

Preliminary Information About Dragonflies Fauna Distributed in Kashkadarya Region

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Annotation

Dragonflies are the oldest amphibious insects. It is important as a bioindicator species in nature. Odonates are divided into 2 suborder Anisoptera and Zygoptera. This article presents preliminary information about the fauna and ecology of dragonflies in the Kashkadarya region.

Keywords: *Odonata, Anisoptera, Zygoptera, Holometabola, Hemimetabola, bioindicator, Anax Imperator, imoga, entomology, hydrobiology, Anax parthenope, Orthetrum Newman, Orthetrum brunneum, Insecta, Arthropoda.*

6,650 species of dragonflies are known to science in the world fauna. They are the oldest insects, 300 million years old. The study of the species composition of the Odonata fauna, the morpho-bioecological characteristics of individual species, which appeared in the Stone Age (Zhang Z.-Q., 2013) is used as a valuable material for practical training in zoology, hydrobiology and entomology. Also, the study of the species composition of the odonata fauna of a certain region is of great importance in assessing the state of the populations of the species distributed there. 85 species of dragonflies have been recorded in Central Asia. (Borisov, 2007) In the study of dragonflies in Uzbekistan, Belyshev studied dragonfly fauna around the Nukus, Tashkent, Samarkand cities, collected and analyzed data in the monograph "Fauna and Ecology" of dragonflies. The monograph entitled "Насекомие Узбекистана" contains information about some species of dragonflies found in Uzbekistan. "Educational-field practice from entomology" entitled book by Abdurahman Kulmamatov contains information on the bioecology and identification of dragonfly species found in Uzbekistan. S.N. Borisov (2007) in the article "Central Asian Dragonflies" recorded 56 species of dragonflies in Uzbekistan and listed the species composition. Taking this into account, faunistic analysis of the animals of the region is one of the important tasks in the period when the influence of the anthropogenic factor has increased and natural ecosystems are changing. It is important and practical to evaluate the current state of dragonflies, which is one of the important groups of animals in the ecosystem, to analyze their faunal composition, to study their biodiversity, economic value and damage, and to substantiate and implement scientific conclusions in the development of measures. According to their morphological structure and origin, dragonflies are divided into two suborders, Anisoptera and Zygoptera. Dragonflies are amphibious insects. Also, dragonflies destroy a number of deadly insects and maintain the stability of their population as sanitation. It is important as a bioindicator species in nature. Insects are divided into groups of fully metamorphosed (Holometabola) and incompletely metamorphosed (Hemimetabola).

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Dedyuxin's method of expedition – route was used in the collection of biomaterials [7]. A field diary was used to record the process, and a GPS navigator was used to obtain information about the place of research. In the research, samples were collected (using an entomological trap) along water bodies, lakes, ditches and cultivated fields. The collection of materials was carried out in the spring-summer-autumn seasons of 2022-2023 (from the second half of April).

In the identification of dragonfly species, Kazenas (2014), Subramanian (2005), analysis was carried out on the basis of identifiers and morphological structure features [2; 8]. The climate of the research area is continental. Winter is relatively mild. Summer is long, hot, dry, the lowest temperature is -20 C in the plain s, the highest temperature is +45 C. The main river, Kashkhdarya, its tributaries and many canals and reservoirs supply water to cultivated fields. The initial biomaterials were collected from ditches around water bodies, especially in slow-flowing and non-flowing water bodies. The larval period of dragonflies is spent in water. It was found that feeding and reproduction in the Imoga stage are distributed in the water biotopes of lakes, streams, irrigation networks (water reservoirs, ditches, canals, etc.) in places near water bodies. It can also be found in irrigation networks, especially in artificial ponds in intensive gardens. The main reason for this is the presence of species that occur in non-flowing waters among the odanata. Based on the results of the initial faunistic analysis conducted in the summer-autumn seasons of 2022, the following were determined.

Group of dragonflies (Odonata), suborder Anisoptera, family Aeshchnidae Anax Leach, 1815 two species Anax imperator Leach 1815, Anax parthenope Selys 1839 found.

Systematic Review:

Phylum: *Arthropoda*

Class: *Insecta*

Order: *Odonata*

Suborder: *Anisoptera*

Family: *Aeshchnidae*

Genus: *Anax*

Species: *Anax imperator*



General description: *Anax imperator* has a green chest and wide black stripes on the abdomen. The wings are transparent, 5 cm long, the wing plate has a contrasting gray-white color. An adult male has a blue belly, females are green or bluish-green, and have large blue-green eyes with a longitudinal line with a hard black edge on the dorsal side. Imoga and its larvae are carnivorous and feed on various flying insects. Most representatives are distributed in open and closed forest landscapes in stagnant and slow-flowing water bodies. *Anax parthenope* species also belongs to this genus and family, and it differs from the emperor in that it keeps its belly upright and is greenish-

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blue in color.

Three species belonging to the genus *Orthetrum* Newman, 1833, *Orthetrum albistylum* Selys 1848, *Orthetrum cancellatum* Linnaeus 1758, *Orthetrum brunneum* Fonscolombe 1837 were found.

Systematic Review:

Phylum: Arthropoda

Class: Insecta

Order: Odonata

Suborder: Anisoptera

Family: Libellulidae

Genus: Orthetrum

Species: Orthetrum brunneum



General description: *Orthetrum brunneum* this species mainly prefers small streams, canals and ditches with shallow, rapidly warming water. Adults are 40-45 mm long. Usually their sizes are larger than the average *Orthetrum coerulescens*. The abdomen and chest of males are light blue, females are yellowish-brown or gray-brown. The abdomen is relatively flat, with a thin median black line and distinct dots on each segment. The wings are hyaline, yellow or light brown, 66-70 mm wide.

One species, *Ophiogomus reductus* Calvert, 1898, belonging to the family Gomphidae, *Gomphus* Leach 1815, was found.

Systematic Review:

Phylum: Arthropoda

Class: Insecta

Order: Odonata

Suborder: Anisoptera

Family: Gomphidae

Genus: Ophiogomus

Species: Ophiogomus reductus

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General Description: *Ophiogomus reductus* is a genus of dragonflies known as snaketails in the family Gomphidae. Most of the species in this genus have a more noticeable green webbed abdomen. Representatives of this category are distributed in Kazakhstan, Turkmenistan, Uzbekistan, Kyrgyzstan.

Three species belonging to the genus *Sympetrum* Newman, 1833 *Sympetrum vulgatum* Linneus, 1758, *Sympetrum meridionale* Selys, 1840, *Sympetrum pedemontanum* Mueller in Allioni, 1976 were found.

Systematic Review:

Phylum: *Arthropoda*

Class: *Insecta*

Order: *Odanata*

Suborder: *Anisoptera*

Family: *Libellulidae*

Genus: *Sympetrum*

Species: *Sympetrum pedemontanum*



General Description: *Sympetrum pedemontanum* is a European species in the Libellulidae family. Males and females of this species have a red belly, and the difference is the presence of a wide black stripe on the outer part of each wing. They usually fly low over vegetation and are camouflaged by their colorful, spotted wings. Imago usually grows in sparse and flooded meadows, near water.

Among the dragonflies belonging to the Zygoptera subfamily, the family Lestidae, one species *Sympetma fusca* Vander Linden 1820 belonging to the genus *Sympetma* Burmeister 1839, 2 species belonging to the genus *Calopterygidae* *Calopteryx* Linnaeus, 1758 *Calopteryx virgo*, *Calopteryx splendens* were found. **Systematic Review:**

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Phylum: Arthropoda

Class: Insecta

Order: Odonata

Suborder: Zygoptera

Family: Calopterygidae

Genus: Calopteryx

Species: *Calopteryx virgo*



General description: The family Calopterygidae are medium-sized dragonflies, characterized by the way they fold their wings. The dorsal side and back of the wings are blue and green. These are truly the most beautiful dragonflies. Males differ from females with blackened wings. They live on the banks of slow-flowing rivers and lakes. It is rare in plants located far from water bodies. It feeds on insects found on the coasts and shores. It lays its eggs in plant tissue.

In the places where dragonfly imagos are collected, there are various water bodies that are important for the reproduction and development of their larvae. Accordingly, larvae are divided into rheophiles adapted to live in low-oxygen (limnophilic) and oxygen-rich waters. One of the most important issues facing us in the future is the analysis of the full species composition of Kashkadarya region (Insecta: Odonata); analysis of zoogeographic features using innovative methods (GPS navigator, GIS technology); development of cadastral data of the category; determining the impact of anthropogenic factors on dragonflies and revealing their economic importance.

Anisoptera (relative to the larval stage)	It is distributed in slow-flowing and non-flowing waters (oxygen-poor waters, temporary water bodies).	Fast-flowing and slow-flowing waters are distributed in water bodies rich in vegetation and oxygen	Larvae adapted to reproduction in any water
<i>Anax Imperator</i>	+		
<i>Anax parthenope</i>	+		
<i>Orthetrum albistylum</i>	+	+	
<i>Orthetrum cancellatum</i>	+		
<i>Orthetrum brunneum</i>	+		
<i>Ophiogomus reductus</i>		+	

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<i>Sympetrum vulgatum</i>	+		
<i>Sympetrum meridionale</i>	+	+	
<i>Sempetrum pedemontanum</i>	+		
Zygoptera			
<i>Sympecma fusca</i>		+	
<i>Calopteryx virgo</i>	+	+	
<i>Calopteryx splendens</i>	+	+	

In conclusion, during the conducted research, 12 species belonging to 2 families, 6 genera, 2 Anisoptera and Zygoptera subfamily, 5 families and 6 genera were identified, and we saw that their larvae adapted to live in different water bodies (Table 1). All of these are the preliminary results of the Kashkadarya odonata fauna in 2022, spring-summer-autumn. The identified species prove the diversity of dragonfly fauna in the oasis.

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