir city, water spills near the Karabakh channel (N40°46'50.31" E46°58'44.09"; 62 m a.s.l.), small freshwater spills with thickets of cattail, tamarisk bushes and camel thorn in drier places. The canal itself also has small reed thickets and tamarisk bushes along the banks (Fig. 15).

Evlakh district:

Loc. 14. Varvara water reservoir (N40°41'36.15" E47°5'36.66"; 32 m a.s.l.), banks of the reservoir are densely overgrown with reed, cattails, rushes, and more dry areas with camel thorns. There are small spills near the reservoir, also overgrown with reeds and cattails, dry areas are overgrown with rushes and camel thorn, and tamarisk bushes are also found (Figs. 16-17).

Astara district:

Loc. 15. near Vasharuchay river and on slopes near the river (N38°34'14.18" E48°37'4.67"; 796 m a.s.l.), banks of the river with various bushes, overgrown with blackberries, near the river there are small bays with stagnant water (Fig. 18).

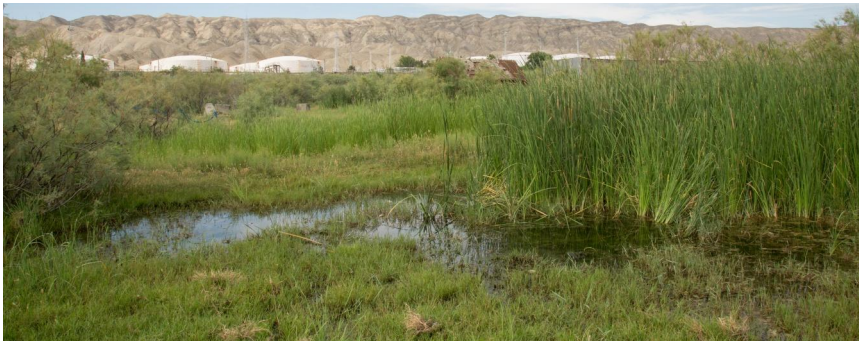

Figure 15. Mingechevir city, water spills near the Karabakh channel.

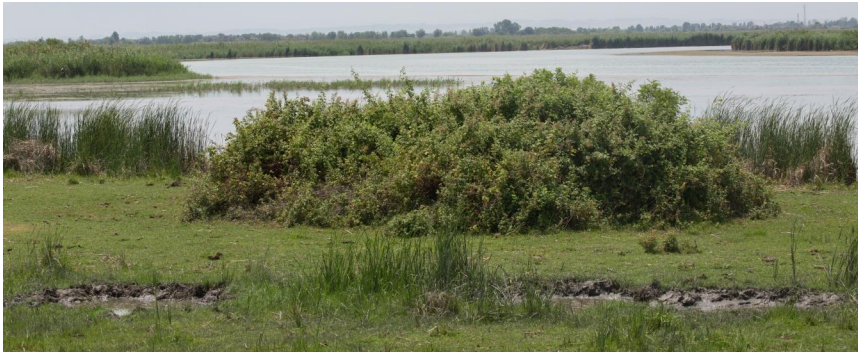

Figure 16. Evlakh district, banks of the Varvara water reservoir.

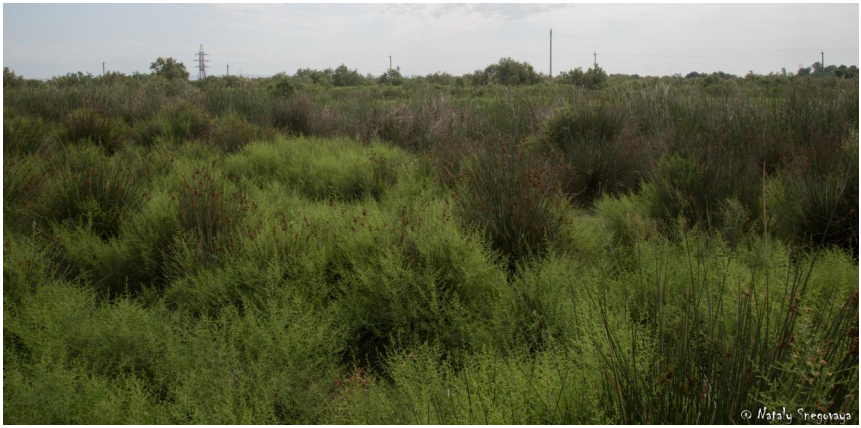

Figure 17. Evlakh district, small spills near the reservoir overgrown with tamarisk (*Tamarix*) bushes, camel thorn (*Alhagi persarum*) and rushes (*Juncus* sp.).

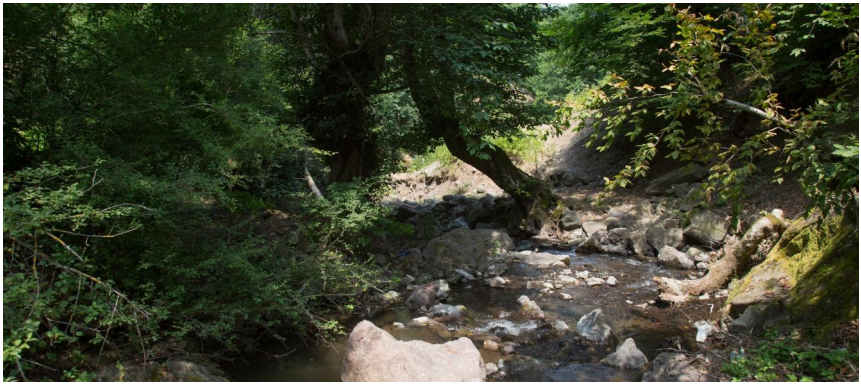

Figure 18. Astara district, Vasharuchay river.

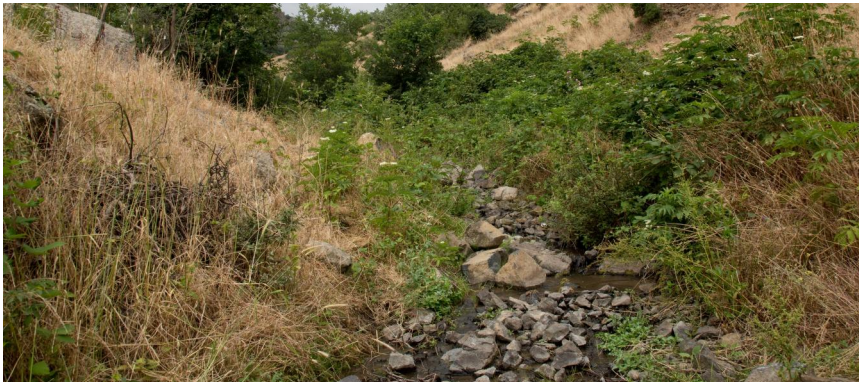

Figure 19. Yardimli district, a small river near Perimbel village.

Figure 20. Yardimli district, a small pond near Shefegli settlement.

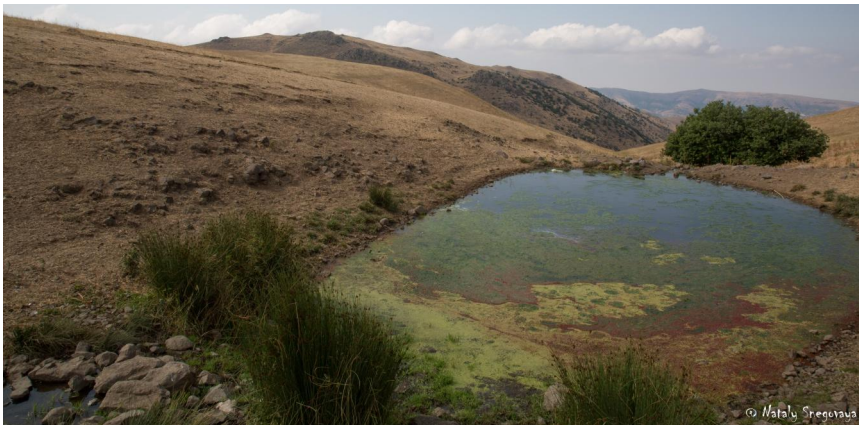

Figure 21. Yardimli district, a pond at the foot of Mount Uzubashi near Kurekchi village.

Yardimli district:

Loc. 16. Small river near Perimbel village (N38°55'2.13" E48°6'11.21"; 1276 m a.s.l.), a small river flowing between two hills, the channel partly passes through thickets of blackberries, some stretches are open; there are also elder (*Sambucus*) bushes, some large trees and bushes (Fig. 19).

Loc. 17. Near Shefegli settlement (N38°54'16.46" E48°8'21.03"; 1053 m a.s.l.), 2 small ponds separated by a dam; the banks are clayey, overgrown with grass and partly willow bushes and trees; not far away there is a forested hill (Fig. 20).

Loc. 18. Near Kurekchi village, a pond at the foot of Mount Uzubashi (N38°51'17.69" E48°7'29.59"; 2143 m a.s.l.) overgrown with blue-green algae (Cyanobacteria) and spirogyra (*Spirogyra*), along the banks grow rush, the banks are stony-clayey (Fig. 21).

Figure 22. Ismayilli district, small water bodies along the Lahij-Demirchi road (point 1).

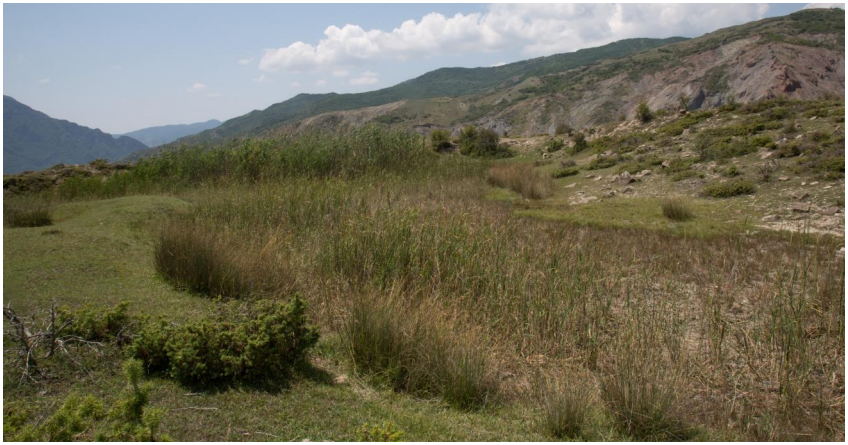

Fig. 23. Ismayilli district, another small water body along the Lahij-Demirchi road (point 2).

Ismayilli district:

Loc. 19. Lahij-Demirchi road, 1-st point (N40°51'58.89" E48°24'12.46"; 1368 m a.s.l.), small water bodies along the road, partially dry, with clayey banks, overgrown with reed, cattails and rushes (Fig. 22).

Loc. 20. Lahij-Demirchi road, 2nd point (N40°52'0.92" E48°24'25.95"; 1368 m a.s.l.), similar to the previous point, but larger (Fig. 23).

Loc. 21. Lahij-Demirchi road, 3rd point (N40°52'1.78" E48°28'9.51"; 1850 m a.s.l.), a small, shallow body of water, partly overgrown with *Phragmites* and *Juncus*, along the banks with *Typha*; near the shore with *Juniperus* (Fig. 24).

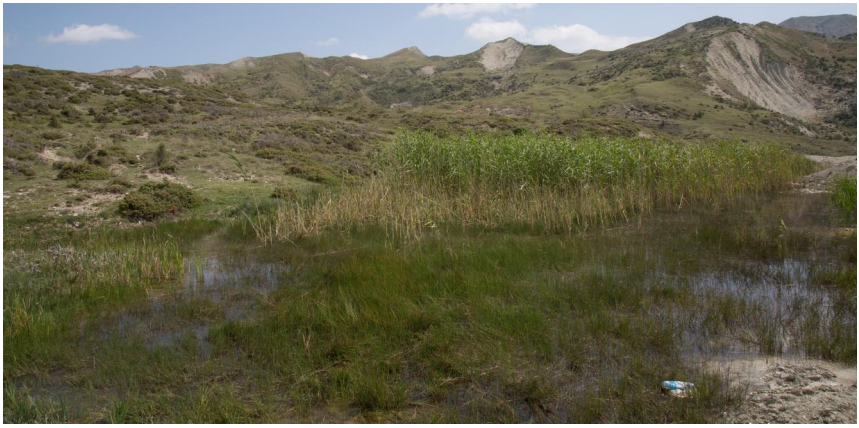

Fig. 24. Ismayilli district, a small body of water with *Phragmites, Juncus, Typha* and *Juniperus* bushes.

Fig. 25. Ismayilli district, spill near the Girdymanchay river in the surroundings of the Gandov village.

Loc. 22. Road from Garagaya to Lahich, near Gandov village, spill near the Girdymanchay river (N40°49'6.33" E48°19'15.85"; 944 m a.s.l.), small spills along the river, smaller areas of muddy thickets from stonewort, stony-clayey banks, grassy vegetation (Fig. 25).

Loc. 23. Pond near Garagaya village (N40°47'18.61" E48°18'56.94"; 862 m a.s.l.. A large pond with a free surface in the middle of the reservoir and surrounded by *Phragmites* thickets; a small canal with horsetail-vegetation along the banks drains to the pond; the channel is shaded by trees (Fig. 26).

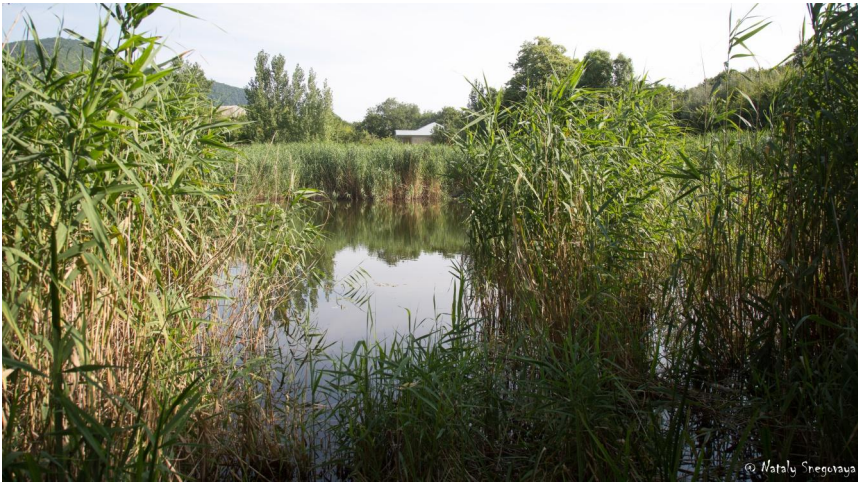

Fig. 26. Ismayilli district, large pond with extensive reed belt near Garagaya village.

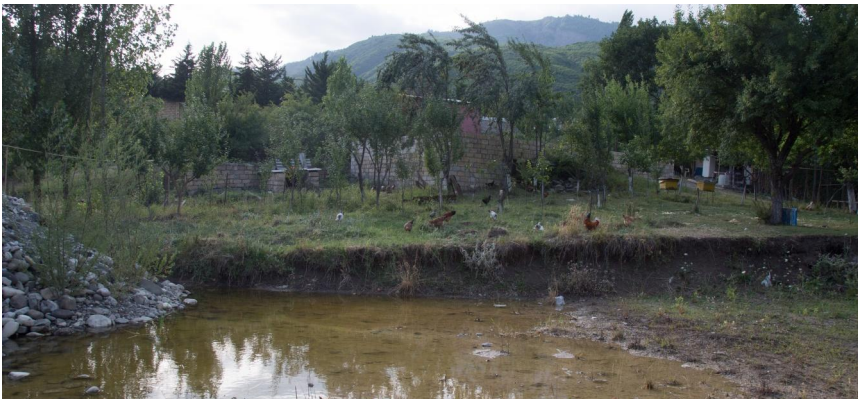

Fig. 27. Ismayilli district, rainwater pond in the courtyard of the house in Garagaya village.

Loc. 24. Garagaya village (N40°46'59.65" E48°18'55.95"; 853 m a.s.l.), a shallow water body in the courtyard of the house, filled with water, probably from a previous rain incident (Fig. 27).

Loc. 25. Garagaya village along Girdimanchay river (N40°47'11.21" E48°19'6.72"; 844 m a.s.l.). The forest area along the river with small glades and small floods near the road (Fig. 28).

Loc. 26. Ashigbayramli water reservoir (N40°44'56.9" E48°4'1.52"; 530 m a.s.l.). One side of the reservoir is densely covered with thickets of *Paliurus* shrubs and other trees mixed with thickets of blackberries and elderberries, as well as large trees.

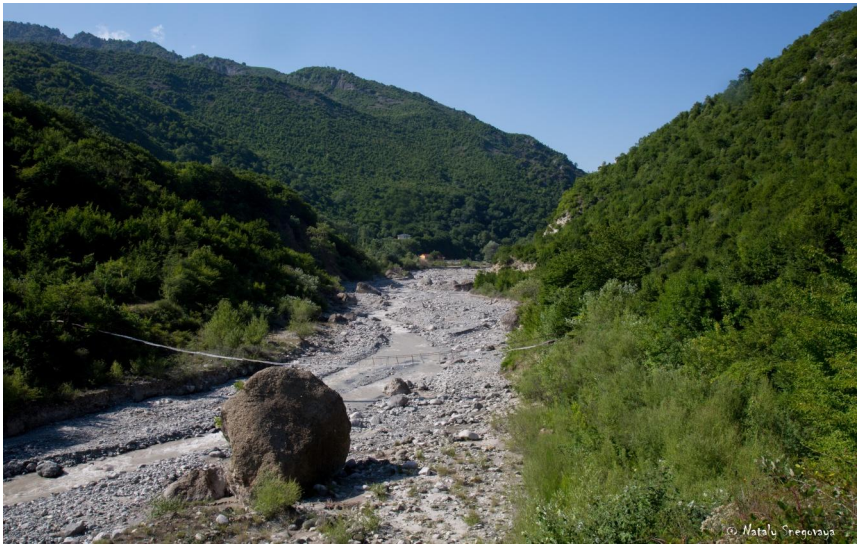

Fig. 28. Ismayilli district, Garagaya village, a stretch of Girdimanchay river.

Fig. 29. Ismayilli district, Ashigbayramli water reservoir.

Part of the shore is overgrown with *Phragmites* and *Typha*; nearby there are large flat areas densely overgrown with *Typha* and *Carex* (Figs. 29-30).

Loc. 27. Ekakhana water reservoir (N40°39'18.91" E48°4'6.63"; 225 m a.s.l.), banks of the reservoir are clayey, the vegetation along the banks is made of camel thorn. A little higher than the reservoir a small canal flows, along the banks of which various herbaceous vegetation grows - dried thistle (*Carduus*), camel thorn, various hodge-podge species (Figs. 31-32).

Loc. 28. Garanokhur lake (N40°48'45.52" E48°15'0.99"; 1513 m a.s.l.). Mountain lake in the forest and a road through the forest to this lake along the river; on the shores

Fig. 30. Ismayilli district, Ashigbayramli water reservoir, part of the shore is overgrown with *Phragmites* and *Typha*.

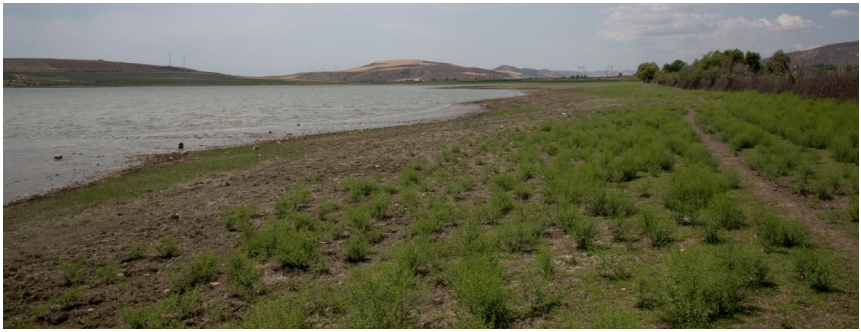

Fig. 31. Ismayilli district, the shore of the Ekakhana water reservoir.

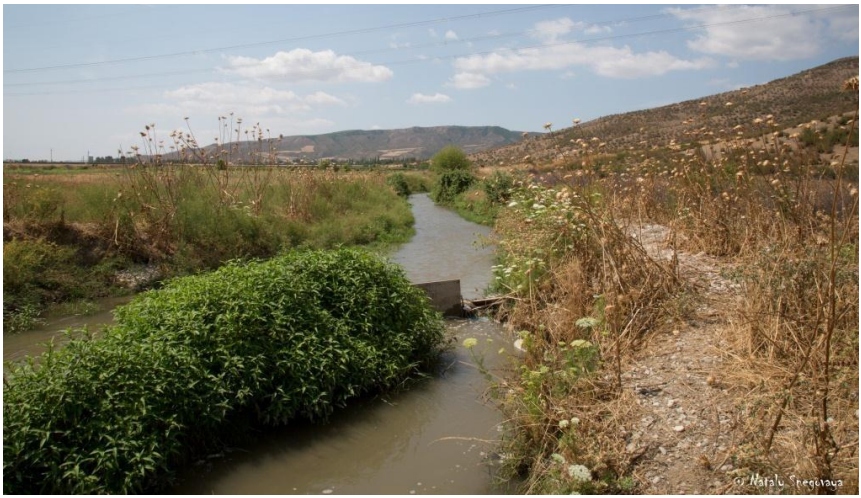

Fig. 32. Ismayilli district, small channel near Ekakhana water reservoir.

of the lake there are small areas with *Phragmites*, the rest of the shore is overgrown with low bushes, many trunks of fallen trees in the water (Fig. 33).

Loc. 29. Ivanovka village (N40°44'42.7" E48°2'8.92"; 814 m a.s.l.), a small pond in a village with clay banks overgrown with tall *Phragmites*, the lake surface is densely overgrown with pondweed; the pond is surrounded by large trees, mostly willow (Fig. 34).

Gabala district:

Loc. 30. Near Nohurgishlag village (N40°58'04.7" E47°54'16.1"; 708 m a.s.l.), a small river passing through a forest, with a rocky bottom and stony-clay banks, sometimes hidden by thickets of blackberries and various bushes (Fig. 35).

Loc. 31. Savalan village vicinity (N40°47'14.45" E47°36'38.16"; 193 m a.s.l.). A section of the bank along the Turianchay river, the banks are clay-stony; at some distance from the river there are areas with water spills with thickets of *Rubus*, *Salix*) trees, *Tamarix*-bushes, sometimes spills with small thickets of *Typha* and low *Phragmites* (Fig. 36).

Fig.33. Ismayilli district, Garanokhur lake; the locality of *Aeshna cyanea*.

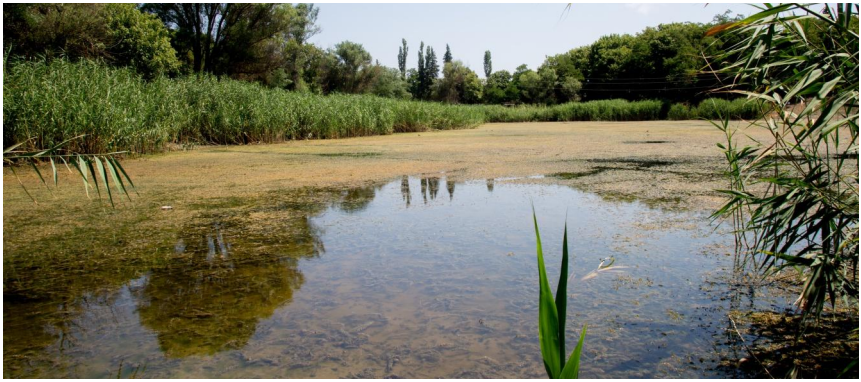

Fig. 34. Ismayilli district, pond in Ivanovka village.

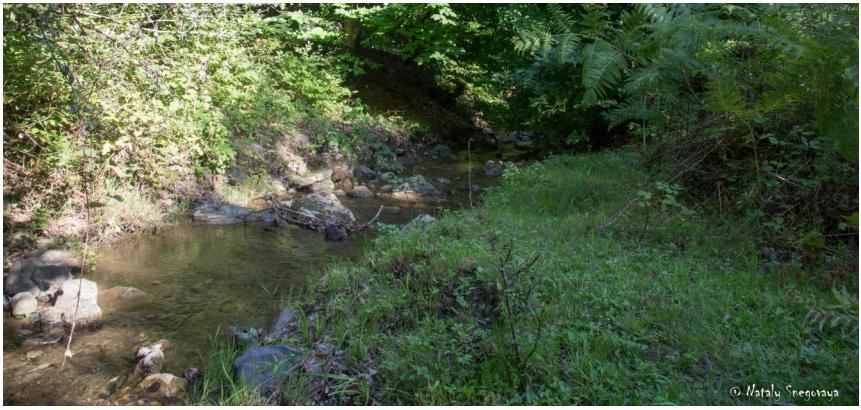

Fig. 35. Gabala district, a small river passing through a forest near Nohurgishlag village.

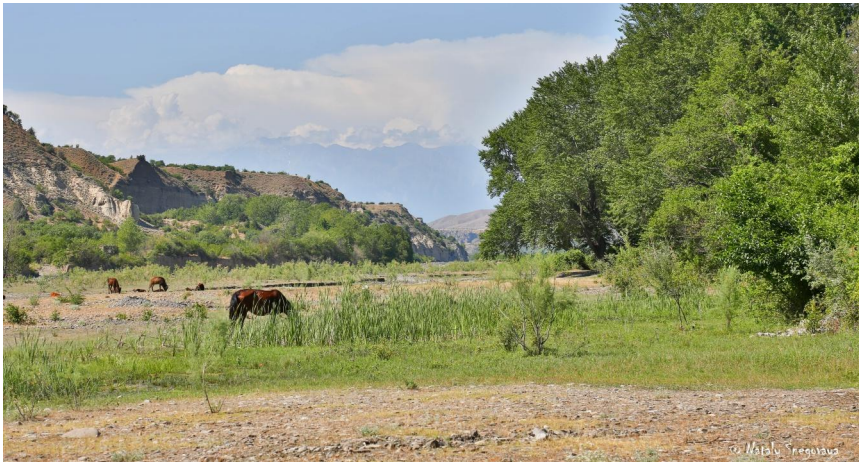

Fig. 36. Gabala district, Savalan village vicinity, a section of the bank along the Turianchay river.

Gedabek district:

Loc. 32. Near Novoivanovka village (N40°33'36.53" E45°28'55.02"; 1620 m a.s.l.), a small stream flowing through the forest, below there are water spills with thickets of water mint (*Mentha aquatica*) and other plant species, some parts with thickets of blackberries along the banks (Fig. 37).

Loc. 33. Bashkendgol lake (N40°37'38" E45°32'40"; 1400m a.s.l.), 8 km south of Novo-saratovka settlement. A medium-size mountain lake with tall grass stands along the waterline. On its northern bank, there is a group of small shallow water bodies overgrown with *Typha* in many places. Some parts of the lakeside are overgrown with *Phragmites* and *Typha* (Fig. 38).

Loc. 34. Tovuz district, water spills near Zayamchay river (N40°38' 18.39" E45°39'36.99"; 1060 m a.s.l.), rocky shores with grassy vegetation with small water spills in some areas, with thickets of willow (Fig. 39).

Loc. 35. Absheron, Botanical garden (N40°21'28.66" E49°48'59.64"; 132 m a.s.l.), a site near irrigation pools, glades between trees, vegetation with grass and shrubs (Fig. 40).

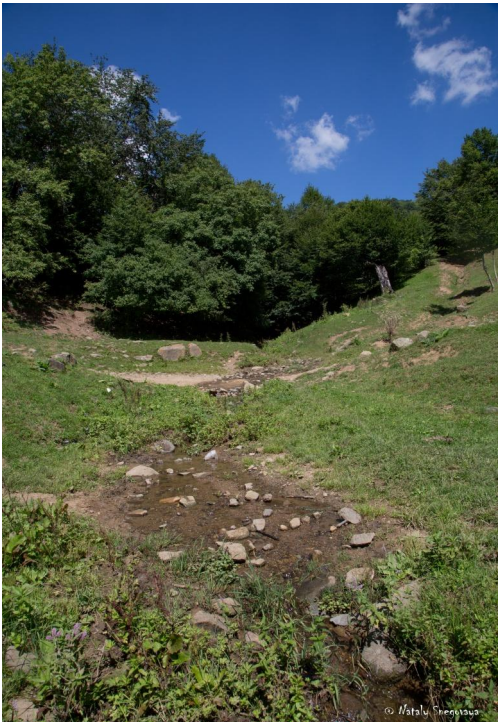

Fig. 37. Gedabek district, a small stream near Novoivanovka village.

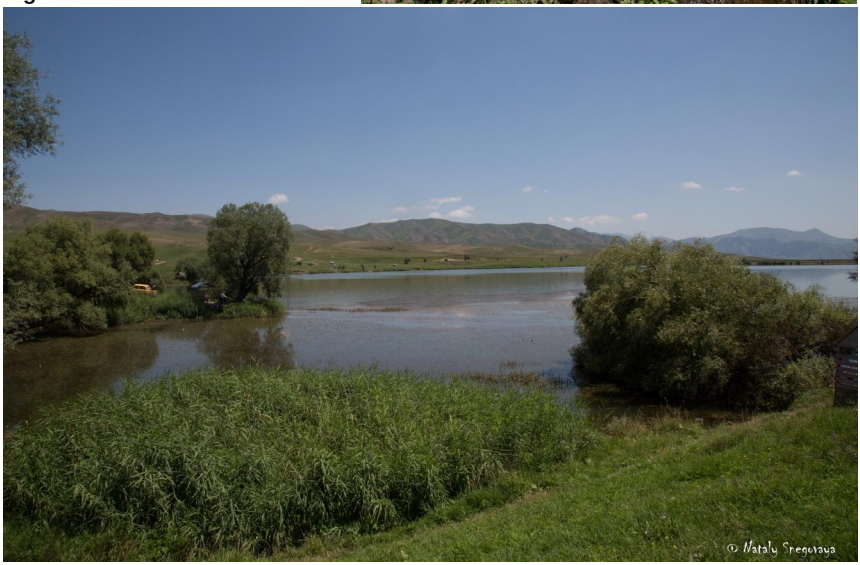

Fig. 38. Gedabek district, Bashkendgol lake.

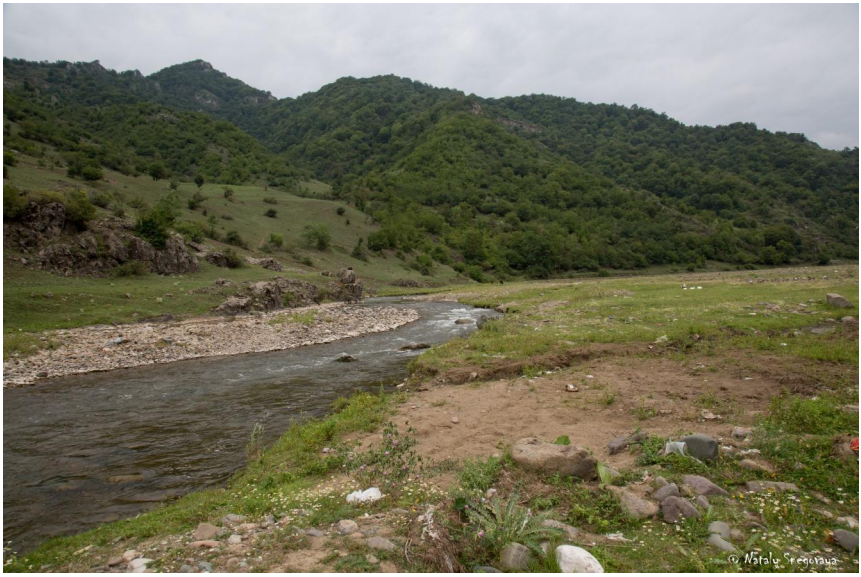

Fig. 39. Tovuz district, water spills near Zayamchay river.

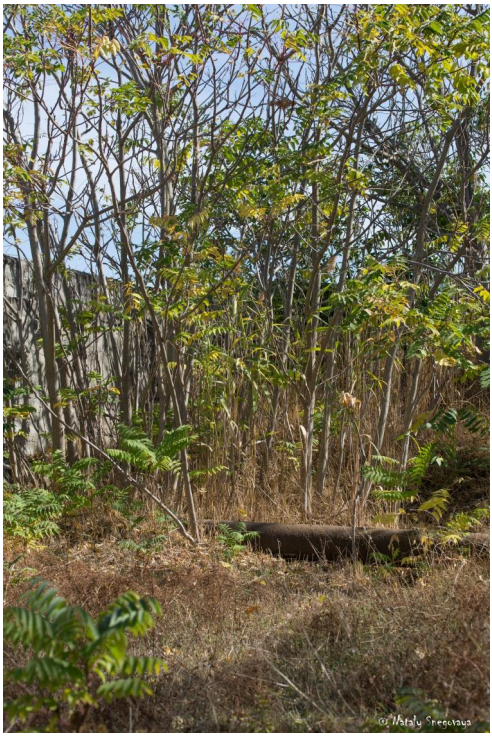

Fig. 40. Absheron, Baku Botanical garden, a site near irrigation pools.

Results

A total of 39 odonate species was recorded; records are documented specieswise.

Recorded species

Calopterygidae

Calopteryx splendens intermedia (Selys, 1887)

Loc. 5. 1♂ 1♀, 10.06.2020; Loc. 7. 4♂♂ 1♀, 20.06.2020; Loc. 8. 2♂♂, 20.06.2020; Loc. 10. 1♂, 23.06.2020; Loc. 30. 3♂♂, 26.07.2020; 2♂♂ 1♀, 6.07.2016; Loc. 31. 2♂♂, 09.06.2020.

Calopteryx splendens orientalis (Selys, 1887)

Loc. 15. 1♂, 09.07.2020.

Calopteryx virgo festiva (Brullé, 1832) (Fig. 41)

Loc. 7. 1♂ 2♀♀, 20.06.2020; Loc. 10. 1♂, 23.06.2020.

Euphaeidae

Epallage fatime Charpentier, 1840

Loc. 16. 2♂♂, 12.07.2020; Loc. 16. 1♀, 11.07.2020.

Lestidae

Sympecma fusca (Vander Linden. 1820)

Loc. 1. 2♀♀, 01.06.2020; Loc. 4. 1♂, 10.06.2020; Loc. 6. 1♂, 11.06.2020; Loc. 9. 2♂♂ 3♀♀, 20.06.2020; Loc. 13. 1♂ 1♀, 30.06.2020; Loc. 16. 2♂♂ 2♀♀, 11.07.2020; Loc. 19. 3♂♂ 1♀, 28.07.2020; Loc. 20. 1♂, 28.07.2020; Loc. 28. 1♀, 25.07.2020; Loc. 29. 1♀, 23.07.2020; Loc. 30. 2♂♂ 3♀♀, 26.07.2020; 2♀♀, 6.07.2016; Loc. 31. 1♀, 09.06.2020; Loc. 32. 1♀, 9.08.2020.

Lestes barbarus (Fabricius, 1798) (Fig. 42)

Loc. 5. 2♂♂ 1♀, 10.06.2020; Loc. 14. 1♂ 2♀, 01.07.2020; Loc. 20. 3♂♂, 28.07.2020; Loc. 26. 2♂♂ 2♀♀, 23.07.2020.

Lestes dryas Kirby, 1890 (Fig. 43)

Loc. 20. 2♂♂ 1♀, 28.07.2020.

Lestes sponsa Hansemann, 1823

Loc. 19. 3♂♂, 28.07.2020.

Lestes virens Rambur, 1842 (Fig. 44)

Loc. 6. 1♀, 11.06.2020; Loc. 19. 3♂♂ 2♀♀, 28.07.2020; Loc. 20. 10♂♂ 4♀♀, 28.07.2020; Loc. 22. 1♀, 28.07.2020.

Coenagrionidae

Ischnura pumilio (Charpentier, 1825)

Loc. 10. 1♂ 1♀, 23.06.2020; Loc. 13. 1♂, 30.06.2020; Loc. 15. 3♂♂ 2♀♀, 09.07.2020; Loc. 16. 2♂♂, 11.07.2020; Loc. 18. 3♂♂, 13.07.2020; Loc. 22. 3♂♂ 2♀♀, 28.07.2020; Loc. 26. 8♂♂ 1♀, 23.07.2020; Loc. 29. 2♂♂, 23.07.2020; Loc. 30. 2♂♂ 3♀♀, 6.07.2016; Loc. 31. 3♂♂ 1♀, 09.06.2020; Loc. 34. 8♂♂ 4♀♀, 11.08.2020.

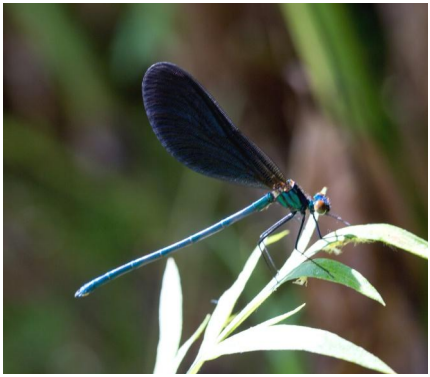

Fig. 41. *Calopteryx virgo festiva* (Brullé, 1832), male (Loc. 10).

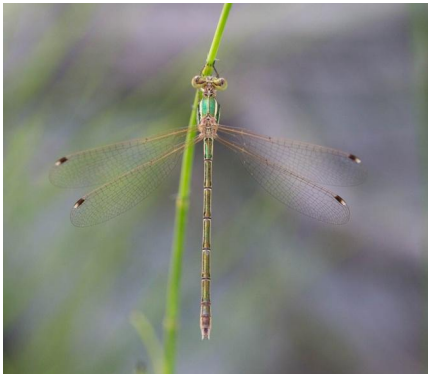

Fig. 42. *Lestes barbarus* (Fabricius, 1798), female (Loc. 5).

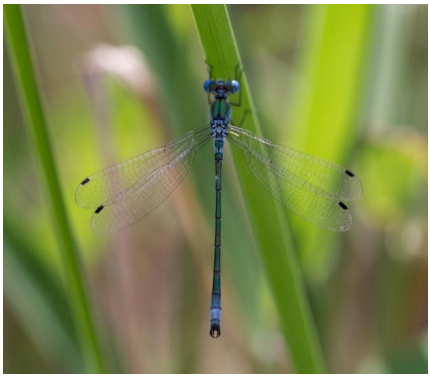

Fig. 43. *Lestes dryas* Kirby, 1890, male (Loc. 19).

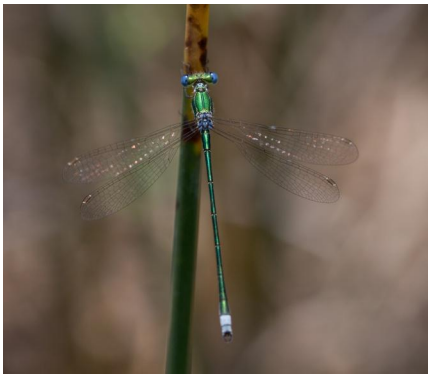

Fig. 44. *Lestes virens* Rambur, 1842, male (Loc. 19).

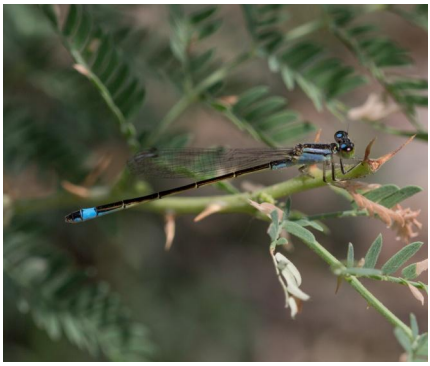

Fig. 45. *Ischnura elegans* (Vander Linden, 1820), female (Loc. 3).

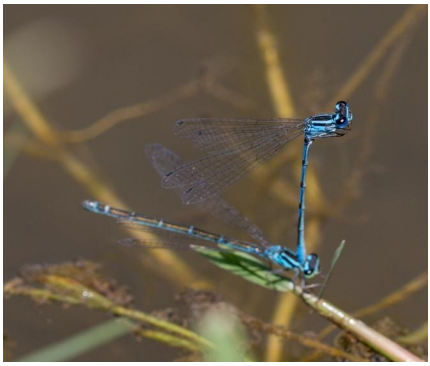

Fig. 46. *Coenagrion puella* (Linnaeus, 1758), copula (Loc. 10).

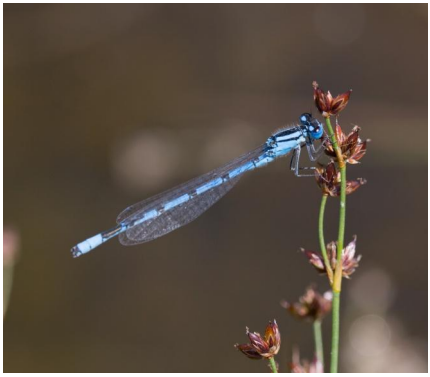

Fig. 47. *Enallagma cyathigerum* (Charpentier, 1840), male (Loc. 19).

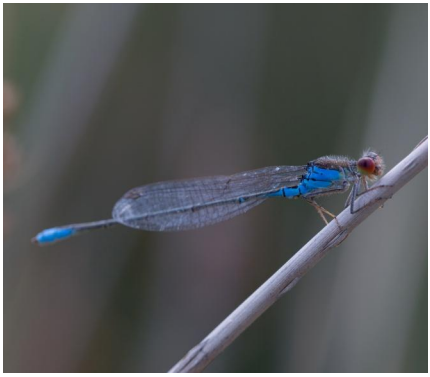

Fig. 48. *Erythromma viridulum orientale* Schmidt, 1960, male (Loc. 14).

Fig. 49. *Aeshna cyanea* (Müller, 1764), male (Loc. 28).

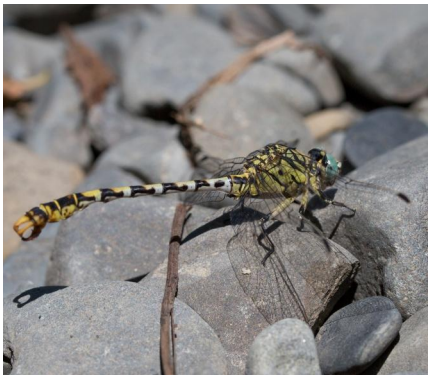

Fig. 50. *Onychogomphus forcipatus albotibialis* Schmidt, 1954, male (Loc. 10).

Fig. 51. *Onychogomphus assimilis* (Schneider, 1845), female (Loc. 10).

Fig. 52. *Stylurus ubadschii* Schmidt, 1953, male (Loc. 3).

Ischnura elegans (Vander Linden, 1820) (Fig. 45)

Loc. 2. 1♂♂ 3♀♀, 02.06.2020; Loc. 3. 1♂, 02.06.2020; Loc. 5. 1♂ 3♀♀, 10.06.2020; Loc. 6. 2♂♂ 2♀♀, 11.06.2020; Loc. 8. 2♂♂ 1♀, 20.06.2020; Loc. 11. 1♀, 29-30.06.2020; Loc. 13. 2♂♂, 30.06.2020; Loc. 14. 4♂♂3♀♀, 01.07.2020; Loc. 17. 3♂♂, 12.07.2020; Loc. 33. 4♂♂ 3♀♀, 10.08.2020.

Ischnura fountaineae Morton, 1905

Loc. 1. 3♂♂ 1♀, 01.06.2020; Loc. 2. 4♂♂, 02.06.2020; Loc. 3. 2♂♂ 1♀, 02.06.2020.

Coenagrion puella (Linnaeus, 1758) (Fig. 46)

Loc. 10. 3♂♂ 1♀, 23.06.2020; Loc. 18. 1♂, 13.07.2020; Loc. 21. 1♂ 1♀, 28.07.2020; Loc. 27. 1♀, 24.07.2020; Loc. 30. 3♂♂ 1♀, 6.07.2016; Loc. 31. 3♂♂, 09.06.2020.

Enallagma cyathigerum (Charpentier. 1840) (Fig. 47)

Loc. 19. 6♂♂ 1♀, 28.07.2020; Loc. 33. 6♂♂, 10.08.2020.

Erythromma viridulum orientale Schmidt, 1960 (Fig. 48)

Loc. 6. 4♂♂, 11.06.2020; Loc. 14. 2♂♂, 01.07.2020; Loc. 29. 6♂, 23.07.2020.

Platycnemididae

Platycnemis dealbata Selys in Selys and Hagen, 1850

Loc. 4. 1♂, 10.06.2020; Loc. 5. 2♂♂♀, 10.06.2020; Loc. 6. 1♂, 11.06.2020; Loc. 8. 6♂♂ 1♀, 20.06.2020; Loc. 10. 2♂♂, 23.06.2020; Loc. 11. 1♀, 29-30.06.2020; Loc. 13. 3♂♂, 30.06.2020; Loc. 14. 1♀, 01.07.2020; Loc. 21. 2♂♂, 28.07.2020; Loc. 26. 7♂♂ 1♀, 23.07.2020; Loc. 31. 4♂♂ 1♀, 09.06.2020; Loc. 34. 2♀♀, 11.08.2020.

Aeshnidae

Anax imperator Leach, 1815

Loc. 10. 2♂♂, 23.06.2020; Loc. 33. 1♂, 10.08.2020.

Anax parthenope (Selys, 1839)

Loc. 5. 1♂, 10.06.2020.

Aeshna cyanea (Müller, 1764) (Fig. 49)

Loc. 28. 1♂, 25.07.2020.

Aeshna affinis Vander Linden, 1820

Loc. 17. 1♂, 12.07.2020; Loc. 20. 1♂, 28.07.2020; Loc. 30. 1♂, 6.07.2016.

Aeshna mixta Latreille, 1805

Loc. 16. 1♂, 11.07.2020; Loc. 18. 1♀, 13.07.2020; Loc. 32. 1♀, 9.08.2020; Loc. 30. 7♂♂, 7.07.2016.

Caliaeshna microstigma (Schneider 1845)

Loc. 7. 1♂ 2♀♀, 20.06.2020; Loc. 8. 1♂, 20.06.2020.

Gomphidae

Onychogomphus forcipatus albotibialis Schmidt, 1954 (Fig. 50)

Loc. 4. 1♂, 10.06.2020; Loc. 10. 2♂♂ 1♀, 23.06.2020; Loc. 16. 1♂, 12.07.2020; Loc. 26. 3♂♂, 23.07.2020; Loc. 30. 3♂♂, 26.07.2020; 4♂♂, 7.07.2016.

Onychogomphus assimilis (Schneider, 1845) (Fig. 51)

Loc. 10. 1♀, 23.06.2020.

Stylurus ubadschii Schmidt, 1953 (Fig. 52)

Loc. 3. 1♂, 02.06.2020.

Libellulidae

Libellula depressa Linnaeus, 1758

Loc. 10. 1♀, 23.06.2020; Loc. 30. 1♂, 26.07.2020; 1♂, 6.07.2016.

Orthetrum brunneum (Fonscolombe, 1837)

Loc. 4. 1♂, 10.06.2020; Loc. 10. 1♂, 23.06.2020; Loc. 15. 1♂, 09.07.2020; Loc. 16. 1♂, 12.07.2020; Loc. 16. 1♂, 11.07.2020; Loc. 20. 1♂ 1♀, 28.07.2020; Loc. 27. 2♂♂, 24.07.2020; Loc. 30. 1♂, 6.07.2016.

Orthetrum cancellatum (Linnaeus, 1758)

Loc. 1. 2♂♂, 01.06.2020; Loc. 6. 1♂, 11.06.2020; Loc. 14. 3♀♀, 01.07.2020; Loc. 26. 1♂ 1♀, 23.07.2020.

Orthetrum coerulescens (Fabricius, 1798)

Loc. 6. 1♂ 1♀, 11.06.2020; Loc. 10. 1♂, 23.06.2020; Loc. 11. 1♀, 29-30.06.2020; Loc. 13. 1♂, 30.06.2020; Loc. 21. 1♀, 28.07.2020; Loc. 22. 2♂♂, 28.07.2020; Loc. 25. 4♂♂ 1♀, 27.07.2020; Loc. 26. 1♀, 23.07.2020; Loc. 27. 1♂ 4♀♀, 24.07.2020; Loc. 30. 2♂♂ 1♀, 7.07.2016; Loc. 31. 2♂♂ 1♀, 09.06.2020.

Orthetrum albistylum (Selys 1848) (Fig. 53)

Loc. 1. 1♂, 01.06.2020; Loc. 5. 1♂ 1♀, 10.06.2020; Loc. 6. 1♂, 11.06.2020; Loc. 14. 1♀, 01.07.2020; Loc. 26. 2♂♂ 1♀, 23.07.2020; Loc. 31. 1♂, 09.06.2020; Loc. 33. 2♂♂, 10.08.2020.

Orthetrum sabina (Drury, 1773) (Fig. 54)

Loc. 1. 1♂ 1♀, 01.06.2020; Loc. 2. 2♀♀, 02.06.2020; Loc. 5. 1♀, 10.06.2020; Loc. 11. 1♀, 29-30.06.2020; Loc. 13. 1♀, 30.06.2020; Loc. 14. 1♂ 2♀♀, 01.07.2020.

Sympetrum fonscolombii (Selys, 1840) (Fig. 55)

Loc. 2. 2♂♂, 02.06.2020; Loc. 3. 2♂♂ 7♀♀, 02.06.2020; Loc. 15. 1♀, 09.07.2020; Loc. 19. 1♂, 28.07.2020; Loc. 20. 1♀, 28.07.2020; Loc. 27. 1♂ 1♀, 24.07.2020; Loc. 35. 1♂1♀, 12.10.2020.

Sympetrum sanguineum (Müller, 1764)

Loc. 8. 1♂, 20.06.2020; Loc. 13. 1♀, 30.06.2020; Loc. 20. 1♂ 1♀, 28.07.2020; Loc. 25. 4♂♂ 2♀♀, 27.07.2020; Loc. 26. 3♂♂ 2♀♀, 23.07.2020; Loc. 28. 2♂♂ 2♀♀, 25.07.2020.

Sympetrum vulgatum Linnaeus, 1758

Loc. 20. 1♂, 28.07.2020.

Sympetrum striolatum (Charpentier, 1840) (Fig. 56)

Loc. 2. 2♂♂ 3♀♀, 02.06.2020; Loc. 3. 2♂♂ 4♀♀, 02.06.2020; Loc. 4. 3♂♂ 1♀, 10.06.2020; Loc. 6. 1♂, 11.06.2020; Loc. 9. 2♀♀, 20.06.2020; Loc. 11. 1♂, 29-30.06.2020; Loc. 16. 1♂, 11.07.2020; Loc. 20. 1♂, 28.07.2020; Loc. 21. 1♀, 28.07.2020; Loc. 26.

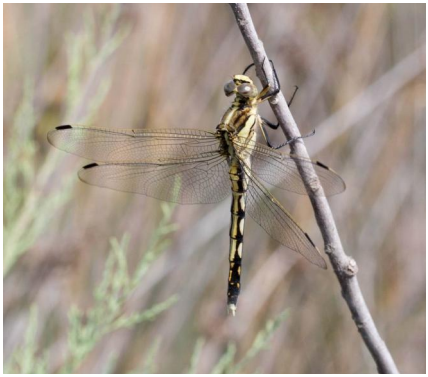

Fig. 53. *Orthetrum albistylum* (Selys 1848), male (Loc. 5).

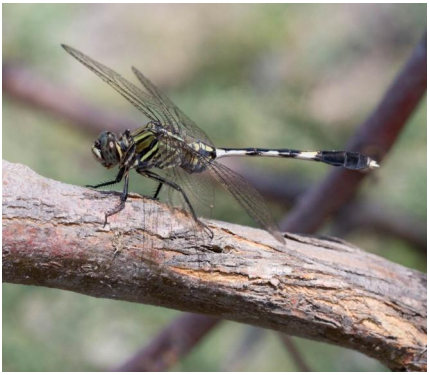

Fig. 54. *Orthetrum sabina* (Drury, 1773), female (Loc. 5).

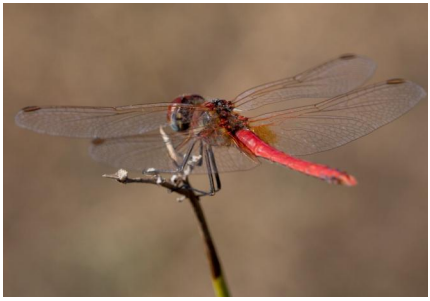

Fig. 56. *Sympetrum fonscolombii* (Charpentier, 1840), male (Loc. 35).

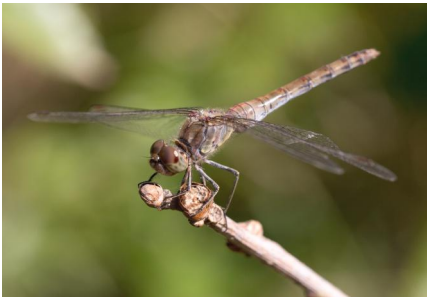

Fig. 57. *Sympetrum striolatum* (Charpentier, 1840), female (Loc. 35).

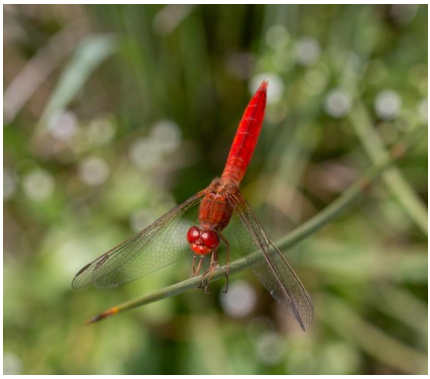

Fig. 57. *Crocothemis erythraea* (Brullé, 1832), male (Loc. 14).

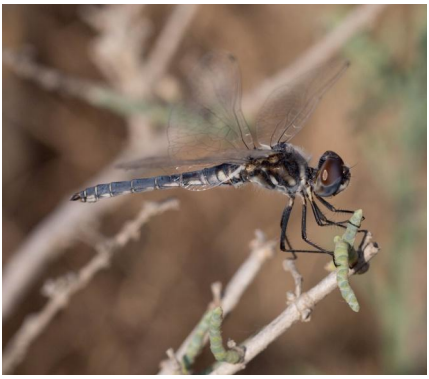

Fig. 58. *Selysiothemis nigra* (Vander Linden, 1825), male (Loc. 3).

1♀, 23.07.2020; Loc. 28. 1♂ 3♀♀, 25.07.2020; Loc. 30. 2♂♂ 1♀, 6.07.2016; Loc. 34. 1♀, 11.08.2020.

Sympetrum meridionale (Selys, 1841)

Loc. 16. 5♀♀, 12.07.2020; Loc. 17. 2♂♂ 2♀♀, 12.07.2020; Loc. 26. 2♂♂, 23.07.2020; Loc. 29. 1♂, 23.07.2020; Loc. 30. 2♂♂ 3♀♀, 26.07.2020; 1♂ 3♀♀, 7.07.2016.

Crocothemis erythraea (Brullé, 1832) (Fig. 57)

Loc. 5. 2♂♂ 1♀, 10.06.2020; Loc. 6. 1♂, 11.06.2020; Loc. 11. 1♂, 29-30.06.2020; Loc. 13. 2♂♂ 2♀♀, 30.06.2020; Loc. 14. 1♂, 01.07.2020; Loc. 29. 1♂, 26.07.2020; Loc. 31. 1♂ 1♀, 09.06.2020.

Selysiothemis nigra (Vander Linden, 1825)

Loc. 1. 1♀, 01.06.2020; Loc. 2. 1♂, 02.06.2020; Loc. 3. 1♂2♀♀, 02.06.2020; Loc. 11. 1♂ 2♀♀, 29-30.06.2020; Loc. 14. 1♂ 1♀, 01.07.2020.

Pantala flavescens (Fabricius, 1798)

Loc. 24. 1♂, 28.07.2020; Loc.35. 1♀, 12.10.2020.

Discussion

In total, we registered 39 species from 8 families during the study period in the summer of 2020. *Stylurus ubadschii* Schmidt, 1953 is new for the fauna of Azerbaijan.

Onychogomphus assimilis is noted by us for the second time on the territory of Azerbaijan. According to the IUCN Red List of Threatened Species, this species is classified as “Vulnerable”. It was found in a meadow near a forest site, where a small river with rocky banks flows. Snegovaya (2019) recorded it on the Nakhichevanchay River. This is a mountain river, also with rocky banks, and along the riverside accompanied by thickets with blackberries and various bushes.

Stylurus ubadschii Schmidt, 1953 was noted by us on the territory of the Neftchala district, near the Kura River. This is the first find from the territory of Azerbaijan. *S. ubadschii* is currently listed as Data Deficient (DD) in the IUCN Global Red List and European Red List of Dragonflies.

Schröter et al. (2015) outline in the framework of the rediscovery of *S. ubadschii* at Rioni river that this Georgian population is remarkable in several aspects. „It is the northernmost occurrence of the species in the Western Palaearctic and geographically isolated as the species has neither been recorded in Armenia nor in Azerbaijan.“ Our record gives evidence that the species is represented at least in Azerbaijan. Likewise, the record is from the terminal end of the River Kura, which reaches from the Caspian Sea coast to central Georgia. Because of many suitable habitats along the river (see Google maps) it is quite probable that many more habitats of *S. ubadschi* wait for their discovery. The River Kura originates in Georgia and narrows the Poti locality up to approximately 170 km.

The single Azerbaijan record of *Aeshna cyanea* is from “Lake Gok-gol, prov. Elisavetpol” (Bartenev 1912). Bartenev points out that the specimen kept in the Caucasian Museum in Tiflis (now the National Museum of Georgia, Tbilisi) “is a completely destroyed specimen, from which only the head, thorax, 1-2 abdominal segments and severed wings” [remained]. In cases, this taxon was listed as part of the Azerbaijan fauna (Dumont, 2004,

Skvortsov & Snegovaya, 2014); later it was found to be the newly described taxon *Aeshna vercanica* (Schneider et al., 2015). We caught a specimen of *Aeshna cyanea* at the lake Garanokhur in the Ismayilly district.

Two records of *Pantala flavescens* had been known before this study from the Lenkoran region (Snegovaya, 2020). Here, we add two new localities for this species - Ismayilly and the Absheron Peninsula – increasing the number of localities in Azerbaijan to four.

Ischnura fountaineae seems to be a rare species in Azerbaijan. Snegovaya (2020) adds to the few known records a single locality for this species near the Caspian Sea in the Siyazan district. Also in this study, only one additional record – in the Neftchala district – can be attributed to this species.

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References

Bartenev, A.N. 1912. Über eine Kollection von Odonaten des Kaukasischen Museums in Tiflis. Izvestia Kavkazskogo muzeia 7: 107–116 [In Russian, with German title]

Dumont, H.J. 2004. Dragonflies from Azerbaijan. Zoology in the Middle East 31: 87–92.

IUCN 2018. The IUCN Red List of Threatened Species. Version 20181. International Union for Conservation of Nature and Natural Resources. Available from: http://www.iucnredlist.org/ (accessed July 2018)

Kalkman, V.J., Boudot, J.-P., Bernard, R., Conze, K.-J., De Knijf, G., Dyatlova, E., Ferreira, S., Jović, M., Ott, J., Riservato, E. and Sahlen, G. 2010. European Red List of Dragonflies. Luxembourg: Publications Office of the European Union. 38 p.

Schneider, T., Schneider, E., Schneider, J., Vierstraete, A. & Dumont, H. J. 2015. *Aeshna vercanica* spec. nov. from Iran (Anisoptera: Aeshnidae) and a new insight into the *Aeshna cyanea*-group. Odonatologica 44: 81–106.

Schröter, A.; Seehausen, M.; Kunz, B.; Günther, A.; Schneider, T. & R. Jödicke. 2015. Update of the Odonata fauna of Georgia, southern Caucasus ecoregion. Odonatologica 44(3): 279-342.

Skvortsov, V.E. & Snegovaya, N.Y. 2014. Additions to the knowledge of the Odonata fauna of Azerbaijan, with six new records. Notulae Odonatologicae 8: 67–76.

Snegovaya, N.Y. 2020. A progress study of the Odonata from Azerbaijan in summer 2019. International Dragonfly Fund Report 142: 1–20.

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