

A CHECKLIST OF THE MAYFLIES
(EPHEMEROPTERA) OF VIRGINIA,
WITH A REVIEW OF PERTINENT TAXONOMIC LITERATURE

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ABSTRACT

This first comprehensive list of the mayflies of Virginia records 138 species. The literature pertinent to the identification of the mayflies from the state are reviewed. Interesting range extensions are noted.

Key Words: Mayflies, Ephemeroptera, Virginia

We have collected mayflies from 1976-1982, as part of an ongoing survey of the aquatic insects of Virginia. Kondratieff and Voshell (1979) and Parker and Voshell (1981) have already provided checklists of the stoneflies and caddisflies, respectively, for Virginia. This checklist provides the first comprehensive list of the mayflies of the state.

Berner (1977) gave distributional records for the mayflies of the southeastern United States, many of which also occur in Virginia. Pugh (1956), Kondratieff and Voshell (1980, 1981) and Kondratieff *et al.* (1981a, 1981b) have previously listed or described various stages of mayflies from Virginia. No single reference is presently available for the identification of all stages of all species occurring in the state. (Needham *et al.* (1935) and Burks (1953) provided keys for many of the species, however, both of these works have been outdated by the descriptions of numerous additional species and nomenclatural rearrangements (Edmunds *et al.* 1976). The following references are necessary supplements: Allen and Edmunds (1961, 1962a, 1962b, 1963a, 1963b, 1965), Bednarik and McCafferty (1979), Berner (1956, 1975, 1978), Carle (1978), Flowers (1980), McCafferty (1975), McCafferty and Provonsha (1975), Morihara and McCafferty (1979), Müller-Liebenau (1974), Pescador and Berner (1981) and Spieth (1941, 1947).

The type localities of the following valid mayfly species are in Virginia: *Ameletus cryptostimulus* Carle, *Siphloplecton costalense* Spieth, *Callibaetis pretiosus* Banks, *Heptagenia marginalis* Banks, and *Stenonema meririvulanum* Carle and Lewis.

This checklist follows the classification of McCafferty and Edmunds (1979). A total of 14 families, 38 genera and 138 species are included. All species listed either have been collected or examined by the authors. Almost all of these records are represented in the VPI & SU collection.

Several genera and their included eastern species are in need of revision (*e.g.*, *Cloeon*, *Centroptilum*, *Pseudocloeon* (Baetidae), *Rhithrogena* (Heptageniidae), *Caenis* (Caenidae), and *Tricorythodes* (Tricorythidae). Therefore, names applied to these genera are provisional. We do not recognize the full

generic status of *Iron* (Allen 1980) or the combination of *Pseudocloeon* with *Baetis* (Keffermüller 1980) until further conclusive study. We also suspect that several of Traver's *Leptophlebia* species (*L. austrina*, *L. collina*, *L. grandis* and *L. intermedia*) are probable synonyms of the wide-ranging *L. cupida* (Say), as Berner (1975) noted.

Adults of the Leptophlebiidae genus *Choroterpes* near *basalis* (Banks) or *fusca* Spieth have been collected in West Virginia very near the Virginia state line and the genus certainly occurs in Virginia.

Several species listed are worthy of note. The recently described *Heterocloeon petersi* (Müller-Liebenau) has been infrequently encountered. This species is common in most Piedmont and Ridge and Valley rivers associated with the aquatic macrophyte *Podostemum ceratophyllum* Michaux. *Isonychia tusculanensis* Berner is common in several Ridge and Valley low-order streams of southwestern Virginia. Previously this species was only known from a few eastern Tennessee localities. *Leptophlebia johnsoni* McDunnough has not been recollected in the southeast since Traver's original description (as *L. gracilis*) from North Carolina material (see Berner 1975). The range extension of *Leptophlebia bradleyi* Needham was discussed by Henry and Kondratieff (1982).

Baetisca rubescens has previously only been collected from New Hampshire to Quebec (Pescador and Berner 1981), while sister species *B. carolina* and *B. bernerii* occur throughout the Appalachians. Pescador and Berner (1981) gave two possible reasons for the disjunctive distribution of *B. rubescens*: (1) Separation of aquatic links of the central Appalachians with streams of the extreme northeastern United States or (2) lack of adequate collecting. Our record of *B. rubescens* lends credence to the latter.

Order Ephemeroptera
Suborder Schistonota
Superfamily Baetoidea
Siphonuridae

Ameletus cryptostimulus Carle

A. lineatus Traver

Siphonurus mirus Eaton

S. quebecensis (Provancher)

Baetidae

Baetis amplus (Traver)

B. brunneicolor McDunnough

B. ephippiatus Traver

B. intervalaris

B. intercalaris McDunnough

B. pluto McDunnough

B. tricaudatus Dodds

Callibaetis floridanus Banks

C. fluctuans (Walsh)

C. pretiosus Banks

Centroptilum fragile McDunnough

Cloeon alamance (Traver)

C. rubropictum McDunnough
Heterocloeon curiosum (McDunnough)
H. petersi (Müller-Liebenau)
Pseudocloeon carolina Banks
P. dubium (Walsh)
P. parvulum McDunnough
P. punctiventris McDunnough

Metretopodidae

Siphloplecton basale (Walker)
S. costalense Spieth

Oligoneuriidae

Isonychia arida (Say)
I. bicolor (Walker)
I. georgiae McDunnough
I. obscura Traver
I. serrata Traver
I. similis Traver
I. tusculanensis Berner
I. hoffmani Kondratieff and Voshell

Heptageniidae

Cinygmula subaequalis (Banks)
Epeorus dispar (Traver)
E. fragilis (Morgan)
E. pleuralis (Banks)
E. rubidus (Traver)
E. vitreus (Walker)
Heptagenia dolosa Traver
H. flavescens (Walsh)
H. marginalis Banks
H. pulla (Clemens)
Leucrocuta aphrodite (McDunnough)
L. hebe (McDunnough)
L. maculipennis (Walsh)
L. minerva (McDunnough)
Pseudiron centralis McDunnough
Rhithrogena amica Traver
R. anomala McDunnough
R. exilis Traver
R. pellucida Daggy
Stenacron carolina (Banks)
S. gildersleevei (Traver)
S. interpunctatum (Say)
Stenonema femoratum (Say)
S. integrum (McDunnough)
S. ithaca (Clemens and Leonard)
S. mediopunctatum McDunnough
S. meririvulanum Carle and Lewis
S. modestum (Banks)

- S. pudicum* (Hagen)
S. terminatum (Walsh)
S. vicarium (Walker)

Superfamily Leptophlebioidea
 Leptophlebiidae

- Habrophlebia vibrans* Needham
Habrophlebiodes americana (Banks)
H. celeteria Berner
Leptophlebia bradleyi Needham
L. cupida (Say)
L. johnsoni McDunnough
L. nebulosa (Walker)
Paraleptophlebia adoptiva McDunnough
P. assimilis (Banks)
P. debilis (Walker)
P. guttata (McDunnough)
P. jeanae Berner
P. moerens (McDunnough)
P. mollis (Eaton)
P. ontario (McDunnough)
P. volitans (McDunnough)

Superfamily Ephemeroidea
 Potamanthidae

- Potamanthus distinctus* Traver
P. myops (Walsh)
P. neglectus Traver
P. verticis (Say)

Polymitarcyidae

- Ephoron leukon* Williamson

Ephemeridae

- Ephemera blanda* Traver
E. guttulata Pictet
E. simulans Walker
E. varia Eaton
Hexagenia atrocaudata McDunnough
H. bilineata (Say)
H. limbata Serville
H. munda Eaton
H. rigida McDunnough
Litobrantha recurvata (Morgan)

Suborder Pannota

Superfamily Ephemerelloidea
 Ephemerellidae

- Attenella attenuata* (McDunnough)
Dannella lita (Burks)
D. simplex (McDunnough)
Drunella allegheniensis (Traver)
D. cornuta (Morgan)

- D. cornutella* (McDunnough)
D. lata (Morgan)
D. longicornis (Traver)
D. tuberculata (Morgan)
D. walkeri (Eaton)
D. wayah (Traver)
Ephemerella beneri Allen and Edmunds
E. catawba Traver
E. dorothea Needham
E. inconstans Traver
E. invaria (Walker)
E. needhami McDunnough
E. rotunda Morgan
E. septentrionalis McDunnough
E. subvaria McDunnough
Eurylophella aestiva (McDunnough)
E. bicolor (Clemens)
E. funeralis (McDunnough)
E. temporalis (McDunnough)
E. versimilis (McDunnough)
Serratella deficiens (Morgan)
S. serrata (Morgan)
S. serratoides (McDunnough)
S. sordida (McDunnough)

Tricorythidae

- Tricorythodes allectus* Needham
T. stygiatus McDunnough

Superfamily Caenoidea
Neoephemeridae

- Neoephemera compressa* Berner
N. purpurea (Traver)
N. youngi Berner

Caenidae

- Brachycercus nitidus* (Traver)
Caenis amica (Hagen)
C. diminuta Walker
C. hilaris (Say)
C. simulans McDunnough

Superfamily Prosopistomatoidea
Baetiscidae

- Baetisca beneri* Tarter and Kirchner
B. carolina Traver
B. gibbera Berner
B. lacustris McDunnough
B. rubescens (Provancher)

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