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– a progress study in 2022

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New data on the dragonflies of the Azerbaijan Republic – a progress study in 2022

Nataly Yu. Snegovaya

Zoological Institute NAS of Azerbaijan, proezd 1128, kvartal 504,
Baku, AZ 1073, Azerbaijan.

Email: snegovaya@yahoo.com

Abstract

A total of 35 odonate species from 8 families was recorded from 36 localities in 16 districts of Azerbaijan in 2022, of these, on the territory of the Kura-Araz lowland 21 species were noted, the Greater Caucasus - 27 species and the Middle Araz (Nakhichevn) - 7 species.

Keywords: Odonata, fauna, Azerbaijan, *Stylurus ubadschii*, *Aeshna cyanea*, *Ischnura fountaineae*.

Introduction

In 2022, I continued to investigate the dragonfly fauna of Azerbaijan. 36 localities in 16 districts (Absheron, Salyan, Ordubad, Julfa, Shakhbuz, Khizi, Sabirabad, Imishli, Beylagan, Agjabedi, Kurdamir, Gabala, Sheki, Siyazan, Shabran, Khachmaz) were surveyed. The previous studies, which were launched in 2012, currently cover almost all regions of Azerbaijan, with the exception of the regions of Nagorno-Karabakh and the districts liberated from occupation in 2020. At the moment, the dragonfly fauna of Azerbaijan includes 67 species (Skvortsov & Snegovaya 2014, 2015, Snegovaya, 2019, 2020, 2021, 2022) from 10 families. One focus of the study was the survey of the territory of the Kura-Araz lowland including large lakes located on the Kura-Araz lowland, namely Sarysu, Mehmangol and Aggol lakes, because the literature data are insufficient and contradictory.

Material and Methods

Odonate specimens were collected between April and August, 2022. Specimens are deposited in the Laboratory of Terrestrial Invertebrates of the Zoological Institute (Ministry of Science and Education of Azerbaijan), Baku. In addition, photos were taken using Canon EOS 5D Mark III, with Tamron SP 90mm, F/2.8 Macro lens under both natural conditions.

Sampling sites (Fig. 1)

Absheron district:

Loc. 1. Pirekeshkul (Pirekeşkül) village (N40°31'17.34" E49°31'55.25"; 56 m a.s.l.). A small lake with tamarix (*Tamarix* sp.) bushes along the sandy banks. Reeds (*Phragmites* sp.) sparsely cover the pelagic of the lake itself and on one lakeside (Fig. 2).



Figure 1. Map of localities.



Figure 2. Absheron district, a small lake near Perekeshkul village (Loc. 1).

Salyan district:

Loc. 2. Kyursangi village (N39°49'1.68" E49°8'50.07"; -30 m a.s.l.). Reservoirs and canals near Kursyangi village form a system of waterbodies. The shores of reservoirs and canals are covered with tamarix and reeds. The reservoirs are located in the oil field zone; currently no impacts on habitats or fauna were observed (Fig. 3).

Nakhichevan MR:

Loc. 3. **Ordubad district**, Kotam village. (N38°53'49.19" E46°3'16.47"; 744 m a.s.l.). A small river (ca. 1-1.5 m wide) with banks densely covered with bramble thickets



Figure 3. Salyan district, the system of reservoirs and canals near the village of Kursyangi (Loc. 2).



Figure 4. Ordubad district, a small river near Kotam village (Loc. 3).

(*Rubus* sp.), willow trees (*Salix* sp.), and tamarix trees growing along the banks, as well as a freshwater flood in a clearing (Fig. 4).

Loc. 4. **Julfa district**, near Gulustan settlement (N38°59'58.9" E45°36'17.66"; 796 m a.s.l.). A lake whose shallow water zone is fed by a stream; the banks are covered with herbaceous vegetation and tamarix bushes that can be dense at places (Fig. 5).

Loc. 5. **Shakhbuz district**, Batabat lake (N39°32'2.47" E45°48'6.06"; 2217 m a.s.l.). A mountain lake, situated in the mountains along the right bank of the upper river of Nakhichevan-chay. The lake is surrounded by alpine meadows. The lake is remarkable due to a floating boggy island (Fig. 6).

Khizi district:

Loc. 6. Altyagach village (N40°52'30.76" E48°56'30.31"; 1042 m a.s.l.). A small pond at the entrance to the Altyaghach State reserve. The pond is surrounded by trees and shrubs and overgrown with clubrush (*Scirpus* sp.) (Fig. 7).



Figure 5. Julfa district, a small marsh and a stream near Gulustan settlement (Loc. 4)



Figure 6: Shakhbuz district, a mountain Batabat lake, surrounded by alpine meadows (Loc. 5).



Figure 7. Khizi district, a small reservoir at the mouth of the Altyaghach State reserve (Loc. 6).



Figure 8. Khizi district, Dakhadara, site of Khyalyanch River (Loc. 7).



Figure 9. Khizi district, Dakhadara, meadows with water floods (Loc. 7).



Figure 10. Khizi district, Yarimja village, floods in meadows (Loc. 8).

Loc. 7. Dakhadara, section of the Altyaghach State Reserve along the Khyalyanch River (N40°53'11.15" E49°2'26.23"; 732 m a.s.l.). The site includes the Khyalyanch River with rocky banks covered with trees, various shrubs and herbs; the banks and riverbed are partly densely overgrown with herbaceous vegetation. Meadow habitats include water floods, and ditches which often are densely overgrown with reeds. In the periphery, forest glades and meadows on the border with the forest part are existing (Fig. 8-9).

Loc. 8. The road from the spring to the Yarimja village (N40°51'0.93" E49°2'43.42"; 1329 m a.s.l.). Includes various shallow waters in meadows overgrown with reeds, swampy areas in meadows, small ponds and ditches, also overgrown with reeds and occasionally cattail (*Equisetum* sp.) (Fig. 10).

Loc. 9. Bakhshili village (N40°54'23.41" E48°59'0.61"; 760 m a.s.l.). Two small ponds on the outskirts of the village, at a distance of about 1 km from each other. A smaller pond is open on all sides with reeds in the littoral. The second pond is surrounded by willows and other trees; the littoral is overgrown with various herbs (Figs. 11-12).



Figure 11. Khizi district, 1-st pond near Bakhshili village (Loc. 9).



Figure 12. Khizi district, 2-nd pond near Bakhshili village (Loc. 9).

Sabirabad district:

Loc. 10. Reservoirs and canals near Piratman village (N39°41'55" E48°54'47.69"; -29 m a.s.l.), Ponds, channels overgrown with reeds, rush and cattails (*Typha* sp.). Tamarix trees and camel's thorn bushes (*Alhagi* sp.) grow along the banks (Fig. 13).

Loc. 11. Lake near the village Garagyuney (N39°56'25.08" E48°52'40.75"; -24 m a.s.l.) with thickets of tamarix, sometimes silverberry (*Elaeagnus commutata*) or camel's thorn. The floating leaf zone of the lake is dominated by pondweed (*Potamogeton* sp.) (Fig. 14).

Loc. 12. The system of reservoirs – a lake, channels, floods, ditches near the village of Askerbeyli (N40°1'20.47" E48°21'58.42"; -16 m a.s.l.). On the banks there are thickets of tamarix, camel's thorn, and reed (Fig. 15).

Loc.13. Bank of the Araz River near Novruzlu village (N40°00'22.37" E48°26'10.96"; -14 m a.s.l.). Banks with tamarix and silverberry, with patches of small reeds and camel's thorn (Fig. 16).

Loc. 14. Garalar village (N40°3'16.63" E48°31'20.29"; -16 m a.s.l.). Channel overgrown with reeds, tamarix, camel's, and also saltwort (*Salsola* sp.) along the banks (Fig. 17).



Figure 13. Sabirabad district, reservoirs and channel near Piratman village (Loc. 10).



Figure 14. Sabirabad district, lake near Garagyuney village (Loc. 11).



Figure 15. Sabirabad district, a lake, channel near the village of Askerbeyli (Loc. 12).



Figure 16. Sabirabad district, bank of the Araz River near Novruzlu village (Loc. 13).



Figure 17. Sabirabad district, channel near Garalar village (Loc. 14).



Figure 18. Imishli district, a wide channel along the road near Garachalar village (Loc. 15).



Figure 19. Imishli district, a field with alfalfa near Main Mugan channel (Loc. 15).



Figure 20. Imishli district, large canal near Gulubeyli village (Loc. 16).



Fig. 21. Imishli district, floods near Gulubeyli village (Loc. 16).



Fig. 22. Imishli district, a lake near Kurdmakhmudlu village (Loc. 17).

Imishli district:

Loc. 15. Garachalar village (N39°52'26.15" E48°16'15.77"; -2 m a.s.l.). A wide channel along the road, overgrown with reeds, tamarisk, camel's thorn along the banks. The main Mugan canal flows nearby, near which there is a field with alfalfa (*Medicago sativa*) and small ditches overgrown with bramble bushes (Figs. 18-19).

Loc. 16. Gulubeyli village (N39°46'35.61" E48°7'45.78"; 6 m a.s.l.). A large channel, accompanied by a small channel that flows in parallel, small floods, overgrown with cattail, into the village. Numerous floods are located near the channels, densely overgrown with reeds and reeds. On the banks of the channels there are thickets of tamarix, bramble bushes, thickets of camel's thorn, and in some places the banks are overgrown with reeds (Figs. 20-21).

Loc. 17. Kurdmakhmudlu village (N39°48'16.15" E48°12'18.84"; -2 m a.s.l.). A large lake with channels running alongside the lake. The lake and canals along the banks are densely overgrown with reeds (Fig. 22).

Loc. 18. (N39°53'59.35" E48°11'57.47"; -11 m a.s.l.). Plot along the road near the village of Mirilli. On the site there are several lakes of different sizes, channels and floods. Between the reservoirs there are areas with thickets of tamarix, as well as agricultural fields with cotton, alfalfa, etc. On the banks of the reservoirs thickets of cattail and reeds are formed (Fig. 23).

Imishli-Sabirabad districts:

Loc. 19. Sarisu lake (N40°2'13.97" E48°17'36.88"; -6 m a.s.l.). One of the largest lakes in the Azerbaijan Republic, the total length of which is 22 km. The total area is 65.7 km². The average depth is 1-3 meters, near the lakeside 0.1-0.9 meters. The lakeside of Sarisu mainly consists of swamps, tamarix shrubs, camel's thorn, and reed thickets. Reed areas are also found in the lake itself, creating islets (Figs. 24-25).



Fig. 23. Imishli district, a lake near Mirilli village (Loc. 18).



Fig. 24. Imishli-Sabirabad districts, Sarisu lake (Loc. 19).



Fig. 25. Imishli-Sabirabad districts, Sarisu lake (Loc. 19).



Fig. 26. Imishli-Agjabedi districts, Aggol Lake that is used as hunting ground. (Loc. 20).



Fig. 27. Beylagan district, a section of the bank of the Kura river (Loc. 21).



Fig. 28. Agjabedi district, Mehmangol lake (Loc. 22).



Fig. 29. Kurdamir district, bank of the river Agsuchay near Garis Ayribend village (Loc. 23).



Fig. 30. Gabala district, Nokhurgol lake (Loc. 24).

Imishli-Agjabedi districts:

Loc. 20. (N40°03'35.91" E47°59'17.09"; -13 m a.s.l.). Aggol Lake (hunting grounds). Aggol is considered an eutrophic lake. The total area is about 56.2 km², the average water depth is 0.8 m, the maximum depth is 2.5 m. The littoral of this section of the lake is densely overgrown with tall reeds; in more open areas there are also cattail thickets and tamarisks (Fig. 26).

Beylagan district:

Loc. 21. (N40°06'19.43" E47°46'34.24"; -6 m a.s.l.). A section of the bank of the Kura River, sandy banks with numerous vegetation in the form of tamarix, silverberry and other trees, as well as areas with reeds. Not far from the Kura there were small floods with reeds and cattails (Fig. 27).

Agjabedi district:

Loc. 22. (N40°06'47.70" E47°45'36.09"; -9 m a.s.l.). Lake Mehmangol. The surface area of the lake is 15 km². The maximum depth is 1.5 m, while on 85% of the lake area the depth is 0.5 – 0.7 m. The lake is all overgrown with high reeds, as well as cattail. Saltwort and camel's thorn also grow on the shore (Fig. 28).

Kurdamir district:

Loc. 23. (N40°20'35.1" E48°22'18.45"; 5 m a.s.l.). Bank of the river Agsuchay near Garis Ayribend village. Sandy banks are accompanied on land by high, steep slopes. Along the banks high bushes of tamarix and camel's thorn are growing. Above the riverbed there are small floods with areas of reed and cattail (Fig. 29).

Gabala district:

Loc. 24. Nokhurgol lake (N40°57'26.56" E47°52'26.68"; 621 m a.s.l.). A fairly large lake in the forest part of the region. On one side it adjoins the forest, on the other side there is a recreation area. The shores are clayey, with small patches of small reeds and cattail (Fig. 30).

Sheki district:

Loc. 25. Bash Shabalid village (N41°17'45.8" E47°6'50.39"; 788 m a.s.l.). A plot of mixed forest with clearings and a small water flood of a marshy type (Fig. 31).

Loc. 26. Ordekgol near Bash Layisgi village (N41°20'35.34" E47°4'36.85"; 822 m a.s.l.). A small lake with clay banks and trees - mostly willows - growing along the bank. There are small areas with reeds along the bank, which is partly overgrown with bramble (Fig. 32).

Loc. 27. Section of the Shinchai River with overflows (N41°14'55.59" E47°5'43.26"; 353 m a.s.l.), Section of the river with numerous ditches with flowing water and overflows with thickets of bushes of hold-tree (*Paliurus spina-christi* Mill.), silverberry, tamarix, bramble thickets and various herbs. Occasionally there are swampy areas covered with low reeds (Fig. 33).



Fig. 31. Sheki district, mixed forest with fields near Bash Shabalid village (Loc. 25).



Fig. 32. Sheki district, a small lake Ordekgol near Bash Layisgi village (Loc. 26).



Fig. 33. Sheki district, section of the Shinchai River (Loc. 27).

Loc. 28. Pond, floods under the bridge on the way to Sheki airport (N41°6'24.02" E47°8'27.73"; 287 m a.s.l.). A small reservoir, with banks overgrown with reeds; various trees grow along the bank. The reservoir is located near the road and the bridge; under the bridge there are freshwater floods and banks with grassy vegetation and some places with bramble bushes (Figs. 34-35).

Loc. 29. Ayrichay water reservoir (N41°11'4.4" E46°58'59.88"; 249 m a.s.l.). Reservoir with dense thickets of reeds and cattails, with numerous individual overflows (Fig. 36).



Fig. 34. Sheki district, a small reservoir on the way to Sheki airport (Loc. 28).

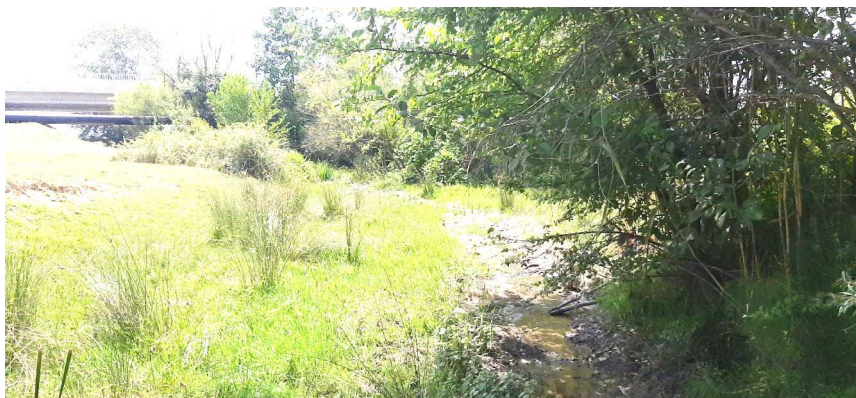


Fig. 35. Sheki district, floods under the bridge on the way to Sheki airport (Loc. 28).

Siyazan district:

Loc. 30. Galaalty settlement (N41°4'38.35" E48°55'11.44"; 864 m a.s.l.). A plot of broad-leaved forest along the dirt road to the fortress, clearings, meadows in the lower part, a small pond with grassy vegetation on the banks and an area with floods (Figs. 37-38).



Fig. 36. Sheki district, Ayrichay water reservoir (Loc. 29).



Fig. 37. Siyazan district, broad-leaved forest near Galaalty settlement (Loc. 30).



Fig. 38. Siyazan district, a small pond near Galaalty settlement (Loc. 30).

Loc. 31. Forest area near the Galaalti settlement with a rivulet flowing through the plot and a small pond in a deciduous forest. The shore of the pond is overgrown with horsetail (*Equisetum* sp.) and sedges, the water surface is covered with duckweed (*Lemna* sp.) (N41°6'46.44" E48°53'40.44"; 701 m a.s.l.) (Fig. 39).

Shabran district:

Loc. 32. A small river in the forest part (N41°8'25.16" E48°49'2.62"; 603 m a.s.l.). Along the banks of the river in some places there are areas with horsetail, bramble thickets and grassy vegetation. The banks are built of gravel (Fig. 40).

Loc. 33. Lake Ambilgol (N41°9'30.17" E48°44'4.82"; 894 m a.s.l.). A small forest lake in the forest, the shores are open on one side, and on the other side are densely overgrown with reeds and reeds, as well as horsetail (Fig. 41).



Fig. 39. Siyazan district, a small pond in the forest near Galaalti settlement (loc. 31).



Fig. 40. Shabran district, a small river in the forest part (Loc. 32).



Fig. 41. Shabran district, Ambilgol lake (Loc. 33).



Fig. 42. Khachmaz district, a pond in the Niyazoba village (Loc. 34).



Fig. 43. Khachmaz district, a river near Niyazoba village (Loc. 35).

Khachmaz district:

Loc. 34. Nizovaya (Now Niyazoba) village (N41°31'04.06" E48°55'26.62"; -25 m a.s.l.), a pond in the village, with thickets of reeds and cattails along the edges (Fig. 42).

Loc. 35. A river flowing through the village Niyazoba and flowing into the Caspian Sea (N41°31'40.41" E48°55'45.06"; -42 m a.s.l.). At the confluence of the river, the banks are bare and sandy. Closer to the village, the banks are overgrown with various shrubs with dominating bramble thickets (Fig. 43).

Loc. 36. Lake Gulyalangel (N41°27'59.1" E48°51'36.25"; -15 m a.s.l.). Overgrown with reeds, bramble (*Rubus* sp.) and other herbs, a lake near the road (Fig. 44).



Fig. 44. Khachmaz district, Lake Gulyalangel (Loc. 36).

Results

A total of 35 odonate species was recorded; records are documented specieswise.

Recorded species**Calopterygidae**

Calopteryx splendens intermedia (Selys, 1887)

Loc. 23. 1♂, 6.07.2022; Loc. 28. 2♂♂, 3♀♀, 21.07.2022.

Euphaeidae

Epallage fatime Charpentier, 1840 (Fig. 45)

Loc. 3. 1♂, 1♀ observed, 31.05.2022.

Lestidae

Lestes barbarus (Fabricius, 1798) (Fig. 46)

Loc. 6. 2♂♂, 1♀, 13.06.2022; Loc. 7. 3♂♂, 1♀, 14.06.2022; Loc. 9. 3♂♂, 1♀, 16.06.2022; Loc. 10. 1♂, 2.07.2022; Loc. 11. 1♀, 2.07.2022; Loc. 12. 1♀, 4.07.2022; Loc. 21. 2♂♂, 5.07.2022; Loc. 22. 1♂, 5.07.2022; Loc. 29. 1♀, 21.07.2022; Loc. 30. 2♂♂, 2♀♀, 8.08.2022.



Fig. 45. *Epallage fatime* Charpentier, 1840, copula (Loc. 3).



Fig. 46. *Lestes barbarus* (Fabricius, 1798), female (Loc. 32).



Fig. 47. *Lestes dryas* Kirby, 1890, male (Loc. 6). Fig. 48. *L. dryas*, female (Loc. 7)

Lestes dryas Kirby, 1890 (Fig. 47-48)

Loc. 6. 4♂♂, 13.06.2022; Loc. 7. 4♂♂, 2♀♀, 14.06.2022; Loc. 8. 6♂♂, 1♀, 15.06.2022;
Loc. 18. 1♀, 3.07.2022.

Fig. 49. *Sympecma fusca* (Vander Linden, 1820), female (Loc. 32).



Sympecma fusca (Vander Linden, 1820) (Fig. 49)

Loc. 6. 1♂, 13.06.2022; Loc. 18. 2♀♀, 3.07.2022; Loc. 25. 1♂, 3♀♀, 19.07.2022; Loc. 30. 1♀, 8.08.2022; Loc. 32. 1♂ 2♀♀, 8.08.2022.

Coenagrionidae

Ischnura pumilio (Charpentier, 1825)

Loc. 4. 1♂, 28.05.2022; Loc. 9. 2♂♂, 16.06.2022; Loc. 16. 1♀, 3.07.2022; Loc. 26. 3♂♂, 1♀, 19.07.2022; Loc. 29. 1♂, 21.07.2022; Loc. 30. 3♂♂, 7.08.2022; Loc. 36. 1♂, 10.08.2022.

Ischnura elegans (Vander Linden, 1820)

Loc. 2. 1♂, 8.05.2022; Loc. 4. 1♂, 28.05.2022; Loc. 9. 1♂, 16.06.2022; Loc. 10. 1♂, 1♀, 2.07.2022; Loc. 11. 1♂, 1♀, 2.07.2022; Loc. 12. 1♂, 3♀♀, 4.07.2022; Loc. 13. 3♂♂, 1♀, 4.07.2022; Loc. 14. 1♂, 6.07.2022; Loc. 15. 2♂♂, 1♀, 3.07.2022; Loc. 17. 3♂♂, 3.07.2022; Loc. 20. 5.07.2022, observation; Loc. 23. 1♂, 1♀, 6.07.2022; Loc. 24. 2♂♂, 18.07.2022; Loc. 26. 1♂, 1♀, 19.07.2022; Loc. 28. 1♂, 1♀, 21.07.2022; Loc. 29. 1♂, 1♀, 21.07.2022; Loc. 34. 4♂♂, 2♀♀, 10.08.2022; Loc. 35. 2♂♂, 1♀, 10.08.2022.

Ischnura fountaineae Morton, 1905

Loc. 1. 1♂, 29.04.2022; Loc. 19. 2♂♂, 3♀♀, 4.07.2022; Loc. 22. 1♂, 3♀♀, 5.07.2022.

Coenagrion puella (Linnaeus, 1758)

Loc. 6. 2♂♂, 13.06.2022; Loc. 8. 11♂♂, 1♀, 15.06.2022; Loc. 33. 1♂ 1♀, 9.08.2022.

Coenagrion pulchellum (Vander Linden, 1823)

Loc. 5. 1♂, 27.05.2022.

Coenagrion scitulum (Rambur, 1842) (Fig. 50)

Loc. 7. 4♂♂, 1♀, 14.06.2022; Loc. 9. 3♂♂, 16.06.2022.

Coenagrion ornatum (Selys, 1850) (Fig. 51)

Loc. 3. 9♂♂, 31.05.2022; Loc. 4. 1♂, 28.05.2022.

Coenagrion lunulatum (Charpentier, 1840)

Loc. 5. 2♂♂, 1♀, 27.05.2022.



Fig. 50. *Coenagrion scitulum* (Rambur, 1842), male (Loc. 9).



Fig. 51. *Coenagrion ornatum* (Selys, 1850), copula (Loc. 3).

Enallagma cyathigerum
(Charpentier, 1840)

Loc. 9. 1♂, 16.06.2022.

Erythromma viridulum orientale Schmidt, 1960

Loc. 15. 1♂, 3.07.2022;

Loc. 17. 1♂, 3.07.2022;

Loc. 24. 18.07.2022, observation.

Platycnemididae

Platycnemis dealbata Selys in Selys and Hagen, 1850
(Fig. 52)

Loc. 14. 2♂♂, 6.07.2022; Loc. 15. 2♂♂ 2♀♀, 3.07.2022; Loc. 16. 1♂, 1♀, 3.07.2022; Loc. 17. 2♂♂, 3.07.2022; Loc. 23. 2♂♂, 6.07.2022; Loc. 28. 2♂♂, 21.07.2022; Loc. 36. 1♂ 1♀, 10.08.2022.

Aeshnidae

Anax imperator Leach, 1815 (Fig. 53)

Loc. 7. 1♂, 14.05.2022.

Anax parthenope (Selys, 1839)

Loc. 1. 29.04.2022, observation.

Fig. 52. *Platycnemis dealbata* Selys in Selys and Hagen, 1850, male (Loc. 15).



Fig. 53. *Anax imperator* Leach, 1815, male (Loc. 9).



Fig. 54. *Aeshna affinis* Vander Linden, 1820, male (Loc. 32).



Aeshna affinis Vander Linden, 1820 (Fig. 54)

Loc. 7. 1♂, 14.06.2022; Loc. 24. 18.07.2022, observation; Loc. 30. 1♂, 2♀♀, 9.08.2022; Loc. 32. 1♂, 08.08.2022.



Fig. 55. *Aeshna cyanea* (Müller, 1764), male (Loc. 31).

Aeshna cyanea (Müller, 1764) (Fig. 55)

Loc. 31. 1♂, 9.08.2022; Loc. 33. 2♂♂, 9.08.2022.

Gomphidae

Onychogomphus forcipatus albotibialis Schmidt, 1954 (Fig. 56)

Loc. 7. 1♂, 1♀, 14.05.2022; Loc. 23. 1♂, 6.07.2022; Loc. 27. 1♂, 20.07.2022;
Loc. 30. 1♂, 9.08.2022.

Stylurus ubadschii (Schmidt, 1953) (Fig. 57)

Loc. 16. 1♂, 3.07.2022.

Lindenia tetraphylla (Vander Linden, 1825)

Loc. 11. 1♂, 2.07.2022.



Fig. 56. *Onychogomphus forcipatus albotibialis* Schmidt, 1954, male (Loc. 7).

Fig. 57. *Stylurus ubadschii* Schmidt, 1953, male (Loc. 3).



Fig. 58. *Libellula depressa* Linnaeus, 1758, male (Loc. 9).



Fig. 59. *Orthetrum albistylum* (Selys 1848), male (Loc. 18).



Libellulidae

Libellula depressa Linnaeus, 1758 (Fig. 58)

Loc. 8. 1♂, 15.06.2022; Loc. 9. 1♂, 16.06.2022.

Orthetrum albistylum (Selys 1848) (Fig. 59)

Loc. 10. 1♀, 2.07.2022; Loc. 11. 1♀, 2.07.2022; Loc. 12. 1♀, 4.07.2022; Loc. 14. 1♀,

6.07.2022; Loc. 15. 1 ♀, 3.07.2022; Loc. 19. 1 ♀, 4.07.2022; Loc. 24. 18.07.2022, observation; Loc. 26. 1 ♀, 19.07.2022; Loc. 28. 1 ♀, 21.07.2022; Loc. 29.21.07.2022, visually; Loc. 35. 1 ♀, 10.08.2022; Loc. 36. 1 ♀, 10.08.2022.

Orthetrum brunneum (Fonscolombe, 1837) (Fig. 60, 61)

Loc. 9. 1 ♂, 16.06.2022; Loc. 25. 19.07.2022, observation; Loc. 32. 1 ♀, 08.08.2022.

Orthetrum coerulescens (Fabricius, 1798)

Loc. 3. 3 ♂ ♂, 1 ♀, 31.05.2022; Loc. 11. 1 ♂, 2.07.2022; Loc. 15. 1 ♂, 1 ♀, 3.07.2022; Loc. 23. 2 ♂ ♂, 2 ♀ ♀, 6.07.2022; Loc. 27. 2 ♀ ♀, 20.07.2022; Loc. 28. 2 ♂ ♂, 1 ♀, 21.07.2022; Loc. 29.21.07.2022, observation; Loc. 34. 1 ♀, 10.08.2022; Loc. 36. 2 ♂ ♂, 10.08.2022.

Orthetrum sabina (Drury, 1773)

Loc. 11. 1 ♀, 2.07.2022; Loc. 12. 2 ♂ ♂, 3.07.2022; Loc. 13. 1 ♀, 4.07.2022; Loc. 15. 1 ♂, 3.07.2022; Loc. 19. 1 ♂, 4.07.2022; Loc. 22. 5.07.2022, observation; Loc. 23. 1 ♀, 6.07.2022.



Fig. 60. *Orthetrum brunneum* (Fonscolombe, 1837), male (Loc. 9).



Fig. 61. *Orthetrum brunneum* (Fabricius, 1798), male (Loc. 25).

Sympetrum meridionale (Selys, 1841) (Fig. 62)

Loc. 7. 1 ♀, 14.06.2022; Loc. 8. 1 ♀, 15.06.2022; Loc. 9. 1 ♀, 16.06.2022; Loc. 25. 2 ♂♂, 1 ♀, 19.07.2022; Loc. 30. 4 ♂♂, 4 ♀♀, 07.08.2022; Loc. 32. 1 ♂, 1 ♀, 08.08.2022.

Sympetrum fonscolombii (Selys, 1840)

Loc. 1. 1 ♂, 1 ♀, 29.04.2022; Loc. 9. 2 ♂♂, 16.06.2022; Loc. 35. 1 ♂, 10.08.2022.

Sympetrum sanguineum (Müller, 1764)

Loc. 21. 1 ♀, 5.07.2022; Loc. 26. 1 ♂, 1 ♀, 19.07.2022; Loc. 30. 2 ♂♂, 3 ♀♀, 9.08.2022; Loc. 32. 8 ♀♀, 08.08.2022; Loc. 34. 1 ♀, 10.08.2022; Loc. 36. 1 ♂, 10.08.2022.

Sympetrum striolatum (Charpentier, 1840) (Fig. 63)

Loc. 2. 1 ♂, 8.05.2022; Loc. 7. 1 ♂, 1 ♀, 14.06.2022; Loc. 25. 1 ♀, 19.07.2022.

Crocothemis erythraea (Brullé, 1832) (Fig. 64)

Loc. 10. 2 ♂♂, 1 ♀, 2.07.2022; Loc. 11. 1 ♂, 2.07.2022; Loc. 12. 1 ♂, 4.07.2022; Loc. 15. 1 ♀, 3.07.2022; Loc. 17. 2 ♂♂, 3.07.2022; Loc. 19. 1 ♂, 4.07.2022; Loc. 20. 5.07.2022, observation; Loc. 22. 3 ♂♂, 5.07.2022; Loc. 24. 1 ♀, 18.07.2022; Loc. 29. 1 ♀, 21.07.2022.

Selysiothemis nigra (Vander Linden, 1825)

Loc. 11. 2 ♂♂, 2.07.2022; Loc. 12. 2 ♂♂, 4.07.2022; Loc. 14. 1 ♂, 6.07.2022; Loc. 16. 1 ♀, 3.07.2022; Loc. 20. 5.07.2022, observation; Loc. 22. 5.07.2022, observation; Loc. 24. 1 ♀, 18.07.2022.

Fig. 62. *Sympetrum fonscolombii* (Selys, 1840), male (Loc. 9).



Fig. 63. *Sympetrum striolatum* (Charpentier, 1840), female (Loc. 25).





Fig. 64. *Crocothemis erythraea* (Brullé, 1832), male (Loc. 15).

Discussion

During the study period in 2022, we recorded 35 species from 8 families, among them new sites of rare species, such as *Ischnura fountaineae*, *Coenagrion ornatum*, *C. lunulatum*, *Aeshna cyanea*, *Stylurus ubadschii*, and *Lindenia tetraphylla*.

On the territory of the Kura-Araz lowland, we noted 21 species of dragonflies, of these, in large lakes (Sarysu, Mehmangol, Aggol) eight species are noted (*Lestes barbarus*, *Ischnura pumilio*, *I. elegans*, *I. fountaineae*, *Erythromma viridulum orientale*, *Orthetrum albistylum*, *Crocothemis erythraea*, and *Selysiotthemis nigra*). In canals, floods, ponds, and other water bodies, we identified 13 additional species (*Calopteryx splendens*, *Sympetma fusca*, *Lestes dryas*, *Erythromma viridulum orientale*, *Platycnemis dealbata*, *Onychogomphus forcipatus albotibialis*, *Stylurus ubadschii*, *Lindenia tetraphylla*, *Orthetrum cancellatum*, *O. coerulescens*, *O. sabina*, *Sympetrum sanguineum*, *S. striolatum*).

On the territory of the Greater Caucasus (Absheron, Khizi, Gabala, Sheki, Siyazan, Shabran, Khachmaz districts) 27 species were noted. From the region of the Middle Araz, (Nakhichevan) 7 species were noted. *Coenagrion lunulatum* was recorded for this territory for the first time; this species was noted in Shemakha district by Skvortsov & Snegovaya (2015) for the first time for the fauna of Azerbaijan. Here, the second record of this species for Azerbaijan was provided from the Shakhbuz district of Nakhichevan.

Coenagrion ornatum/*Coenagrion vanbrinckae* Lohmann, 1993 was first noted in our studies as *C. vanbrinckae* from Nakhichevan (Skvortsov & Snegovaya 2014) and was subsequently noted from there (Snegovaya 2019). Akramovsky (1939) noted *C. ornatum* also from Nakhichevan. I decided to consider the taxon as *C. ornatum* following my decision on the taxonomic status of this species as discussed in Snegovaya (2019: 16).

Stylurus ubadschii for the first time was noted on the territory of the Neftchala district, near the Kura River (Snegovaya 2021). In the current investigation, one population of this species was found in the Imishli region, along a canal near Gulubeyli village.

A specimen of *Aeshna cyanea* was caught at the alpine lake Garanokhur in the Ismailly district (Snegovaya 2021). In this study, we found it at two additional sites - Lake Ambilgol in the Shabran region and a small pond in the forest part of the Siyazan region.

Ischnura fountaineae was found at the Sarisu and Mekhmangol lakes. Several previous findings exist, including from the Absheron peninsular (Skvortsov & Snegovaya 2014), the vicinity of the Mingechevir water reservoir (Skvortsov & Snegovaya 2015), the Siyazan district near Caspian Sea coast (Snegovaya 2020), Neftchala district (Snegovaya 2021) and by Dumont (2004) in the Salyan district and Durand in the Salyan and Neftchala districts (Durand 2019).

Lindenia tetraphylla was earlier noted from Absheron (Skvortsov & Snegovaya 2015), Khachmaz (Snegovaya 2020) and Siyazan districts (Snegovaya 2020).

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