Manual of
The Odonata of New England
by R. Heber Howe, Jr.

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Memoir of
the Thoreau Museum of Natural History: ii

Middlesex School
Concord, Massachusetts
MEMOIR
OF THE
THOREAU MUSEUM OF NATURAL HISTORY: II
Manual of the Odonata of New England

By R. HEBER HOWE, Jr.

PART I.
March, 1917.

In 1905 Dr. P. P. Calvert published * a list of the Odonata of New England. Since that date a considerable number of species have been added to his list, bringing the number known from this area to over one-hundred and fifty. Our distributional knowledge of species in the six states of this group has also been very much enlarged.

The present work is an attempt to supply a field manual of the New England Odonata for the use of all classes of students. A pictorial key of genera, and illustrations of the diagnostic characters of species are given, in the hope that an easy recognition of these insects will lead to a more general study of them. The habitat, abundance, limital dates of capture, and all known stations are recorded, and for the most part the ranges mapped.

The classification as given by Dr. Muttkowski in his Catalogue of the Odontata of North America (1910) has been adopted. The author wishes to express his sincere thanks to Mr. E. B. Williamson, Dr. R. A. Muttkowski, Mr. L. B. Woodruff, Dr. E. M. Walker, Mr. C. W. Johnson, Dr. Samuel Henshaw, Mr. Nathan Banks, Dr. R. P. Currie, Dr. F. E. Lutz, Dr. P. P. Calvert, Messrs. D. M. and B. K. Little, Mr. W. T. Davis, Mr. D. L. Dutton, Mr. A. P. Morsè, and to my daughter, Miss S. A. Howe, for valued help.

Order: Odonata Fabricius

Pictorial Key of Genera

**ODONATA**

**Zygoptera:** Damsel Flies

- Wings closed when alighted.

**Anisoptera:** Dragon Flies

- Wings open when alighted.

Eyes widely separated, by more than the full width of an eye.

Eyes approximate, separated by less than half the width of an eye. (See Aeshnidae and Libellulidae).

**Agrionidae**

**Coenagrionidae**

- One or more antecubitalis. Wings not stalked.

- Two (rarely three) antecubitalis. Wings stalked (see page 0).

**Agrioninae**

**Agrion**

**Calopteryx**

**Haeterina**

- Arculus bent.

- Arculus straight.

**Suborder:** Zygoptera Selys

**Family:** Agrionidae Leach

**Subfamily:** Agrioninae Kirby

**Genus:** Agrion Fabricius

Agrion amatum

dimitutum apicale

aequabile

maculatum


+ + + + +

+ + + + +

+ + + + +
a. Wings narrow (7–9 mm.),
front and hind margins nearly parallel.

*Calopteryx amata*


_Psyche_ 5: 244. 1889. Type locality: “Dublin, New Hampshire.”

Rare,—cold, wooded, mountain brooks, alt. 500 to 1300 ft.

June 18 to July 14.

New Hampshire: Franconia (Slosson); Dublin (Hagen); Peterboro (Cabot); Intervale (U. S. N. M.).

Massachusetts: Montgomery (M. C. Z. & U. S. N. M.).

Connecticut: Litchfield (Woodruff).*

**C. dimidiata**

2. *Agrion dimidiatum apicale* (Burn).  


Very rare,—brooks and ditches. This species is often confused with the following, and all records need careful verification.

June 21 to July 21.

Massachusetts: Waltham, South Reading (Hagen); Carver (B. S. N. H.); Medfield (Morse).

b. Wings wide (9–10 mm.), hind margin bowed.

**C. aequabilis**

3. *Agrion aequabilis* (Say).


(*_A. amatum_ (natural size). Wings fuliginous, hind wings ♀ brown at tip.

♂)

Common,—brooks, creeks, and ditches.

May to July 21.

Maine: Foxcroft, South Lagrange, Orono, Bradley, Auburn (Harvey); Manchester (Wadsworth); Bethel, Norway (Hagen); Machias (B. S. N. H.).

New Hampshire: Peterboro (M. C. Z.); Piscataqua river (M. C. Z.).

Vermont: Newport (Slosson).

Massachusetts: Worcester (Hitchings); Sherborn (Babcock); Lawrence, Brookline, Tyngsboro (Hagen); North Reading, Great Barrington, North Adams, (B. S. N. H.); Concord (Howe); South Natick (Morse); Norfolk Co., (M. C. Z.).

Connecticut: Litchfield (Woodruff).

**C. maculata**

4. **Agrion maculatum** Beauv.

Ins. Afr. Amer. 85. pl. 7. f. 3. 1805.  
Type Locality: "Etat-Unis d’Amerique."

Abundant,—woodland and grass grown brooks, and streams.  

April 16 to August 27.

Maine: No. East Carry, Foxcroft, South Lagrange, Orono, Bradley, Farmington (Harvey); Manchester (Wadsworth); Norway (Hagen); Mt. Desert (Bullock); Wales, Machias (B. S. N. H.); Norcross (U. S. N. M.).

New Hampshire: Meredith Neck (Howe); Franconia (U. S. N. M.).

Vermont: Newport (Slosson); Bennington (B. S. N. H.); Brandon (Dutton).

Massachusetts: Ipswich, Cambridge, Milton, Sutton, Northampton (Hagen); Sherborn (Babcock); Nahant, Dorchester, Andover, Tyngsboro, Brookline (M. C. Z.); Hopkinton, Blue Hills, Auburndale (B. S. N. H.); North Saugus (U. S. N. M.); Concord (Howe).

Rhode Island: Apponaug (B. S. N. H.).

Connecticut: Litchfield (Woodruff); Darien, Rowayton (B. S. N. H.); Devil’s Garden (U. S. N. M.).
Genus: Haeterina Hagen

Haeterina americana

5. Haeterina americana (Fabr.).

Ent. syst. suppl. 287. 1798. Type locality: "America."

Uncommon, — meadow brooks, ditches, and rivers.
June 22 to September 16.

Maine: Chemo Mille, Bradley, Winslow, Auburn (Harvey); Norway (Hagen).

Massachusetts: Salem, Weston (Hagen); Wellesley (B.S.N.H.); Sherborn (Morse); Cambridge, Provincetown (M.C.Z.).

*H. americana* (natural size). Wings yellowish; red♂ or orange ♀ at base.

![Map of New England states with marked areas and text labels.]


**Coenagrionidae**

**Lestinae**

Subnodal and median veins *joining nearer the arcus* than the nodus.

**Coenagrioninae**

Subnodal and median veins *joining nearer the nodus* than the arcus.

*(See Coenagrioninae.)*

**Family:** Coenagrionidae Kirby

**Subfamily:** Lestinae Needham

**Genus:** Lestes Leach
Lester eurinus

Amber-winged Spreadwing


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A. Wings ♀ distinctly fuliginous. ♂ wings 25–29 mm. long. ♀ wings 27–28 mm. long.

**Note:** The females of all agrionines are difficult to determine as they have few marked characters, and are often dimorphic. Pairs taken in copulation will supply material for study.

The drawings of the male abdominal appendages are from Dr. Calvert's Catalogue of the Odonate of Philadelphia (Trans. Amer. Ent. Soc. 20: 152–272, 1893), and are re-published with permission.

6. **Lester eurinus** Say.

Jour. acad. nat. sci. Phila. 8: 36. 1839. Type locality: "Massachusetts."


Massachusetts: Sherborn (Babcock); Milton (Hagen); Woods Hole (Kellicott); Brookline, Providence-town (M. C. Z.); Wellesley, Green Lodge (Morse); Concord (Howe).


B. Wings ♂ and ♀ hyaline. ♂ wings less than 25 mm., ♀ wings less than 24 mm. long.

a. ♂ inferior appendages less than half as long as superior appendages. ♀ 's with a yellow mid-dorsal line along the abdomen.

7. **Lester congener** Hagen.


Uncommon,— ponds and ditches. July 29 to October 9.

Maine: North West Carry, Orono (Harvey); Manchester (Wadsworth).
New Hampshire: Franconia (U. S. N. M.).
Massachusetts: Concord (Howe); West Chop (Morse).
Connecticut: Litchfield (Woodruff).

b. ♂ inferior appendages over half as long, but not longer than the superior appendages. ♀'s with a yellow line across the back of the head.

8. Lestes unguiculatus Hagen.

Syn. Neur. N. Amer. 70. 1861. Type locality: “Chicago; Bergen Hill, New Jersey; New York; St. Louis; Wisconsin.”

Common,—ponds and ditches. ☑

June 17 to September 5.

Maine: North West Carry, Orono (Harvey); Manchester (Wadsworth); York Harbor (Moore).

Vermont: Brandon (Dutton).

Massachusetts: Worcester (Hitching); Cuttyhunk island (Calvert); Martha's Vineyard (Moore); Concord (Howe); Provincetown, Melrose Highlands (U. S. N. M.).

Rhode Island: Providence (Davis); Block Island (Woodruff).

1. ♂ inferior appendages straight, or nearly so. ♂ wings less than 22 mm. long. ♀ with no yellow line on back of head.

Wings less than 24 mm. long.

9. Lestes unitatus Kirby.

Cat. Odon. 160, 1890. Type locality: “Chicago; Washington; Wisconsin.”

Uncommon,—ponds and ditches. ☑

June 16 to September.

Maine: Orono (Harvey); Manchester (Wadsworth).

New Hampshire: Franconia (Slosson); North Conway (Calvert); Squam lake (B. S. N. H.).

Vermont: Brandon (Dutton).

Massachusetts: Cambridge, Milton (Hagen); Worcester (Hitchings); Concord (Howe); Mt. Everett, Chester (B. S. N. H.).

Connecticut: Darien (B. S. N. H.).

(To be continued.)


Uncommon,—ponds, ditches, and brooks.

June to September 18.

Maine: Orono, Fryeburg (Harvey); Manchester (Wadsworth); Norway (M. C. Z.).

New Hampshire: Fabyan's (Calvert); Franconia (Slosson); Moultonboro, Meredith Neck (Howe).

Massachusetts: Concord, Nantucket (Howe); Norfolk Co. (M. C. Z.); Provincetown (B. S. N. H.).

Connecticut: Litchfield (Woodruff); North Windham, South Kent (Morse).


Ins. Neur. 246. 1842. Type locality: "l'Amérique septentrionale."

Not uncommon,—ponds and ditches.

June 27 to September 5.

Maine: Orono, Fryeburg (Harvey); Manchester (Wadsworth).

Massachusetts: Sherborn (Babcock); Worcester (Hitchings); Cuttyhunk Island (Calvert); Woods Hole (U. S. N. M.); Concord, Monument Beach, (Howe).

Connecticut: New Haven (Moore); Litchfield (Woodruff).


Journ. acad. nat. sci. Phila. 8: 34. 1839. Type locality: "Indiana, Massachusetts."
Common,—ponds, brooks, and ditches.

June 21 to September 19.

Maine: Orono, Fryeburg (Harvey); Manchester (Wadsworth).

New Hampshire: Franconia (Slosson); Moultonboro, Meredith Neck (Howe).

Massachusetts: Milton (Hagen); Worcester (Hitchings); Cuttyhunk Island (Calvert); Sherborn (B. S. N. H.); Medfield, Dover (Morse); Winchendon, Cambridge, Saugus, Brookline, Norfolk Co. (M. C. Z.); Woods Hole, Provincetown (U. S. N. M.); Concord, Monument Beach (Howe); Hingham (Barnes).

Rhode Island: Providence (Davis); Block Island (Calvert); Bristol (Howe).

Connecticut: Litchfield (Woodruff); Bethlehem (U. S. N. M.).

2. ♂ wings more than 22 mm. long. ♀ wings more than 24 mm. long.

13. Lestes vigilax Hagen. Swamp Spreadwing


Common,—lakes, ponds, and ditches.

June 19 to September 5.

Maine: Manchester (Wadsworth); Fryeburg (Harvey); Cape Elizabeth (M. C. Z.); Orono (U. S. N. M.).

New Hampshire: Moultonboro, Meredith Neck (Howe).

Massachusetts: Worcester (Hitchings); Nantucket (Albertson); Concord, Wareham (Howe); Medfield, Sherborn, (Morse); Natick, Cambridge (M. C. Z.).

Rhode Island: Block Island, Meredith Neck (Calvert).

Connecticut: Litchfield (Woodruff); South Kent (Morse); Darien (U. S. N. M.).

c. ♂ inferior appendages longer than superior. ♀ back of head entirely yellow.


Rare,—lakes, ponds, and ditches. 

June 17 to August 15.

Maine: Bradley, Orono (Harvey); Manchester (Wadsworth).

New Hampshire: Franconia (Slosson); Moultonboro, Meredith Neck (Howe).

Massachusetts: Cohasset, Blue Hills, North Reading, Manomet (B. S. N. H.); Hyde Park (M. C. Z.); Sherborn (Morse).

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**MAP OF THE NEW ENGLAND STATES**

Distribution of Genus: *Lestes* excluding *Leurinus*

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**Note:** Since the publication of Part I, I have secured a record of *L. unguiculatus* for New Hampshire: White Mts., (M. C. Z.). I have also found the species common at Nantucket, Ilingham (Barnes), Cohasset (Warden), and Woods Hole, Mass., and Middletown, R. I.
Coenagrioninae

Argia

Group 1

Hairs on tibia twice as long as the spaces between the hairs.

Hairs on tibia never twice as long as the spaces between the hairs (see Group 1).

Subfamily: Coenagrioninae Kirby
Genus: Argia Rambur

Argia moesta
Argia violacea
Argia sedula

+ + + + + +
+ + + + + + +
+?

A. More than one cell under pterostigma.

15. Argia moesta (Hagen).*

Syn. Neur. N. Amer. 94. 1861. Type locality: "Pecos River, Western Texas."

* = A. moesta var. putrida (Hagen) see Ent. News 23: 196-203, 1912.

Common, ponds and lakes. C L

June 25 to August 30.

Maine: Orono (Harvey); Manchester (Wadsworth);
Liberty, Pudding pond (B. S. N. H.); Bradley (U. S. N. M.).

New Hampshire: Moultonboro, Meredith Neck, (Howe).
Massachusetts: Worcester (Hitchings); Natick, Sherborn (Morse);
Concord (Howe).

Connecticut: Litchfield (Woodruff); Darien (U. S. N. M.).

B. Only one cell under pterostigma of wing.

16. Argia violacea (Hagen).

Syn. Neur. N. Amer. 90. 1861. Type locality: "Maryland," etc.

Abundant, ponds, and lakes. C

June 6 to September 10.

Maine: Bradley, Orono (Harvey); Manchester (Wadsworth);
Mt. Desert (Bullock).
New Hampshire: Meredith Neck (Howe).
Vermont: Brandon (Dutton).
Massachusetts: Wareham, Concord (Howe); Medfield, Dover (Morse); Gloucester (U. S. N. M.); Hingham (Barnes).
Rhode Island: Providence (Davis).
Connecticut: West Hartford, Milton, Litchfield (Woodruff).

Note: *Argia apicalis* (Say). Though included in Dr. Calvert’s list, the record was expanded by Mr. E. B. Williamson (Ent. News 17: 31. 1906).

*Argia sedula* (Hagen). Two tenor specimens were taken in Concord, Mass., on June 14, 1916, which were doubtfully referred here by Mr. E. B. Williamson.

The figures of the male abdominal appendages are reproduced with permission from Hagen’s paper (Bull. Mus. Comp. Zool. 54: 1902).

Note: A specimen of *A. violacea* taken since this map was made extends the range to Buzzards Bay.

**Group 1**

**Group 2**

*Pale spots* (rarely connected by pale narrow line) on top of head.

**Group 3**

*No pale spots on top of head.* (see Group 4—*Chromagrion, Neohaliennis, and Amphiagrion*.)

**Group 5**

*Nodal vein of fore-wing arising near or beyond 6th postcubital.*

*Nodal vein of fore-wing arising not beyond 4th postcubital.* (see Group 5—*Ischnura and Anomalagrion.*)
**Genus: Enallagma Charpentier.**

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A. 4 or 5 antenodal cells.

17. **Enallagma durum** (Hagen).

Syn. Neur. N. Amer. 87. 1861. Type locality: "Maryland; Louisiana; Florida."

Rare,—rivers and brooks.  

Jul. to Aug. 25.

Massachusetts: Woods Hole, Cuttyhunk Island (Calvert, Ufford).

Rhode Island: Watch Hill (Calvert).

B. 3 antenodal cells.

a. ♂ with abdominal segments 8 and 9 unmarked with black.

♀ with black marking on dorsal surface of last abdominal segment.

18. **Enallagma cyathigerum** (Charp.).

Lib. Eur. 163. 1840. Type locality: "Silesia."
Uncommon,—ponds and lakes. 

June to July 13.

Maine: Manchester (Wadsworth).
New Hampshire: Hermit Lake (Selys);
Franconia (Slosson).
Massachusetts: (Selys); Nantucket (Howe).

19. **Enallagma hageni** (Walsh).


Common,—lakes and ponds. 

June to August.

Maine: Foxcroft, Rangeley, Orono, Fryeburg (Harvey); Mt.
Desert (Bullock); Manchester (Wadsworth); York Harbor (Moore).
New Hampshire: Meredith, Moultonboro (Howe).
Vermont: Brandon (Dutton).
Massachusetts: Worcester (Hitchings); Dedham (Selys).

20. **Enallagma calverti** Morse.

Psyche 7: 208. 1895. Type locality: "Franktown, Nev."

Rare,—ponds and marshes. 

June 15 to August 12.

Maine: Orono (Harvey).
New Hampshire: Profile Lake (Howe).
Massachusetts: Wellesley (Morse); Sherborn (Babcock); Concord
(Howe).

21. **Enallagma ebrium** Hagen.

Syn. Neur. N. Amer. 89. 1861. Type locality: "Chicago, North
America; New Orleans."

Common,—ponds and brooks. 

June 21 to August 30.

Maine: Manchester (Wadsworth).
New Hampshire: Fabyan's (Calvert); Meredith Neck, Moultonboro (Howe).
Vermont: Brattleboro (Morse); Brandon (Dutton).
Massachusetts: West Bridgewater (Tower); Concord (Howe);
Winchendon, Mt. Everett (B. S. N. H.).
Connecticut: Litchfield (Woodruff).
22. **Enallagma traviatum** Selys.

Bull. acad. Belg. 41: 517. 1876. Type locality: "Dedham, (Massachusetts)."

Rare,—ponds and lakes.  

July 18 to August 19.

New Hampshire: 7 ♀ Moultonboro (Howe).
Massachusetts: Dedham (Selys); Sherborn (Morse); Concord (Howe); Hingham (Barhces).

23. **Enallagma aspersum** (Hagen).

Syn. Neur. N. Amer. 97. 1861. Type locality: "New York; Bergen Hill, New Jersey; Chicago."

Uncommon,—ponds.  

July to September 5.

Maine: Norway (M. C. Z.).
New Hampshire: North Conway (Calvert).
Massachusetts: Nonamesset Island, Woods Hole (Calvert); Concord, Nantucket (Howe).

24. **Enallagma minusculum** Morse.

Psyche 7: 207. 1895. Type locality: "Sherborn, Mass."

Rare,—lakes and ponds.  

July to August 23.

New Hampshire: Meredith Neck (Howe).
Massachusetts: Sherborn (Morse).

25. **Enallagma doubledayi** Selys.


Rare,—ponds.  

August.

Massachusetts: Provincetown (Williamson); Nonamesset Island (Calvert).

26. **Enallagma carunculatum** Morse.

Psyche 7: 208. 1895. Type locality: "Frankstown, Nev."

Connecticut: Litchfield (Woodruff).
27. **Enallagma civile** (Hagen).

Abundant,—lakes, ponds.  
May to September 5.  

Maine: Orono (Harvey); Manchester (Wadsworth); York Harbor (Moore).  
New Hampshire: Lake Asquam, Meredith Neck, Moultonboro (Howe).  
Massachusetts: Sherborn (Babcock); Worcester (Hitchings); Woods Hole, Cuttyhunk Island (Calvert); Martha's Vineyard (Moore); Concord, Nantucket, Wareham, Monument Beach (Howe).  
Rhode Island: Providence (Davis) Watch Hill, Block Island (Calvert); Bristol, Middletown (Howe).  
Connecticut: Litchfield (Woodruff).  

aa. ♀ with last abdominal segment unmarked with black.

28. **Enallagma divagans** Selys.


Rare, —ponds.  
Massachusetts: Dedham.  
Connecticut: Litchfield (Woodruff).  
b. ♀ with all three last abdominal segments marked with black.  
♀ with last abdominal segment unmarked with black.

29. **Enallagma pictum** Morse.

Psyché 7: 274. 1895. Type locality: "Sherborn, Mass."  
Very rare,—ponds and ditches.  
Massachusetts: Sherborn (Babcock).  

bb. ♀ with ninth abdominal segment entirely black.

30. **Enallagma geminatum** Kellicott.  
Ent. news 6: 239. 1895. Type locality: "Licking Reservoir, Ohio [etc.]. . .Corunna, Mich."

Uncommon,—brooks, ponds and lakes.  
June to September 10.  
Maine: Bradley (Harvey).  
Massachusetts: Concord (Howe).
Connecticut: Mt. Carmel, New Haven (Moore); Litchfield (Woodruff).

- **♂** with abdominal segment 9 unmarked with black.
- **♀** with last abdominal segment marked with black.

31. **Enallagma laterale** Morse.

Psyche 7: 274. 1895. Type locality: "Wellesley, Mass."

Rare,—ponds. \underline{UL}

May 25 to July.

- Massachusetts: Wellesley (Morse); Concord (Howe).

- **♀** with last abdominal segment unmarked with black.

32. **Enallagma exsulans** (Hagen).

Syn. Neur. N. Amer. 82. 1861. Type locality: "Philadelphia; Berkeley Springs, Virginia; Pecos River, Western Texas."

Common,—brooks, ponds and lakes.

June to August 7.

- Maine: Orono (Harvey); Manchester (Wadsworth).
- New Hampshire: Meredith Neck (Howe).
- Massachusetts: Sherborn, Medfield (Morse).
- Connecticut: Litchfield, West Hartford (Woodruff).

33. **Enallagma signatum** (Hagen).

Syn. Neur. N. Amer. 84. 1861. Type locality: "Georgia; Louisiana."

Common,—ponds, semicrepuscular.

July 2 to September 2. \underline{2 o Seq†.}

- Maine: Bradley (Harvey); Manchester (Wadsworth).
- New Hampshire: Meredith Neck, Moultonboro (Howe).
- Massachusetts: Worcester (Hitchings); Concord, Woods Hole (Howe).
- Rhode Island: Block Island (Woodruff); Middletown (Howe).
- Connecticut: West Hartford (Woodruff).

34. **Enallagma pollutum** (Hagen).

Syn. Neur. N. Amer. 83. 1861. Type locality: "Florida."

Uncommon,—ponds, semi-crepuscular.
June 23 to August 25.

Maine: Bradley (Harvey); Manchester (Wadsworth).
New Hampshire: Moultonboro (Howe).
Massachusetts: Concord (Howe).

Nehalennia

♂ and ♀ bronze green above, abdomen slender.

Amphigrion

♂ and ♀ red and black above, abdomen stout.

Chromagrin

♂ and ♀ blue and black above.

Group 4

Color pattern of thorax and base of abdomen of ♂'s as seen from above, (also 3rd segment drawn to scale).

Nehalennia irene gracilis


+ + + + +

35. Nehalennia irene (Hagen).

Syn. Neur. N. Amer. 74. 1861. Type locality: “Chicago...Maine.”

Uncommon,—grassy ponds and bogs. C L

19
June 24 to August 5.

Maine: Orono, Fryeburg, Westbrook (Harvey); Manchester (Wadsworth); York Harbor (Moore).

New Hampshire: Meredith, Moultonboro (Howe).

Vermont: Brandon (Dutton).

Massachusetts: Worcester (Hitchings);
Concord, Nantucket (Howe); Mt. Everett, Chester (B. S. N. H.).

Connecticut: Litchfield (Woodruff).

36. **Nehalennia gracilis** Morse.


Very rare,—grassy ponds, bogs.

June 19 to July 19.

Massachusetts: Wellesley, Sherborn (Morse).

**Genus:** Amphiagron Selys

Amphiagron


37. **Amphiagron saucium** (Burm.).

Handb. ent. 2: 819. 1839. Type locality; “Süb-Karolina.”

Rare,—ponds and wet meadows.

June to July.

Maine: Orono, Bradley (Harvey); Manchester (Wadsworth).

New Hampshire: Franconia (Slussosn).

Vermont: Leicester (Dutton); Montgomery (B. S. N. H.).

Massachusetts: (Hagen).

**Genus:** Chromagron Needham.

Chromagron conditum


38. **Chromagron conditum** (Hagen).


Type locality: “Maryland...Washington.”

Uncommon,—ponds and brooks.

May to July 7.

20
Maine: Orono, Bradley (Harvey); Manchester (Wadsworth).
New Hampshire: Franconia (Slosson).
Massachusetts: Sherborn (Babcock); Concord (Howe).
Connecticut: Litchfield (Woodruff).

**Group 5**

**Ischnura**

| Pterostigma of male touching the costa on fore wings. |
| V's with more than 7 postcubitalis. |

**Anomalagrion**

| Pterostigma of male not touching the costa of fore wings. |
| V's with less than 7 postcubitalis. |

**Genus: Ischnura Charp.**

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39. **Ischnura verticalis** (Say). *Common Forktail*

1839. Type locality: "Indiana."

Abundant,—grassy ponds, brooks and ditches. May to September 26.

Maine: Orono, Fryeburg (Harvey); Mt. Desert (Bullock); Manchester (Wadsworth); York Harbor (Moore).

New Hampshire: Fabyan's (Calvert); Meredith Neck, Centre Harbor, Moultonboro (Howe).

Vermont: Newport (Slosson); Brandon (Dutton).

Massachusetts: Worcester (Hitchings); Woods Hole, Cuttyhunk Island (Calvert); Martha's Vineyard (Moore); Concord, Nantucket Monument Beach (Howe); Bradley, Provincetown (B. S. N. H.);

Rhode Island: Providence (Davis); Block Island (Calvert); Middletown (Howe).

Connecticut: Poquonoock (Britton); South Manchester (Sturgis); Mt. Carmel (Moore); Litchfield (Woodruff); Middletown (B. S. N. H.).
40. Ischnura kellicotti Williamson.
   Rare,—lakes and ponds. July to August.
   Maine: Manchester (Wadsworth).
   Rhode Island: Block Island (Calvert).

41. Ischnura ramburii Selys.
   Rev. odon. Eur. 186. 1850. Type locality: "Yucatan."
   Rare,—ponds, ditches, and salt marsh borders. August to October 2.
   ?Massachusetts: Canton (M.C.Z.).
   Rhode Island: Watch Hill (Calvert); Bristol, Middletown (Howe).

42. Ischnura posita (Hagen).
   Syn. Neur. N. Amer. 77. 1861. Type locality: "Savannah, Dalton, Georgia; Washington."
   Uncommon,—grassy ponds. June to September 3.
   Maine: Orono, Penobscot River (Harvey).
   Massachusetts: Salem (Selys); Nantucket, Concord (Howe).
   Rhode Island: Providence (Davis); Block Island (Calvert); Middletown (Howe).
   Connecticut: Litchfield (Woodruff).

Genus: Anomalagrion Selys.
Anomalagrion hastatum

43. Anomalagrion hastatum (Say).
   Journ. acad. nat. sci. Phila. 8: 38. 1839. Type locality: "Indiana."
   Very rare,—marshes and swamps.
   Maine: (Hagen).
   Massachusetts: (Hagen).
Recapitulation of New England Zygoptera—Damsel-flies

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<th>Hetaerta</th>
<th>Lestes</th>
<th>Enallagma</th>
<th>Nebelenia</th>
<th>Amphiongus</th>
<th>Chromagenia</th>
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Anisoptera: Dragon Flies.

Aeshnidae

Libellulidae

Triangles of fore and hind wings in similar position and of similar shape. (See Group 1.)

Triangles of fore and hind wings not in similar position and not of similar shape. (See Libellulidae.)
Group 1

**STIGMA**

Pterostigma with a brace vein. (See Petalurinae, Gomphinae, and Aeshninae.)

**BRACE VEIN**

Pterostigma without a brace vein. (See Cordulegasterinae.)

---

Group 2

**STIGMA**

Petalurinae

**TACHOPTERYX**

Cubitus appearing symmetrically forked to form triangle. Subtriangle of three cells.

---

Suborder: Anisoptera.
Family: Aeshnidae.
Subfamily: Petalurinae Needham.
Genus: Tachopteryx Selys.

Tachopteryx thoreyi


♂ ♀ pterostigma very long (8 – 9.5 mm.) and narrow (3 mm.).

44. **Tachopteryx thoreyi** (Hagen).

Monog. Gomp. 373. 1858. Type locality: "l’Amérique septentrionale?"

Very rare.  

RL

June

New Hampshire: Manchester (Burnham).

Massachusetts: (Hagen).

(To be continued.)
Memoir of the Thoreau Museum of Natural History: II
Manual of the Odonata of New England

BY R. HEBER HOWE, JR.

PART III.

August 30, 1918.

Note: Because the distribution of the Gomphines has been so little worked out for the New England States, as evidenced by the few records for each species, the distributional maps have been omitted in this part. The habitats, and limital dates are also very insufficient, but are included wherever possible. No drawings of the male appendages of G. adelphus have ever been published, nor am I able to secure a specimen from which to draw them.

Subfamily: Cordulegasterinae Calvert
Genus: Cordulegaster Leach

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</table>

A. Eyes not touching.

45. Cordulegaster diastatops Selys. Delta-spotted Spiketail

(Probably error for District of Columbia, U. S.)

Uncommon,—open woods, brooks, and rapid woodland streams.

C

May 28 to August.

Maine: Greenfield, Bradley, Orono (Harvey); Manchester (Wadsworth); Portland (M. C. Z.).

New Hampshire: White Mts. (Selys); Franconia (Slosson); Waterville (M. C. Z.); Peterboro (Cabot); Jackson (Morse); Intervale (Allen).

Vermont: Jay, Troy (Morse).

Massachusetts: Sherborn (Babcock); West Bridgewater (Tower); Concord (Howe); Framingham (Johnson); Newtonville (Thaxter); Waltham (Bullard); Southbridge (Bromley); Winchendon (Morse).

Connecticut: Litchfield (Woodruff).

B. Eyes touching.

46. Cordulegaster maculatus Selys.

Bull. acad. Belg. 21: 105. 1854. Type locality: "Georgic Americaine."

25
Uncommon,—open woods, brooks. June 1 to August 7.

Maine: Greenfield, Orono (Harvey); Manchester (Wadsworth).

New Hampshire: Manchester (Burnham); North Conway, Intervale (Allen); Pemigewasset pond; Meredith (Calvert); Franconia (Howe).

Vermont: Bennington (Johnson).

Massachusetts: Woburn (Hagen); Worcester (Hitchings); West Bridgewater: (Tower); Concord (Howe); Chester (Johnson); Brookline (Shurtleff); Southbridge (Bromley).

Connecticut: (Hagen); Litchfield (Woodruff).

47. Cordulegaster obliquus (Say).


Uncommon,—open woods. May 28 to July 7.

Maine: Bradley, Orono (Harvey); Manchester (Wadsworth).

Massachusetts: Andover (Selys); Brookline (Hagen); Framingham (Johnson); Southbridge (Bromley).

Connecticut: (Hagen).

---

**Group 2**

**Gomphinae**

Eyes not touching (see Group 3).

**Aeshninae**

Eyes touching (see Aeshninae).

---

**Group 3**

**Progomphus**

Subcostal vein present.

---

**Group 5**

Subcostal vein not present (see Group 5).
Subfamily: Gomphinae Rambur

Genus: Progomphus Selys

Progomphus obscurus


Ins. Nevr. 170. 1842. Type locality: "l'Amerique septentrionale."

June 5 to August 9.

Very rare,—scrub oak uplands, rivers and lakes. CL

Massachusetts: Boston, (Hagen); Wareham (Bangs).

* = Gomphoides.

Group 5

Group 6

HIND WING ♂

INNAL LOOP

Anal loop present.

Group 7

HIND WING ♂

Anal loop not present (see Group 7).

Hagenius

Ophiogomphus

TRIANGLES

FORE WING

HIND WING

Triangles with cross veins.

TRIANGLES

FORE WING

HIND WING

Triangles without cross veins.

Genus: Hagenius Selys


Hagenius brevistylus . . . + + + +

27
49. **Hagenius brevistylus** Selys.


Common,—swift mountain brooks,
and rivers, ponds and lakes. June to September 3.

Maine: North East Carry, Greenfield, Orono, Bradley (Harvey); Manchester (Wadsworth).

New Hampshire: Manchester (Burnham); Peterboro (Cabot); Meredith Neck, Moultonboro (Howe).

Massachusetts: Sherborn (Babcock); Sutton (Hagen); Concord (Howe); Winchendon (Morse).

Connecticut: Litchfield (Woodruff); Mashapaug (Bromley).

**Genus: Ophiogomphus Selys**

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</table>

50. **Ophiogomphus anomalous** Harvey

Ent. News 9: 60. 1898. Type locality: “Orono.”


Maine: Orono (Harvey).

51. **Ophiogomphus mainensis** Packard.


Very rare,—1400 ft. Maine: (Packard).

New Hampshire: White Mts. (Selys); Franconia (Slosson).

**Note:** The drawing of the male appendages is made from the Hagen type in the Museum of Comparative Zoology — they resemble very closely those of *O. carolus*. 28
52. **Ophiogomphus carolus** Needh.

Can. ent. 29: 183. 1897. Type locality: “Ithaca, N. Y.”

Very rare, —

May to June.

Maine: Greenfield, Bradley, Orono (Harvey).

53. **Ophiogomphus colubrinus** Selys.

Bull. acad. Belg. 21: 40. 1854. Type locality: “Territoire de la baie d’Hudson.”

Rare, —

Maine: Orono (Hagen).


54. **Ophiogomphus johannus** Needh.

Can. ent. 29: 182. 1897. Type locality: “Wilmurt, N. Y.”

Rare, — mountain brooks, and small rivers.

May 27 to July 11.

Maine: Bradley (Harvey).

New Hampshire: Merrimac valley (Howe).

Connecticut: Litchfield (Woodruff).

55. **Ophiogomphus rupinsulensis** (Walsh).


Type locality: Rock Island, Illinois.

Rare, — small streams, rapid rivers, and windward shores of lakes.

August.

Maine: N. E. Carry, Russell Stream (Harvey); Eagle Lake (M. C. Z.); (Uhler).

New Hampshire: Manchester (Burnham).

56. *Ophiogomphus aspersus* Morse.

Psyche 7: 209. 1895. Type locality: "northeastern U. S."

Rare,— ledges, woodlands, brooks, 200–2200 ft. alt.  

May 26 to August 29.

Maine: N. E. Carry, Russell Stream (Harvey).


Massachusetts: Great Barrington (Johnson); Concord (Howe); Wellesley (Morse).

---

**Group 7**

**Gomphus**

- Hind femora naked or with short spines.

**Dromogomphus**

- Four to seven long spines on femora (see *Dromogomphus*).

---

**Genus: Gomphus Leach**

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30. *Villosipes*  C
A. Triangle of fore wings distinctly shorter (1) than that of hind wing (=Subgenus: Lanthus Needham. I can see no good reason for recognizing Lanthus as a full genus).

   a. Abdomen not over 31 mm. long.

57. Gomphus albistylus Hagen.

   Bull. acad. Belg. 46: 460. 1878. Type locality: "Le Maine."

   Uncommon,— brooks, and small rivers. June 24 to August 1.

   Maine: Bradley (Harvey).
   New Hampshire: Manchester (Burnham); Franconia (Howe).
   Connecticut: Litchfield (Woodruff); New Canaan (Atwater).

58. Gomphus parvulus Selys.

   Bull. acad. Belg. 21: 56. 1854. Type locality: "Nouvelle-Ecosse."

   Rare,— rivers. May 26 to July 1.

   Maine: Manchester (Wadsworth).
   New Hampshire: White Mts. (Hagen); Franconia (Slosson, Howe); Peterboro (Cabot).
   Massachusetts: North Reading, East Walpole (Johnson).

   B. Triangle of fore wing only slightly shorter (1) than that of hind wing (= Genus: Gomphus).

59. Gomphus abbreviatus Hagen.

   Bull. acad. Belg. 46: 464. 1878. Type locality: "Provincetown (Massachusetts)....Orono (Maine)."

   Uncommon,— June 7 to July.

   Maine: South Lagrange, Orono (Harvey); Manchester (Wadsworth).
   New Hampshire: Manchester (Burnham).
   Massachusetts: Provincetown (Hagen).
   Connecticut: Winnipauk (Johnson).
60. **Gomphus brevis** Hagen.

Bull. acad. Belg. 46: 462. 1878. Type locality: "Schoarie (Etat de New-York)... Port-Neuf (Canada)."

Uncommon,—brooks and rivers. \( \mathcal{U} \)

May 31 to July 8.

Maine: Orono; Bradley, South Lagrange (Harvey).

New Hampshire: Intervale (Allen).

Connecticut: Litchfield (Woodruff).

61. **Gomphus exilis** Selys. \( \text{Lancet Clubtail} \)

Bull. acad. Belg. 21: 55. 1854. Type locality: "Etat-Unis."

Common,—ponds, slow rivers, woodlands, and roads. \( \mathcal{C} \)

May 19 to August 8.

Maine: South Lagrange, Orono Bradley (Harvey); Mt. Desert (Bullock); Manchester (Wadsworth).

New Hampshire: Manchester (Burnham); Peterboro (Cabot); Meredith Neck, Moultonboro, Franconia, Lisbon (Howe); Intervale, North Conway (Allen); Peterboro (Cabot).

Massachusetts: Salem, Brookline, Natick, Sutton (Hagen); Worcester (Hitchings); Concord (Howe); Newton, Tyngsboro, Framingham, Rutland, North Reading (Johnson); Wareham (Bangs); Medfield, Sherborn (Morse); Provincetown (?).

Rhode Island: Wickford (Johnson).

Connecticut: New Haven (Walden); Litchfield (Woodruff); New London (Osburn).

b. Abdomen between 32 and 38 mm. long.

62. **Gomphus quadricolor** Walsh.


Very rare,—gravelly, rocky rivers. \( \mathcal{R} \)

Massachusetts: Mt. Tom (Hagen).

63. **Gomphus lividus** Selys.*


Uncommon,—brooks. \( \mathcal{U} \)

May 28 to July 7

* = *nordicus* Hagen.
Page 33 missing
Rare,—

May to June 21

New Hampshire: Franconia (Slosson); Intervale (Allen).

Massachusetts: ?Concord (Howe).

Male appendages from above

Note: Dorsal thoracic marking same as in following species.

69. **Gomphus spicatus** Hagen.


Common, about ponds, lakes. ¶ — ¶

May 15 to July 13

Maine: South Lagrange, Oldtown, Orono (Harvey); Manchester (Wadsworth).

New Hampshire: Franconia (Slosson, Howe); Intervale (Allen); Peterboro (Cabot); Pemigewasset pond (Calvert).

Massachusetts: Natick (Hagen); Sherborn (Babcock); Concord (Howe); Winchendon (Russell); Boston (Parshley); Bedford (Swett); Southbridge (Bromley).

Connecticut: Litchfield (Woodruff).

Note: Through the kindness of Dr. Calvert, I am able to give figures (side view) of the male appendages of *G. borealis*, and comparative drawings of the appendages of *G. borealis* (from above) and *G. spicatus* (from above). The drawings were made by Dr. Calvert from material in the collection of the Academy of Natural Science, Phila., Pa.

70. **Gomphus fuscifer** Hagen.

Bull. acad. Belg. 46: 458. 1878. Type locality: "Natick (Massachusetts).... Lansing (Michigan)."

Rare,—open meadows, ponds, and small lakes. ¶

May 29 to July 28.

Massachusetts: Natick (Hagen); Southbridge (Bromley); Belmont (Bullard); Tyngsboro (Blanchard); Lexington (Banks); Stockbridge (Calvert); Concord (Howe).
c. Abdomen between 38 and 44 mm. long.

71. *Gomphus scudderii* Selys.

Bull. acad. Belg. 35: 752. 1873. Type
locality: "Etats-Unis."

Rare,— small, rapid rivers. R
August 27–29.
Maine: North East Carry (Harvey).


Ins. Nevr. 162. 1842. Type locality: "sans
indication de patrie."

Very rare,— large rivers.

Massachusetts: Crampton* (Hagen).

* There is no such town in Massachusetts. The locality intended is probably
  Campton, N. H.

73. *Gomphus pallidus* Ramb.

Ins. Nevr. 163. 1842. Type locality:
"l'Amerique septentrionale."

Rare,—

Massachusetts: Waltham (Hagen).

d. Abdomen over 46 mm. long.

74. *Gomphus spiniceps* (Walsh).

Type locality: Rock Island, Illinois.

Rare,— large rivers. R
July.

Massachusetts: Lawrence (Hagen); Concord (Howe).

**Genus: Dromogomphus Selys**

Dromogomphus spinosus .  .  +  +  +  +
Black-shouldered

75. Dromogomphus spinosus Selys. Spinylegs

Bull. acad. Belg. 21: 59. 1854. Type locality: "Etat-Unis, Georgie."

Common,—about ponds, lakes, and rivers. U-C

June 28 to September 1.

Maine: Orono, Oldtown (Harvey); Manchester (Wadsworth).
New Hampshire: Manchester, Lake Winnipesaukee (Burnham)
Meredith Neck, Newfound Lake, Moultonboro (Howe) Sharon (Cushman); Squam Lake (Allen).
Massachusetts: Worcester (Hitchings); Concord (Howe); Fall River (Easton); Brookline (M. C. Z.); Boston (Allen); Wareham (Banga); Worcester, Sherborn (Morse).
Connecticut: Litchfield, West Hartford (Woodruff); Mashapaug (Bromley); New London (Osburn).

Subfamily: Aeshninae Rambur

Upper half of arculus not shorter than lower.
Upper half of arculus shorter than lower. (See Genus: Anax)

Subnodal (radial) vein unforked.
Subnodal (radial) vein forked.
(See Group 1)

Three or more cubito-anal cross veins.
Two cubito-anal cross veins.
(To be continued)
Additional Stations and Corrections

Part I

Agrion amatum
July 20 rivers

Agrion aequalis
May 10 rivers

New Hampshire: Intervale (Allen); Pemigewasset pond (Calvert).
Vermont: Bennington (Johnson); Williamsville (Clench).
Massachusetts: Framingham (Frost); Southbridge (Bromley); Blue Hills (Clench);
Wollaston (M. C. Z.).

Agrion maculatum
New Hampshire: Intervale (Allen); Franconia, Lisbon (Howe); Fitzwilliam
(Barnes).
Massachusetts: Southbridge (Bromley); Waltham, Belmont (M. C. Z.); Welles-
ley (Morse).
Connecticut: New Canaan (Atwater); New Haven (Osburn).

Hetaerina americana
Massachusetts: Southbridge (Bromley); Cambridge (M.C. Z.).

Lestes aurinus
June 5

New Hampshire: North Conway (Allen).
Massachusetts: Southbridge (Bromley); Wayland (Howe).

Lestes coeniger
New Hampshire: Intervale (Allen).
Massachusetts: East Orleans (Parker); Brookline (Johnson); Woods Hole
(Calvert).

Lestes unguiculatus
June 15

Maine: Machias (Johnson).
New Hampshire: Intervale (Allen).
Massachusetts: West Peabody (Little); East Orleans (Parker); Woods Hole,
Nonamesset Island (Osburn); Barnstable, Dedham, Eastham, Fall River, Chatham,
Great Barrington (Johnson); Horse Neck Beach (Holt).
Rhode Island: Tiverton (Johnson); Bristol (Johnson).
Connecticut: Sachem Head (Calvert); New London (Osburn).

Lestes uncatus
May 30

New Hampshire: Intervale (Allen).
Vermont: St. Albans (Johnson).
Massachusetts: Southbridge (Bromley).

Part II

Lestes disjunctus
June 21 to September 23

Maine: Machias (Johnson).
New Hampshire: North Conway, Intervale (Allen); Jackson (Skinner); Franconia,
Lyman, Lisbon (Howe).
Massachusetts: Provincetown, Martha's Vineyard (Johnson); Southbridge
(Bromley).

Lestes forcipatus
Massachusetts: strike out Woods Hole (U. S. N. M.)

Lestes rectangularis
June 20

New Hampshire: Intervale, North Conway (Allen).
Massachusetts: West Peabody (Little); East Orleans (Parker); Eastham,
Martha's Vineyard, Cheshire (Johnson); Southbridge (Bromley). 
Rhode Island: Bristol (Johnson).
Connecticut: Sachem Head (Calvert); New London (Osborn).

**Lestes vigilax**

**May 28**
New Hampshire: North Conway, Squam Lake (Allen); Meredith Neck (Howe).
Massachusetts: Framingham (Johnson); Southbridge (Bromley).
Rhode Island: _strike out_ Meredith Neck (Calvert).
Connecticut: Sachem Head (Calvert).

**Lestes inequalis**

New Hampshire: Intervale (Allen).
Massachusetts: Southbridge (Bromley).
Rhode Island: Bristol (Johnson).

**Argia mosaic**

June 16
Maine: Bowlin pond (?); _strike out_ Pudding pond (Allen).
New Hampshire: Squam Lake (Allen); Pudding pond, North Conway (Allen);
Fitzwilliam (Barnes).
Massachusetts: Brimfield (Bromley).

**Argia violacea**

sandy roads.
New Hampshire: Intervale (Allen); Littleton (Howe); Fitzwilliam (Barnes).
Massachusetts: Plymouth (Johnson); Southbridge (Bromley).
Connecticut: New Canaan (Atwater); New London (Osborn); Sherborn (Morse).

*Note: fifth line for Williamson read Calvert.*

**Enallagma durum**

July 23
Massachusetts: Nantucket (Cushman).

**Enallagma cyathigerum**

June 25
New Hampshire: Intervale (Allen); Penigewasset pond (Calvert).
Massachusetts: Provincetown (Johnson); Cotuit (Peirson).

**Enallagma hageni**

May 30 to August 6
Maine: Machias, Calais, Princeton (Johnson); Bethel, Norway (M. C. Z.).
New Hampshire: Intervale (Allen); Franconia, Lisbon, Littleton (Howe); No.
Conway (M. C. Z.).
Massachusetts: North Reading, Blue Hills (Johnson); Bedford (Swett); Franconia
(Howe); Wellesley (Morse); Cambridge, Norfolk Co. (M. C. Z.).

**Enallagma calverti**

May 19
Massachusetts: Auburndale (Johnson).
Rhode Island: Matoomoo (Simonds).

**Enallagma oebrium**

May 26
Maine: Princeton (Johnson).
New Hampshire: Franconia, Lyman (Howe).
Vermont: Burlington (Johnson).
Massachusetts: Mt. Greylock (Calvert); Brookline, Washington, Cheshire
(Johnson); Southbridge (Bromley); Wayland (Howe); Cambridge, Norfolk Co.
(M. C. Z.).
Rhode Island: Bristol (Johnson).
Connecticut: Sachem Head (Calvert); New London (Osborn).

**Enallagma traviatum**

July 16
Massachusetts: _strike out_ Hingham (Barnes).

**Enallagma aspersum**

July 21
New Hampshire: Intervale (Allen).
Massachusetts: Hingham (Barnea).
Connecticut: Sachem Head (Calvert).

*Enallagma* *doubledayi*
June 29

*Enallagma* *minusculum*
June 27
Maine: Echo Lake, Mt. Desert (Johnson).
Massachusetts: Manomet, Eastham (Johnson).

*Enallagma* *carunculatum*
July 28
Massachusetts: Stockbridge Bowl (Calvert).

*Enallagma* *civile*
September 8
Massachusetts: West Peabody (Little); East Orleans (Parker); Nonamesset Island, No Man's Land (Osburn); Tuckernuck (Allen); Cohasset (Bryant); Fall River (Culman); Manomet, Eastham, Edgartown (Johnson); Southbridge (Brownley); Natick, Nahant (M.C.Z.); West Chop, Provincetown (Morse).
Rhode Island: Matoonac (Simonds); Bristol (Parker).
Connecticut: Sachem Head (Calvert).

*Enallagma* *divagans*
June 8
New Hampshire: Pemigewasset pond (Calvert).
Massachusetts: North Reading (Johnson); Concord (Howe); Winchendon (Morse).
Connecticut: *strike out* Litchfield (Woodruff); Middletown (Johnson); New Canaan (Atwater).

*Enallagma* *geminatum*
Massachusetts: Bedford (Swett); Auburndale (Johnson).

*Enallagma* *exsulans*
May 28 to August 27
Massachusetts: Rutland, Framingham (Johnson); Bedford (Swett); Concord (Howe); Dover (Morse).
Rhode Island: Buttonwoods (Johnson).
Connecticut: Winnipauk (Johnson); New London (Osburn).

*Enallagma* *signatum*
June 17
Maine: Princeton (Johnson).
Vermont: St. Albans (Johnson).
Massachusetts: West Peabody (Little); Brookline (Johnson); Cambridge (M.C.Z.);
Cotuit (Peirson); Medfield (Morse).
Connecticut: Winnipauk, Middletown (Johnson).

*Enallagma* *pollutum*
June 8 to September 6
Massachusetts: West Peabody (Little); Brookline (Johnson); Bedford (Swett).

*Nehalennia* *irens*
May 28 to August 23
Maine: Machais, Naples, Calais, Princeton (Johnson); Wales (Frost).
New Hampshire: Intervale, North Conway (Allen); Franconia, Littleton (Howe).
Vermont: Burlington (Johnson).
Massachusetts: Framingham, Duxbury, Winchendon, Brookline (Johnson);
West Peabody (Little); Mt. Greylock (Calvert); Woods Hole (Osburn); Cambridge,
Natick (M.C.Z.); Cotuit (Peirson); Sherborn, Wellsley, Provincetown, Winchendon (Morse).
Rhode Island: Buttonwoods (Johnson).
Connecticut: Sachem Head (Calvert); New London (Osburn).

*Amphicoreon* *sauclum*
June 19 to July 16
New Hampshire: Jaffrey (Johnson); Intervale (Allen); Lyman (Howe).
Massachusetts: Wellesley, Sherborn (Morse).
Rhode Island: Buttonwoods, Bristol (Johnston).

Chromagrion conditum

New Hampshire: Intervale (Allen); Franconia (Howe).
Massachusetts: Duxbury (Johnson); Woods Hole (Osburn); Wellesley (Morse).

Ischnura verticalis

May 14

Maine: Ashland Junction, Calais, Princeton, Machias, Bradley (B. S. N. H.); Portland (M. C. Z.); Echo Lake, Mt. Desert, So. West Harbor (Johnson).
New Hampshire: Intervale (Allen); Jackson (Skinne); Franconia, Littleton

Massachusetts: North Reading, Framingham, Blue Hill, Groton, Dedham, Gloucester, Duxbury, Auburndale, Manomet, Washington, Eastham, Edgartown, Horse Neck Beach, Rutland (Johnson); West Peabody (Little); Stockbridge, Mt. Greylock (Calvert); Bedford (Swett); East Orleans (Parker); Tuckernuck (Allen);
Southbridge (Bromley); strike out Bradley (B. S. N. H.); Nahani, Cambridge (M. C. Z.); Cotuit (Peirson).
Rhode Island: Tiverton, Washington (Johnson); Matoonac (Simonds); Bristol (Parker).

Ischnura ramburii

July 20

Massachusetts: Woods Hole (Osburn).

Ischnura posita

May 25 to September 6

New Hampshire: Exeter (Howe).
Massachusetts: Brookline, Dedham, Auburndale, Duxbury (Johnson); Framingham (Prest); Woods Hole (Calvert); Natick (M. C. Z.); Winchendon (Morse).
Rhode Island: Bristol (Parker).
Connecticut: Middletown (Johnson); New Canaan (Atwater).

Anomalagrion hastatum

June 22 to August 20

Massachusetts: Wellesley (Morse); Woods Hole (Osburn); Dorchester (M. C. Z.);

Concord (Howe); Rhode Island: Tiverton (Johnson).
Connecticut: Sachem Head (Calvert).

Recapitulation of New England Zygoptera

<table>
<thead>
<tr>
<th></th>
<th>Argia</th>
<th>Identica</th>
<th>Lestes</th>
<th>Aeshna</th>
<th>Enallagma</th>
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40
Memoir of the Thoreau Museum of Natural History: II
Manual of Odonata of New England

By R. HEBER HOWE, Jr.

March 25, 1919.

Part IV

Note: The drawings are made in many cases from the illustrations in articles
K. H. Williamson, and are used here with permission. No distributional maps will
be given in the future parts as new stations are so frequently found that maps become
obsolete almost as soon as published.

Boyeria

BASILAR SPACE

Basilar space with cross veins.

Basiaeschna

BASILAR SPACE

Basilar space without cross veins.
(See Basiaeschna.)

Genus: Boyeria MacLach.

vinosa... + + + +

A. Body markings with yellowish-brown predominating, wings
smoky.

76. Boyeria vinosa (Say).

Jour. acad. nat. sci. Phila. 8: 13. 1839. Type locality: "Massa-
chusetts."

Uncommon,—brooks, rivers, lakes,—preferring shady places
or semireploscular.

C

June 19 to September 13.

Maine: No. East Carry, Greenfield, Orono, Wissatquoik river
(Harvey); Mt. Desert (Bullock); Manchester (Wadsworth);
New Hampshire: Meredith Neck (Howe).
Vermont: Wolcott, Grand Isle (Morse); Brandon (Dutton).
Massachusetts: Concord (Howe); Cambridge (Hagen); Truro,
Sherborn (Morse); Chester (Johnson); Fall River (Holt); Wareham
(Bangs); Southbridge (Bromley).
Connecticut: Litchfield (Woodruff).

B. Body markings with blue predominating, wings clear.

77. **Boyeria graffiana** Williamson.
One record,— July 5, 1899,— lakes. C
Massachusetts: Cummington (Knab in U. S. N. M.)

**Genus:** Basiaeschna Selys.

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78. **Basiaeschna janata** (Say).
Journ. acad. nat. sci. Phila. 8: 13. 1839. Type locality: “Mas-
chusetts.”

Common,— brooks, rivers, ponds, and lakes. C
May 9 to July 18.

Maine: So. Lagrange, Orono, Bradley, Westbrook, Greenfield
(Harvey); Manchester (Wadsworth).

New Hampshire: White Mts. (Hagen); Peterboro (Cabot); Mer-
dith Neck, Echo Lake, Franconia (Howe); Intervale, Squam Lake
(Allen).

Vermont: Brandon (Dutton); Wolcott (Morse).
Massachusetts: Roxbury, Milton, Carver Woods (Hagen); Wor-
cester (Hitchings); Fall River (Holt); Concord (Howe); Wareham
(Bangs); Newtonville (Morse); Newton (Thaxter); Waltham (Bul-
lard); Southbridge (Bromley).

Connecticut: Litchfield (Woodruff); New London (Osburn).

**Genus:** Gomphaeschna Selys.

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42
79. Gomphaeschna furcillata (Say) *Hanlequin Darnner*


Rare,—ponds, sphagnum bogs. **Red Maple Swamps**

May 30 to July.

- Maine: Manchester (Wadsworth).
- New Hampshire: Jaffrey (Johnson).
- Vermont: Newport (Slosson).
- Massachusetts: Manchester, Brookline, Milton, Sutton (Hagen); No. Reading (Johnson); Concord (Howe); Sherborn (Babcock); Princeton, Wollaston (Sprague).

**Genus: Anax Leach.**

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A. Hind wings *more than* 14 mm. wide. Frons above *blue, yellow, and black.*

80. *Anax juniqius* (Drury). *Common Green Darnner*


Common,—ponds, migratory A along coast.*

May 18 to October 13.

- Maine: Orono (Harvey); Manchester (Wadsworth).
- New Hampshire: Manchester (Burnham); Amherst, Petersboro (Cabot); Meredith, Franconia (Howe).
- Vermont: Brandon (Dutton).
- Massachusetts: Boston, Cambridge, Springfield (Cabot); Magnolia, Brookline, Milton (Hagen); Woods Hole, Cuttyhunk Island (Calvert); Nantucket, Concord, Scituate (Howe); Fall River (Holt); Blue Hills (Clench); No. Saugus (Webster); Provincetown (Benedict); Wellesley (Morse); Manomet (Cushman); Framingham (Frost); Newtonville (Thaxter); Wareham (Bangs); Minot (M. C. Z.); Southbridge (Bromley).
- Rhode Island: Middletown, Bristol (Howe); Block Island (Calvert).

Connecticut: New London (Calvert); Litchfield (Woodruff); Fairfield Co. (Benedict).

B. Hind wings less than 14 mm. wide. Frons above green.

81. Anax longipes Hagen.

Syn. Neur. No. Amer. 118. 1801. Type locality: "Georgia."

Rare,—ponds, migratory along coast. August 25.

Massachusetts: Woods Hole (Hagen); Wareham (Banga).

Group 1

Aeshna

Three to seven rows of cells between subnodal and supplementary veins.

One or two rows of cells between the subnodal and supplementary veins. (See Group 2.)

Genus: Aeshna Fabricius.

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<tr>
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A. Rear of head in part yellowish.

82. Aeshna umbrosa Walk.

Can. Ent. 40: 380, 390. 1908. Type locality: "De Grassi Point, Ont."
Common, — streams, ponds, lakes, upland meadows. C

May 6 to October 31.

Maine: Manchester, Augusta (Wadsworth); Norway (Smith); Gorham (?); Millinocket, Bradley, Greenfield, Six Ponds (Harvey); Russell Stream (Corry).

New Hampshire: Franconia (Slos- son, Howe); White Mts. (Sprague); Hermit lake, Mt. Washington (Scudder); Center Harbor (?); Lake Sunapee, Meredith Neck, Peterboro, Lonesome Lake (Howe).

Vermont: Brandon (Dutton).

Massachusetts: Boston, Cambridge (?); Amherst (Needham); Willbraham (Martin); Auburndale, Gay Head (?); Mt. Greylock, Stockbridge (Calvert); Sherborn (Frost); Rutland (Johnson); Fall River (Easton); Nonquitt (Baldwin); Belmont, Concord (Howe); Wareham (Banga); Waltham (Bullard); Southbridge (Bromley).

Rhode Island: Bristol (Parker, Clark).

Connecticut: Litchfield (Woodruff).

B. Rear of head entirely black.

a. Black line across face.

I. Thoracic bands interrupted resulting in spots.

83. *Aeshna interrupta* Walk.

Can. Ent. 40: 381, 387. 1908. Type locality: "Nipigon, Ont."

Rare,— ponds, lakes. U U

July 17 to September 15.

Maine: Portland (Jones).

Vermont (Frost).

Massachusetts: (Uhler); Mt. Greylock (Calvert); Heath (Warden).

II. Thoracic bands not interrupted.

1. First thoracic band bent forward at upper end into an anterior spur.

84. *Aeshna clepsydra* Say.

Journ. acad. nat. sci. Phila. 8: 12. 1839. Type locality: "Massachusetts."
Common,—ponds, lakes, rivers. July 6 to October 9.

Maine: Manchester (Wadsworth); Mt. Katahdin, So. Lagrange, Greenfield, Bradley, Orono (Harvey).

New Hampshire: Moultonboro (Howe); Hermit Lake (Scudder); Fabian's (Calvert); Manchester (Burnham); No. Conway (Morse).

Massachusetts: Sherborn (Babcock); Brookline (Shurtleff); Provincetown (Benedict); Wilbraham (Hagen); Boston (Uhler); Salem (True); Natick (Sanborn); Concord, Nantucket (Howe); Sherborn (Morse); Wareham (Bangs).

Connecticut: Litchfield (Woodruff); New London (Osburn).

2. *First thoracic band not bent forward at upper end into an anterior spur.*  
   *First thoracic band straight with borders nearly parallel, without posterior spur at upper end.*

85. *Aeshna juncea* (Linn.).

Sys. Nat. 1: 544. 1758. Type locality: "Europa."

Rare,—

August.

New Hampshire: White Mts. (Hagen, Scudder); Franconia (Slosson).

**First thoracic band straight with borders not parallel, front border excavated, upper end with a detached posterior spur.**

86. *Aeshna eremita* Scudder.


Rare,—ponds, lakes.

August 1 to October 1.

Maine: Six Ponds, Piscataquis Co. (Harvey).

New Hampshire: Franconia (Slosson); Hermit Lake, Mt. Washington (Scudder); Profile Lake, Lonesome Lake, Moultonboro (Howe); No. Conway (Holt); Tuckerman's Ravine (Scudder).
Vermont: Brandon (Dutton).
Massachusetts: Fall River (Holt); Concord (Howe).

*** First thoracic band curved (sigmoid), slender, with detached spots at both ends.

87. **Aeshna caerulea septentrionalis** Burm.

Handb. Ent. 2: 839. 1839. Type locality: "Labrador." 
Rare,—

New Hampshire: White Mts. (Scudder, Hagen).

b. No black line across face.

I. First thoracic band without posterior spur at upper end.

88. **Aeshna mutata** Hagen.


Rare,—

Massachusetts: Wilbraham (Needham).

II. First thoracic band with posterior spur at upper end.

1. First thoracic band with wide, blunt, posterior spur at upper end.

89. **Aeshna verticalis** Hagen.


Common,—ponds, lakes, upland meadows,—migratory coast.

August 2 to October 2.

Maine: Manchester (Wadsworth); West Beach (Hagen); Orono, Bradley (Harvey); Manchester (Wadsworth); Islesboro (Dixon); Wells (Deane).

New Hampshire: Meredith Neck (Howe); Manchester (Burnham).

Vermont: Brandon (Dutton).
Massachusetts: Beverly, Cambridge, Saugus, Sherborn (?); Nahant (Moring); Salem (Lane); Walpole, Wollaston (Sprague); Westboro (Needham); Kingston, Concord (Howe); Worcester (Hitchings); Provincetown (Morse); Nonquitt (Baldwin); Magnolia (M. C. Z.); Southbridge (Bromley).

Rhode Island: Middletown (Howe).

Connecticut: Litchfield (Woodruff); New London (Osburn)

2. First thoracic band with slender, acute posterior spur at upper end.
   * First thoracic band straight (stout), with borders nearly parallel.

90. Aeshna tuberculifera Walk.

Can. Ent. 40: 385, 387. 1908. Type locality: "Isleboro, Me."

Uncommon,—ponds. $\infty C \infty$

August 5 to September 22.

Maine: Islesboro (Dixon); Manchester (Wadsworth).

New Hampshire: North Conway (Holt).

Massachusetts: Walpole (Sprague); Essex Co. (Hagen); Provincetown (Benedict, Zabriskie); Hampden, Westboro (Needham); Concord (Howe); Dedham, Rutland (Johnson).

Rhode Island: Bristol (Howe).

Connecticut: Litchfield (Woodruff).

** First thoracic band with borders not parallel.
† First thoracic band with front border only excavated.

91. Aeshna canadensis Walk.

Can. Ent. 40: 382. 1908. Type locality: "De Grassi Point, Ont."

Common,—rivers, ponds, lakes, and meadowlands. $\infty$

July 20 to September 26.

Maine: Bradley, Orono, Six Ponds, Piscataqua Co. (Harvey); Manchester (Wadsworth); Norway (Smith); West Beach (M. C. Z.).

New Hampshire: White Mts. (Shurtleff, Calvert); Franconia (Calvert); Fabyan's (?); Moultonboro, Lyman, Meredith Neck, Jackson (Howe); Fitzwilliam
(Barnes); Hermit Lake, Mt. Washington, Carter's Notch, Intervale, No. Conway (Allen).*


Vermont: Newport (Slosson); Brandon (Dutton).

Massachusetts: (Needham); Concord (Howe); Dedham, Boston (Johnson); Mt. Greylock (Calvert); Wachusett (Bangs); Beverly, Nahant (M. C. Z.).

Connecticut: Litchfield (Woodruff).

†† First thoracic band with both borders excavated.

92. *Aeshna constricta* Say.

Journ. acad. nat. sci. Phila. 8: 11. 1839. Type locality: "Indiana."

Common,—ponds, rivers. C

June 19 to October.

Maine: No. East Carry, Mt. Kineo, Mt. Katahdin, Orono, Fryeburg (Harvey); Manchester (Wadsworth).

New Hampshire: Hermit Lake, Fabian's (Calvert); Manchester (Burnham); Intervale, Carter's Notch (Allen).*

Vermont: Winooski (Davis); Brandon (Dutton).

Massachusetts: Boston (Cabot); Worcester (Hitchings); Auburndale (Johnson); Concord (Howe); Fall River (Holt); Hampden (Needham); Wellesley (Morse); Southbridge (Bromley).

Connecticut: (Hagen); Litchfield (Woodruff); New London (Osburn).

* The mountain records quite likely refer to *A. umbrosa*, and were made before the species was described.

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**Group 2.**

**Nasiaeschna**

**Subnodal**

**Supplementary vein**

With one row of cells between subnodal and supplementary veins.

---

**Epiaeschna**

**Subnodal fork**

**Supplementary vein**

With two rows of cells between subnodal and supplementary veins. (See Epiaeschna).

*Genus: Nasiaeschna Selys.*

93. *Nasiaeschna pentacantha* (Ramb.).

*Ins. Neur.* 208. 1842. Type locality: "Neuvelle-Orléans."

Rare,—streams and lakes,—one record.  

July 9, 1916.

New Hampshire: Moultonboro (Howe).

**Genus:** Epiaeschna Hagan.


*Epiaeschna heros* . . . . + + + + +

94. *Epiaeschna heros* (Fabr.). Swamp	Denver

*Ent. syst. suppl.* 285. 1798. Type locality: "America boreali."

Common,—ponds, lakes, uplands,—largely maritime.

May 25 to September.

Maine: Bradley (Harvey); Manchester (Wadsworth); Portland (Cabot); York Beach (Burnham).

New Hampshire: Manchester, Hampton (Burnham).

Massachusetts: Manchester, Nahant, Milton (Hagen); Worcester (Hitchings); Marthas Vineyard (Moore); Fall River (Holt); Brookline, Concord, Hull (Howe); Boston (Johnson); Melrose Highlands (Clemons); Cambridge (Henshaw); Essex Co., Andover (Hagen); Waltham (Lathrop); Wollaston (Sprague); Southbridge (Bromley).

Rhode Island: Providence (Davis); Buttonwoods (Johnson).

Connecticut: Litchfield? (Woodruff); New London (Osburn).

**Family:** Libellulidae Rambur.

*Libellulidae*

Corduliinae  
Libellulinae

large tubercle in Macromiini  
small tubercle in Corduliini

Hind margin of eye bulged to form tubercle.  
(See Libellulinae)

Norm: The above character can best be seen after removal of head.

50
Tribe: Macromiini Needham.

Genus: Didymops Rambur.

Didymops transversa . . . + + + + +

95. Didymops transversa (Say). Stream Cruiser

Journ. acad. nat. sci. Phila. 8: 19. 1839. Type locality: "Massachusetts."

Common,—brooks, rivers, ponds, lakes. u-c

May 13 to August.

Maine: Foxcroft, So. Lagrange, Rangeley, Orono (Harvey, Cabot), Manchester (Wadsworth); Capens (Johnson).

New Hampshire: Manchester (Burnham); Exeter, Meredith Neck (Howe); Squam Lake, Jaffrey (Allen); Peterboro (Cabot).

Vermont: (Hagen).

Massachusetts: Salem, Woburn, Worcester (Cabot); Cambridge, Stow, Milton (Hagen); West Bridgewater (Tower); Concord (Howe); So. Natick, Sherborn (Morse); Boston, Rutland, Mt. Tom (Johnson); Winchendon (Russell); Wollaston (Sprague); Wareham (Bangs); Groton (Low); Waverley (Hagen); Nahant (M. C. Z.); Southbridge (Bromley).

Connecticut: Litchfield (Woodruff); New London (Osburn).

51
Genus: Macromia Rambur.

Macromia illinoiensis . . . + + + +

96. Macromia illinoiensis Walsh.


Uncommon,—larger streams, lakes, roads.  R L

June 18 to August 16.

Maine: Orono, Bradley (Harvey); Manchester (Wadsworth).

New Hampshire: Manchester (Burnham); Meredith Neck, Moultonboro (Howe); Intervale, Squam Lake (Allen).

Massachusetts: Sherborn (Babcock); Worcester (Hitchings); Woods Hole (Hagen); Westport (Howe); Wareham (Bangs).

Rhode Island: Tiverton (Howe).

Tribe: Corduliini Selys.

Group 1

Group 2

Media 4 and Cubitus 1 divergent at the margin of the forewing.

Neurocordulia

Williamsonia

Triangle of forewing three celled.  Triangle of forewing open.  (See Williamsonia).

Genus: Neurocordulia Selys.

Neurocordulia obsoleta . . + + +

yamaskanensis : +

52
97. Neurocordulia obsoleta (Say).

Journ. acad. nat. sci. Phila. 8: 28. 1839. Type locality: "Indiana and Massachusetts."

Rare,—streams, lakes, crepuscular. R?

June 10 to August 30.

Maine: Manchester (Wadsworth).
New Hampshire: Manchester (Burnham); Meredith Neck (Howe).
Massachusetts: Milton (Hagen); Southbridge (Bromley); No. Reading (Johnson).

98. Neurocordulia yamaskanensis (Prov.).

Nat. canad. 7: 248. 1875. Type locality: "St. Hyacinthe," Quebec.

Very rare,—lakes, wholly crepuscular. R?

June.

Maine: Orono (Harvey).

Genus: Williamsonia Davis.


Williamsonia lintneri +

All abdominal segments ringed with yellow.

99. Williamsonia lintneri (Hagen).

Bull. acad. Belg. ser. 2, 45: 187. 1878. Type locality: "Centre, N. Y."

Rare,—ponds. RL

April 30 to June 1.

Massachusetts: Concord (Peirson, Howe); Dedham (Johnson); Blue Hills (Clench); Sherborn (Smith).
Genus: Dorocordulia Needham.

Dorocordulia lepida . . . + + + +
libera . . . + + + +

100. Dorocordulia lepida (Hagen).
Bull. acad. Belg. 31: 264. 1871. Type locality: "Massachusetts, New York, Albany, Maryland, New Jersey."
Uncommon, ponds.  
May 22 to August 31.
Maine: Greenfield, Orono, Bradley (Harvey); Manchester (Wadsworth); Portland (Hagen).

New Hampshire: Manchester (Burnham); White Mts. (Morrison).
Massachusetts: Cambridge, Stow, Natick, Brookline (Hagen); Sherborn (Babcock); West Bridgewater (Tower); Woods Hole (Keli- cott); Concord (Howe); Blue Hills (Johnson); Wachusett (Bangs); Waltham (Bullard); Magnolia, Brookline (Hagen); Newton (Hubbard).
Rhode Island: Wickford (Johnson).
Connecticut: Litchfield (Woodruff); Hammond's pond (Hagen).*
* This locality is probably Brookline, Mass., where there is a well known pond by this name.

101. Dorocordulia libera (Selys).
Bull. acad. Belg. 31: 236. 1871. Type locality: "Canada."
Uncommon, ponds, lakes.  
June 8 to August.
Maine: Greenfield, Orono (Harvey); Manchester (Wadsworth).
New Hampshire: Franconia (Slosson); Moultonboro (Howe); Jaffrey (Johnson); Peterboro (Cabot).
Massachusetts: Sutherland (Dwyer); Concord (Howe); West Groton (Lahee).
Connecticut: Litchfield (Woodruff); Union (Bromley).

Group 3

Epicordulia

Wings with brown markings at base, nodus, and stigma.
Wings of *E. princeps*.

Genus: Epicordulia Selys.

Epicordulia princeps . . . + + + + +

102. *Epicordulia princeps* (Hagen).

Syn. Neur. No. Amer. 134. 1861. Type locality: "Pecos River, Western Texas; Georgia; Maryland."

Common,— ponds, lakes, uplands. C

May 25 to August 27.

Maine: Manchester (Wadsworth).
New Hampshire: Meredith Neck, Moultonboro, Concord (Howe).
Massachusetts: Cambridge (Cabot); Natick, Sherborn (Babcock); Worcester (Hitchings); Concord (Howe); Fall River (Holt); Cataumet (Winsor); Wellesley (Morse); Webster (Bromley); Wareham (Bangs).
Rhode Island: Tiverton (Howe).
Connecticut: New Haven (Hagen); Litchfield (Woodruff); New London (Osburn).
Group 4

Helocordulia

Stigma diamond shaped.

Stigma almost rectangular.
(See Group 5).

Note: The form of the stigma is sometimes misleading, but an error made here is quickly apparent in following out the characters for the following genera. A cross vein in one of the forewings is sometimes absent, very rarely in both wings. The brown spot at the base of all wings in such unusual cases will serve to distinguish the species from the two foregoing species of Dorocordulia.

Genus: Helocordulia Needham.

Helocordulia uhleri . . . + + + +

103. Helocordulia uhleri (Selys).

Bull. acad. Belg. ser. 2. 31: 274. 1871. Type locality: "Randal, Maine...New Jersey."

Uncommon,—ponds, rivers, upland woodlands. C L

May 15 to July 12.

Maine: Orono (Harvey); Manchester (Wadsworth); Echo Lake, Mt. Desert Johnson.

New Hampshire: Franconia (Howe).

Massachusetts: Stow (Hagen); West Bridgewater (Tower); Concord (Howe); Fall River (Holt); Amherst (B. S. N. H.).

Connecticut: Litchfield (Woodruff).

Group 5

Somatochiora

Two cubito-anal cross veins in hind wings.

One cubito-anal cross vein in hind wings.
(See Group 6).
Genus: Somatochiora Selys.


Somatochiora albiceincta +
cingulata +
elongata + +
forcipata + +
franklini +
kennedyi + + +
linearis +
minor + +
tenebrosa + + +
walshii + +
williamsoni +

A. All segments of abdomen ringed with white.
1. Abdomen under 32-34 mm. long.

104. Somatochiora albiceincta
(Burm.)

Handb. ent. 2: 847. 1839. Type
locality: "Labrador."

Uncommon,— ponds, lakes.

July 4 to August 11.

New Hampshire: Hermit Lake, Mt.
Washington (Schudder); Waterville
(Hagen); Carter Notch (Allen); Lones-
some Lake, Profile Lake (Howe).

2. Abdomen over 40-41 mm.
long.

105. Somatochiora cingulata
(Selys).

Bull. acad. belg. 31: 302. 1871. Type
locality: "Terre-Neuve."

Rare,— lakes.

New Hampshire: White Mts. (Hagen);
Carter Notch (Allen).

B. Few or no segments of abdomen
ringed with white.

1. Abdomen over 40 mm. long.
106. **Somatochloropsis elongata**

(Scudder).


Uncommon,—lakes. ?

July 8 to August 12.

Maine: at sea off Scoodie point (Harvey); Bradley (Harvey).

New Hampshire: Fabyan's, Hermit Lake, Mt. Washington (Scudder, Calvert); Franconia (Slosson); Plymouth (Hagen); Centre Harbor, Jackson (Howe); Bretton Woods (Woodruff).

107. **Somatochloropsis linearis**

(Hagen).

Syn. Neur. No. Amer. 137. 1861. Type locality: "St. Louis."

Very rare,—even doubtful. R

July 27.

Maine: Manchester (Wadsworth).

108. **Somatochloropsis williamsoni**

Walker.

Can. Ent. 39: 69. 1907. Type locality: "Toronto," etc.

Very rare,—lakes. U-R

July 17.

New Hampshire: Meredith Neck (Howe).

2. Abdomen under 40 mm. long.
109. Somatochloria forcipata (Scudder).


Uncommon,—lakes, ponds.

May to August.

Maine: Orono, Bradley (Harvey); Manchester* (Wadsworth).

New Hampshire: Mt. Washington (Slosson); The Glen, White Mts. (Scudder); Profile Lake (Howe).

*A doubtful record.

110. Somatochloria kennedyi Walker.

Can. Ent. 50: 371. 1918. Type locality: "Orono, Me."

Uncommon,—ponds, lakes, uplands.

June 3 to July 16.

Maine: Orono (Harvey); Manchester (Wadsworth); Capens (Johnson).

New Hampshire: Boscaween (Howe).

Massachusetts: Concord (Howe).

111. Somatochloria minor (Calv.).

Ent. News 9: 87. 1898. Type locality: "Bradley, Maine; Franconia, N. H."

Rare.

June 22 to July 8.

Maine: Bradley (Harvey).

New Hampshire: Franconia (Slosson).

Tip of superior appendages usually less upcurved
Rhode Island: Bristol? (Howe).
Connecticut: Litchfield (Woodruff).

112. Somatochlora walshii (Scudder).


Rare,— rivers. R

June to September 15.

Maine: Orono, Bradley (Harvey);
Manchester (Wadsworth).
Massachusetts: Concord (Howe).

3. Abdomen variable 33-47 mm. long.

113. Somatochlora franklini (Selys).*

Type locality: "Labrador."

Very rare,— R

June 18.

Maine: Chemo stream, Orono (Harvey).

* = Somatochlora septentrionalis (Hagen).

114. Somatochlora tenebrosa (Say).

Bull. acad. Belg. ser. 2. 31: 289. 1871.
Type locality: "Indiana."

Uncommon,— brooks. C

August 1 to September 8.

New Hampshire: Moat Mt., North Conway (Calvert); Intervale (Allen).
Massachusetts: Concord (Howe); Southbridge (Bromley); Wareham (Bangs).
Genus: Cordulia Leach.

Cordulia shurtleffi . . . . + + + + +

115. Cordulia shurtleffi Scudder.


Common,—ponds, lakes. C L.

May 30 to August 11.

Maine: Orono, Bradley (Harvey).

New Hampshire: Hermit Lake, Mt. Washington (Scudder, Calvert); Crawford Notch (Slosson); Moultonboro, Echo Lake (Howe); Intervale (Allen); Peterboro (Cabot).

Massachusetts: Concord, Wayland (Howe); Mt. Greylock (Calvert); Framingham (Frost).

Connecticut: Litchfield (Woodruff).
**Genus:** Tetragoneuria Hagen.

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<tbody>
<tr>
<td>Tetragoneuria canis</td>
<td>+</td>
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</tr>
<tr>
<td>costalis</td>
<td>+?</td>
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<tr>
<td>cynosura</td>
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<tr>
<td>cynosura simulans</td>
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<tr>
<td>spinigera</td>
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</table>

A. Hind wings 24 to 31 mm. long. Rarely with brown T-spot on top of frons clearly developed. Male abdominal appendages from above widely divergent. Female abdominal appendages not exceeding 1.7 mm. long.


Common, — brooks, ponds, lakes, uplands.

May 3 to July 9.

Maine: Rangeley, Bradley, Orono (Harvey); Manchester (Wadsworth); Andover (M. C. Z.).

New Hampshire: Meredith Neck (Howe).

Massachusetts: Everett, Wakefield, Boston (Cabot); Stow, Brookline, Canton (Hagen); Sherborn (Babcock); Worcester (Hitchings); Rutland, Framingham, Auburndale (Johnson); Concord (Howe); Fall River (Holt) Woods Hole (Osburn); No. Saugus (Titus); Green Lodge, So. Natick, Wellesley (Morse); Wollaston (Sprague); Wareham (Bangs); Waverley (Hagen); Newton (Thaxter); Southbridge (Bromley).

Connecticut: Litchfield (Woodruff); New Canaan (Atwater); Danbury (Johnson); New London (Osburn).

b. Brown of hind wings reaching to or including triangle.


_Bull. Wis. nat. hist. soc._ 9: 196. 1911. Type locality: “Bluffton Ind.”
Uncommon,—ponds, lakes, brooks, woodlands.

April to July 20.

Maine: Bradley (Harvey); Mt. Desert (Bullock); Manchester (Wadsworth); Echo Lake, Mt. Desert, Calais (Johnston); Andover (M. C. Z.).

New Hampshire: Manchester (Burnham); Meredith Neck, Moultonboro (Howe); Fitzwilliam (Barnes); Jaffrey (Johnson); Squam Lake (Allen); Peterboro (Cabot).

Massachusetts: Worcester (Hitchings); Martha's Vineyard (Moore); Concord (Howe); Blue Hills (Clench); Sherborn (Morse); Southbridge (Bromley); Waltham (Bullard); Waremham (Bangs); Framingham (Johnson); Brookline, Waverley (Hagen).

Connecticut: Litchfield (Woodruff).

Notes:—*T. c. semiqua* Burm. of Dr. Calvert’s list is a southern species whose range is restricted to the south. (See Dr. Muttkowski’s paper, Bull. Wis. Nat. Hist. Soc. 9:91-134. 1911 and 13:49-61. 1915).

B. Hind wings 29 to 33 mm. long. Brown T-spot on top of frons always clearly present. Male abdominal appendages from above but slightly divergent.

a. Male superior appendages without ventral spine. Female abdominal appendages over 1.7 mm., but under 2 mm. long.


Bull. Wis. nat. hist. soc. 9: 125. 1911. Type locality: “Solon Springs, Douglas Co., Wis.”

Rare,—ponds, woodlands.

May 18 to June 29.

Maine: (Harvey).

New Hampshire: Meredith Neck (Howe).

Massachusetts: Concord (Howe); Boston, Framingham (Johnson).

b. Male superior abdominal appendages with ventral spine. Female abdominal appendages over 3 mm. long.
119. **Tetragonuria spinigera** (Selys).

Bull. acad. Belg. ser. 2. 31: 269. 1871. Type locality: "Canada."

Uncommon,— ponds, lakes, woodlands.

May 19 to July 14.

Maine: Bradley (Harvey); Manchester (Wadsworth).

New Hampshire: Manchester (Burnham); Peterboro (Cabot); Meredith Neck (Howe); Squam Lake (Allen).

Massachusetts: Winchendon (Morse); Concord (Howe); Groton (Low).

Connecticut: Litchfield (Woodruff).

C. Hind wings 30 to 32 mm. long. Brown T-spot on top of frons never present.

b. Male superior abdominal appendages with tubercle above. Female abdominal appendages only 3 mm. long.

120. **Tetragonuria canis** MacLach.

Ent. Mo. Mag. 23: 104. 1886. Type locality: "Washington Territory."

Very rare,— ponds.

June 18.

New Hampshire: Jaffrey (Johnson); Franconia (Slosson).

1217. **Tetragonuria costalis** Selys.

Bull. acad. Belg. ser. 2. 31: 273. 1871. Type locality: "Georgie americaine."

One record.

June 9, 1898.

Maine: Manchester (Wadsworth in U. S. N. M.).

**Note:** *T. costalis* is of doubtful status as a species, and the record of *T. spinosa* from Franconia, N. H., of Dr. Calvert and most authors should be referred to *T. canis* (see Dr. Muttkowski's paper). *T. spinosa* is a southern species and very distinct,
Additional Stations

Part I

Agrion amatum
June 8
Agrion aequabile
Vermont: Brandon, Leicester (Dutton).
Agrion maculatum
Vermont: Bristol (Dutton).
Massachusetts: Wareham (Bangs); Groton (Low).
Lestes congener
Massachusetts: Weston (M. C. Z.).
Rhode Island: Bristol (Howe).
Lestes eurinus
Massachusetts: Wareham (Bangs).
Lestes unguiculatus
September 6
Massachusetts: Wareham (Bangs).
Vermont: So. Hero, Grand Isle (Morse).
Lestes uncatus
Vermont: So. Hero (Morse).

Part II

Lestes disjunctus
Vermont: Woodstock (Morse).
Massachusetts: Wellesley (Morse).
Lestes rectangularis
Massachusetts: Wareham (Bangs).
Lestes vigilax
Massachusetts: Lynnfield (Little).
Lestes inequalis
September 19
Massachusetts: Heath (Warden); Wareham (Bangs).
Argia moesta
Massachusetts: Wellesley (Morse).
Argia violacea
Massachusetts: Sherborn, Wellesley (Morse); West Peabody (Little).
Enallagma durum
June
Massachusetts: Wareham (Bangs).
Enallagma calverti
May 12
Enallagma ebrium
Vermont: So. Hero, Woodstock (Morse); Bristol (Dutton).
Massachusetts: Wakefield (Atwater); Lynnfield (Little).
Enallagma travium
July 3
Massachusetts: Wareham (Bangs).
Enallagma aspersus
September 6
Rhode Island: Bristol (Howe).
Enallagma civile
September 22
Lynnfield (Little).
Enallagma pictum
July 5
Massachusetts: Wareham (Bangs).
Enallagma geminatum
October 2
Enallagma signatum
Massachusetts: Wareham (Bangs).
Enallagma pollutum
Massachusetts: Wakefield (Atwater).
Nebalennis Irene
Vermont: So. Hero, Woodstock (Morse).
Massachusetts: Wakefield (Atwater).

Amphiorugion saucium
July 29.
Vermont: Bristol (Dutton).
Massachusetts: Wareham (Bangs).

Chromagrion conditum
Vermont: Bristol (Dutton).

Ischnura verticalis
Vermont: So. Hero, Woodstock (Morse); Bristol (Dutton).
Massachusetts: Wakefield (Atwater); Wareham (Bangs).

Ischnura posita
September 18
Massachusetts: Wakefield (Atwater).

Anomalagnion hastatum
Massachusetts: Wareham (Bangs).

PART III

Cordulegaster diastatops
Massachusetts: Wareham (Bangs).

Ophiogomphus rupestris
New Hampshire; Franconia (Slosson).

Ophiogomphus aspersus
Vermont: Brandon (Dutton).

Gomphus albistylus
Massachusetts: Wellesley (Morse).

Gomphus abbreviatus
New Hampshire; Franconia (Slosson).

Gomphus brevis
Vermont: Brandon (Dutton).

Gomphus oxilis
Vermont: Bristol (Dutton).
Massachusetts: Mt. Wachusett (Sprague).

Gomphus furcifer
Massachusetts: Bedford (Hemshaw).

Gomphus spiniceps
June

Hagenius brevistylus
Massachusetts: Wareham (Bangs).

Recapitulation of New England Aeshnidae and Libellulidae
(Cordulinae)

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66
Subfamily: Libellulinae Selys.

Group 1

Triangle of fore-wings typical,—
three sided.

Triangle of fore-wings atypical,—
four sided (See Nanothemis).

Stigma with end veins parallel.

Stigma with end veins not parallel. (See Group 8-Tramea and Pantala).

Sectors of the areculus in fore-wings contiguous, but not completely fused beyond the areculus.

Sectors of areculus in fore-wings fused for short distance (2-3 mm.) beyond the areculus (See Group 8).
Perithemis

Subtriangle (internal) of fore-wings open (See Perithemis).

Subtriangle (internal) of fore-wing with three to eleven cells.

Libellula

Male with no ventral hooks on segment 1 of abdomen.

Plathemis

Male with pair of ventral hooks on segment 1 of abdomen.

Female with tibia of third leg longer than its femur.

Female with tibia of third leg only as long as its femur (See Plathemis).

Genus: Libellula Linne

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A. Wings unspotted, suffused with gold, stigma orange.

08
122. **Libellula auripennis** Burm.

Handb. ent. 2: 861. 1839. Type locality: “Savannah”.

Common,—ponds, lakes,—maritime. 

July 4 to August 28.

Massachusetts: Provincetown (Sanborn); Woods Hole, Cuttyhunk (Calvert); Martha’s Vineyard (Moore); Nonamesset Island (Osburn); South Orleans, Nantucket (Howe); West Chop (Morse); Wareham (Bangs); Boston (Morrison).

Rhode Island: Watch Hill, Block Island (Calvert); Middletown (Howe).

Connecticut: Niantic (Morse); Fairfield Co., (Benedict); New London (Osburn).

B. **Wings clear, stigma unicolored, black.**

(female wings slightly clouded at tips);

123. **Libellula incesta** Hagen.

Syn. neur. 155. 1861. Type locality: “Carolina.”

Common,—ponds, lakes. 

June 6 to September 17.

Maine: Manchester (Wadsworth).

New Hampshire: Manchester (Burnham); Meredith (Calvert).

Massachusetts: Saugus, Milton (Hagen); Sherborn (Babcock); Worcester (Hitchings); West Bridgewater (Tower); Wellesley, Dover, Medfield (Morse); Concord, South Orleans (Howe); Holland (Bromley); Wareham (Bangs); Sharon (Atwater); Framingham (Warden); Bedford (Swett); Brookline (Minot); Southbridge, Webster (Bromley); Woods Hole (Osburn).

Rhode Island: Washington (Johnson).

Connecticut: Danbury (Johnson).

C. **Wings with small dark streak at base, and wing tip brownish.**

a. stigma unicolored,—black.
124. **Libellula vibrans** Fabr.  

Great Blue Skimmer

*Syst. ent. 424. 1775. Type locality: "America."

Rare,—

July

Massachusetts:  
Hole (Kellicott, Benedict, Osburn); Fall River (Holt).

Connecticut: Sachem Head (Calvert).

b. stigma, bicolor—black and yellow.

1. Proximal *three fourths* of stigma yellow.

**Libellula flavida** Ramb.

*Near. 55. 1842. Type locality: not given.*

Rare,—ponds.

June 24 to August 7.

Massachusetts: Concord (Howe); Wareham (Banks).

Note: The determination of the specimen from Concord recorded above was made by Mr. Williamson. From the series of specimens from Wareham, Mass., collected by Mr. O. Banks and now in the Museum of Comparative Zoology in Cambridge, Mass., Mr. Banks and I were able to select two males and three females larger than the others, with *four* cells in the interior triangle (should be five) of the fore wings, and with *three fourths* of the stigma yellow. These specimens represent *flavida* of Hunbur as distinguished by Dr. P. P. Calvert(139,355),(598,474). The remaining *smaller* specimens, three males and two females, have only the typical three cells in the internal triangle, and *one half* the stigma yellow. It seems evident that *flavida* represents simply a variation in *cyanea*, a variation that occurs in individuals, and one that is duplicated in extent in many other species not recognized by name.

2. Proximal *half* of stigma yellow.

125. **Libellula cyanea** Fabr.  

White-spangled Skimmer

*Syst. ent. 424. 1775. Type locality: "America."

Uncommon,—ponds.

May 24 to September 4.

New Hampshire: Manchester (Burnham).
Massachusetts: Beverley, Woburn, Cambridge, Natick, Milton (Hagen); Worcester (Hitchings); West Bridgewater (Tower); Woods Hole (Kellicott); Fall River (Holt); Wellesley, Winchendon (Morse); Concord (Howe); Southbridge (Bromley); Sharon (Atwater); Boston (Parshley); Bedford (Swett); Winchendon (Russell); Groton (Low); Sherborn (Babcock); Tyngsboro (M. C. Z.); Arlington (Bullard).

D. Wings with small dark spot at base, and wing tips clear.

Stigma unicolored,—black.

126. Libellula exusta Say. White Corporal Skimmer

Journ. acad. nat. sci. Phila. 8: 29 1839. Type locality: “Massachusetts.”

Common,—ponds, lakes. C

May 19 to July 28.

Maine: Bradley, Westbrook (Harvey); Manchester (Wadsworth); Norway (Hagen).

New Hampshire: Franconia (Slosson, Howe); Manchester (Burnham); Intervale, Squam Lake (Allen); Moultonboro, Meredith Neck (Howe); Peterboro (Cabol).

Vermont: Brandon, Bristol (Dutton).

Massachusetts: Cambridge, Worcester, Sutton (Hagen, Hitchings); Fall River (Holt); Blue Hills (Clench); Winchendon, Sherborn, Wellesley (Morse); Webster (Bromley); Concord, Chatham, Belmont (Howe); Framingham (Johnson, Frost); Winchendon (Russell); Groton (Low); West Chop (Scudder); West Roxbury (Scudder); Malden (Henshaw); Woods Hole (Osburn).

Rhode Island: Washington (Johnson).

Connecticut: New Haven (Walden); Litchfield (Woodruff); New London (Osburn).

Note: Libellula exusta var. julia (Uhler). Now recognized by Ris as a valid variety, but until the New England status is better known its inclusion in this list will be postponed. L. exusta is said never to have the thoracic dorsum pruinose but all the basal segments so, while in the variety julia the dorsum of the thorax is entirely pruinose, but only the first few basal segments of the abdomen. In exusta the black basal marking on the hind wing includes at least a part of the triangle; in julia it never extends to it. Under this separation I have the following stations for julia: Moultonboro, Franconia, and Meredith, N. H.; Brandon and Bristol, Vt.; Concord, Winchendon, and Framingham, Mass.

E. Wings with large dark basal marking covering one third of wings.

127. Libellula luctuosa Burm.* Pied Skimmer (Widow)

Handb. ent. 2: 861. 1839. Type locality: “Pennsylvanien.”

* = Libellula basalis of earlier writers.

71

Vermont: Brandon, Leicester (Dutton).

Massachusetts: Concord Brookline, Milton (Howe); West Peabody (Little); Stockbridge (Calvert); Blue Hills (Clench); Wellesley (Morse); Southbridge (Bromley); Bedford (Swett); New Lenox, Mt. Tom (Johnson); Brookline (Maxey); Woods Hole (Osburn).

Rhode Island: Wickford (Atwater); Bristol (Howe).

Connecticut: Litchfield (Woodruff); Fairfield Co. (Benedict); New London (Osburn).

F. Wings with black triangular spot at base, and dot at nodus. Front margin suffused with yellow.

128. Libellula quadrimaculata Linn.

Syst. nat. 1: 543. 1778. Type locality: "Europa."

Common,—ponds, lakes. C

May 19 to August 15.

Maine: Rangeley, Orono, Bradley (Harvey); Mt. Desert (Bullock); Manchester (Wadsworth); So. West Harbor (Johnson).

New Hampshire: Franconia (Slosson, Howe); Manchester (Burcham); Meredith Neck, Moultonboro, Lisbon, Lyman, Centre Harbor (Howe); Intervale (Allen); Jaffrey (Johnson).

Vermont: Brandon (Dutton).

Massachusetts: Stow (Hagen); Worcester (Hitchings); Concord (Howe); Green Lodge, Woods Hole (Morse, Osburn); Brookline, Manomet (Johnson); Framingham (Frost); Wareham (Bangs); Southbridge (Bromley).

Connecticut: Sachem Head (Calvert); New Canaan (Atwater); New London (Osburn).

G. Wings with a dark streak at base, a dark spot at nodus, and a dark band across the tip. Front margin suffused with yellow.
129. Libellula semifasciata Burn.  
Painted Skimmer

Handb. ent. 2: 862. 1839. Type locality: "Nord-Amerika."

Uncommon,—ponds.  
June 2 to August 16.

Maine: Orono, Bradley, Greenfield (Harvey); Manchester (Wadsworth); Kennebunkport (Woodruff).

New Hampshire: Manchester (Burnham).

Massachusetts: Manchester, Cambridge, Stow (Hagen); Woods Hole (Calvert Osburn); Fall River (Holt); Blue Hills (Clench); Concord, Chatham (Howe); Provincetown (Benedict); Dedham, Dover, Green Lodge (Morse); Brookline (Johnson); Martha's Vineyard (Cushman); Wareham (Bangs); Groton (Low); Wollaston (Sprague).

Rhode Island: Bristol (Howe); Buttonwoods (Johnson).

Connecticut: Sachem Head (Calvert); Darien (Johnson); New London (Osburn).

H. Wings with three large dark bands at base, nodus, and near tip, in male with milk white spots between.

Note: The females are apt to be confused with the following species, but the wings in this species are over 41 mm. long, in the next under 33.5 mm. long.

130. Libellula pulchella Drury.  
Twelve-spotted Skimmer

Ill. nat. hist. 1: 115. 1770.
Type locality: "New York."

Common,—ponds, lakes, and meadow lands.

June 5 to September 8.

Maine: Orono, Bradley, Auburn, Fryeburg, Westbrook (Harvey); Andover, Brunswick (Hagen); Manchester (Wadsworth).

New Hampshire: Franconia (Slosson); Manchester (Burnham); Centre Harbor, Meredith Neck, Moultonboro, Lisbon, Lyman (Howe); Intervale (Allen); Jaffrey (Johnson).

Vermont: Brandon (Dutton).

Massachusetts: Milton (Hagen); Worcester (Hitchings); Woods Hole, Cuttyhunk, Stockbridge (Calvert); Nantucket, Concord, Brookline, Belmont, Chatham, Orleans, Brewster (Howe); Blue Hills (Clench);
Fall River (Holt); No. Saugus (Titus); Wellesley, Sherborn (Morse); Southbridge (Bromley); Framingham (Warden); Heath (Parker); New Lenox (Johnson); Wareham (Bangs); Wakefield (Atwater); Cambridge (Osterberg); Arlington, Waltham (Bullard); Wollaston (Sprague); Beverley (Burgess); Forest Hills (Henshaw); Woods Hole (Osburn).

Rhode Island: Providence (Davis); Block Island (Calvert); Tiverton, Middletown (Howe); Bristol (Parker, Clark, Howe); Wickford (Atwater).

Connecticut: Litchfield (Woodruff); Watertown, Burchard's Pond, Fairfield Co. (Benedict); Stanford (Morse); Lyme (Brown); Danbury (Johnson); New London (Osburn); Union (Bromley).

**Genus:** Plathemis Hagen.

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131. **Plathemis lydia** (Drury).

III. nat. hist. 1: 112. 1770. Type locality: "Virginia."

Common, — brooks, streams, rivers, ponds, lakes.

May 27 to September 19.

- **Common Whitetail**

Wings of male.

Wings of female.

Maine: Orono, Bradley (Harvey); Manchester (Wadsworth); Mt. Desert (Bullock); Bar Harbor (Johnson); Brunswick, Bethel (M. C. Z.).

New Hampshire: Centre Harbor (Howe); Intervale, Squam Lake (Allen); Franconia (Slosson); Manchester (Burnham).

Vermont: Brandon (Dutton).

Massachusetts: Cambridge (Hagen, Atwater); Worcester (Hitchings); Woods Hole, Stockbridge (Calvert); Hingham (Barnes); Cuttyhunk (Ufford); Concord, Brookline, Chatham (Howe); Blue Hills (Clench); No. Saugus (Titus); Southbridge (Bromley); Fall River (Holt); Framingham (Warden); Brookline (Johnson); Wareham (Bangs); Groton (Low); Andover (Scudder); Woods Hole (Osburn); Great Barrington (Johnson).
Rhode Island: Bristol, Middletown, Tiverton (Howe); Block Island (Calvert); Wickford (Atwater).
Connecticut: Hartford (?); Litchfield (Woodruff); New Canaan (Atwater); No. Guilford (Howe); Darien, Watertown, Burchard's Pond, Fairfield Co. (Benedict); Union (Bromley); New London (Osburn).

Genus: Perithemis Hagen.

Perithemis domitia tenera. . . . . + + +

132. Perithemis domitia tenera (Say).


Uncommon,— ponds. C

June 12 to September 5.

Massachusetts: Milton (Hagen); Sherborn (Morse, Babcock); Worcester (Hitchings); Fall River (Holt); West Peabody (Little); Concord, Cambridge, South Orleans (Howe); Blue Hills (Clench); Waltham, Wellesley (Morse); Southbridge (Bromley); Sharon, Fall River (Atwater); Bridgewater (Cushman); Swansea (Easton); Bedford (Swett); Brookline (Johnson); Sherborn (Smith); Natick (Stratton): Wareham (Bangs); Holland (Bromley); Woods Hole (Osburn).

Rhode Island: Providence (Davis); Wickford (Atwater); Buttonwoods (Johnson).
Connecticut: Litchfield (Woodruff); Bethlehem, Darien, Burchard's Pond, Fairfield Co. (Benedict); New London (Osburn).

Genus: Nannonothemis Brauer.

Nannonothemis bella . . . . + + + +

133. Nannonothemis bella (Uhler.).


Uncommon,— bogs, ponds. R
June 17 to July 29.

Maine: Mt. Desert (Bullock); Manchester (Wadsworth).
New Hampshire: Manchester (Burnham); West Swansea (?);
No. Conway (Allen); Lyman (Howe).
Massachusetts: Wellesley, Dedham (Morse); (Acad. Nat. Sci.,
Phila.); Fall River (Holt); Warcham (Bangs); Brewster (Howe);
Bridgewater (Cushman); Brookline (Bowditch); Newtonville (Thaxter).
Connecticut: (Hagen).

Group 6

Vein of cubitus 1 arising from the outer side of the triangle in the hind wing.

Vein of cubitus 1 arising from the bottom of the triangle in the hind wing.

(See Group 7).

With two or more cross veins under stigma.

With one or no cross vein under stigma.

(See Pachydiplax).

Erythrodiplax

Erythemis

No or more rows of cells between the radial sector and the media 2 veins.

One row of cells between the radial sector and the media 2 veins.

Genus: Erythrodiplax Brauer.

Erythrodiplax berenice

+ + +

76
134. **Erythrodiplax berenice** (Drury).

Ill. nat. hist. 1: 114. 1770. Type locality: "Virginia, New York, and Maryland."

Common,—maritime salt marshes. A.

June 21 to August 14.

Massachusetts: Milton (Hagen); Woods Hole (Calvert, Osburn); Cataumet (Winsor); Nantucket, Chatham, South Chatham, Cotuit (Howe); Hingham (Barnes); Fall River (Holt); So. Dartmouth (Hunt); Faneuil (Morse); Horse Neck Beach, Edgartown, Boston, Eastham (Johnson); Wareham (Bangs); Chelsea Beach (M. C. Z.); Wollaston (Sprague); Revere (M. C. Z.).

Rhode Island: Barrington (Easton).

Connecticut: Niantic, Stamford (Morse); Sachem Head (Calvert); Rowayton (Johnson); Burchard's Pond, Butler's Island, Darien, Fairfield Co. (Benedict); New London (Osburn).

**Genus:** Erythemis Hagen.

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135. **Erythemis simplicicolis** (Say). Eastern Pondhawk

Journ. acad. nat. sci. Phila. 8: 28. 1839. Type locality: "Indiana and Massachusetts."

Common,—ponds and rivers. C.

June 27 to September 6.

New Hampshire: Manchester (Burnham).

Massachusetts: Natick (Hagen); Worcester (Hitchings); Braintree (Sprague); Woods Hole, Cuttyhunk (Calvert); Concord, Nantucket (Howe); West Peabody (Little); Fall River (Holt); Wellesley (Morse); Provincetown (U. S. N. M., Morse); Framingham (Warden); Bedford (Swett); Forest Hills (Henshaw); Eastham, Auburndale (Johnson); Wareham (Bangs); Newton, Tuckernuck Island (M. C. Z.); Malden (Sprague); Brookline (Scudder); Woods Hole (Osburn); Braintree (Sprague).

Rhode Island: Bristol (Howe); Block Island (Calvert).

Connecticut: Darien, Burchard's Pond, Fairfield Co. (Benedict); Sachem Head (Calvert); Bethlehem (Johnson); New London (Osburn).
Genus: Pachydiplax Brauer.


Pachydiplax longipennis

136. Pachydiplax longipennis (Burm.). Blue Dasher.

Handb. ent. 2: 850. 1839. Type locality: "Mexico."

Common,—ponds and rivers. A

June 7 to September 9.

Massachusetts: Natick (Hagen); Worcester (Hitchings); West Bridgewater (Tower); Fall River (Holt); West Peabody (Little); Concord, Orleans (Howe); Provincetown, Woods Hole (Benedict, Osburn); Blue Hills, Wellesley (Morse); Sharon (Atwater); Bedford (Swett); Martha's Vineyard (Cushman); Wareham (Bangs); Newton (M. C. Z.); Wollaston (Sprague); Boston (Allen).

Rhode Island: Providence (Davis); Block Island (Allen, Calvert).

Connecticut; Sachem Head (Calvert); Fairfield Co. (Benedict); Darien (Johnson).

Group 7

Wings clear or faintly suffused with yellow

Sympetrum

Wings dark spotted (S. Cepithe-

Leucorrhinia

Stigma thrice as long as wide.

Stigma twice as long as wide.

78
Genus: Sympetrum Newman.

Sympetrum ambiguous . . . +
costiferum . . . + + + + +
obtrusum . . . + + + +
rubricundulum . . . + + + + + + +
scoticum . . . +
semicinctum . . . + + + + + +
vicinum . . . + + + + + + +

A. Legs black.

a. Wings clear.

1. Wings over 25 mm. long. Cherry-faced Meadowfly

137. Sympetrum rubicundulum (Say).


Type locality: "Indiana and Massachusetts."

Abundant,—ponds, lakes.

June 9 to October 9.

Maine: No. West Carry, Mt. Kineo, Rangeley, So. Lagrange; Greenfield, Bradley, Orono, Fryeburg (Harvey); Manchester (Wadsworth); York Harbor (Moore); Echo Lake, Mt. Desert (Johnson).

New Hampshire: Mt. Washington, Hermit Lake, Fabyan's, North Conway (Hagen, Calvert); Franconia (Slosson); Manchester (Burnham); Meredith Neck, Centre Harbor; Moultonboro, Profile Lake, Lisbon, Lyman (Howe); Intervale, North Conway (Allen); Kingston (Morse); Bethlehem (Uhler).

Vermont: Newport (Morse); Brandon, Leicester (Dutton); So. Hero (Morse); Rutland (Johnson).

Massachusetts: Worcester (Hitchings); Woods Hole, Cuttyhunk, Mt. Greylock (Calvert); Nantucket (Cockrell, Howe); Concord, (Howe); Kingston (Warden); Hingham (Barnes); West Peabody, Lynnfield (Little); Orleans (Parker); Fall River (Holt); Cotuit (Peirson); Melrose, Highlands (Clemens); Provincetown (Morse, Benedict); No. Saugus (Gowdy); West Chop, Dover, Sherborn, Welleasely (Morse);
Southbridge (Bromley); Nonquitt (Baldwin); Sharon, Wakefield (Atwater); Framingham (Warden); Edgartown, Auburndale (Johnson); Bridgewater (Cushman); Winchendon (B. S. N. H.); New Bedford (Holcomb); Wareham (Bangs); Natick (M. C. Z.); Brookline (Henshaw); Woods Hole (Osburn).

Rhode Island: Providence (Davis); Block Island (Calvert); Bristol, Middletown (Howe); Wickford (Atwater); Bristol (Clark).

Connecticut: Litchfield (Woodruff); New Canaan (Atwater); Sachem Head (Calvert); Bethlehem (Benedict); Stamford, Deep River, Canaan (Morse); Union (Bromley); New London (Osburn); Lakeville (Calvert).

138. *Sympetrum obtrusum* (Hagen).

Stett. ent. zeit. 28: 95.
1867. Type locality: "Chicago."

Uncommon,— ponds, lakes. U - R

July 3 to October 5.

Maine: King & Bartlett (Laurent); Fryeburg (Harvey); York Harbor (Moore); Mt. Katahdin (U. S. N. M.).

New Hampshire: Fabyan's (Calvert); Meredith Neck, Centre Harbor, Lisbon (Howe); Intervale, North Conway (Allen); Franconia (Slosson).

Massachusetts: Concord, Chatham (Howe); West Peabody (Little); Nonquitt (Baldwin); (Hagen).

Rhode Island: Bristol (Howe).

2. Wings under 23 mm. long.

139. *Sympetrum scoticum* (Donovan).

Brit. ins. 15: 523.
1811. Type locality: "bogs of Scotland."

One record,—

New Hampshire: Franconia (Slosson).

b. Wings with basal half yellow, palest next the body.

1. Wings over 25 mm. long.
140. *Sympetrum semicinctum* (Say)

**Journ. Acad. Nat. Sci. Phila. 27. 1839.** Type locality: "Indiana and Massachusetts."

Common,— brooks, ponds. C

July 25 to October 5.

Maine: Orono, Bradley (Harvey); Manchester (Wadsworth); York Harbor (Moore); Ashland Junction (Johnson).

New Hampshire: White Mts. (Hagen); Franconia (Slosson, Howe); Manchester (Burnham); Intervale (Allen); North Conway (Holt, Morse); Fabyan's (Calvert); Lyman (Howe).

Vermont: Brandon (Dutton).

Massachusetts: Milton (Hagen); Worcester (Hitchings); Fe River (Holt); Concord (Howe); Sherborn, Wellesley (Morse); Southbridge (Bromley); Sherborn (Smith); Manomet (Cushman); Framingham (Warden); Wareham (Bangs); Lynnfield (Little); Minot, Saugus (M. C. Z.).

Rhode Island: Wickford (Atwater)

Connecticut: Montville, No. Haven (Morse); New London (Osborn).

c. Wings with front margin yellow, 27 mm. long.

141. *Sympetrum costiferum* (Hagen).

**Syn. Neur. No. Amer. 175. 1861.** Type locality: "Massachusetts; New York."

Common,— ponds, lakes and lagoons. UL

July 12 to October 7.

Maine: Orono, Bradley (Harvey); Manchester (Wadsworth); York Harbor (Moore); Bar Harbor (Johnson).

New Hampshire: Franconia (Slosson, Howe); Intervale, North Conway (Allen); Whitefield (Howe).

Massachusetts: Worcester (Hitchings); Fall River, Pocasset,
Manomet (Holt); Cuttyhunk (Ufford); Nonamesset Island (Osburn); Provincetown (Benedict); Concord, Nantucket (Howe); Sharon, Fall River (Atwater); Bridgewater, Martha's Vineyard (Cushman); New Bedford (Holcomb); Wareham (Bangs); Lynnfield, West Peabody (Little); Tuckerman Island (M. C. Z.); Wellesley (M. C. Z.); Brookline (Bowditch); Woods Hole (Calvert).

Rhode Island: Weckopaug (U. S. N. M.); Tiverton (Easton); Watch Hill, Block Island (Calvert).

Connecticut: Litchfield (Woodruff); Bethlehem (Benedict); New London (Osburn).

B. Legs greenish yellow.

a. Wings 21–26 mm. long.

42. *Sympetrum vicinum* (Hagen). Yellow-legged Meadowfly

Syn. N. Am. No. Amer. 175. 1861. Type locality: "Bergen Hill, New Jersey; Pennsylvania; Washington."


Maine: Orono, Bradley, Fryeburg, Ktaadn Iron Works (Harvey); Manchester (Wadsworth); Brunswick (Hagen); York Harbor (Moore); Mt. Katahdin (U. S. N. M.).

New Hampshire: Franconia (Slosson); Fabian's (Calvert); Meredith Neck, Jackson, Little Lake Sunapee (Howe); Intervale (Allen); Kingston (Morse); Manchester (Burnham).

Massachusetts: Milton (Hagen); Fall River, Westport (Holt); West Peabody (Little); Hingham (Barnes); Blue Hills (Clench); Brookline (Galbraith); Woods Hole (Benedict); Sherborn, Wellesley (Morse); Framingham (Warden); Concord, Chatham (Howe); Sharon (Atwater); Rutland (Johnson); Bridgewater (Cushman); Manomet (Brooks); Wareham (Bangs); Cambridge (Atwater); Natick (M. C. Z.); Arlington (Bullard); Provincetown, Nantucket (Calvert).

Rhode Island: Providence (Davis); Wickford (Atwater); Bristol (Howe).

Connecticut: Litchfield (Woodruff); Bethlehem (Benedict); New London (Osburn).

b. Wings over 25 mm. long.
143. Sympetrum ambiguum (Ramb.)* Blue-faced Meadowfly

Ins. Neur. 106. 1812. Type locality: not given.

One record, — R

June 20, 1821.

Massachusetts: Milton (Ilagen)

Genus: Leucorrhinia Brittinger.

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A. Male with yellow triangular spot on 7th. segment of abdomen in adults.

a. o with abdominal segments 4–6 black, in both sexes stigma dark brown.

1. Under lip black with sides white.

144. Leucorrhinia intacta (Hagen). Johnny Whiteface


1869. Type locality: “Wisconsin; Chicago; Ohio; Massachusetts.”

Common, — brooks, ponds, lakes. C

May 17 to August 3.

Maine: Orono, Bradley, Westbrook (Harvey); Manchester (Wadsworth); So. West Harbor (Johnson); Bar Harbor (Johnson).

New Hampshire: Mt. Washington (Slosson); Franconia (Slosson, Howe); Manchester (Burnham); Meredith Neck, Moultonboro, Franconia, Lyman, Center Harbor (Howe); Intervale (Allen); Peterboro (Cabot); Meredith (Calvert).

Vermont: Brandon (Dutton).

Massachusetts: (Hagen); Nantucket, Concord, Belmont, Chatham (Howe); Fall River (Holt); Mt. Greylock, Stockbridge (Calvert); Cotuit (Pierson); Woods Hole (Benedict, Osburn); Melrose Highlands (Clemens); Green Lodge, Sherborn, Natick, Winchendon (Morse); Southbridge (Bromley); Framingham (Warden, Froel); North Reading, Dedham (Johnson); Wareham (Banga); Newtonville (Thaxter); Natick, Tyngsboro, Provincetown, Magnolia (M. C. Z.); Boston, Revere (Scudder); Belmont (Bullard); Wollaston (Sprague).

* Given in recent lists as S. albifrons.

83
Rhode Island: Bristol (Johnson, Howe); Wickford (Johnson).
Connecticut: Litchfield (Woods); Sachem Head (Calvert);
Darien (Johnson); New London (Osburn).
b. ♀ with abdominal segments 4-7 with wedge shape red spots, in both sexes stigma dull red.

145. **Leucorrhinia hudsonica** (Selys).
Rev. odon. Eur. 53. 1850. Type locality: "Le nouveau Brunswick, pres de la Baie d'Hudson."
Rare,—bog margined ponds and lakes. CL
May 30 to July 15.
Maine: Oldtown, Orono (Harvey); Capens (Johnson).
Massachusetts: (Hagen); Winchendon (Russell).
B. Male with segments 4-10 black.
a. Under lip entirely black.
1. Abdomen slender, 23-25 mm. long.

146. **Leucorrhinia glacialis** Hagen.
Trans. Amer. ent. soc. 17: 234. 1890. Type locality: Massachusetts.
Common,—ponds, lakes. CL
May 19 to August 14.
Maine: Orono, Bradley (Harvey); Echo Lake, Mt. Desert (Johnson); Bar Harbor (Johnson).
New Hampshire: Mt. Washington, Franconia, Crawford Notch (Slosson); White Mts. (Hagen); North Conway (Allen); Lonesome Lake, Lincoln, Moultonboro (Howe); Meredith (Calvert).
Massachusetts: (Hagen); Concord (Howe); Sharon (Atwater).
2. Abdomen spatulate, 20-21 mm. long.

147. **Leucorrhinia frigida** Hagen. Frosted White
Trans. Amer. ent. soc. 17: 231. 1890. Type locality: "Massachusetts; n.
Red River, British America; Ontario; Dakota."
Common,— ponds, lakes. C-

June 7 to August 9.

Maine: Bradley (Harvey); Mr. Desert (Bullock); Echo Lake, Mt. Desert (Johnson); Bar Harbor (Johnson).

New Hampshire: Mt. Washington; Franconia (Slosson); Moultonboro (Howe); North Conway (Allen); Meredith (Calvert).

Vermont: Brandon (Dutton).

Massachusetts: Sherborn (Babcock); Concord (Howe); Wareham (Bangs); Sharon (Atwater); Hyannisport, Mt. Everett, Guilder's Pond (Johnson).

Connecticut: Litchfield (Woodruff).

b. Under lip black, with sides white.

148. Leucorrhinia proxima Calvert.


Rare,— bog margined ponds and lakes. C-

June 2 to July 24.

Maine: Oldtown, Orono (Harvey); Manchester (Wadsworth); Bar Harbor (Johnson).

New Hampshire: Mt. Washington, Franconia (Slosson); White Mts. (Hagen).

Massachusetts: Worcester (Hitchings).

Genus: Celithemis Hagen.

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</table>

A. Wings spotted with brown from base to tip.
a. Wings more or less suffused with yellow.

1. Wings under 27.5 mm. long.

149. Celithemis elisa Hagen. *Calico Pennant*


Common,—brooks, ponds. C

May 19 to August 21.

Maine: Bradley (Harvey); Mercer (Davis); Manchester (Wadsworth); Mt. Desert (Bullock); Kennebunkport (?).

New Hampshire: Derry (Burnham); Moultonboro (Howe).

Massachusetts: Concord (A. N. S., Phila., Howe); Cambridge; Natick (Hagen); Worcester (Hitchings); Woods Hole (Calvert, Osburn); Cuttyhunk (Ufford); Blue Hills (Clench); Tyngsboro (Howe); Provincetown (Morse, Benedict); Dover, Sherborn, West Chop (Morse); Webster (Bromley); Fall River (Holt); South Orleans, Brewster (Howe); Southbridge (Bromley); Woods Hole (Cushman); Hyannisport, Edgartown (Johnson); Framingham (Warden); Sharon (Atwater); Sherborn (Smith); Wareham (Bangs); Natick (M. C. Z.); Wollaston, Milton (Sprague).

Rhode Island: Bristol (Parker, Howe); Buttonwoods (Johnson).

Connecticut: Sachem Head (Calvert); Litchfield, New Hartford (Woodruff); Bethlehem, Burchard’s Pond, Fairfield Co. (Benedict); New London (Osburn).

2. Wings over 31 mm. long.

150. Celithemis eponina (Drury). *Halloween Pennant*

Ill. nat. hist. 2: 86. 1773. Type locality: “Boston in New England.”

Common,—ponds. C

June 21 to September 3.

Massachusetts: Saugus, Boston; Natick (Hagén); Sherborn (Babeock); Worcester (Hitchings); Concord (Howe); Fall River (Holt); Wellesley (Morse); Wareham (Bangs); Auburndale (Johnson); West Peabody (Little); Woods Hole (Osburn); Saugus (M. C. Z.).
Rhode Island: Block Island (Woodruff).
Connecticut: Litchfield Co., Bethlehem (Benedict); New London (Osburn).

b. Wings not suffused with yellow.

151. Celithemis monomelaena Willm.
Ohio nat. 10: 155. 1910. Type locality: Whitley County, Indiana.”

Rare,—

July 8 to August 14.

Massachusetts: Wareham (Bangs).
Connecticut: No. Guilford (Howe).

152. Celithemis ornata (Ramb.).
Ins. Nevr. 96. 1842. Type locality: "L'Amerique septentrionalis.”

Rare,—

July 2 to August 14.

Maine: Bradley (Harvey); Manchester (Wadsworth).

New Hampshire: Manchester (Burnham).

Massachusetts: Dracut (B. S. N. H.); Sherborn (Morse); Wareham (Bangs); Fall River (Holt); Hyannisport (Johnson); South Orleans (Howe).

Group 8

Tramea

Hind wings dark at base.

Pantala

Hind wings clear, yellowish at base.

87
Genus: Tramea Hagen.

Tramea abdominalis
  carolina +
  lacerata +

A. Front wings clear. a. Hind wings with dark narrow (6 mm.) basal band.

153. Tramea abdominalis (Rambur).

Ins. Nevr. 37. 1842. Type locality: "des Antilles...L'Amerique septrionalis,...Cuba."

One record. V

August 30. V

Violet-masked Glider

Massachusetts: Nantucket (Hagen).

b. Hind wings with dark wide (10 mm.) basal band.

154. Tramea carolina (Linn.). Red Saddlebags

Amoen. acad. 6: 411.
1763. Type locality: "Carolina."

C

Uncommon,—ponds,
migratory along coast in autumn.

June 1 to September 8.

Massachusetts: Natick (Hagen); Concord, Chatham (Howe); Wareham (Bangs).
Rhode Island: Matoonoc (? Simonds); Middletown (Howe).
Connecticut: Sachem Head (Calvert); Darien (Johnson); Burchard's pond, Fairfield Co. (Benedict); New London. (Osburn).

B. Front wings with dark spot at base.

155. Tramea lacerata Hagen. Black-mantled Glider


One record,—  

September 6, 1868.

Massachusetts: Chelsea (Sanborn, B. S. N. H.).

88
**Genus:** Pantala Hagen.

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156. **Pantala flavescens** (Fabr.) Wandering Glider

Ent. syst. suppl. 285. 1798. Type locality: "India."

Uncommon,— ponds. C

August 9 to September NJ

New Hampshire: Amoskeag Falls (Burnham).
Massachusetts: Boston (Cabot); Wareham (Bangs).
Rhode Island: Bristol (teneral) (Howe).

**P. hymenea**

**Spot-winged Glider**

---

**Seasonal Distribution in New England**

**Zygoptera**

<table>
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<tr>
<th>Earliest Species</th>
<th>Latest Species</th>
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<tr>
<td>Agrion maculatum</td>
<td>Enallagma congener</td>
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**Anisoptera**

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<th>Earliest Species</th>
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<tbody>
<tr>
<td>Williamsonia lintneri</td>
<td>Sympetrum vicinum</td>
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Total number flying:

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<td>58</td>
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Total Odonata flying:

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Corrections and Additions

CORRECTIONS

The Rhode Island and Connecticut records at the top of page 60 belong at the bottom of the page under S. tenellus.

ADDITIONS

PART I

Agrion aquabilis
  Massachusetts: Chelmsford (Howe).

Agrion maculatum
  Maine: Bar Harbor (Johnson, Merrill).
  Massachusetts: Sharon (Atwater); Chatham (Howe); Forest Hills (Henshaw).

Lestes eurinus
  June 1 to July 21
  Massachusetts: Framingham (Warden).

Lestes unguiculatus
  September 8
  Massachusetts: Framingham (Warden); Chatham (Howe).
  Rhode Island: Middletown, Bristol (Howe).

Lestes uncatus
  Maine: Bar Harbor (Johnson).
  Vermont: Leicester (Dutton).

PART II

Lestes forcipatus
  Massachusetts: Framingham (Warden); Chatham (Howe).
  Rhode Island: Howe.

Lester regularis
  Massachusetts: Framingham (Warden); Chatham (Howe).
  Rhode Island: Warren (Howe).

Lestes vigilax
  September 7
  Massachusetts: Eastham, South Orleans, Brewster (Howe); Framingham (Warden).
  Rhode Island: Bristol (Howe).

Argia moesta
  Maine: Mt. Desert (Merrill).

Argia violacea
  September 13
  Maine: Bar Harbor (Johnson, Merrill).
  Massachusetts: Framingham (Warden); Orleans (Howe).

Enallagma durum
  Massachusetts: South Orleans (Howe).

Enallagma hageni
  Maine: Bar Harbor (Johnson).
  Massachusetts: Concord (Howe).

Enallagma calverti
  Massachusetts: Pepperill (Howe).

Enallagma ebrum
  Maine: Mt. Desert (Merrill).
  Massachusetts: Framingham (Warden); Belmont (Howe).
  Rhode Island: Bristol (Howe).

Enallagma traviatum
  June 10
  Enallagma minusculum
  Maine: Mt. Desert (Merrill).
  Massachusetts: Eastham, South Orleans (Howe).
Enallagma doubledayi
August 23
Massachusetts: South Orleans (Howe).

Enallagma civile
Maine: Mt. Desert (Merrill).
Massachusetts: Brookline, Chatham, Orleans, South Orleans (Howe); Sharon (Atwater); New Bedford (Holcomb); Framingham (Warden); Truro (M. C. Z.).

Enallagma geminatum
June 15
Framingham (Warden).

Enallagma exsulans
Maine: Mt. Desert (Merrill).

Enallagma signatum
May 26
Massachusetts: Chatham (Howe).

Neuhallenia irene
Maine: Bar Harbor (Johnson).
Vermont: Brandon (Dutton).
Massachusetts: Chatham (Howe).

Neuhallenia gracilis
Vermont: Brandon (Dutton).
Massachusetts: Cedar Pond, Wenham (Morse).

Amphiagrion sauculum
Vermont: Brandon (Dutton).

Chromagrion conditum
May 30

Ischnura verticalis
Maine: Bar Harbor (Johnson); Mt. Desert (Merrill).
Vermont: Leicester (Dutton).
Massachusetts: Brookline, Belmont, Wellfleet, Eastham, Brewster, Chatham (Howe); Sharon (Atwater); Framingham (Warden); Truro (M. C. Z.).
Rhode Island: Bristol, Warren (Howe).

Ischnura posita
Massachusetts: Chatham, Wellfleet (Howe).
Rhode Island: Warren, Bristol (Howe).

Anomalagrion fastatum
Rhode Island: Middletown, Bristol (Howe).

Part III

Cordulegaster maculatus
Massachusetts: Pepperill (Hawker).

Progomphus obscurus
Massachusetts: South Orleans (Howe).

Gomphus parvulus
Vermont: Starkboro (Dutton).

Gomphus exilis
Maine: Bar Harbor (Johnson).
Massachusetts: Sharon (Atwater).
Connecticut: Pomfret (Howe).

Dromogomphus spinosus
Vermont: Brandon (Dutton).
Massachusetts: Framingham (Warden); Sharon (Atwater).

Part IV

In tubular plate of Zygoptera the words Aeshnidae and Libellulidae should be reversed.

Page 30: for femora on diagram read femur.

Basinschna janata
New Hampshire: Meredith (Calvert).
Massachusetts: Caver (Shurtleff).

91
Boyeria vinosa
September 15
New Hampshire: Jackson (Skinner).
Massachusetts: Brookline (Shurtleff).
Connecticut: Twin Lakes (Calvert).

Gomphaeschna furcillata
May 4 to July 9
New Hampshire: Meredith (Calvert).
Massachusetts: Sherborn (Smith).

Anax junius
May 4
Maine: Iron Bound Island (Hopkins).
Massachusetts: Chelmsford, Orleans, Chatham (Howe); Framingham (Warden)
Nantucket (Bange).
Rhode Island: Warren (Howe).
Connecticut: Lakeville (Calvert).

Aeshna umbrosa
Maine: Mt. Desert (Merrill); Iron Bound Island (Hopkins).
New Hampshire: Jackson (Calvert).
Vermont: Rutland (Johnson).
Massachusetts: Framingham (Warden); Orleans (Howe); Woods Hole (Calvert).
Connecticut: Twin Lakes (Calvert).

Aeshna interrupta
Maine: Iron Bound Island (Hopkins).
New Hampshire: Jackson (Skinner).

Aeshna cley叠加
Massachusetts: Chelmsford (Howe); Framingham (Warden); Brookline (Shurtleff);
Woods Hole (Calvert); Wellesley (M. C. Z.).

Aeshna eremita
New Hampshire: Jackson (Calvert).

Aeshna verticalis
Massachusetts: Brookline (Shurtleff); Lexington (Banks).
Strike out one: Manchester (Wadsworth).

Aeshna canadensis
June 22
New Hampshire: Meredith (Calvert).
Vermont: Leicester (Dutton).
Massachusetts: Chatham (Howe); Woods Hole (Calvert).

Aeshna tuberculifera
Connecticut; Lakeville (Calvert).

Didymops transversa
Maine: Bar Harbor (Johnson).
Massachusetts: Chelmsford (Howe).

Dorocordulia lepida
New Hampshire: Meredith (Calvert).

Dorocordulia libera
June 7 to August 29
Maine: Bar Harbor (Johnson).
New Hampshire: Meredith (Calvert).
Vermont: Brandon (Dutton).
Massachusetts: Wareham (Bange); Fall River (Holt); Lexington (Banks).

Epiplaxeschna heros
Massachusetts: Lexington (Banks).

Epicordulia princeps
Massachusetts: Chatham (Howe).

Somatochlora forcipata
Vermont: Brandon (Dutton).
Somatochlora kennedyi
May 30
New Hampshire: Meredith (Calvert).

Cordulia shurtleffi
Maine: Bar Harbor (Johnson).
New Hampshire: Meredith (Calvert).

Tetragnredeira cyanosura
Vermont: Brandon (Dutton).
Massachusetts: Orleans (Howe); Milton (Warden)
Connecticut: Pomfret, Webster (Howe).

Tetragnredeira cyanosura simulans
New Hampshire: Meredith (Calvert).

Tetragnredeira spinigera
July 23
New Hampshire: Meredith (Calvert).

Page 54 before line No. 100 Dorocordulia lepida (Hagen), read
A. Last abdominal segments not spatulate.
before line No. 101 Dorocordulia libera (Selys), read
B. Last abdominal segments spatulate.

Recapitulation of New England Libellulidae (Libellulinae), and Odonata.

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<th>Perithemis</th>
<th>Nanocorhina</th>
<th>Erythromma</th>
<th>Euchladiplax</th>
<th>Sympetrum</th>
<th>Leucorhina</th>
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Total Odonate Fauna for New England = 160 species.

Bibliography of New England Faunal Papers.


1891: Harvey, F. LeR. Contributions to the Odonata of Maine, I, ibid., 2: 73-75.


1898: Harvey, F. LeR. Contributions to the Odonata of Maine, III, ibid, 9: 59-64.
1901: Harvey, F. LeR. Contributions to the Odonata of Maine, IV, ibid, 190-198.
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1902: Harvey, F. LeR. A Catalogue and Bibliography of the Odonata of Maine with an Annotated List of their Collectors, University of Maine Studies, No. 4.

(To be continued)
LARVAE OR NYMPHS

In this Manual have been treated only the adult or imago damsel and dragonflies. The nymphs which have had far less study are figured here only to show the Order characteristics. At some later date a complete treatment of them may be undertaken. The larvae or nymphs of the Odonata are aquatic. They inhabit ponds, lakes, brooks, and rivers, and their exuviae after the transformation of the imagos, are left attached to the stem of water plants, dead wood, or rocks, and are familiar to every student of nature. The works of Dr. J. A. Needham, Mr. Louis Cabot, and Dr. C. H. Kennedy include studies of many species, and will prove of much help in the study of the nymphs. The latter has kindly allowed me to reproduce drawings made by him.

Order: Zygoptera

A nymph of the Genus: Agrion
Order: Anisoptera

A nymph of the Genus: Macromia

Additions and Corrections

Part I

Agrion aequabile
Massachusetts: Winchendon (Russell).

Agrion maculatum
New Hampshire: Keene (Wheelock).
Massachusetts: Winchendon (Russell).

Lestes urinus
Massachusetts: Winchendon (Russell).

Lestes forcipatus
Maine: Bar Harbor (Johnson).
Massachusetts: West Peabody (Little); Winchendon (Russell).

Lestes congener
Massachusetts: Winchendon (Russell).

Lestes uncatus
Massachusetts: Winchendon (Russell).

Part II

Lestes vigilax
Massachusetts: West Peabody (Little).

Argia violacea
Massachusetts: Winchendon (Russell).

Page 21: Under Ischnura for “♀’s with more than 7 postcubitals” read with more than 8 postcubitals in hind wings.
Under Aromiaagrion for “♀’s with less than 7 postcubitals” read with 8 or less postcubitals in hind wings.

Ischnura verticalis
Massachusetts: Winchendon (Russell).
Rhode Island: Wickford (Atwater).

Ischnura posita
Rhode Island: Wickford (Atwater).

Part III

Cordulegaster diastatops
Massachusetts: Winchendon (Russell).
To habitat of Progomphus obscurus add: ponds.

Dromogomphus spinosus
June 16

Page 38 under Eunallagma hageni
Massachusetts: strike out “Franconia (Howe).”
Boyeria vinosa
Massachusetts: Winchendon (Russell).

Anax logipes
August 27.

Asshna umbrosa
New Hampshire: Keene (Wheelock).
Massachusetts: Chatham (Howe).

Asshna canadensis
Massachusetts: Winchendon (Russell).
Rhode Island: Bristol (Howe).

Asshna constricta
New Hampshire: Fitzwilliam (Barnes)
Massachusetts: Winchendon (Russell).

Dorocordulia lepida
Maine: Bar Harbor (Johnson).

Dorocordulia libera
For "August 29" read August 9.

Libellula cyanea
Massachusetts: Winchendon (Russell).

Libellula exusta
May 28 to July 25.
Massachusetts: Winchendon (Russell).

Libellula exusta julia
June 4 to July 7.
New Hampshire: Keene (Wheelock).
Massachusetts: Winchendon (Russell).

Libellula quadriracalata
Vermont: Bristol (Dutton).
Massachusetts: Winchendon (Russell).

Libellula pulchella
New Hampshire: Keene (Wheelock).
Massachusetts: Winchendon (Russell).

Plethmeme lydia
New Hampshire: Keene (Wheelock).
Massachusetts: Winchendon (Russell).

Sympetrum rubicundulum
Massachusetts: Winchendon (Russell).

Sympetrum vicinum
July 8
Massachusetts: Winchendon (Russell).

Sympetrum semicinctum
Massachusetts: Winchendon (Russell).

Leucorrhinia intacta
Massachusetts: Wakefield (Atwater).

Leucorrhinia frigida
Massachusetts: Winchendon (Russell).

Page 87 Group 8 should have been printed in yellow.
Page 91 under Cordulegaster maculata for "(Hawker)" read (Parker).

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1892: Wadsworth, M. Second Additions and Corrections, etc. Ent. News 3:8-9
1894: Wadsworth, M. Third Addition to the list, etc. 3:132.
1894: Calvert, P. F. Data on the Distribution of Dragon-flies (Odonata), En News 8:1. 242-244.
1898: Wadsworth, M. Fourth Addition to the list, etc. Ent. News 9:111.
From the following persons, in addition to those thanked in the prefatory remarks in Part I, I have received much valuable assistance in the preparation of this Manual, and to whom I desire to express my most sincere thanks: Drs. C. H. Kennedy, J. G. Needham, R. C. Osburn, Messrs. S. W. Bromley, C. W. Atwater, D. Merrill, W. G. Low, 3rd., W. J. Clench, F. C. Whitehouse, E. J. Smith, O. Bangs, H. C. Holcomb, and Miss Elizabeth B. Warden.
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(Numbers in blackfaced type refer to the full treatment of the species, those in lighter face to additional dates, stations, or corrections.)

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