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Data Descriptor

A Dataset Trichoptera (Insecta) in Selected Regions of European Russia

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Abstract

The study of aquatic biota is of particular interest in view of the considerable anthropogenic impact on freshwater ecosystems in recent decades. Information on regional Trichoptera faunas remains fragmented and scattered in many areas. The present paper provides data from a dataset that includes results of Trichoptera studies conducted since 1981 (primarily during 2018–2025) in 15 regions of European Russia. In total, the dataset contains records from 295 localities. The database includes information on 7759 specimens representing 134 species from 15 families. Eleven Trichoptera species are reported for the first time from the Nizhny Novgorod Region, seven species from the Penza Region, five species each from the Vladimir and Ryazan regions, three species each from the Samara Region, the Republic of Mordovia, and the Volgograd Region, and one species each from the Voronezh, Tambov, and Lipetsk regions, as well as the Chuvash Republic. *Hydroptila angulata* is recorded for the first time in the Middle Volga Region. The most abundant taxa in the collections belong to the families Limnephilidae, Phryganeidae, and Leptoceridae. Eight species are represented in the dataset by more than 300 specimens each. Hand-held sweep nets were used at 109 localities and yielded 109 species and 3308 specimens. The use of light traps at 45 localities resulted in the collection of 90 species represented by 2651 specimens.

Keywords: Trichoptera; Malaise trap; yellow pan traps; sweep net; light trap

1. Introduction

Aquatic ecosystems play a crucial role in the global environment. They are essential for maintaining the biodiversity of both aquatic ecosystems themselves and adjacent terrestrial ecosystems, regulating climate, sustaining ecological productivity, and many other ecosystem functions [1–3]. Along with terrestrial ecosystems, aquatic ecosystems have increasingly faced growing anthropogenic threats in recent years, associated with both direct and indirect human activities. The major concerns are linked to rising global temperatures. For example, reductions in snow cover depth and glacier volume decrease water input into rivers and lakes [4,5]. The duration of droughts, monsoon intensity, frequency of wildfires, and pollution of water bodies by livestock effluents and agrochemicals are also increasing [6–9]. All these factors lead to acidification of water bodies, alterations in hydrological and biological cycles, habitat degradation, declines in biodiversity, and the

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extinction of species and populations [10–14]. In order to preserve freshwater biodiversity and ecosystem quality, it is necessary to investigate these impacts and develop measures to mitigate them [1,15].

One of the most well-known groups of freshwater organisms is the order Trichoptera. The study of regional Trichoptera faunas is an important component of biodiversity monitoring. Caddisflies are ecologically significant and serve as valuable biological indicators of the condition of aquatic ecosystems. Trichoptera species exhibit a wide range of life-history strategies and play key roles in freshwater ecosystems, including the regulation of organic matter dynamics, nutrient cycling, and predation [16–18]. A total of 235 caddisfly species have been reported from the European part of Russia [19]. At the same time, this list is not final and may be expanded through the discovery of species previously unrecorded from this macroregion. In addition, regional Trichoptera faunas remain poorly known, and available information is usually fragmented and scattered. The compilation of dispersed information from various sources together with unpublished data and the development of integrated databases have become increasingly relevant in recent years. Digital biodiversity data and analytical tools available through various electronic platforms are now widely used to address biological questions. Currently, one of the largest databases on species distributions is the Global Biodiversity Information Facility (GBIF), which contains extensive lists and occurrence records of taxa from all regions of the world [20–22].

The main objective of our study was to compile a biodiversity database of Trichoptera in selected regions of European Russia. The specific aims were: (1) to analyse the biodiversity of individual regions, and (2) number and diversity of Trichoptera collected by different methods.

2. Data Description

2.1. Dataset Description

Data from the dataset can be uploaded as a single XLSX file to GBIF (https://doi.org/10.15468/z28m3x (accessed on 23 June 2026)). It contains 2014 rows, and each row represents a set of data. The columns contained in it are as follows (Table 1) [23].

Table 1. Description of the data in the dataset.

Column Label	Column Description
occurrenceID	An identifier for the occurrence (as opposed to a particular digital record of the occurrence)
basisOfRecord	The specific nature of the data record: HumanObservation
eventDate	The date when material from the trap was collected or the range of dates during which the trap collected material
scientificNam	The full scientific name including the genus name and the lowest level of taxonomic rank with the authority
kingdom	The full scientific name of the kingdom in which the taxon is classified
decimalLatitude	The geographic latitude of location in decimal degrees
decimalLongitude	The geographic longitude (in decimal degrees, using the spatial reference system given in dwc:geodeticDatum)
country	The name of the country in which the location occurs
countryCode	The standard code for the country in which the location occurs.
individualCount	The number of individuals represented present at the time of the occurrence
year	The integer year in which the event occurred

Table 1. *Cont.*

Column Label	Column Description
month	The ordinal month in which the event occurred
day	The integer day of the month on which the event occurred
associatedReferences	A list (concatenated and separated) of identifiers (publication, bibliographic reference, global unique identifier, URI) of literature associated with the dwc:Occurrence.
recordedBy	A person, group, or organization responsible for recording the original occurrence
identifiedBy	A list of names of people who assigned the taxon to the subject
locality_original	The specific description of the place. This term may contain information modified from the original to correct perceived errors or standardize the description
samplingProtocol	The names of the methods or protocols used during an event
georeferenceSources	A list of maps, gazetteers, or other resources used to georeference the Location
coordinateUncertaintyInMeters	The maximum uncertainty distance in metres
geodeticDatum	The ellipsoid, geodetic datum, or spatial reference system (SRS) upon which the geographic coordinates given in decimalLatitude and decimalLongitude is based
stateProvince	The name of the next smaller administrative region than country (state, province, canton, department, region, etc.) in which the dcterms:Location occurs.
habitat	A category or description of the habitat in which the Event occurred

2.2. Species Diversity

The database contains information on 7759 specimens representing 134 species from 15 families (Appendix A). *Hydroptila angulata* Mosely, 1922 is recorded for the first time in the Middle Volga Region. This species inhabits standing and slow-flowing waters of lakes, streams, and rivers, including brackish waters, as well as ponds [24–26]. Its case is a laterally flattened, seed-like structure constructed from sand particles. Most Hydroptilidae larvae feed by piercing and sucking the protoplasm of algal filaments [27]. Adult flight activity occurs from May to October. *Hydroptila angulata* is distributed across most of Europe but is absent from Scotland, Iceland, Norway, and Eastern Europe [24]. In European Russia, its distribution is sporadic (Karelia, Leningrad Region, Astrakhan Region, and the Urals) [19].

The distribution of Trichoptera species across the 15 regions was uneven, which is associated with differences in sampling intensity among regions. The most thoroughly surveyed regions were the Republic of Mordovia and the Chuvash Republic, where 98 and 86 species were recorded, respectively (Appendix A). In the remaining regions, species richness was considerably lower. The number of regions in which individual species were recorded also varied from 1 to 15. The most widespread species were *Agrypnia varia* (Fabricius, 1793), occurring in 13 regions, *Limnephilus flavicornis* (Fabricius, 1787), occurring in 14 regions, and *Phryganea grandis* Linnaeus, 1758, occurring in all 15 regions. In contrast, 36 species were found in only one of the fifteen regions.

As a result of our own sampling efforts, new Trichoptera species were recorded for several regions. Eleven species are reported for the first time from the fauna of the Nizhny Novgorod Region (*Hagenella clathrata* (Kolenati, 1848), *Oligostomis reticulata* (Linnaeus, 1761), *Trichostegia minor* (Curtis, 1834), *Anabolia brevipennis* (Curtis, 1834), *Anabolia concentrica* (Zetterstedt, 1840), *Anabolia furcata* Brauer, 1857, *Limnephilus decipiens* (Kolenati, 1848), *Limnephilus dispar* McLachlan, 1875, *Limnephilus externus* Hagen, 1861, *Limnephilus ignavus* McLachlan, 1865, *Nemotaulius punctatolineatus* (Retzius, 1783)). Seven species are newly recorded for the fauna of the Penza Region (*Hydropsyche angustipennis* (Curtis, 1834), *H.*

contubernalis McLachlan, 1865, *Anabolia furcata* Brauer, 1857, *Glyphotaelius pellucidus* (Retzius, 1783), *Grammotaulius nigropunctatus* (Retzius, 1783), *Ironoquia dubia* (Stephens, 1837), *Limnephilus bipunctatus* Curtis, 1834). Five species are newly reported from the Vladimir Region (*Psychomyia pusilla* (Fabricius, 1781), *Limnephilus fuscicornis* (Rambur, 1842), *Limnephilus griseus* (Linnaeus, 1758), *Limnephilus sparsus* Curtis, 1834, *Stenophylax lateralis* (Stephens, 1837)). Five species are newly recorded from the Ryazan Region (*Oligostomis reticulata* (Linnaeus, 1761), *Stenophylax lateralis*, *Molanna albicans* (Zetterstedt, 1840), *Ceraclea albimacula* (Rambur, 1842), *Oecetis furva* (Rambur, 1842)). Three species are newly reported from the Samara Region (*Agraylea sexmaculata* Curtis, 1834, *Agrypnia varia*, *Phryganea grandis*). Three species are newly recorded from the Volgograd Region (*Phryganea grandis*, *Anabolia furcata* Brauer, 1857, *Grammotaulius nitidus* (Müller, 1764)). One species is newly reported from each of the following regions: Voronezh Region (*Limnephilus dispar*), Tambov Region (*Agrypnia varia*), Lipetsk Region (*Stenophylax lateralis*), and the Chuvash Republic (*Oligotricha striata* (Linnaeus, 1758)). In the Republic of Mordovia, compared with a recent publication [28], three species are newly recorded (*Ithytrichia lamellaris* Eaton, 1873, *Cheumatopsyche lepida* (Pictet, 1834), *Hydroptila angulata*). In the caddisfly fauna of the Moscow Region, the presence of five previously known species was confirmed, and in the Saratov Region fauna, four species were confirmed.

The most abundant families in the samples were Limnephilidae, Phryganeidae, and Leptoceridae. The highest number of specimens (more than 300 individuals) in the dataset was recorded for eight species: *Anabolia brevipennis*, *Hydropsyche contubernalis*, *Hydropsyche pellucidula*, *Limnephilus flavicornis*, *Limnephilus rhombicus*, *Limnephilus sparsus*, *Phryganea grandis*, and *Potamophylax latipennis*. These same species were also most frequently recorded across multiple localities. In particular, *Phryganea grandis* stands out, being recorded in 136 localities (46.1%) of the dataset (Figure 1).

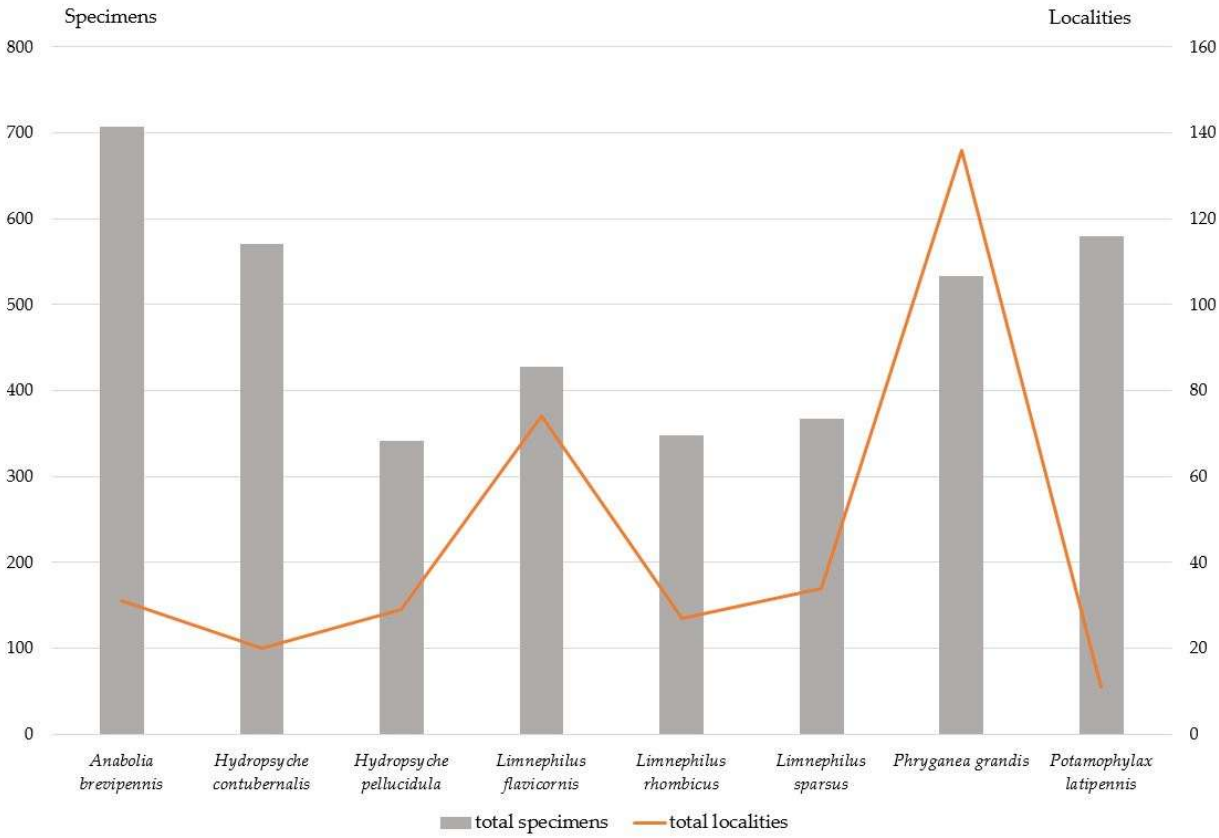

Figure 1. Number of specimens and number of localities for the most represented Trichoptera species in the dataset.

Seventeen Trichoptera species are represented in the dataset by a single specimen: *Agrypnia picta*, *Hydropsyche modesta*, *Hydroptila sparsa*, *Leptocerus interruptus*, *Limnephilus centralis*, *Oecetis nigropunctata*, *Orthotrichia costalis*, *Paduniella uralensis*, *Parasetodes respersellus*, *Philarctus bergrothi*, *Philopotamus montanus*, *Polycentropus irroratus*, *Rhadicoleptus alpestris*, *Rhyacophila obliterata*, *Setodes punctatus*, *Silo pallipes*, and *Tricholeiochiton fagesii*. Accordingly, these species were each recorded in only one locality. In addition, six more species (*Apatania zonella*, *Cyrnus crenaticornis*, *Hydroptila angulata*, *Limnephilus externus*, *Limnephilus femoratus*, *Odontocerum albicorne*) were also recorded from a single locality each.

Most of the species in our dataset were collected with hand-held sweep net, which was used in 298 samples correspondent to 109 localities and yielded 109 species and 3308 specimens (Figure 2). The second with most species was the light trap (270 samples in 45 localities, 90 species, 2651 specimens). Malaise traps were used in 24 localities and yielded 48 species. The effectiveness of these sampling methods for studying Trichoptera has been highlighted by other researchers. Sweep-net sampling is particularly effective for collecting larvae in aquatic habitats [29,30]. Light traps are also highly effective for collecting adult Trichoptera, especially near or at some distance from water bodies [31,32]. Malaise traps can also provide good results, especially when operated continuously throughout the season, additionally offering phenological information [33,34].

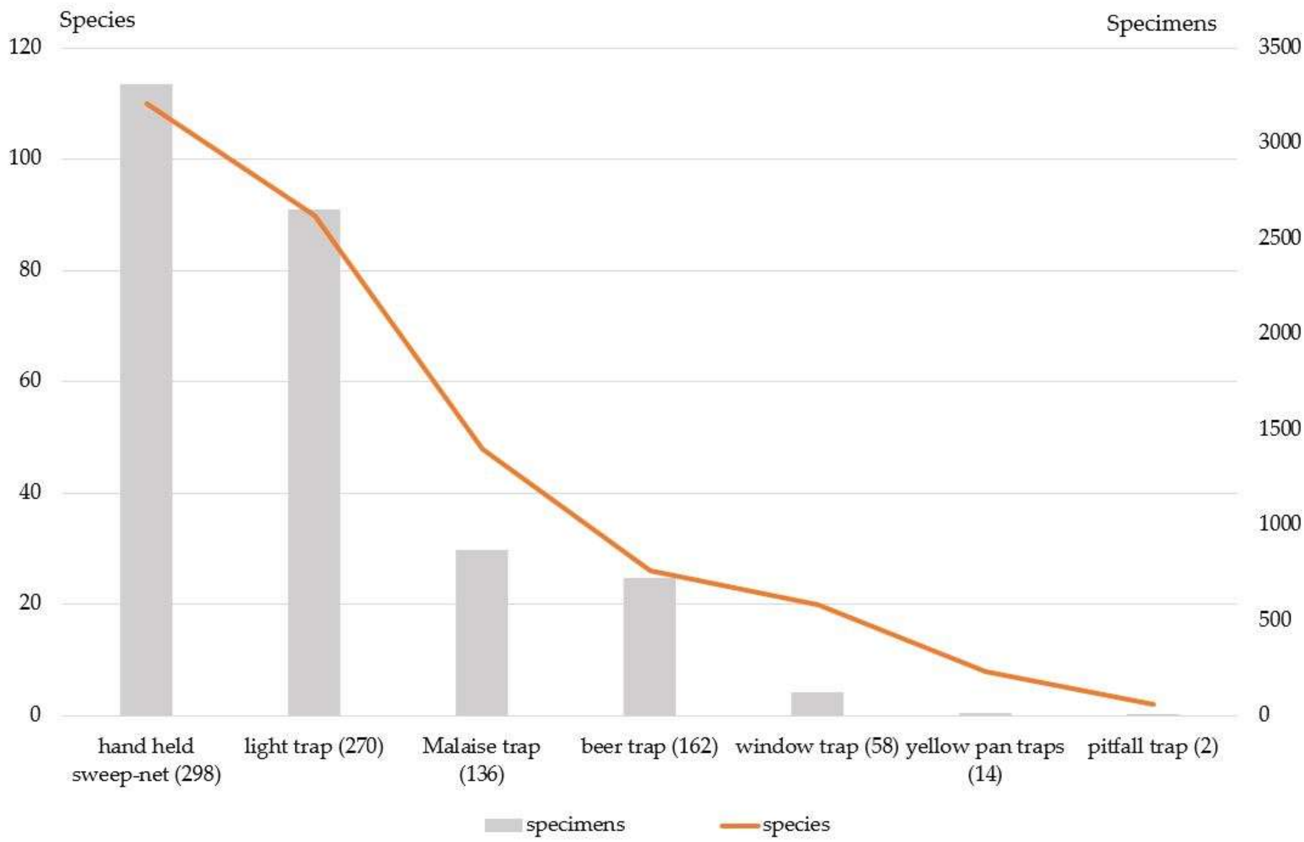

Figure 2. Number of Trichoptera species and specimens collected using different sampling methods. The number of sample events (data from different collection dates and geographic coordinates) is shown below each method.

The use of beer traps yielded notable results (26 species), despite being applied at a relatively large number of localities (156). In terms of abundance, *Phryganea grandis* dominated in beer traps. Adults of this species are characterized by active feeding behavior. Specialized receptors enable them to detect chemical compounds in solution and respond to sucrose [35,36]. Their antennae are sensitive to various volatile substances, making the bait odor attractive to them [37]. *Agrypnia varia*, *Hagenella clathrata*, *Trichostegia minor*, *Anabolia brevipennis*, and *Glyphotaelius pellucidus* were also frequently attracted to beer traps. These are typical forest-dwelling species. Baits based on fermented beer with sugar attract adult caddisflies of the families Phryganeidae and Limnephilidae, which is associated with the active feeding behavior of these species [38]. Other sampling methods collected fewer species (Figure 2).

3. Methods

3.1. Study Area

The study area where the authors conducted field research covers 15 regions of European Russia. The total area of the study exceeds 1.2 million km^2 (Figure 3). Trichoptera samples were collected in European Russia (the Russian Plain) across 15 regions. Part of the study area lies within the Volga Upland (eastern part of the Republic of Mordovia, Chuvash Republic, Penza Region, Samara Region, Saratov Region, Nizhny Novgorod Region, Ulyanovsk Region, Republic of Tatarstan, Volgograd Region). Another part of the study area is located within the Oka–Don Lowland (western part of the Republic of Mordovia, Moscow Region, Tambov Region, Ryazan Region, Lipetsk Region, Penza Region, Voronezh Region, Vladimir Region). In these regions, the relief is predominantly hilly. Elevations above sea level range from 200 to 300 m in the Volga Upland. The Oka–Don Lowland is characterized by lower elevations and a more subdued topography. The climate is temperate continental, becoming warmer in southern regions compared to northern ones. The onset of positive temperatures occurs later in eastern regions than in western ones, which are influenced by warmer Atlantic air masses. Maps in Figure 3 were created using QGIS (version 3.22). Sampling localities were imported as a vector point layer from a CSV file containing geographic coordinates. To improve visualization and avoid overlapping records, occurrences located within a distance of 3–4 km from each other were merged and displayed as a single point. Administrative boundaries of the studied regions were obtained from the OSM Boundaries database (https://osm-boundaries.com (accessed on 23 June 2026)).

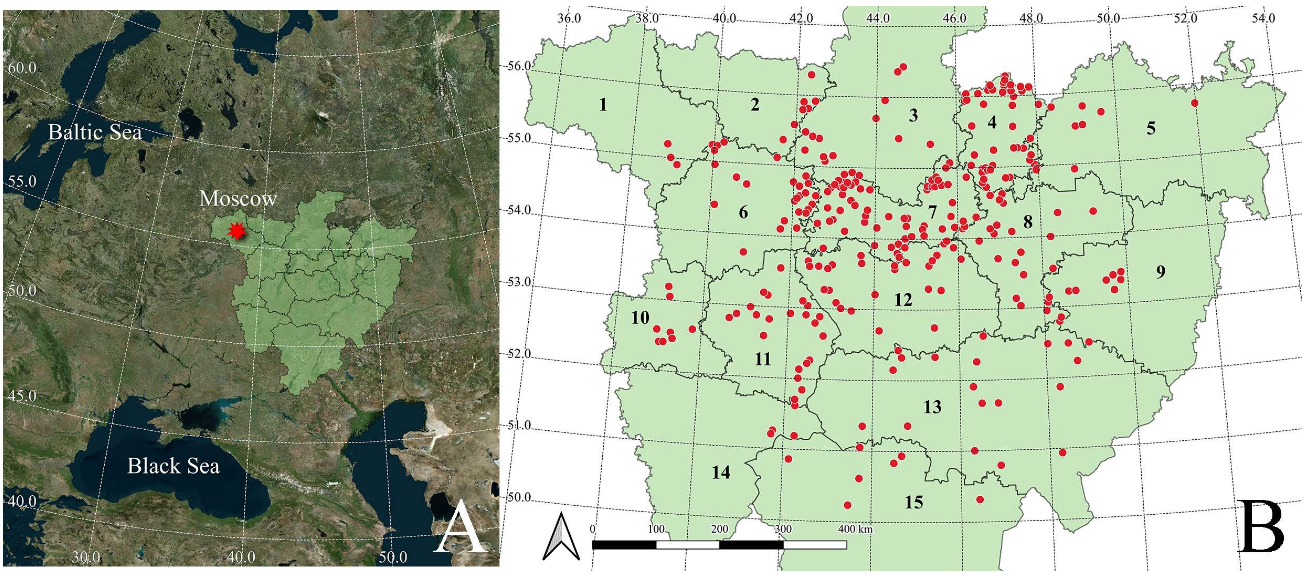

Figure 3. Study sites and sampling locations (shown as red dots): (**A**) the regions of the study are indicated in light green; (**B**) 1—Moscow Region; 2—Vladimir Region; 3—Nizhny Novgorod Region; 4—Chuvash Republic; 5—Republic of Tatarstan; 6—Ryazan Region; 7—Republic of Mordovia; 8—Ulyanovsk region; 9—Samara Region; 10—Lipetsk Region; 11—Tambov Region; 12—Penza Region; 13—Saratov Region; 14—Voronezh Region; 15—Volgograd Region.

Forest and forest-steppe landscapes dominate the study area. In southern regions, forests are mainly of an island type, often without gradual transitions between stands. Large continuous forest tracts are characteristic only of northern regions [39]. The main rivers in the study area are the Volga and the Don, along with their tributaries of various orders. Numerous lakes occur in river floodplains. Tributaries of the Volga and Don are characterized by relatively high flow velocity in small 4th- and 5th-order streams, whereas larger tributaries do not exhibit such flow conditions. In recent years, river discharge in these basins has changed significantly and has become more regulated, with a general decrease in total runoff. It is believed that climate change recorded in recent decades has substantially altered the spatiotemporal variability of runoff characteristics [40,41].

3.2. Data Collection

The authors conducted their own field research starting in 1981, with the most intensive sampling carried out during 2018–2025. A wide range of conventional and non-conventional sampling methods was used to obtain specimens: hand-held sweep net, light traps, Malaise traps, beer traps, window traps, yellow pan traps, and pitfall traps [42–45]. The hand-held sweep net was used both for collecting adults (sweep sampling) and for collecting larvae from various types of water bodies. It was the only method that included larvae. As light traps, a standard TDM Electric lamp (DRV 250 W, 4200 K, 4700 lm, E40) was used. This method was typically applied at forest edges near human structures such as small isolated houses or settlements surrounded by forest and located near water bodies. Malaise traps were used in both commercially produced and homemade versions. The collecting container was filled with 70% ethanol. One trap was installed per locality, usually at forest edges or slightly inside forest stands near water bodies. In many habitats, Malaise traps operated from April to October, with samples collected every 3–12 days. Beer traps were constructed from 5 L or 1.5 L containers filled to one quarter with beer mixed with sugar and left to ferment. The traps were suspended from branches of trees and shrubs at a height of 1.5–12 m. Samples were retrieved every 7–15 days after filtering the liquid. Window traps were made of transparent plastic and consisted of intersecting panels with a funnel at the bottom. A collecting container filled with ethanol was placed beneath the funnel. These traps were suspended from large tree branches at heights above 2 m and were used both at forest edges and within forest stands. Yellow pan traps consisted of yellow plastic bowls with a volume of 1 L. They were filled halfway with water and a detergent was added as a surfactant. Traps were placed on the ground in different habitats in linear transects of 10–12 units, with 1–3 m spacing between traps. Exposure time ranged from 3 to 7 days. Pitfall traps consisted of standard 0.5 L plastic cups inserted into the soil so that the rim was level with the ground surface. A 4% formalin solution (approximately 150 mL per trap) was used as a preservative. These traps were used across a range of habitats. Other collection methods were used to collect adult insects. The collection methods were not standardized and the amount of effort varies in all cases. However, species diversity can be easily accounted for when collecting in a variety of ways.

During our own field studies, we recorded coordinates, dates, habitat type, and the original name of each locality. These data were entered into a database. We also used published sources (see dataset) containing reliable information on sampling locations and timing of studies conducted by the authors, which are included in the dataset [23]. Some sections of the dataset were not filled in, as these publications lacked the necessary information. Data on the life cycle stage was not included in the dataset. During data processing, results obtained using different sampling methods were pooled, combining all available records. Statistical analyses were performed using Microsoft Office Professional Plus 2019 software packages.

3.3. Taxonomic Analysis

Most of the collected specimens were preserved in ethanol for subsequent processing. A portion of the material was mounted on entomological pins. All specimens obtained using different types of traps were rinsed each time and stored in 90% ethanol. In the laboratory, all specimens were identified under an MBS-10 stereomicroscope. Larval identification was carried out using the keys by S.G. Lepneva [42,43] and V.D. Ivanov et al. [46], while adults were identified using the keys by T.T. Macan [47], H. Malicky [48], and J. Salokannel & K. Mattila [49]. In total, the dataset includes records from 295 localities. The studied material is stored in the Mordovia State Nature Reserve, Voronezh State University and the Zoological Institute of the Russian Academy of Sciences (St. Petersburg).

4. Conclusions

A biodiversity analysis of Trichoptera was conducted across 15 regions. The most thoroughly surveyed regions were the Republic of Mordovia and the Chuvash Republic, where 98 and 86 species were recorded (including newly added records), respectively. In total, 36 species were recorded in only one of the fifteen regions. Eleven species are newly reported for the fauna of the Nizhny Novgorod Region, seven for the Penza Region, five for the Vladimir Region, five for the Ryazan Region, three for the Samara Region, three for the Republic of Mordovia, three for the Volgograd Region, and one species each for the Voronezh, Tambov, Lipetsk Regions and the Chuvash Republic. The most abundant families in the samples were Limnephilidae, Phryganeidae, and Leptoceridae. Eight species were represented by more than 300 specimens in the dataset. The most widespread species across regions were *Agrypnia varia* (recorded in 13 regions), *Limnephilus flavicornis* (14 regions), and *Phryganea grandis* (15 regions). Most species were collected through hand-held sweep net (mostly larvae), followed by the light trap (adult specimens). In practice, these two methods together provided the most complete representation of regional Trichoptera fauna.

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Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Species richness and abundance of Trichoptera across different regions (from the dataset).

	Species	VlR	VgR	VrR	LR	RM	MR	NNR	PR	RR	SmR	SrR	TR	RT	UR	RCh	Total of Specimens
	Rhyacophilidae																
1.	*Rhyacophila fasciata* Hagen, 1859					1										13	14
2.	*Rhyacophila nubila* Zetterstedt, 1840											2				1	3
3.	*Rhyacophila obliterata* McLachlan, 1863															1	1
	Glossosomatidae																
4.	*Agapetus ochripes* Curtis, 1834					5											5
	Hydroptilidae																
5.	*Agraylea multipunctata* Curtis, 1834					7						2		3	1	7	20
6.	*Agraylea sexmaculata* Curtis, 1834			1		24					1	2			1	9	38
7.	*Hydroptila angulata* Mosely, 1922 *					2											2
8.	*Hydroptila dampfi* Ulmer, 1929											4					4
9.	*Hydroptila sparsa* Curtis, 1834											1					1
10.	*Hydroptila tineoides* Dalman, 1819					3								2		1	6
11.	*Ithytrichia lamellaris* Eaton, 1873					109						1		2	2		114
12.	*Orthotrichia costalis* (Curtis, 1834)														1		1
13.	*Orthotrichia tragetti* Mosely, 1930					27										9	36
14.	*Oxyethira flavicornis* (Pictet, 1834)					3						1			1		5
15.	*Oxyethira tristella* Klapalek, 1895																
16.	*Tricholeiochiton fagesii* (Guinard, 1879)											1					1
	Philopotamidae																
17.	*Philopotamus montanus* (Donovan, 1813)					1											1
	Psychomyiidae																
18.	*Lype phaeopa* (Stephens, 1836)					3									1	3	7
19.	*Paduniella uralensis* Martynov, 1914											1					1
20.	*Psychomyia pusilla* (Fabricius, 1781)	1				2						1		1		179	184
21.	*Tinodes waeneri* (Linnaeus, 1758)			4		66										3	73
	Ecnomidae																
22.	*Ecnomus tenellus* (Rambur, 1842)		1			20						10			1	21	53
	Polycentropodidae																
23.	*Cyrnus crenaticornis* (Kolenati, 1859)															2	2
24.	*Cyrnus flavidus* McLachlan, 1864					7		1				1			1	5	15
25.	*Cyrnus trimaculatus* (Curtis, 1834)		1									4					5
26.	*Holocentropus dubius* (Rambur, 1842)					75									1		76
27.	*Holocentropus insignis* Martynov, 1924					3									1		4
28.	*Holocentropus picicornis* (Stephens, 1836)													1	1		2
29.	*Neureclipsis bimaculata* (Linnaeus, 1758)		1			7						4				9	21
30.	*Plectrocnemia conspersa* (Curtis, 1834)		1			1						9			1	17	29
31.	*Polycentropus flavomaculatus* (Pictet, 1834)					30				3				2	1	3	39
32.	*Polycentropus irroratus* Curtis, 1835					1											1
	Hydropsychidae																
33.	*Cheumatopsyche lepida* (Pictet, 1834)					2						4		1		1	8
34.	*Hydropsyche angustipennis* (Curtis, 1834)					82			2	113				3	1	32	233
35.	*Hydropsyche bulgaromanorum* Malicky, 1977		1			7						6					14
36.	*Hydropsyche contubernalis* Mclachlan, 1865			163		167			56	129		4			1	51	571
37.	*Hydropsyche ornatula* McLachlan, 1878					+						1			2	1	4
38.	*Hydropsyche pellucidula* (Curtis, 1834)					103			2			1			2	234	342
39.	*Hydropsyche siltalai* Doehler, 1963															7	7
	Phryganeidae																
40.	*Agrypnia crassicornis* (McLachlan, 1876)											4				1	5
41.	*Agrypnia obsoleta* (Hagen, 1864)					12			1							9	22
42.	*Agrypnia pagetana* Curtis, 1835	1				5						3				150	159
43.	*Agrypnia picta* Kolenati, 1848					1											1

	Species	VlR	VgR	VrR	LR	RM	MR	NNR	PR	RR	SmR	SrR	TR	RT	UR	RCh	Total of Specimens
44.	*Agrypnia varia* (Fabricius, 1793)	1		1		28	1	3	5	4	2	8	4	4	5	37	103
45.	*Hagenella clathrata* (Kolenati, 1848)					65		9								5	79
46.	*Oligostomis reticulata* (Linnaeus, 1761)					6		4		1						7	18
47.	*Oligotricha striata* (Linnaeus, 1758)					12									1	1	14
48.	*Phryganea bipunctata* Retzius, 1783		2			35		1		5				1	1	5	50
49.	*Phryganea grandis* Linnaeus, 1758	19	2	3	16	155	2	23	42	23	21	28	33	29	11	126	533
50.	*Semblis phalaenoides* (Linnaeus, 1758)					6										2	8
51.	*Trichostegia minor* (Curtis, 1834)	108				35	11	3	1			7		5	1	1	172
	Brachycentridae																
52.	*Brachycentrus subnubilus* Curtis, 1834					7								2	1		10
	Odontoceridae																
53.	*Odontocerum albicorne* (Scopoli, 1763)									4							4
	Lepidostomatidae																
54.	*Lepidostoma hirtum* (Fabricius, 1775)					1								1			2
	Apataniidae																
55.	*Apatania zonella* (Zetterstedt, 1840)															6	6
	Limnephilidae																
56.	*Anabolia brevipennis* (Curtis, 1834)	32				566		4	23	15					1	66	707
57.	*Anabolia concentrica* (Zetterstedt, 1840)					7		1						5		10	23
58.	*Anabolia furcata* Brauer, 1857		3	1		4		1	1	1				15		13	39
59.	*Anabolia laevis* (Zetterstedt, 1840)					35										10	45
60.	*Chaetopteryx villosa* (Fabricius, 1798)					2										4	6
61.	*Colpotaulius incisus* (Curtis, 1834)		1									5			2		8
62.	*Colpotaulius major* Martynov, 1909														2		2
63.	*Glyphotaelius pellucidus* (Retzius, 1783)	9		1		52		9	4			3	2		1	19	100
64.	*Grammotaulius nigropunctatus* (Retzius, 1783)								2							1	3
65.	*Grammotaulius nitidus* (Müller, 1764)		1			2				1		7			1	7	19
66.	*Halesus digitatus* (Schrank, 1781)					31			6							8	45
67.	*Halesus radiatus* (Curtis, 1834)					63										1	64
68.	*Halesus tesselatus* (Rambur, 1842)	1				63										42	106
69.	*Ironoquia dubia* (Stephens,1837)					3				1						7	11
70.	*Lenarchus bicornis* (McLachlan, 1880)					+											
71.	*Limnephilus affinis* Curtis, 1834					2										1	3
72.	*Limnephilus auricula* Curtis, 1834	1				4										7	12
73.	*Limnephilus bipunctatus* Curtis, 1834					3			2	2						12	19
74.	*Limnephilus borealis* (Zetterstedt, 1840)	1				+				1				1			3
75.	*Limnephilus centralis* Brauer, 1857															1	1
76.	*Limnephilus decipiens* (Kolenati, 1848)					4		1		11		3				20	39
77.	*Limnephilus dispar* McLachlan, 1875			1		1		2									4
78.	*Limnephilus elegans* Curtis, 1834					1						1			3		5
79.	*Limnephilus externus* Hagen, 1861									6							6
80.	*Limnephilus extricatus* McLachlan, 1865					9		2				1			1	6	19
81.	*Limnephilus femoratus* (Zetterstedt, 1840)			4													4
82.	*Limnephilus flavicornis* (Fabricius, 1787)	42	1	9	1	75	1	5	66	23		6	7	5	4	183	428
83.	*Limnephilus fuscicornis* (Rambur, 1842)	30				52		2	8	16						4	112
84.	*Limnephilus fuscinervis* (Zetterstedt, 1840)		1									5					6
85.	*Limnephilus griseus* (Linnaeus, 1758)	1				45		4		45						67	162
86.	*Limnephilus ignavus* Mclachlan, 1865	2				8		11	1			2			1	6	31
87.	*Limnephilus lunatus* Curtis, 1834	1		3		5				2						4	15
88.	*Limnephilus nigriceps* (Zetterstedt, 1840)					5						3				15	23
89.	*Limnephilus politus* McLachlan, 1865					26				6						77	109
90.	*Limnephilus rhombicus* (Linnaeus, 1758)					199		30	6	2		2		1		108	348

	Species	VlR	VgR	VrR	LR	RM	MR	NNR	PR	RR	SmR	SrR	TR	RT	UR	RCh	Total of Specimens
91.	*Limnephilus sericeus* (Say, 1824)					125		10		22						13	170
92.	*Limnephilus sparsus* Curtis, 1834	46				111		164	6	9		3	3			25	367
93.	*Limnephilus stigma* Curtis, 1834					6			28				1			63	98
94.	*Limnephilus vittatus* (Fabricius, 1798)					8				5		5				30	48
95.	*Limnephilus xanthodes* McLachlan, 1873					3									1	1	5
96.	*Nemotaulius punctatolineatus* (Retzius, 1783)							2		5				1	1	1	10
97.	*Philarctus bergrothi* McLachlan, 1880														1		1
98.	*Potamophylax latipennis* (Curtis, 1834)					551			12					2	1	14	580
99.	*Potamophylax nigricornis* (Pictet, 1834)					5						2			1	2	10
100.	*Potamophylax rotundipennis* (Brauer, 1857)					9										51	60
101.	*Rhadicoleptus alpestris* (Kolenati, 1848)					1											1
102.	*Stenophylax lateralis* (Stephens, 1837)	1			1	9		5	1	3		1				8	29
103.	*Stenophylax sequax* (Mclachlan, 1875)											2			1	5	8
	Goeridae																
104.	*Goera pilosa* (Fabricius, 1775)						2										2
105.	*Silo pallipes* (Fabricius, 1781)														1		1
	Sericostomatidae																
106.	*Sericostoma personatum* (Kirby & Spence, 1826)					1						3				1	5
	Molannidae																
107.	*Molanna albicans* (Zetterstedt, 1840)					21				9						14	44
108.	*Molanna angustata* Curtis, 1834					2				1				1		1	5
109.	*Molannodes tinctus* (Zetterstedt, 1840)														2		2
	Leptoceridae																
110.	*Athripsodes aterrimus* (Stephens, 1836)			1		7										38	46
111.	*Athripsodes cinereus* (Curtis, 1834)									4		1					5
112.	*Ceraclea albimacula* (Rambur, 1842)					2						2					4
113.	*Ceraclea annulicornis* (Stephens, 1836)					3				28							31
114.	*Ceraclea dissimilis* (Stephens, 1836)					19						1			1	29	50
115.	*Ceraclea excisa* (Morton 1904)					3										25	28
116.	*Ceraclea fulva* (Rambur, 1842)											3					3
117.	*Ceraclea nigronervosa* (Retzius, 1783)											1				8	9
118.	*Ceraclea senilis* (Burmeister, 1839)					5											5
119.	*Leptocerus interruptus* (Fabricius, 1775)											1					1
120.	*Leptocerus tineiformis* Curtis, 1834					60				31		6			1	30	128
121.	*Mystacides azureus* (Linnaeus, 1761)					8								1	1	2	12
122.	*Mystacides longicornis* (Linnaeus, 1758)					2				5		2		1	1	214	225
123.	*Mystacides niger* (Linnaeus, 1758)					1								2	1	6	10
124.	*Oecetis furva* (Rambur, 1842)					1				9						7	17
125.	*Oecetis intima* McLachlan, 1877											7					7
126.	*Oecetis lacustris* (P. J. Pictet, 1834)					1						1		1		12	15
127.	*Oecetis nigropunctata* Ulmer, 1908														1		1
128.	*Oecetis ochracea* (Curtis, 1825)		1			3				5		9	1		3	3	25
129.	*Parasetodes respersellus* (Rambur, 1842)					1											1
130.	*Setodes punctatus* (Fabricius, 1793)											1					1
131.	*Setodes viridis* (Fourcroy, 1785)					2						1		1			4
132.	*Triaenodes bicolor* (Curtis, 1834)					5								1		18	24
133.	*Triaenodes unanimis* McLachlan, 1877														2		2
134.	*Triaenodes conspersus* (Rambur, 1842)														3		3
	Total specimens in dataset	297	17	192	18	3368	17	297	275	550	24	200	51	95	79	2279	7759
	Total species	17	14	12	3	98	5	23	21	35	3	55	7	28	49	86	134

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Note: VlR—Vladimir Region; VgR—Volgograd Region; VrR—Voronezh Region; LR—Lipetsk Region; RM—Republic of Mordovia («+»—literature data); MR—Moscow Region; NNR—Nizhny Novgorod Region; PR—Penza Region; RR—Ryazan Region; SmR—Samara Region; SrR—Saratov Region; TR—Tambov Region; RT—Republic of Tatarstan; UR—Ulyanovsk region; RCh—Republic of Chuvashia. The sign "*" marks the first record of the species for the Middle Volga region.

References

1. Nimma, D.; Devi, O.R.; Laishram, B.; Ramesh, J.V.N.; Boddupalli, S.; Ayyasamy, R.; Arabi, A. Implications of climate change on freshwater ecosystems and their biodiversity. *Desalin. Water Treat.* **2025**, *321*, 100889.
2. Justino, W.S.; Negreiros, D.; Ramos, L.; Figueiredo, J.C.G.; Paiva, D.C.; Oki, Y.; Santos, R.M.; Ashworth, L.; Nunes, Y.R.F.; Fernandes, G.W. Floristic and edaphic inventory of Atlantic riparian forests: References for restoration projects. *Nat. Conserv. Res.* **2025**, *10*, 76–88. [CrossRef]
3. Popoola, B.M.; Adeyemi, O.A.; Samson, O.J. Antibiotic-resistant bacteria in tropical freshwater ecosystems: A review of occurrence, distribution and environmental implications. *Microbe* **2025**, *8*, 100457. [CrossRef]
4. Surazakov, A.B.; Aizen, V.B. Estimating volume change of mountain glaciers using SRTM and map-based topographic data. *IEEE Trans. Geosci. Remote Sens.* **2006**, *44*, 2991–2995. [CrossRef]
5. Han, Y.; Wang, Y.; Ma, X.; Shang, Y. Glacier and Snow Cover Dynamics and Their Affecting Factors on the Pamir Plateau Section of the China–Pakistan Economic Corridor. *Land* **2025**, *14*, 880. [CrossRef]
6. Verma, M.; Sati, M. Forest Fires and Climate Change Impacts on Water Resources. In *Forest Fire and Climate Change: Insights into Science*; Springer Nature: Cham, Switzerland, 2025; pp. 169–190.
7. Vdovina, O.N.; Tropina, E.F.; Makarycheva, A.Y.; Yerunova, M.G. Patterns of macroinvertebrate distribution in watercourses of the Krasnoyarsk Stolby National Park (East Siberia). *Nat. Conserv. Res.* **2025**, *10*, 50–65. [CrossRef]
8. Liu, H.; Zhou, X. Wildfire and Its Impact on the Ecosystem in Guizhou Province. *Fire Mater.* **2025**, *49*, 550–558.
9. Aleinikov, A.A.; Aleksutin, V.E.; Vozmitel, F.K.; Gunya, A.N. Long-term dynamics of forests with Pinus sibirica in the upper reaches of the River Kolva (Northern Pre-Urals, Russia) from 1938 to 2023. *Nat. Conserv. Res.* **2024**, *9*, 72–91. [CrossRef]
10. Senkevich, V.A.; Stojko, T.G.; Bashinskiy, I.V. Zooplankton communities of small floodplain water bodies in longtime limnophase (Khoper River valley, European Russia). *Nat. Conserv. Res.* **2024**, *9*, 92–105. [CrossRef]
11. Iyiola, A.O.; Asiedu, B.; Oyewole, E.O.; Akinrinade, A.J. Impacts of climate change on aquatic biodiversity in Africa. In *Biodiversity in Africa: Potentials, Threats and Conservation*; Springer Nature: Singapore, 2022; pp. 369–394.
12. Afonina, E.Y.; Tashlykova, N.A. Diversity of aquatic organisms in the lowland watercourses: A case study in transboundary rivers, Transbaikalia, Russia. *Nat. Conserv. Res.* **2025**, *10*, 1–19. [CrossRef]
13. Ali, G.; Abbas, S.; Nagai, S.; Mohd Arshad, N.; Bhassu, S. Threats of Climate Change to Freshwater Ecosystems in Pakistan: eDNA Monitoring Will Be the Next-Generation Tool Used in Biodiversity, Conservation, and Management. *Biology* **2025**, *14*, 1191. [CrossRef] [PubMed]
14. Hambaryan, L.; Stepanyan, L.; Khachikyan, T.; Mamyan, A.; Azizyan, L.; Shahnazaryan, G.; Barinova, S. Phytoplankton as an indicator of long-term changes in the aquatic ecosystem of Sevan National Park, Armenia, 2015–2019. *Nat. Conserv. Res.* **2025**, *10*, 13–30. [CrossRef]
15. Semenchenko, A.; Tiunova, T.M. DNA barcoding of mayflies (Ephemeroptera) in Kamchatka peninsula, Russia. *Far East. Entomol.* **2025**, *533*, 7–19. [CrossRef]
16. Morse, J.C.; Frandsen, P.B.; Graf, W.; Thomas, J.A. Diversity and ecosystem services of Trichoptera. *Insects* **2019**, *10*, 125. [CrossRef] [PubMed]
17. Erdoğan, Ö.; Karakaş, B.; Yünlü, M.Z. The Trichoptera fauna of the Karpuz Stream and its relationships with water quality. *Biologia* **2025**, *80*, 641–653. [CrossRef]
18. Simeone, D.; Fernandes, M.E. Linking Riparian Forest to the Functional Diversity of Ephemeroptera, Plecoptera, and Trichoptera in First-Order Tropical Streams. *Diversity* **2025**, *17*, 438. [CrossRef]
19. Ivanov, V.D. Caddisflies of Russia: Fauna and biodiversity. *Zoosymposia* **2011**, *5*, 171–209. [CrossRef]
20. Svenningsen, C.S.; Schigel, D. Sharing insect data through GBIF: Novel monitoring methods, opportunities and standards. *Philos. Trans. R. Soc. B Biol. Sci.* **2024**, *379*, 20230104. [CrossRef]
21. Štípková, Z.; Tsiftsis, S.; Kindlmann, P. Is the GBIF appropriate for use as input in models of predicting species distributions? Study from the Czech Republic. *Nat. Conserv. Res.* **2024**, *9*, 84–95. [CrossRef]
22. Jackowiak, B.; Lawenda, M. How Does Sharing Data from Research Institutions on Global Biodiversity Information Facility Enhance Its Scientific Value? *Diversity* **2025**, *17*, 221. [CrossRef]

23. Borisova, N.; Ruchin, A.; Egorov, L.; Esin, M.; Lobachev, E.; Lukiyanov, S.; Semishin, G.; Esina, I.; Nikolaeva, A.; Sidorov, D. *Biodiversity of Trichoptera (Insecta) in Some Regions of European Russia: Research Results and Literature Data*; Joint Directorate of the Mordovia State Nature Reserve and National Park “Smolny”: Saransk, Russia, 2026. [CrossRef]
24. Wiggers, R.; van den Hoek, T.H.; van Maanen, B.; Higler, L.W.G.; van Kleef, H. Some rare and new caddis flies recorded for the Netherlands (Trichoptera). *Ned. Faun. Meded.* **2006**, *25*, 53–68.
25. Graf, W.; Murphy, J.; Dahl, J.; Zamora-Muñoz, C.; López-Rodríguez, M.J. *Distribution and Ecological Preferences of European Freshwater Species. Volume 1: Trichoptera*; Schmidt-Kloiber, A., Hering, D., Eds.; Pensoft: Sofia, Bulgaria; Moscow, Russia, 2008.
26. Barnard, P.; Ross, E. *The Adult Trichoptera (Caddisflies) of Britain and Ireland*; RES Handbook; Royal Entomological Society: St Albans, UK, 2012; Volume 1.
27. Arnscheidt, J.; Balzer, I.; Mädler, K. Hydroptila angulata Mosely 1922 (Trichoptera), a caddisfly species new for the Saxonian fauna. *Lauterbornia* **1996**, *25*, 143–145.
28. Borisova, N.V.; Ruchin, A.B.; Esin, M.N.; Lobachev, E.A.; Semishin, G.B. Caddisfly fauna (Insecta: Trichoptera) in the Republic of Mordovia (Russia). *Nat. Conserv. Res.* **2026**, *11*, 82–93. [CrossRef]
29. Ćukušić, A.; Ćuk, R.; Vučković, I.; Previšić, A.; Cerjanec, D.; Mihoci, I.; Kučinić, M. Trichoptera research within project “EU Natura 2000 Integration Project–NIP. In Proceedings of the 15th International Symposium on Trichoptera, New Brunswick, NJ, USA, 4–8 June 2015.
30. Carew, M.E.; Coleman, R.A.; Robinson, K.L.; Hoffmann, A.A. Using unsorted sweep-net samples to rapidly assess macroinvertebrate biodiversity. *Freshw. Sci.* **2021**, *40*, 551–565. [CrossRef]
31. Larsson, M.; Göthberg, A.; Milberg, P. Night, light and flight: Light attraction in Trichoptera. *Insect Conserv. Divers.* **2020**, *13*, 296–302.
32. Waringer, J.A. Phenology and the influence of meteorological parameters on the catching success of light-trapping for Trichoptera. *Freshw. Biol.* **1991**, *25*, 307–319. [CrossRef]
33. Malicky, H. A quantitative field comparison of different types of emergence traps in a stream: General, Trichoptera, Diptera (Limoniidae and Empididae). *Ann. Limnol.-Int. J. Limnol.* **2002**, *38*, 133–149. [CrossRef]
34. Kjærandsen, J. Species assemblages and community structure of adult caddisflies along a headwater stream in southeastern Ghana (Insecta: Trichoptera). *Biodivers. Conserv.* **2005**, *14*, 1–43. [CrossRef]
35. Frings, H.; Frings, M. The loci of contact chemoreceptors sensitive to sucrose solutions in adult Trichoptera. *Biol. Bull.* **1956**, *111*, 92–100. [CrossRef]
36. Novikova, E.S.; Soboleva, E.B. Nutrition of adult barnacles (Insecta, Trichoptera) and its effect on behavior and life expectancy. In *Problems of Aquatic Entomology in Russia: Proceedings of the X(2) Trichopterological Symposium*; Severnaya Ossetia Univ. Publishing House: Vladikavkaz, Russia, 2013; pp. 34–40.
37. Barabanova, A.A.; Zhukovskaya, M.I.; Ivanov, V.D.; Melnitsky, S.I. The effect of octopamine on antenna responses in Phryganea grandis L. (Trichoptera, Phryganeidae). In *Problems of Aquatic Entomology in Russia and Neighboring Countries*; K.L. Khetagurov North-Ossetian State University: Voronezh, Russia, 2007; pp. 30–36.
38. Borisova, N.V.; Ruchin, A.B.; Lukyanova, Y.A.; Suleimanova, G.F. Accounting of the caddisflies (Insecta, Trichoptera) in fermental crown traps. *Nat. Sci. Res. Chuvashia* **2022**, *8*, 85–102. [CrossRef]
39. Sidorchuk, A.; Borisova, O.; Panin, A. Fluvial response to the Late Valdai/Holocene environmental change on the East European Plain. *Glob. Planet. Change* **2001**, *28*, 303–318. [CrossRef]
40. Frolova, N.L.; Agafonova, S.A.; Kireeva, M.B.; Povalishnikova, E.S.; Pakhomova, O.M. Recent changes of annual flow distribution of the Volga Basin Rivers. *Geogr. Environ. Sustain.* **2017**, *10*, 28–39. [CrossRef]
41. Dzhamalov, R.G.; Frolova, N.L.; Kireeva, M.B. Current changes in river water regime in the Don River Basin. *Water Resour.* **2013**, *40*, 573–584. [CrossRef]
42. Lepneva, S.G. Caddisflies. Larvae and Pupae of the Suborder Annulipalpia. In *Fauna of the USSR. Vol. II, Issue 1*; Nauka: Moscow, Russia, 1964; 560p.
43. Lepneva, S.G. Caddisflies. Larvae and Pupae of the Suborder Integripalpia. In *Fauna of the USSR. Vol. II, Issue 2*; Nauka: Moscow, Russia, 1966; 560p.
44. Egorov, L.V.; Dedyukhin, S.V.; Alekseev, S.K.; Trushitsyna, O.S.; Ruchin, A.B.; Sazhnev, A.S.; Nikolaeva, A.M.; Esin, M.N.; Khapugin, A.A. Regional Coleoptera Fauna: Applying different methods to study species diversity in a single region. *Insects* **2024**, *15*, 917. [CrossRef] [PubMed]
45. Golub, V.B.; Tsurikov, M.N.; Prokin, A.A. *Insect Collections: Collection, Processing and Storage of Material*; KMK Scientific Press Ltd.: Moscow, Russia, 2012; 339p.
46. Ivanov, V.D.; Grigorenko, V.N.; Arefina, T.I. Order Trichoptera (Caddisflies). Key to Freshwater Invertebrates of Russia and Adjacent Territories. In *Higher Insects*; Tsalolikhin, S.Y., Ed.; Zoological Institute of the Russian Academy of Sciences: St. Petersburg, Russia, 2001; Volume 5, pp. 7–72. (In Russian)
47. Macan, T.T. *A Key to the Adults of British Trichoptera*; Freshwater Biological Association: Cumbria, UK, 1973; Volume 28, pp. 1–151.

48. Malicky, H. *Atlas of European Trichoptera*, 2nd ed.; Springer: Dordrecht, The Netherlands, 2004; 359p.
49. Salokannel, J.; Mattila, K. *Suomen Vesiperhoset Trichoptera of Finland*; Tibiale Oy: Helsinki, Finland, 2018.