

**A revised checklist of the mosquitoes (Diptera, Culicidae) of European Russia**

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**Abstract**

A revised checklist based on data contained in Russian manuals and monographs on the mosquitoes of the former USSR, as well as many articles on the mosquitoes of European Russia, is presented.

**Introduction**

The first and only checklist of the mosquitoes of European Russia was compiled by Stojanovich & Scott (1995). A revised checklist based on distributional data contained in Russian manuals and monographs on the systematics, biology and ecology of mosquitoes of the former USSR (Shtakelberg, 1937; Beklemishev, 1939, 1944, 1949; Gutsevich *et al.*, 1971; Derbeneva-Uhova, 1974; Gutsevich & Dubitskiy, 1981; Ward, 1987; Mamednyazov, 1992), as well as many articles on the mosquitoes of European Russia, is presented here. The classification and valid species names are listed according to the *Catalog of the Mosquitoes of the World* (Knight & Stone, 1977) and its supplements (Knight, 1978; Ward, 1984, 1992; Gaffigan & Ward, 1985), with the exception of four species: *Aedes duplex*, *Ae. pulcritarsis*, *Ae. rossicus* and *Ae. shtakelbergi* which are discussed below. An asterisk follows those species whose presence in European Russia is doubtful.

**Subfamily Anophelinae**

**Genus Anopheles**

Subgenus *Anopheles*

- algeriensis* Theobald, 1903
- atroparvus* Van Theil, 1927
- beklemishevi* Stegnii & Kabanova, 1976
- claviger* (Meigen, 1804)
- hyrcanus* (Pallas, 1771)
- maculipennis* Meigen, 1818
- melanoon* Hackett, 1934
- messeae* Falleroni, 1926
- plumbeus* Stephens, 1828
- sacharovi* Favre, 1903
- subalpinus* Hackett & Lewis, 1935

Subgenus *Cellia*

- superpictus* Grassi, 1899

**Subfamily Culicinae**

**Genus Aedes**

Subgenus *Aedes*

- cinereus* Meigen, 1818
- rossicus* Dolbeskin, Gorickaja & Mitrofanova, 1930

Subgenus *Aedimorphus*

- vexans* (Meigen, 1830)

Subgenus *Finlaya*

- geniculatus* (Olivier, 1791)
- pulcritarsis* (Rondani, 1872)

Subgenus *Ochlerotatus*

- annulipes* (Meigen, 1830)
- behningi* Martini, 1926
- cantans* (Meigen, 1818)
- caspius* (Pallas, 1771)
- cataphylla* Dyar, 1916
- communis* (De Geer, 1776)
- cyprius* Ludlow, 1919
- detritus* (Haliday, 1833)
- diantaeus* Howard, Dyar & Knab, 1912
- dorsalis* (Meigen, 1830)
- euedes* Howard, Dyar & Knab, 1912
- excrucians* (Walker, 1856)
- flavescens* (Müller, 1764)
- hexodontus* Dyar, 1916
- impiger* (Walker, 1848)
- intrudens* Dyar, 1919
- leucomelas* (Meigen, 1804)
- nigrinus* (Eckstein, 1918)
- nigripes* (Zetterstedt, 1838)
- pionips* Dyar, 1919
- pullatus* (Coquillett, 1904)
- punctor* (Kirby, 1837)
- riparius* Dyar & Knab, 1907
- sticticus* (Meigen, 1838)

Subgenus *Rusticoidus*

- rusticus* (Rossi, 1790)\*
- subdiversus* Martini, 1926

Subgenus *Stegomyia*

- aegypti* (Linnaeus, 1762)\*
- cretinus* Edwards, 1921\*

**Genus *Coquillettidia***

Subgenus *Coquillettidia*

- richiardii* (Ficalbi, 1889)

**Genus *Culex***

Subgenus *Barraudius*

- modestus* Ficalbi, 1889

Subgenus *Culex*

- mimeticus* Noe, 1899
- pipiens* Linnaeus, 1758
- theileri* Theobald, 1903
- torrentium* Martini, 1925
- vagans* Wiedemann, 1828

Subgenus *Maillotia*

- hortensis* Ficalbi, 1889

Subgenus *Neoculex*

- territans* Walker, 1856

**Genus *Culiseta***

Subgenus *Allotheobaldia* Broelemann, 1919

- longiareolata* (Macquart, 1838)

Subgenus *Culicella*

- fumipennis* (Stephens, 1825)\*
- morsitans* (Theobald, 1901)
- ochroptera* (Peus, 1935)

Subgenus *Culiseta*

- alaskaensis* (Ludlow, 1906)
- annulata* (Schrank, 1776)
- bergrothi* (Edwards, 1921)
- subochrea* (Edwards, 1921)

**Genus *Orthopodomyia***

- pulcripalpis* (Rondani, 1872)

**Genus *Uranotaenia***

Subgenus *Pseudoficalbia*

- unguiculata* Edwards, 1913

**Comments**

**1. *Anopheles melanoon* and *Anopheles subalpinus***

Shtakelberg (1937) considered *melanoon* and *subalpinus* as valid names for two rare subspecies of the *Anopheles maculipennis* complex. Beklemishev (1949), Gutsevich *et al.* (1971) and Derbeneva-Uhova (1974) used *melanoon* as the valid subspecies name and *subalpinus* as a junior synonym. Gutsevich & Dubitskiy (1981) substituted the subspecies name *melanoon* for the subspecies name *subalpinus* without explanation. Mamednyazov (1992) used *melanoon* again but as a specific name. Knight & Stone (1977) followed Bates (1940) in recognizing *subalpinus* as a subspecies of *melanoon*. More recently, Ribeiro *et al.* (1988) elevated *subalpinus* to species status. Following Ward (1992) and Shtakelberg (1937), both *melanoon* and *subalpinus* are listed as valid species in this checklist.

## 2. *Aedes duplex* Martini, 1926 and *Aedes shtakelbergi* Shingarev, 1928

Knight & Stone (1977) recognize *Aedes duplex* and *Aedes shtakelbergi* as valid species. However, *Aedes shtakelbergi* is a synonym of *Ae. leucomelas* (Shtakelberg, 1937; Gornostaeva, 1997) and *Aedes duplex* was consigned to synonymy with *Ae. caspius* by Gutsevich *et al.* (1971). Therefore these species are not given in the checklists of mosquitoes of the former USSR (Gutsevich *et al.*, 1971; Gutsevich & Dubitskiy, 1981; Mamednyazov, 1992) and this checklist. The synonymy of *duplex* and *caspius* is however problematic and may need further investigation.

## 3 *Aedes rossicus*

Shtakelberg (1937) considered *rossicus* as a valid species but L'vov (1956), Gutsevich *et al.* (1971) and Gutsevich & Dubitskiy (1981) relegated *rossicus* to a subspecies of *cinereus*. However Peus (1972) and Ward (1984) regard it as subspecies of *esoensis*. *Ae. rossicus* and *Ae. esoensis* exhibit different morphology and are regarded as valid species. Only the former species occurs in European Russia.

## 4. *Aedes pulcratarsis*

Knight & Stone (1977) placed this species in the subgenus *Ochlerotatus* but Danilov (1982) transferred it to the subgenus *Finlaya*. This has been followed in this checklist.

## 5. *Culex pipiens*

In European Russia, as in other parts of the continent, *Culex pipiens* has been shown to exhibit both autogenous (the form *molestus* of some authors) and anautogenous characteristics.

## 6. Doubtful records

The occurrence of *Culiseta fumipennis* in European Russia is problematic. Larvae are required to identify this species, but none has been found in European Russia. Gutsevich *et al.* (1971) regarded the presence of *Ae. rusticus* in Russia as doubtful. This species has been recorded only in the Leningrad district and probably represents a misidentification. Bashkareva (1931) is the only source of information about the presence of *Ae. cretinus* in the Sochi environs. *Aedes aegypti* was introduced into the south of Russia at the beginning of the 20th century, but there is no current information to support the presence of this species along the Black Sea coast or adjoining territories. Thus it is doubtful that four of the 64 species included in the checklist actually occur in European Russia.

## 7. Differences between this checklist and that of Stojanovich & Scott

This checklist differs from that of Stojanovich & Scott (1995) in a number of respects. *Anopheles labranchiae*, *Aedes rempeli*, *Ae. refiki* and *Coquillettidia buxtoni* are not included since they have not been found in European Russia. These authors probably included *Culiseta graphyoptera* in their checklist because of a published discovery of this species in the Leningrad district. The specimens on which this record was based were later identified as *Cs. bergrothi* (Gutsevich *et al.*, 1971). Therefore *Cs. graphyoptera* is not included in the revised checklist. For purposes of taxonomic correctness, *Anopheles bifurcatus* is replaced by *An. claviger*, *Aedes beklemishevi* by *Ae. euedes* (Gornostaeva, 1997), and *Culiseta setivalva* is not included as it is a junior synonym of *Cs. fumipennis* (Danilov, 1984). Stojanovich & Scott did not include *Anopheles beklemishevi*, *Culiseta subochrea* and *Aedes rossicus* in their checklist, but these species are included here as they are known to occur in European Russia.

## Conclusions

The mosquito fauna of European Russia has not been studied sufficiently. In most parts of the region (for example in most areas of central Russia and in the North Caucasus) mosquitoes have not been investigated in detail since 1930-1940. Only the *An. maculipennis* complex has been studied, in which case cytogenetic methods resulted in the description of *An.*

*beklemishevi* (Stegnii & Kabanova, 1976). Cytogenetic methods should also be used to study *An. hyrcanus*, *Aedes caspius* and *Ae. detritus*. We have every reason to suppose that additions and corrections will be made to the checklist as a result of further research.

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