

KEY TO FAMILIES MATURE NYMPHS OF THE MAYFLIES (EPHEMEROPTERA) OF FLORIDA

[modified from Pescador and Richard (2004)]

- 1 Thorax with well developed mesonotal shield extended to abdominal segment VI; gills enclosed beneath shield (Fig. 2)..... BAETISCIDAE...*Baetisca*

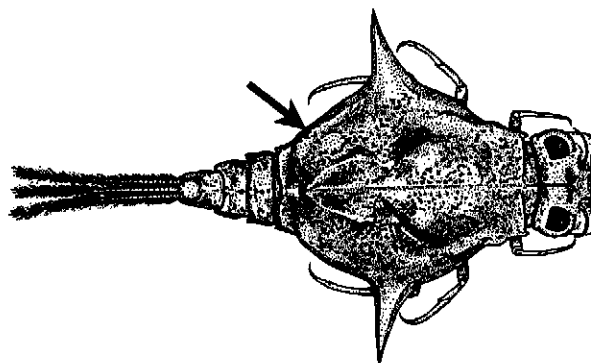


Fig. 2[from Pescador & Berner (1981)]

Thorax not as above; at least anterior abdominal gills exposed

..... 2

- 2(1) Gills on abdominal segments II - VII forked and elongate-lanceolate, with margins fringed (Fig. 3); most with mandibular tusks projected forward and visible from above head (Fig. 4); if tusks absent, head and thorax with pads of long spines (Fig. 5)

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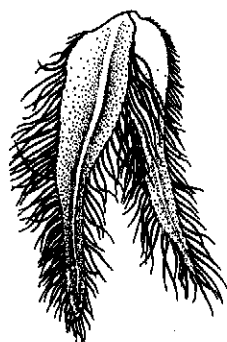


Fig. 3 [from Burks (1953)]

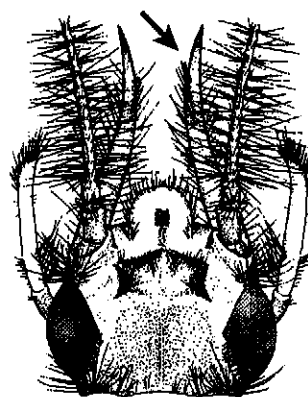


Fig. 4[from Edmunds, Jensen, & Berner (1976)]

Gills on abdominal segments II - VII variable, if gills forked and elongate-lanceolate, margins not fringed; mandibular tusks absent 6

- 3(2) Head and prothorax with dorsal pad of long spines on each side (Fig. 5); without mandibular tusks; gills ventral BEHNINGIIDAE—*Dolania*

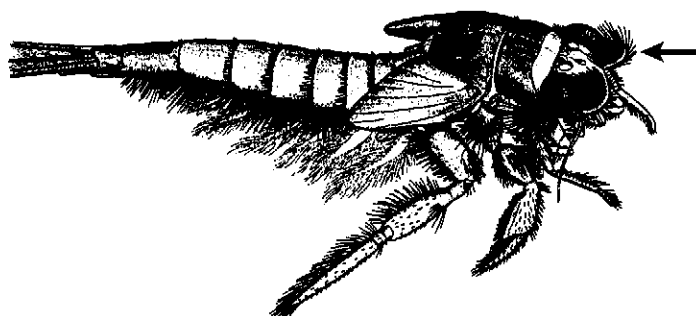


Fig. 5 [from McCafferty (1975)]

Head and prothorax without pads of spines; mandibular tusks present; gills lateral or dorsal (Fig.6))

..... 4

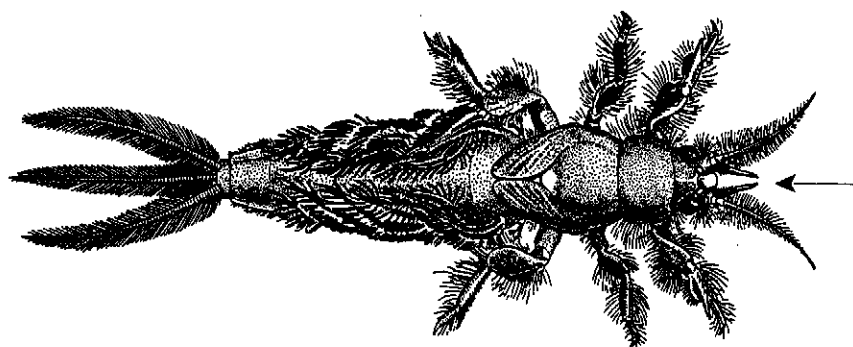


Fig. 6 [from Burks (1953)]

- 4(3) Mandibular tusks curved upward apically as viewed laterally (Fig. 7); ventral apex of hind tibiae projected into distinct acute point (Fig.8)5

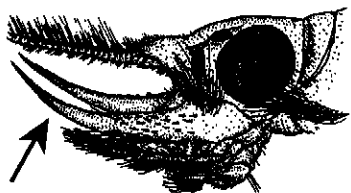


Fig. 7 [from Edmunds, Jensen & Berner (1976)]

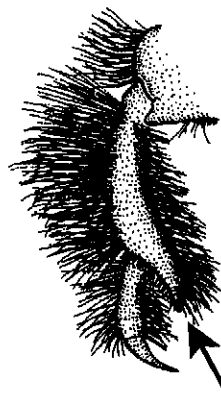


Fig 8 [from Edmunds, Jensen, & Berner (1976)]

Mandibular tusks not curved upward apically as viewed laterally (Fig. 9); ventral apex of hind tibiae rounded (Fig. 10)POLYMITARCYIDAE

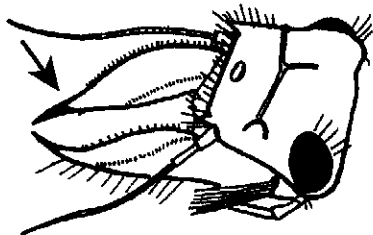


Fig. 9 [from Unzicker & Carlson (1982)]

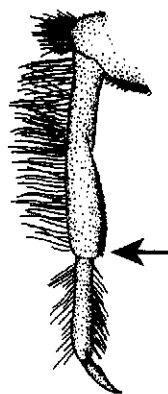


Fig. 10 [from Edmunds, Jensen & Berner (1976)]

- 5(4) Mandibular tusks broad and with row of spurs along lateral margins (Fig. 7B)
 terminal segment of labial palpi club shaped, broadly round (Fig. 7C)
PALINGENIIDAE, *Pentagenia*, *P. vittigera* (Walsh)

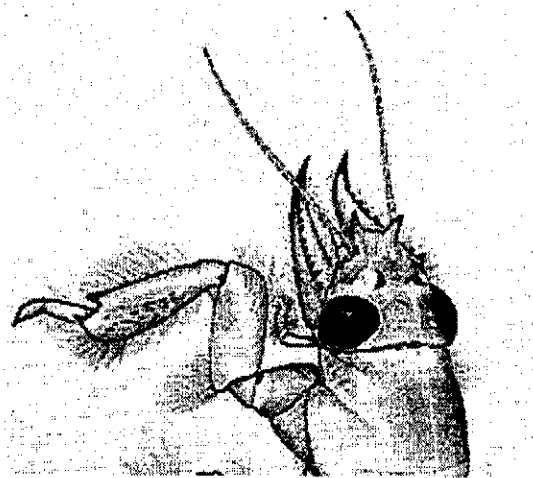


Fig. 7B [from McCafferty (1975)]

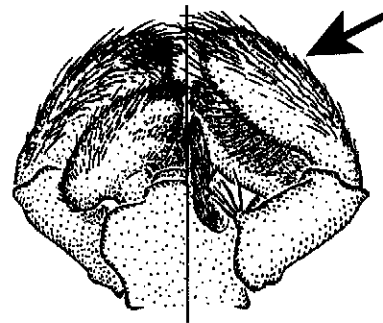


Fig. 7C [from McCafferty (1975)]

- Mandibular tusks slender and without row of spurs along lateral margins (Fig. 7D);
 terminal segment of labial palpi truncate apically (Fig. 7E) EPHEMERIDAE

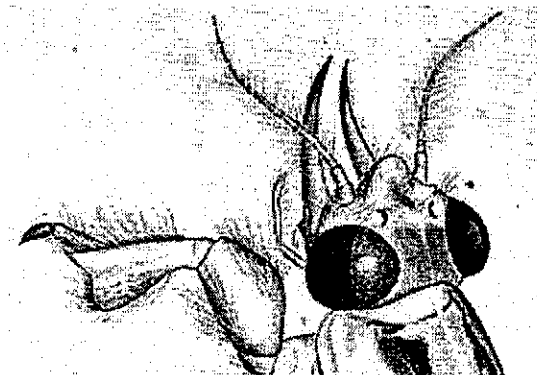


Fig. 7D [from McCafferty (1975)]

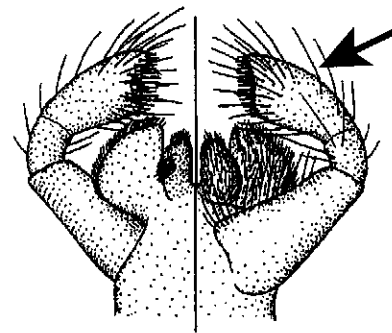


Fig. 7E [from McCafferty (1975)]

- 6(2) A double row of long setae on inner margins of femora and tibiae of forelegs (Fig. 11) 7

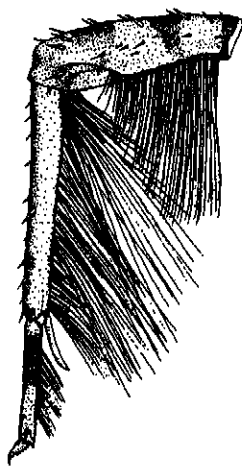


Fig. 11 [from Kondratieff & Voshell (1984)]

- Long setae absent on forelegs, or not arranged as above 8

- 7(6) Gills ventral on abdominal segment I (Fig. 12); forecoxae without gills; foretarsi reduced and papilla-like (Fig. 12); meso- and metatarsal claws non-denticulate; abdominal sternum I with finger-like posteromedian process (Fig. 13)
 .. OLIGONEURIIDAE (p. 98), *Homoeoneuria*, *H. dolani* Edmunds, Berner, and Traver

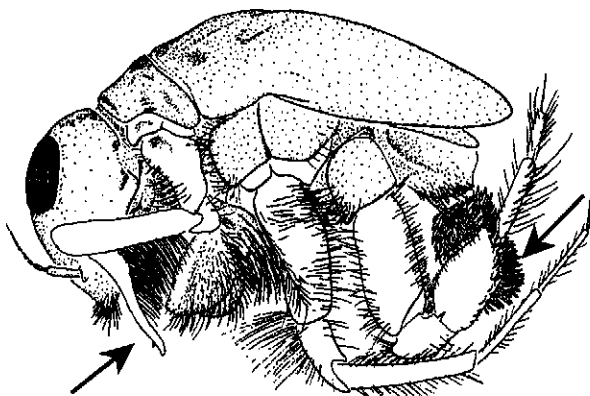


Fig. 12 [from Pescador & Peters (1980)]

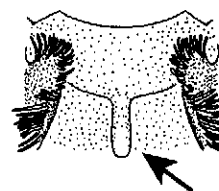


Fig. 13 [from Pescador & Peters 91980)]

Gills dorsal on abdominal segment I; forecoxae with gills, either tufts (Fig. 14) or a single robust finger-like filament; meso- and metatarsal claws denticulate; abdominal sternum I without finger-like process ISONYCHIIDAE, *Isonychia*

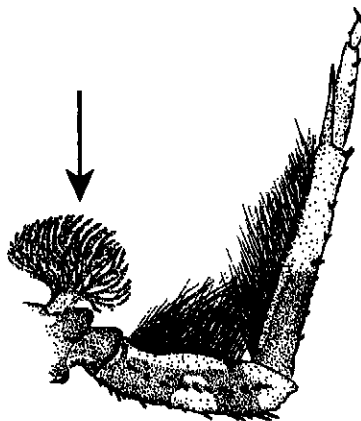
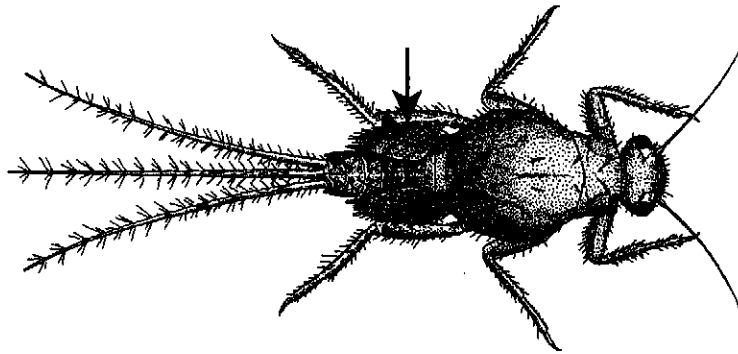


Fig. 14 [from Edmunds, Jensen, & Berner (1976)]

8(6) Gills on abdominal segment II operculate or semioperculate (Figs. 15, 16, 17) covering succeeding pairs of gills 9

Gills on abdominal segment II neither operculate nor semioperculate, either similar to those on succeeding segments or absent 11

9(8) Gills on abdominal segment II triangular, subtriangular, or oval, not meeting medially (fig. 15); margin of gill lamellae 3-6 simple or bilobed LEPTOHYPHIDAE



(Fig. 15 [from Burks (1953)])

Gills on abdominal segment II quadrate, meeting (Fig. 16B), or almost meeting medially (Fig. 17B); margin of gill lamellae 3-6 fringed 10

- 10(9) Mesonotum with distinct anterolateral lobes (Fig. 16A); operculate gills fused medially (Fig. 16B); hind wingpads present NEOEPHEMERIDAE, *Neophemera*

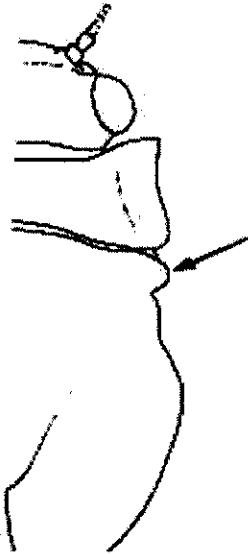


Fig. 16A [modified from Edmunds, Jensen, & Berner (1976)]

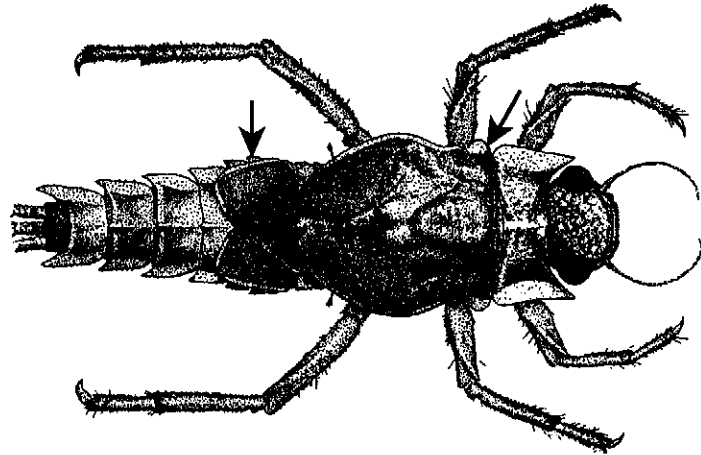


Fig. 16B [from Edmunds, Allen, & Peters (1963)]

- Mesonotum without anterolateral lobes (Fig. 17A); operculate gills not fused medially (Fig. 17B); hind wingpads absent CAENIDAE

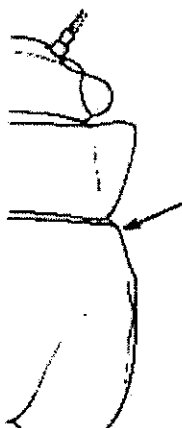


Fig. 17A [Edmunds, Jensen & Berner (1976)]

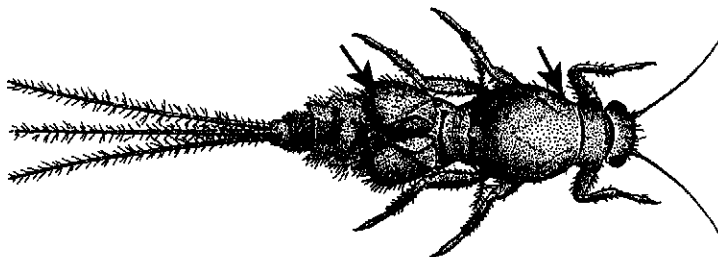


Fig. 17 [from Burks (1953)]

- 11(8) Gills absent on abdominal segment II, rudimentary or absent on segment I, and present or absent on segment III; gills on segments III-VII or IV-VII consist of dorsal lamella and ventral lamella with numerous lobes (Fig. 18); paired tubercles often present on abdominal terga (Fig. 18) EPHEMERELLIDAE

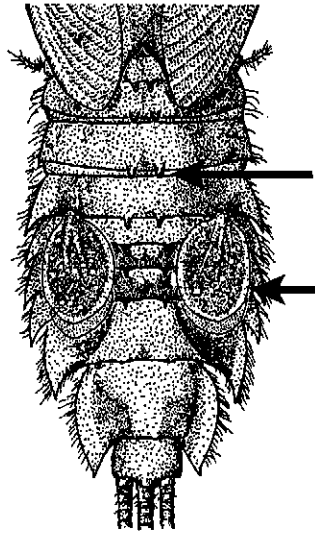


Fig. 18 [modified from Allen @ Edmunds (1963)]

Gills present on abdominal segments I-V, I-VII, or II-VII; paired tubercles rarely present on abdominal terga 12

- 12(11) Body distinctly flattened head flattened; eyes and antennae dorsal; mandibles not visible in dorsal view (Fig. 19) 13

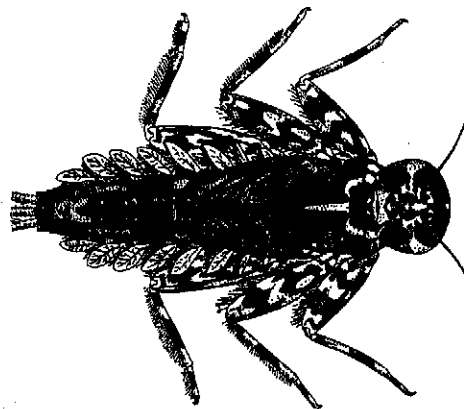


Fig. 19 [from Unzicker & Carlson (1982)]

Body not flattened or if flattened, mandibles visible and forming part of flattened surface head 14

- 13(12) Claws as long as or longer than tarsi; tibiae and tarsi bowed (Fig. 20); maxillary palpi four-segmented (Fig. 21); abdominal gills with finger-like branch arising near middle (Fig. 22) PSEUDIRONIDAE, *Pseudiron*, *P. centralis* McDunnough



(Fig. 20 [from Berner & Pescador (1988)])

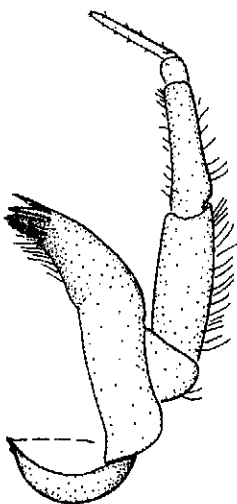


Fig. 21 [from Pescador (1985)]

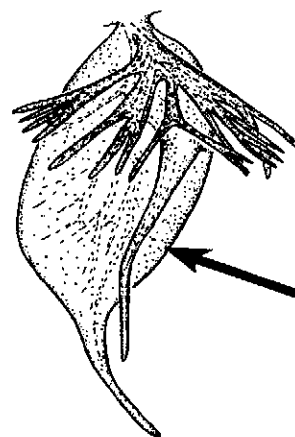


Fig. 22 [from Pescador (1985)]

Claws much shorter than tarsi; tibiae and tarsi straight; maxillary palpi two-segmented (Fig. 23); abdominal gills variable, not as above HEPTAGENIIDAE

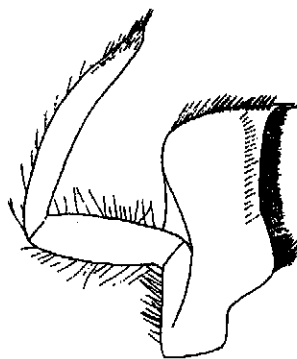


Fig. 23 [from Berner (1950)]

- 14(12) Claws of forelegs bifid (Fig. 24), claws of middle and hind legs long and slender, about as long tibiae METRETOPODIDAE, *Siphloplecton*



Fig. 24 [from Berner (1950)]

Claws of all legs similar in structure, usually sharply pointed: claws variable in length, if those of middle and hind legs long and slender, then usually shorter tibiae 15

- 15(14) Abdominal gills on segments II-VII either forked (Fig. 25), in tufts (Fig. 26), or with double lamellae terminated in filaments or points (Fig. 27); maxillae with a dense brush of hairs on distal margin (Fig. 28) LEPTOPHLEBIIDAE



Fig. 25 [from Berner (1950)]



Fig. 26 [from Berner (1950)]



Fig. 27 [from Berner (1950)]

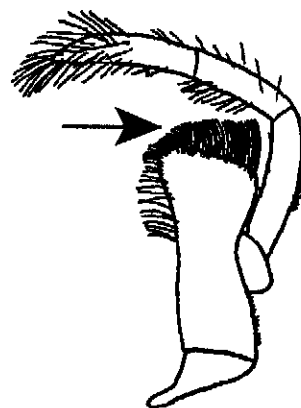


Fig. 28 [from Needham, Traver & Hsu (1935)]

Abdominal gills not as above; gills either more or less ovate (broad at base), obovate (narrowed at base); lamellae either single (Fig. 29), double (Fig.30), or triple (Fig. 31); fringed on distal margin of maxillae variable, never with dense brush of hairs
 BAETIDAE



Fig. 29 [from Berner (1950)]

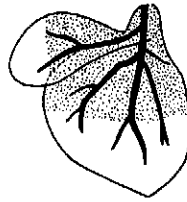


Fig. 30 [from Berner (1950)]



Fig. 31 [from Spieth (1933)]

KEY TO GENERA FOR MATURE NYMPHS OF FLORIDA BAETIDAE
[adapted from Edmunds & Waltz (1996) and an unpublished key by N. Wiersema]

1. Median caudal filament highly reduced, 1/4 length of cerci or less (Fig. 31); femoral villopore present (distinct patch of simple setae on ventral surface of femora near its base) (Fig. 32) 9

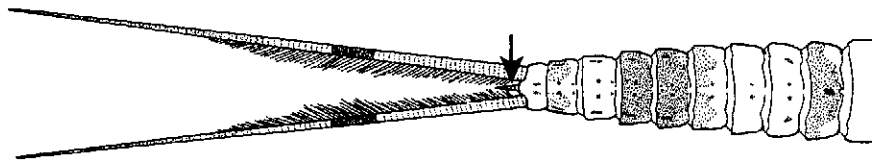


Fig. 31 [modified from Berner & Pescador (1988)]

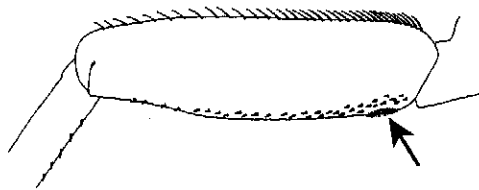


Fig. 32 [from Waltz & McCafferty (1987)]

- Median caudal filament 1/2 length of cerci or greater (Fig. 33); femoral villopore present or absent 2

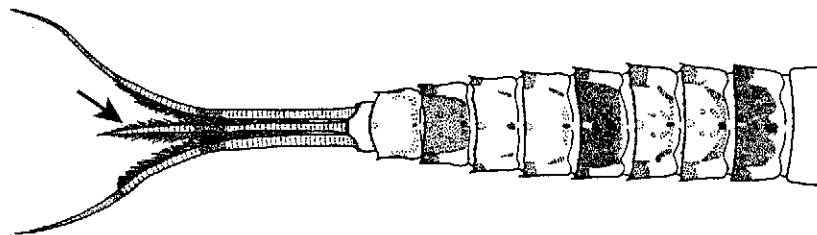


Fig. 33 [from Berner & Pescador (1988)]

- 2(1) Labial palpi segment 3 simple and truncate (Figs. 34, 35); gills simple or with single recurved dorsal flap on some or all gills (Figs. 36, 37) 3

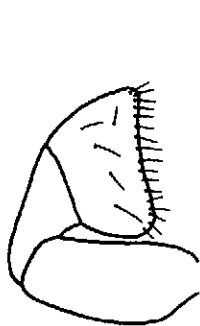


Fig. 34 [from Berner (1950)]

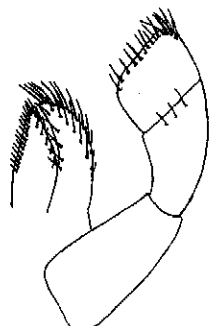


Fig. 35 [from Wiersema (1999)]



Fig. 36 [from Berner (1950)]



Fig. 37 [from Berner (1950)]

- Labial palpi not as above (Figs. 38, 39); gills either simple (Fig. 40) or large with 1-3 ventral lamellae (Fig. 41) 5

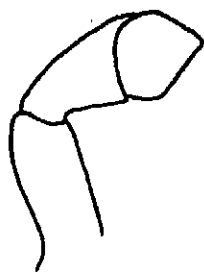


Fig. 38 [from Berner (1950)]



Fig. 39 [from Berner (1950)]

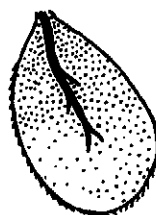


Fig. 40 [from Berner (1950)]



Fig. 41 [from Berner (1950)]

- 3(2) Labrum with a deep triangular notch anteriorly (Fig. 42); claws longer than respective tarsi; labium with glossae broad, rounded, and shorter than paraglossae (Fig. 43); gills simple *Pseudocentroptiloides* (p.); *P. usa* Waltz & McCafferty

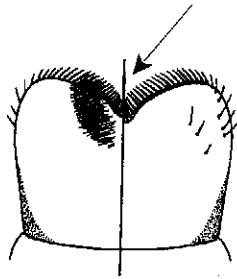


Fig. 42 [from Waltz & McCafferty (1989)]

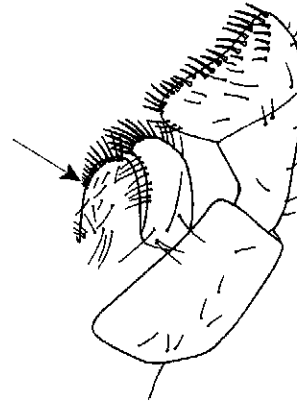


Fig. 43 [from Waltz & McCafferty (1989)]

Labrum not as above, with a small median notch anteriorly (Fig. 44); claws shorter than respective tarsi; labium with glossae slender, pointed, and subequal to paraglossae (Fig. 45); gills either simple or with recurved dorsal flap (Fig. 46) 4

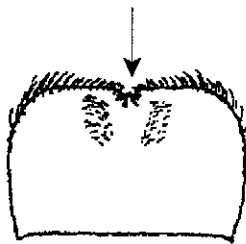


Fig. 44 [from Lowen & Flannagan (1991)]

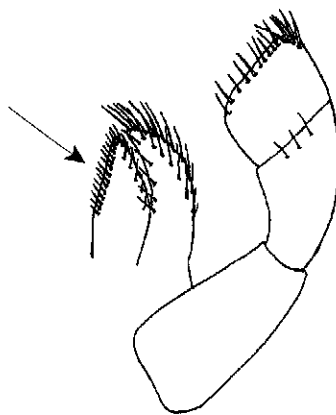


Fig. 45 [from Wiersema (1999)]

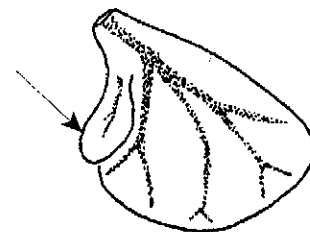


Fig. 46 [from Wiersema (1999)]

- 4(3) Mandibular incisors separated to the base or fused at half the length or less (Fig. 47);

segment 3 of maxillary palpi subequal in length to segment 2; lateral bristles of caudal filaments present on proximal three-fourths, apices of filaments without bristles; gills simple *Centroptilum* (p.); *C. triangulifer* (McDunnough)

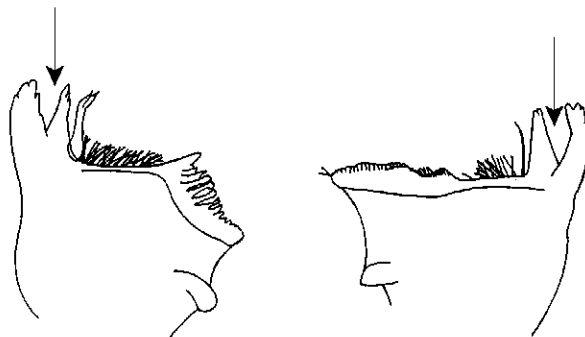


Fig. 47 [from Lowen & Flannagan (1991)]

Mandibular incisors rarely separated to the base, usually fused at half the length or more (Fig. 48); segment 3 of maxillary palpi, when present shorter than segment 2; lateral bristles of caudal filaments present to apices; gills either simple or with single dorsal flap at least on abdominal segment 1 (Fig. 50) *Procloeon*

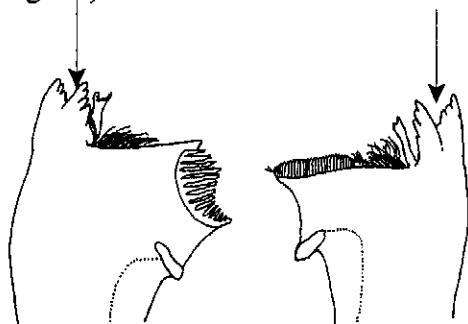


Fig. 48 [from Wiersema (1999)]

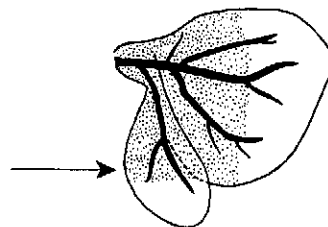


Fig. 50 [from Berner (1950)]

- 5(2) Gills on abdominal segments I-VI with 1-3 ventral lamellae (Fig. 41); labial palpi narrow and elongate (Fig. 51); tarsal claws long and narrow with 2 rows of long teeth (Fig. 52); hind wingpads present *Callibaetis* (p.)

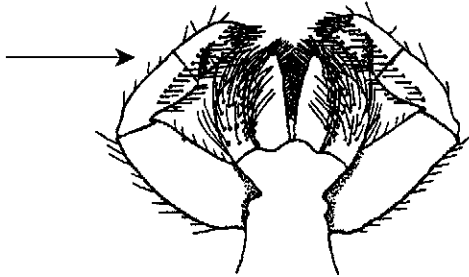


Fig. 51 [from Spieth (1933)]

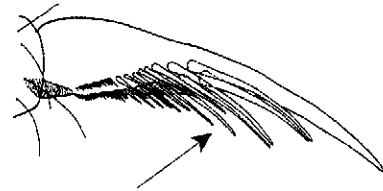


Fig. 52 [from Hofmann, Sartori, & Thomas (1999)]

Gills simple (Fig. 40); labial palpi not narrow and elongate (Figs. 56, 57, 59); tarsal claws short and broad with single row of teeth (Fig. 53); hind wingpads present or absent 6

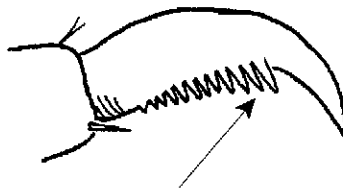


Fig. 53 [from Wiersema (2000)]

- 6(5) Maxillary palpi with subapical excavation (Fig. 54); antennal scape with digitate lobe (Fig. 55); labial palp segment 2 expanded medially (Fig. 56) *Pseudocloeon*

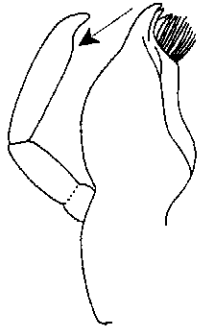


Fig. 54 [from McCafferty & Waltz (1995)]

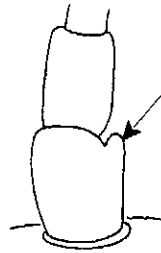


Fig. 55 [from McCafferty & Waltz (1995)]

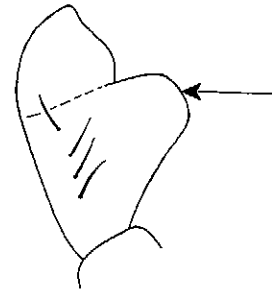


Fig. 56 [from Morihara & McCafferty (1979)]

Maxillary palpi without subapical excavation; antennal scape without digitate lobe; labial palp segment 2 not expanded medially as above 7

- 7(6) Labial palp segment 2 with thumb-like median lobe (Fig. 57); gills on abdominal segments VI-VII or VII slender and apically pointed (Fig. 58)
 *Acerpenna* (p.); *A. pygmaea* (Hagen)

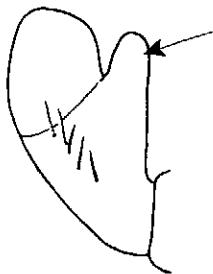


Fig. 57 [from Berner & Pescador (1988)]

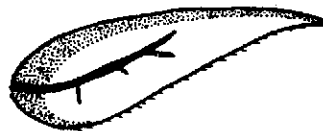


Fig. 58 [from Berner (1950)]

Labial palp segment 2 without thumb-like median lobe (Fig. 59); gills on abdominal segment VI-VII similar to those on preceding segments 8

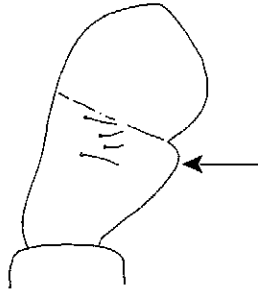


Fig. 59 [from Morihara & McCafferty (1979)]

- 8(7) Femoral villopore present (Fig. 32); gills present on abdominal segments I-VII; ventral row of fine setae absent on incisors of both mandibles (Fig. 60); abdomen with distinct color pattern, caudal filaments with distinct dark band of segments at middle (Fig. 61) *Baetis* (p.); *B. intercalaris* McDunnough

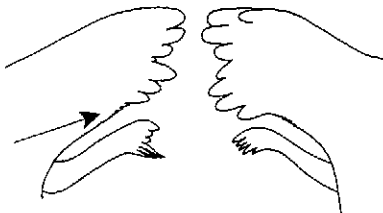


Fig. 60 [from Morihara & McCafferty (1979)]

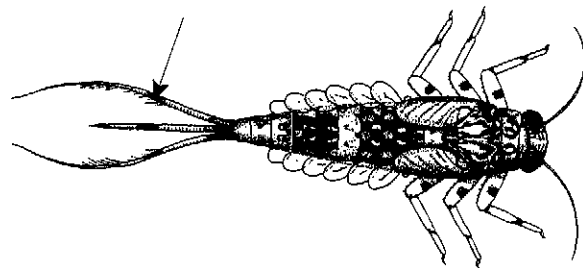


Fig. 61 [from Morihara & McCafferty (1979)]

Femoral villopore absent; gills absent on abdominal segment I, present on segments II-VII; ventral row of fine setae present on incisors of both mandibles with very slender prostheca on right mandible (Fig. 62); abdominal color pattern distinct with segments I-IX dark and segment X light, caudal filaments without distinct dark band of segments at middle (Fig. 63) *Dipheter* (p.); *D. hageni* (Eaton)

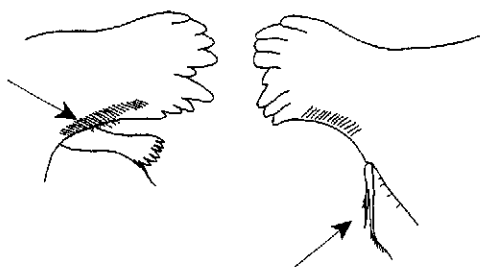


Fig. 62 [from Morihara & McCafferty (1979)]

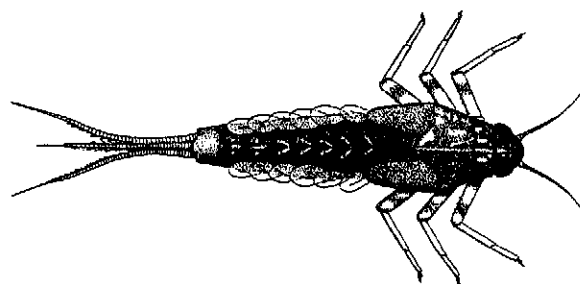


Fig. 63 [from Morihara & McCafferty (1979)]

- 9(1) Cerci banded with alternate light and dark annulations (Fig. 64); labium compact with shortened palpi, apices of labial palpi reaching apices of paraglossae (Fig. 65); mandibular incisors short and apically cleft, right incisor without serrate inner margin (Fig. 66); minute hind wingpads present *Acentrella* ~~hageni~~

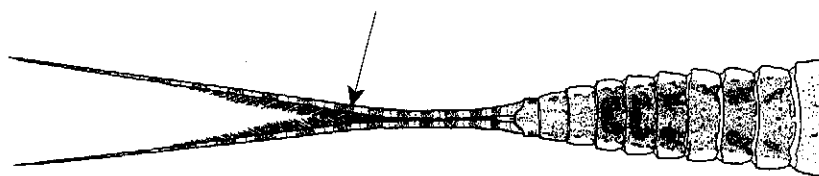


Fig. 64 [from Berner & Pescador (1988)]

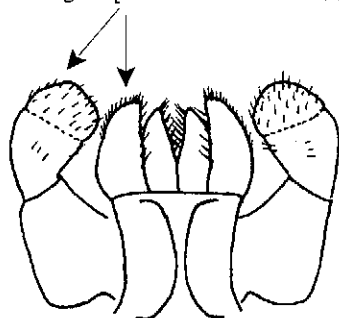


Fig. 65 [from Waltz & McCafferty (1987)]



Fig. 66 [from Wiersema (2000)]

Cerci with distinct middle band of dark segments (Fig. 67); labium not compact, apices of labial palpi reaching beyond paraglossae (Fig. 68); mandibular incisors elongate, not cleft apically, with large serrations on inner margin of right incisors (Fig. 69); hind wingpads absent *Plauditus* ~~624~~

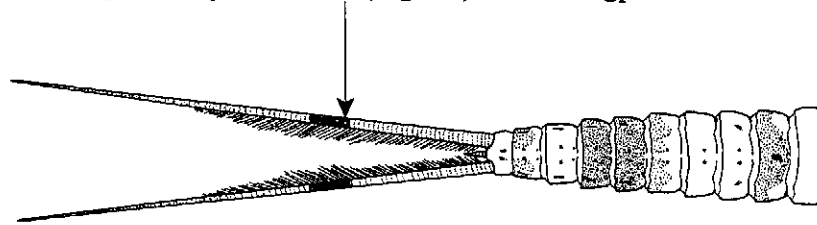


Fig. 67 [modified from Berner & Pescador (1988)]

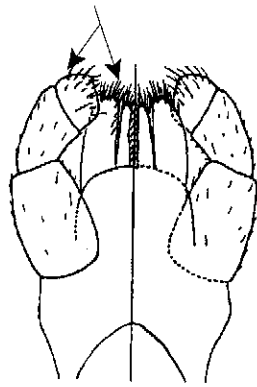


Fig. 68 [from Lugo-Ortiz & McCafferty (1998)]

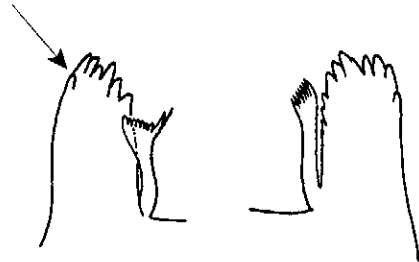


Fig. 69 [from Wiersema (1999)]

KEY TO SPECIES FOR MATURE NYMPHS OF FLORIDA *PROCLOEON*
[modified from Berner & Pescador (1988)]

1. Lateral spines present on abdominal segments III/IV-X (Fig. 80) 2

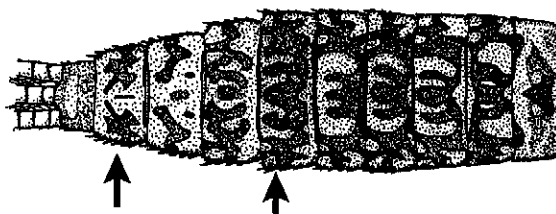


Fig. 80 [from Wiersema (1999)]

Lateral spines present on abdominal segments VIII-X
..... *P. rufostrigatum* (McDunnough)

- 2(1) Hind wingpads absent; abdominal gill 1 with a recurved dorsal flap (Fig. 81)
..... *P. rubropictum* (McDunnough)

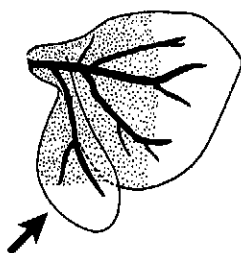


Fig. 81 [from Berner (1950)]

Hind wingpads present; abdominal gill 1 without recurved dorsal flap (Fig. 82)
..... *P. viridoculare* (Berner)

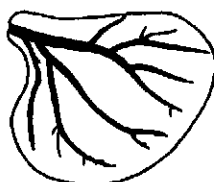


Fig. 82 [from Berner (1950)]

KEY TO GENERA FOR MATURE NYMPHS OF FLORIDA CAENIDAE
[modified from Pescador and Richard (2004)]

1. Head with ocellar tubercles (Figs. 107, 108); maxillary and labial palpi two-segmented 2

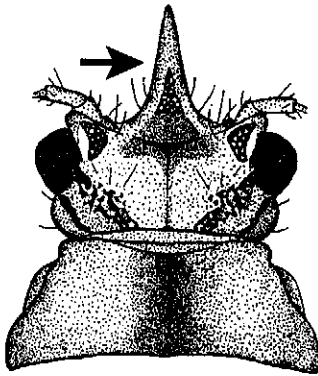


Fig. 107 [from Soldan (1986)]

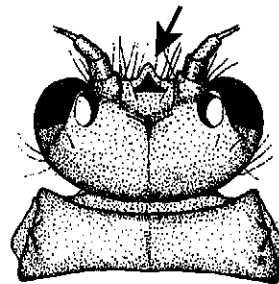


Fig. 108 (from Soldan (1986))

- Head without ocellar tubercles (Fig. 109); maxillary and labial palpi three-segmented *Caenis*

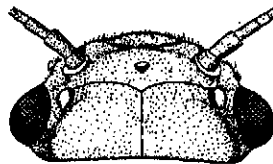


Fig. 109 [from Edmunds, Jensen, & Berner (1976)]

- 2(1) Foretibiae with marginal row of hairs as long as tibiae (Fig. 111A); abdominal segment VI with projections strongly curved medially ((Fig. 110); labrum with lateral margins moderately to strongly produced (Fig.111B) *Cercobrachys*, *C. etowah* Soldán

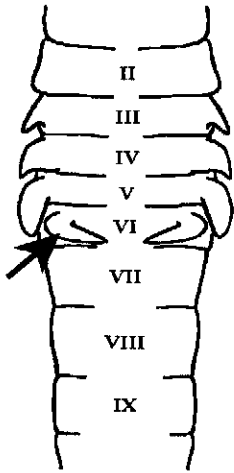


Fig. 110 [modified from Soldan (1986)]

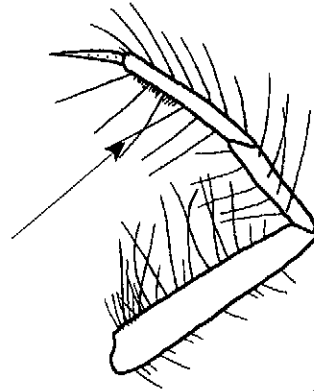


Fig. 111A[from Soldan (1986)]

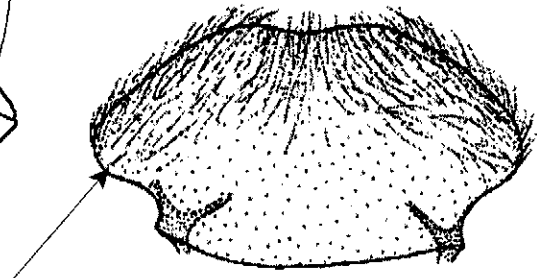


Fig. 111B [modified from Sun & McCafferty (2008)]

Foretibiae with marginal row of hairs distinctly shorter than tibiae (Fig.113A); abdominal segment VI with projection not strongly curved medially (Fig. 112); labrum trapezoidal or lateral margins nearly straight (Fig. 113B) 3

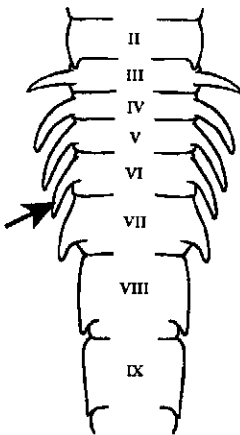


Fig. 112[modified from Soldan (1986)]

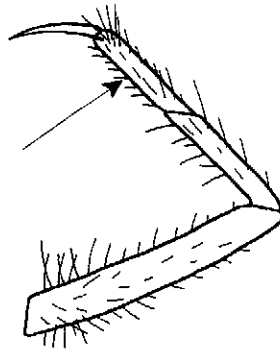


Fig. 113A [from Soldan (1986)]

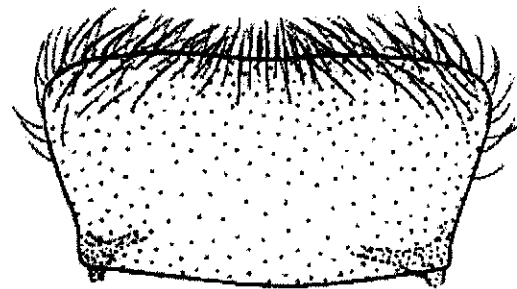


Fig. 113B [from Sun and McCafferty (2008)]

- 3(2) Operculate gills asymmetrical, with a protruding edge at posterolateral corner (Fig. X); segment 1 of labial palpi with patch of of long setae on ventral surface (Fig. XX)*Brachycercus*, *B. berner*i Soldan

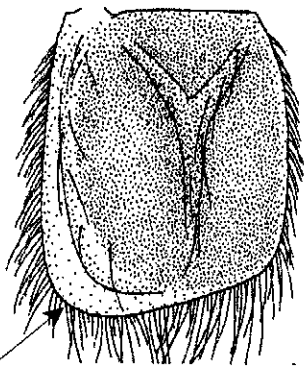


Fig.X [modified from Sun & McCafferty (2008)]

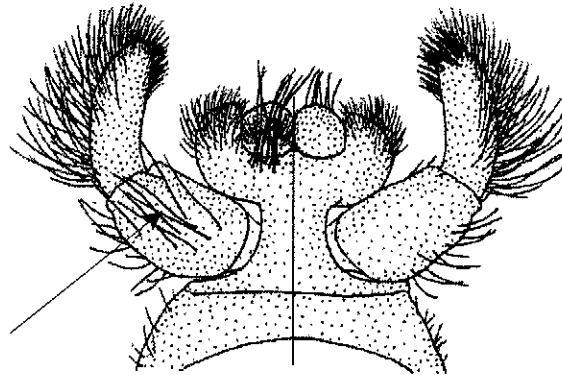


Fig.XX[modified from Sun & McCafferty (2008)]

Operculate gills generally symmetrical without protruding edge at posterolateral corner (Fig. Y); segment 1 of labial palpi without patch of setae on ventral surface (Fig. YY)
 *Sparburus*

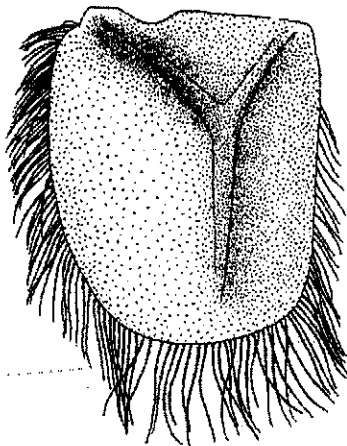


Fig Y [modified from Sun & McCafferty (2008)]

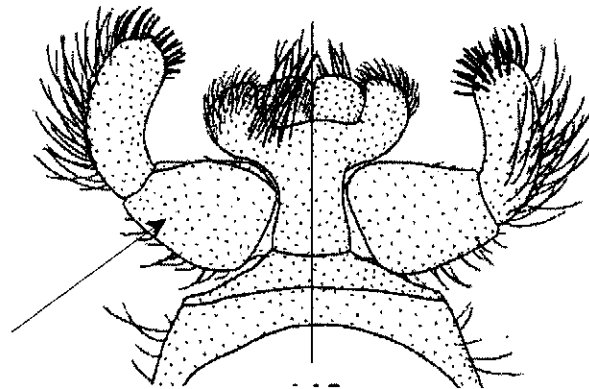


Fig. YY [modified from Sun & McCafferty (2008)]

KEY TO SPECIES FOR MATURE NYMPHS OF FLORIDA *CAENIS*
 [modified from Pescador and Richard (2004)]

1. Posterior margin of abdominal sternum IX notched (Figs. 119, 120); dorsal surface of fore femora with transverse row of spatulate setae in apical 1/3 (Figs. 121, 122); abdominal terga IX-X without triads of black dots; abdominal sterna without black dots 2

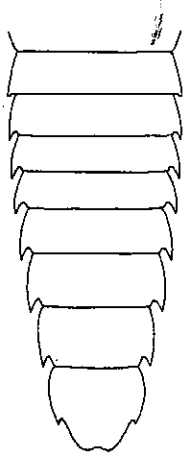


Fig. 119 [from Provonsha (1990)]

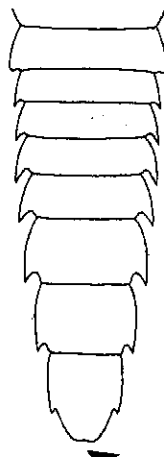


Fig. 120 [from Provonsha (1990)]

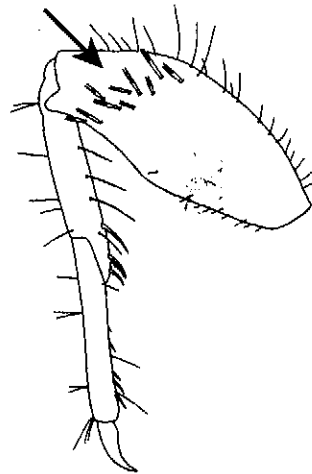


Fig. 121 [from Provonsha (121)]

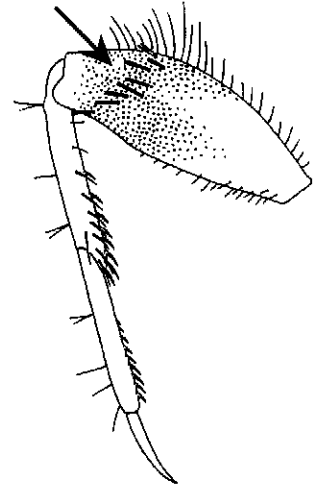


Fig. 122 [from Provonsha (122)]

Posterior margin of abdominal sternum IX rounded (Fig. 123); dorsal surface of fore femora with scattered setae only (Fig. 124); abdominal terga IX-X usually with triads of black dots; abdominal sterna frequently with paired submedian dots 3

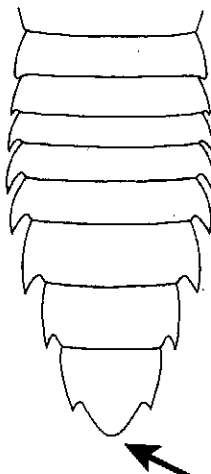


Fig. 123 [Provonsha (123)]

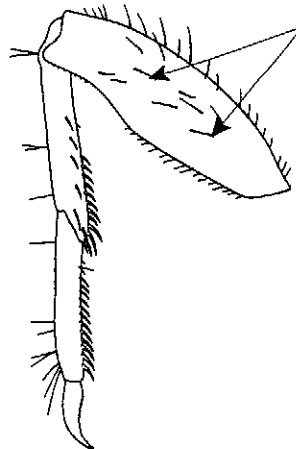


Fig. 124 [from Provonsha (1990)]

- 2(1) Abdominal terga VII-IX uniformly brown; posteromedian projection of abdominal tergum II (Fig. 125a), narrowly triangular in dorsal view, at least twice as long as wide (Fig. 125b) *C. macafferti* Provonsha

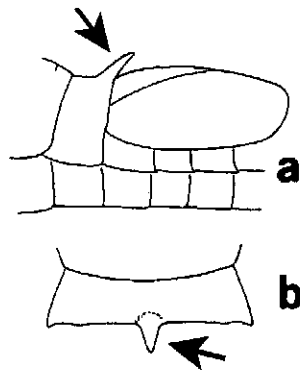


Fig. 125 [from Provonsha (1990)]

Abdominal terga VII-IX pale medially with brown longitudinal stripes or blotches laterally; posteromedian projection of abdominal tergum II (Fig. 126a), broadly triangular in dorsal view, approximately as long as wide (Fig. 126b) *C. hilaris* (Say)

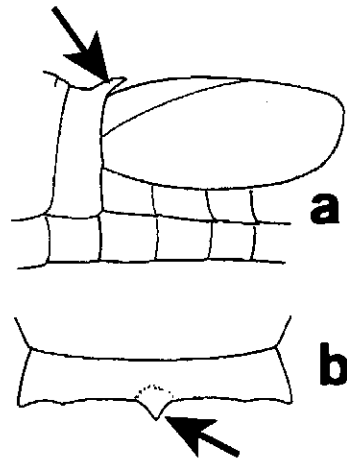


Fig. 126 (from Provonsha (1990))

- 3(1) Lateral margins of pronotum strongly divergent (Fig. X); posteromedian projection of abdominal tergum II relatively long, almost vertically oriented (Fig. XX)
 *C. eglinensis* Pescador and Richard



Fig. X [modified from Pescador & Richard (2007)]



Fig. XX [modified from Pescador & Richard (2007)]

Lateral margins of pronotum subparallel or slightly pointed in dorsal view (Fig. Y); posteromedian projection of abdominal tergum II short and posterior directed (Fig. YY) 4

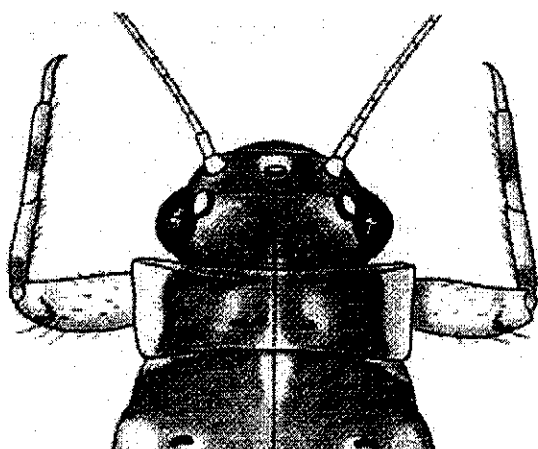


Fig. Y (modified from Provonsha (1990))

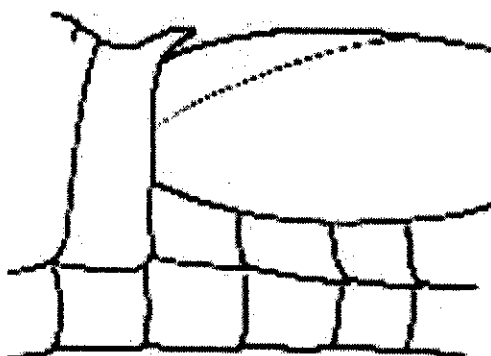


Fig. YY [modified from Provonsha (1990)]

- 4(3) Hind tarsal claws with 9-11 denticles of nearly uniform size to progressively larger apically (Fig.127) *C. amica* Hagen

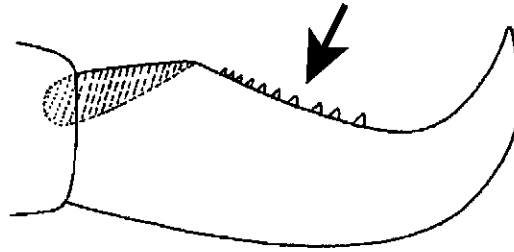


Fig. 127 [from Provonsha (1990)]

Hind tarsal claws with 16-20 denticles, basal 4-6 larger than the following apical denticles (Fig. 128) 5

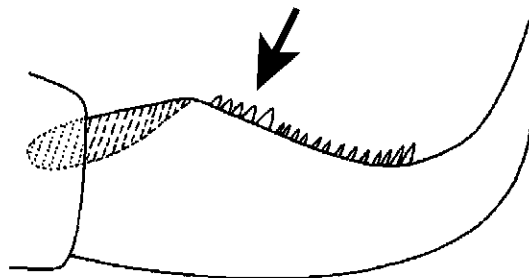


Fig. 128 [from Provonsha (1990)]

- (4) Hind tarsi with 9-11 fimbriate spurs on ventral surface (Fig. 129); scape and pedicel of antennae usually brown *C. diminuta* Walker

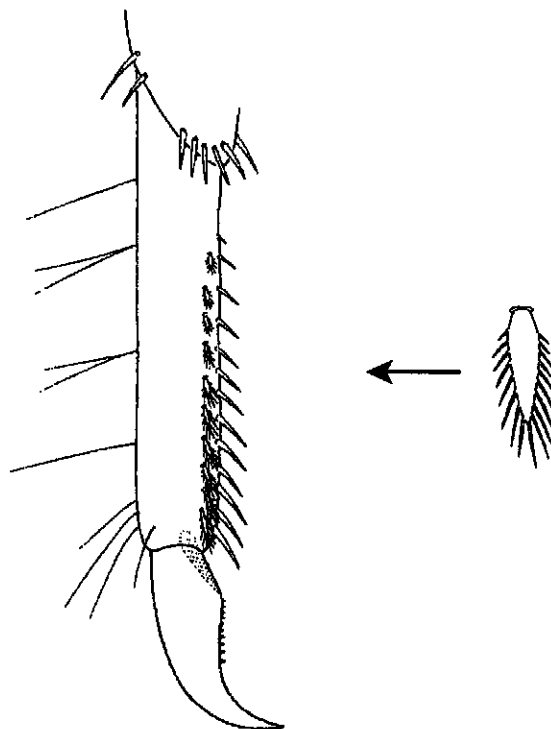


Fig. 129 [from Provonsha (1990)]

Hind tarsi with 6-8 fimbriate spurs on ventral surface; scape and pedicel of antennae pale
 *C. punctata* McDunnough

KEY TO SPECIES FOR MATURE NYMPHS OF FLORIDA *SPARBURUS* [modified from
Pescador and Richard (2004) & Sun and McCafferty (2008)]

1. Frontal ocellar tubercle long, 1.5 times longer than lateral tubercles and 2 times as long as eye width (Fig. 114) *Sparburus nasutus* Soldán

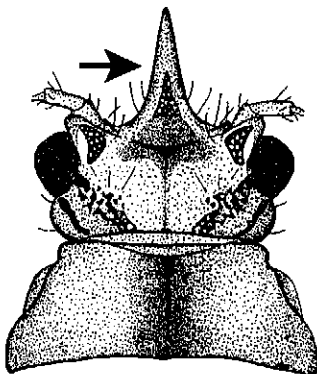


Fig. 114 [from Soldán (1986)]

Frontal ocellar tubercle short, almost as long as lateral tubercles and at most 1.5 times as long as eye (Fig. 115) 2

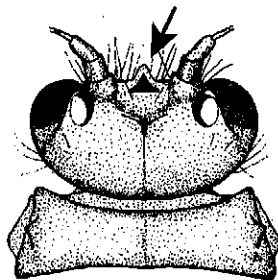


Fig. 115 [from Soldán (1986)]

2(1) Trailing edge of femora without dark subapical spot *S. maculatus* (Berner)

Trailing edge of femora with distinct dark subapical spot *Sparburus* n. sp.

KEY TO GENERA FOR MATURE NYMPHS OF FLORIDA EPHEMERELLIDAE
[modified from Pescador and Richard (2004)]

1. Lamellate gills present on abdominal terga III-VII (Fig. 130) 2

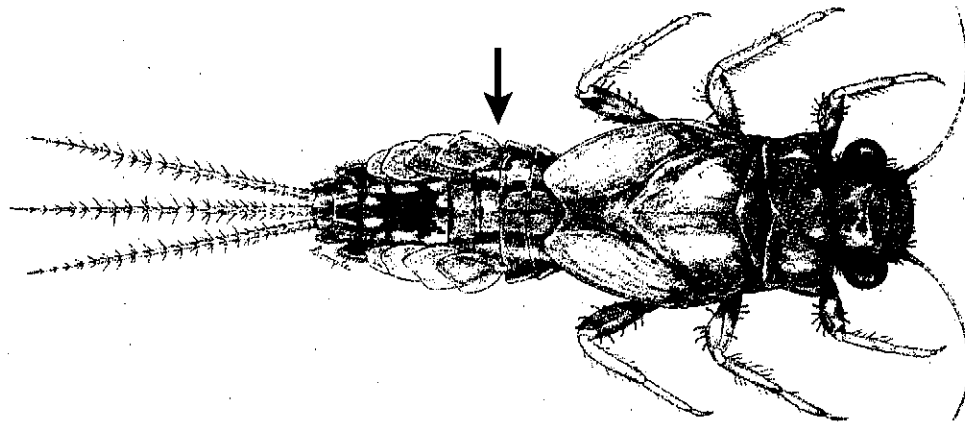


Fig. 130 [from Berner (1950)]

- Lamellate gills present on abdominal segments IV-VII (Fig. 131) 3

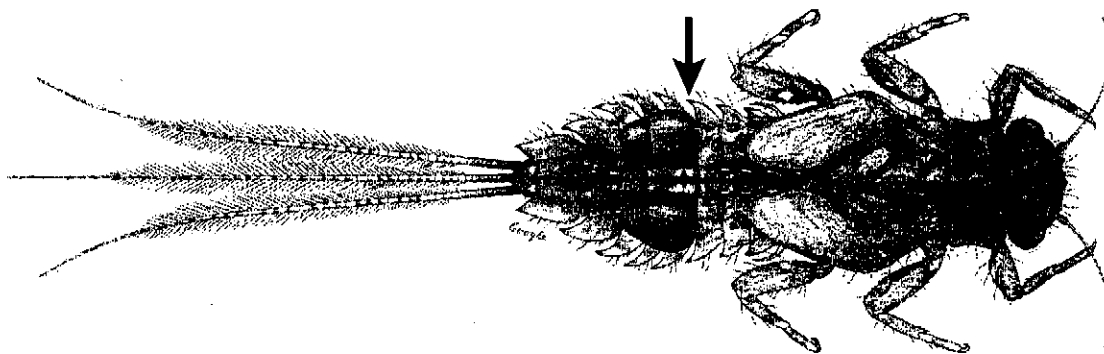


Fig. 131 [from Berner (1950)]

- 3(1) Tarsal claws without denticles (Fig. 136); head, body, and appendages covered with long setae (Fig. 137) *Dannella, D. simplex* (McDunnough)

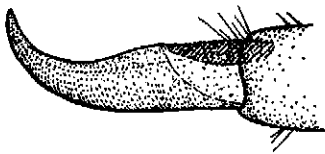


Fig. 138 [modified from Allen & Edmunds (1962)]

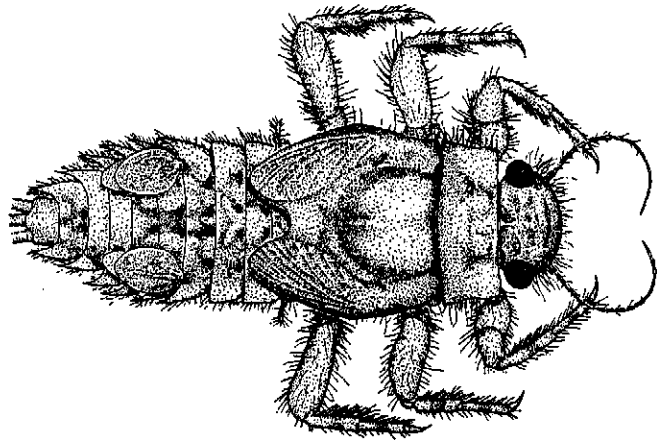


Fig. 139 [from Allen & Edmunds (1962)]

- Tarsal claws with denticles (Fig. 138); head, body, and appendages not covered with long setae 4

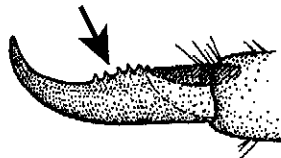


Fig. 138 [from Allen & Edmunds (1963)]

KEY TO SPECIES FOR MATURE NYMPHS OF FLORIDA *EPHEMERELLA*
[modified from Allen (1966)]

1. Posterior margins of abdominal terga without paired tubercles (Fig. 142A), minute paired protuberances may be present on posterior margins of some abdominal terga
approximately basal half of tarsi brown, remainder of segment yellowish (Fig. 142B)
..... *E. excrucians* Walsh

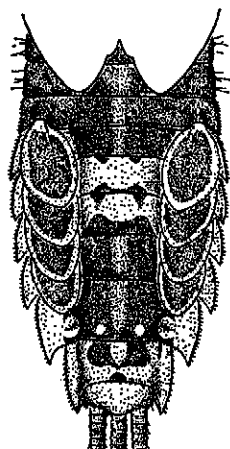


Fig. 142A [from Allen (1965)]



Fig. 142 B

- Posterior margins of abdominal terga III-VIII with paired submedian tubercles (Fig. 143A), barely discernible on terga III and terga VIII; tarsi yellowish with broad submedian brown band (Fig. 143B) *E. invaria* (Walker)

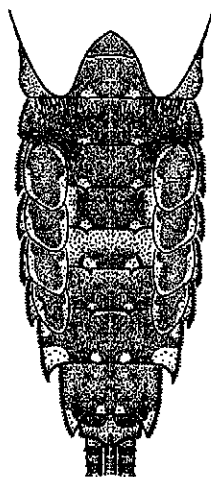


Fig. 143A [from Allen (1965)]



Fig. 143B

KEY TO MATURE NYMPHS OF FLORIDA EPHEMERIDAE
[modified from Berner and Pescador (1988)]

1. Frontal process of head distinctly bifid (Fig. 146); mandibular tusks with small group of basal and lateral spurs (Fig. 147); foretibiae not emarginate apically and not greatly flattened (Fig. 148) *Ephemera* (p.); *E. simulans* Walker

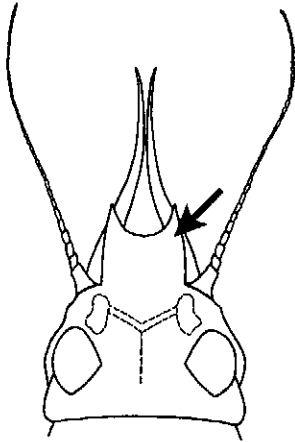


Fig. 146 [from Burks (1953)]

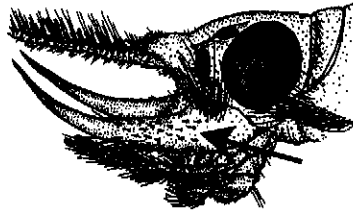


Fig. 147 [from Edmunds, Jensen, & Berner (1976)]



Fig. 148 [from Berner & Pescador (1988)]

Frontal process of head entire (Fig. 149); mandibular tusks without spurs but with long hairs (Fig. 150); foretibiae slightly to distinctly emarginate along distal margin (Fig. 151)
..... *Hexagenia* (p.)

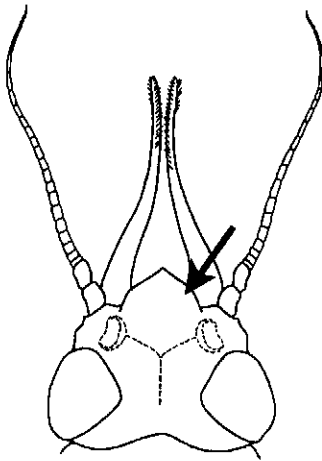


Fig. 149 [from Burks (1953)]

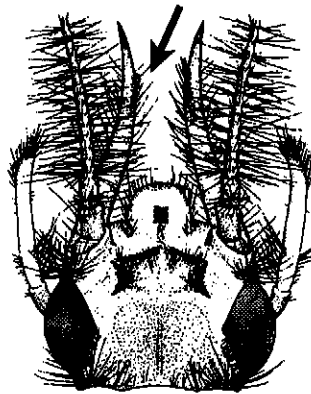


Fig. 150 [from Edmunds, Jensen, & Berner (1976)]



Fig. 151 [from Berner & Pescador (1988)]

**Table II. SPECIES CHECKLIST OF THE MAYFLY FAUNA OF FLORIDA: An
Update (post Pescador & Richard 2004)¹**

BAETIDAE

Acentrella alachua (Berner)
Acentrella parvula (McDunnough)
Acerpenna pygmaea (Hagen)
Baetis intercalaris McDunnough
Callibaetis floridanus Banks
Callibaetis pretiosus Banks
Centroptilum triangulifer (McDunnough)
Dipheter hageni (Eaton)
Plauditus bimaculatus (Berner)
Plauditus punctiventris (McDunnough)
Procloeon rubropictum (McDunnough),
Procloeon rufostrigatum (McDunnough),
 (=*Procloeon hobbsi* (Berner) *)
Procloeon viridoculare (Berner)
Pseudocentroptiloides usa Waltz & McCafferty
Pseudocloeon ephippiatum (Traver)
Pseudocloeon frondale (McDunnough)
Pseudocloeon propinquum (Walsh)

BAETISCIDAE

Baetisca becki Schneider & Berner
Baetisca escambiensis Berner
Baetisca gibbera Berner
Baetisca laurentina McDunnough ??
Baetisca obesa (Say)
Baetisca rogersi Berner

BEHNINGIIDAE

Dolania americana Edmunds & Traver

CAENIDAE

Brachycercus berneri Soldan
Caenis amica Hagen
Caenis diminuta diminuta Walker
Caenis eglinensis Pescador & Richard**
Caenis hilaris (Say)
Caenis maccafferti Provonsha
Caenis punctata McDunnough
Cercobrachys etowah Soldan

Sparbarus maculatus (Berner)
(=*Brachycercus maculatus* (Berner)***
Sparbarus nasutus (Soldan)
(=*Brachycercus nasutus* Soldan)***

EPHEMERELLIDAE

Attenella attenuata (McDunnough)
Dannella simplex (McDunnough)
Ephemerella excrucians Walsh
Ephemerella invaria (Walker)
Eurylophella doris (Traver)
Teloganopsis deficiens (Morgan)
(= *Serratella deficiens* (Morgan)***

EPHEMERIDAE

Ephemera simulans Walker
Hexagenia bilineata (Say)
Hexagenia limbata (Serville)
Hexagenia orlando Traver

HEPTAGENIIDAE

Heptagenia flavescens (Walsh)
Maccaffertium exiguum (Traver)
Maccaffertium mexicanum integrum (McDunnough)
Maccaffertium smithae (Traver)
Macdunnoa brunnea Flowers
Stenacron floridense (Lewis)
Stenacron interpunctatum (Say)

ISONYCHIIDAE

Isonychia arida (Say)
Isonychia berneri Kondratieff & Voshell
Isonychia sayi Burks
Isonychia sicca (Walsh)

LEPTOHYPHIDAE

Asioplax dolani (Allen)
Tricorythodes albilineatus Berner

LEPTOPHLEBIIDAE

Choroterpes basalis (Banks)
Habrophlebia vibrans Needham
Habrophlebiodes brunneipennis Berner
Leptophlebia bradleyi Needham

Leptophlebia cupida (Say)
Leptophlebia intermedia (Traver)
Paraleptophlebia volitans (McDunnough)

METRETOPODIDAE

Siphloplecton brunneum Berner
Siphloplecton fuscum Berner
Siphloplecton simile Berner
Siphloplecton speciosum Traver

NEOEPHEMERIDAE

Neoephemera compressa Berner
Neoephemera youngi Berner

OLIGONEURIIDAE

Homoeoneuria dolani Edmunds, Berner & Traver

PALINGENIIDAE

Pentagenia vittigera (Walsh) ****

POLYMITARCYIDAE

Ephoron sp
Tortopus puella (Pictet)

PSEUDIRONIDAE

Pseudiron centralis McDunnough

*recent synonymy

** recently described species, new state record

*** new combination

**** previously in Ephemeridae

?? occurrence in Florida is doubtful

¹ Prepared by M.L. Pescador and A.K. Rasmussen

MAYFLY IDENTIFICATION EXERCISE
(EPT Workshop 2009)

Instructions: There are approximately 50 species of mayflies that are provided for you to identify. Due to time constraints, we do not expect you to identify them all in half a day. However, do the best you can, and at least by the end of the day you are expected to at list **20 species** that you have identified. For the Baetidae and Caenidae we do not expect you to identify them to species just do the genera. These two families are relatively small and fragile, and require slide mounts to accurately observe the taxonomic characters under a compound microscope to identify them to species. However, several slide mounts of key characters for a good number of representative species of these families are available as “demo” for you to examine.

The vials are numbered (numbers are inside the vials), and mostly two vials are provided per taxon. Numbering of slide mounts correspond to those vials containing the specimens where the structures were dissected.

Note: Most of the nymphs are fragile, be very careful in handling them so the next person using them will still be able to identify the specimens.

NAME:

Vial #	Taxa (genera\species)
1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
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