

## THE ODONATA OF THE BLUE HILLS, NORFOLK COUNTY, MASSACHUSETTS, UNITED STATES

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**Abstract** — The seasonal distribution of 84 spp. of Odonata are recorded from the Blue Hills, a large natural reservation within the metropolitan Boston area.

### Introduction

The Blue Hills lie about 15 km south of downtown Boston and rise less than 200 m above sea level. Most of this area is now part of the Blue Hills Reservation, a 25.9 km<sup>2</sup> preserve which includes a variety of aquatic habitats and supports a large and diverse odonate fauna.

Odonata have probably been collected in the Blue Hills for more than a century. Hagen's specimens listed from "Milton", Massachusetts, in HOWE's *Manual of the Odonata of New England* (1917-1921; supplement, 1921) are most likely from the Blue Hills. It was in 1902, after Hagen's specimens were taken, that the Blue Hills Reservation was created. Hagen's records combined with later records listed by Howe as "Blue Hills" total 35 spp.

Between 1966 and 1971 I visited the Blue Hills and recorded 83 spp. of odonata. Several of the more important discoveries have been published previously (WHITE, 1969; WHITE & RAFF, 1970; WHITE, MILIOTIS, & LEAHY, 1974). Of the species recorded by Howe, six (*Calopteryx aequabilis*, *Enallagma hageni*, *Epiaeschna heros*, *Neurocordulia obsoleta*, *Erythrodiplax berenice*, and *Sympetrum obtrusum*) were not observed in this study although they still occur in eastern Massachusetts.

The accessibility of the Blue Hills and the

pressure for recreational facilities threaten the long term quality of some of the habitats. Several examples of changes brought about by this pressure will be noted in the following habitat descriptions.

### Habitat descriptions

Ponkapoag Pond (42° 12'N; 71° 06'W; elev. 46 m) is the largest body of water in the reservation (82 ha). With an average depth of 1-1.5 m, there are extensive areas of shallow water supporting emergent vegetation. The bottom is composed mostly of decomposing vegetable matter with regions of firm sand and large glacial boulders along its wooded shore. The outlet to Ponkapoag Brook is dammed to facilitate irrigation of a nearby golf course. In dry years the water level may fluctuate 0.5 m as a result of this irrigation.

The western margin of the pond abuts Ponkapoag Bog which has about half the area of Ponkapoag Pond. At the time of study, a small portion of the bog was being filled in slowly by the dumping of refuse from the golf course. Over 90% of the records reported in this note are from Ponkapoag Bog and adjacent parts of Ponkapoag Pond.

Two other ponds were visited on occasion. Houghton's (or Hoosicwhisick) Pond is 9.5 ha and averages 4 m in depth. It is a popular picnic, bathing, and fishing area and as a result the margins of the pond are disrupted. Hillside Pond is a small, shallow, artificial pond with barren margins.

The stream courses of both Ponkapoag Brook and the Blue Hills River have been altered by swamp-draining channelization or

highway construction. Both are small, shallow, and slow moving with muddy bottoms and marshy flood plains.

A few records from abandoned quarry pools in Quincy are included here. They are in the Blue Hills but not within the Reservation.

### List of species

The species marked with an asterisk (\*) were reported by Howe from Milton or Blue Hills.

Coenagrionidae: *Amphiagrion saucium* (June 13-22, two records from seepage areas along the Blue Hills river); — *Argia apicalis* (July 25, first state record, previously reported); — *A. fumipennis violacea* (May 30-Oct. 1); — *A. moesta* (June 7-July 6, on boulders along northern shore of Ponkapoag Pond); — *Chromagrion conditum* (May 20-July 23); — *Enallagma aspersum* (July 2-Aug. 14); — *E. boreale* (May 10-June 21, seems to be slightly different than the *E. boreale* found at oligotrophic lakes of northern New England later in the summer); — *E. civile* (May 22-Sep. 16); — *E. daeckii* (July 10-31, scarce, first state records, collected in 1966 and 1971); — *E. divagans* (May 30-July 6); — *E. doubledayi* (Aug. 14, at Quincy quarries); — *E. ebrium* (June 13-July 31); — *E. geminatum* (May 26-Oct. 1); — *E. laterale* (May 22-July 2, common at Ponkapoag Pond); — *E. minusculum* (May 22-Aug. 3, common at Ponkapoag Pond); — *E. pictum* (July 11-31, scarce only found near spillway to Ponkapoag Pond); — *E. signatum* (June 13-Sep. 16); — *E. travium* (July 4-25); — *E. vesperum* (June 4-July 17, occasional); — *Ischnura kellicottii* (July 29, one record); — *I. posita* (May 20-Sep. 16); — *I. verticalis*\* (May 10-Sep. 4); — *Nehalennia gracilis* (May 28-Sep. 4); — *N. irene* (July 11, one record).

Lestidae: *Lestes congener* (Aug. 31-Oct. 22); — *L. dryas*\* (July 21-31, scarce); — *L. eurinus*\* (June 6, only record); — *L. forcipatus* (July 23-Sep. 4); — *L. inaequalis*\* (June 4-Aug. 9); — *L. rectangularis*\* (July 2-Sep. 26); — *L. unguiculatus* (July 23-Sept. 4, scarce); — *L. vigilax* (June 6-Sep. 23).

Calopterygidae: *Calopteryx maculata*\* (May 28-Aug. 9, near flowing water only).

Gomphidae: *Dromogomphus spinosus* (July 6-Sep. 6, common, perched on boulders along north shore of Ponkapoag Pond); — *G.*

*exilis* (May 22-July 29); — *G. furcifer* (June 6, emergence on mud bank along Blue Hills River); — *G. spicatus* (June 7-21, three records); — *G. villosipes* (June 11, 1976, collected by K.W. Knopf).

Aeshnidae: *Aeshna canadensis* (Aug. 9-29, occasional); — *A. clepsydra* (Aug. 9-Oct. 1, common along bog margins of Ponkapoag Pond); — *A. constricta* (July 31, one record); — *A. tuberculifera* (Aug. 14, Quincy quarries); — *A. umbrosa*\* (Aug. 22-Sep. 23, along Blue Hills River); — *A. verticalis* (July 19-Sep. 16, occasional particularly in feeding swarms at dusk); — *Anax junius*\* (June 7-Sep. 5); — *Basiaeschna janata*\* (May 10-June 24, along Blue Hills River); — *Boyeria vinosa* (July 25, single sight record) — *Gomphaeschna furcillata*\* (May 10-July 2, frequent in Ponkapoag Bog); — *Nasiaeschna pentacantha* (June 13-July 11, two records).

Cordulegasteridae: *Cordulegaster diastatops* (May 28-June 13, along Blue Hills River).

Macromiidae: *Didymops transversa*\* (May 11-June 13).

Corduliidae: *Dorocordulia lepida*\* (June 6-Aug. 9); — *D. libera* (May 26-July 21); — *Epiheca cynosura*\* (May 15-July 11); — *E. princeps* (June 13-Sep. 16); — *E. spinigera* (June 7, one record); — *Somatochlora tenebrosa* (July 19-Sep. 1); — *S. williamsoni* (July 11-Aug. 21, seen regularly but never more than one or two at a time over open pools in the wooded section of Ponkapoag Bog); — *Williamsonia lintneri*\* (Apr. 30-May 26, most frequently found perched flat on logs or on a dirt road in the vicinity of Ponkapoag Bog; very easy to approach and collect).

Libellulidae: *Celithemis elisa*\* (June 7-Aug. 19); — *C. eponina* (July 6-Aug. 22); — *C. martha*\* (July 17-Aug. 18); — *Leptthemis simplicicollis* (June 21-Sep. 16); — *Leucorrhinia frigida* (June 11-Aug. 18); — *L. hudsonica* (May 2-Aug. 9, common in Ponkapoag Bog); — *L. intacta*\* (May 20-July 29); — *L. proxima* (May 22-Aug. 9, frequent at Ponkapoag Bog); — *Libellula cyanea*\* (June 10-Aug. 9); — *L. exusta*\* (May 17-July 23); — *L. incesta*\* (June 7-Sep. 26); — *L. julia* (June 23, Hillside Pond, one record); — *L. luctuosa*\* (July 6-Aug. 9); — *L. lydia*\* (May 22-Sep. 16); — *L. pulchella*\*

(June 13-Aug. 14); — *L. quadrimaculata* (May 10-Aug. 12); — *L. semifasciata*\* (July 31, one record but common at Cranberry Pond nearby in Braintree); — *Nannothemis bella* (May 28-Aug. 8, abundant at Ponkapoag Bog); — *Pachydiplax longipennis*\* (June 13-Sep. 16); — *Pantala hymanea* (Aug. 20, single sight record, first state record); — *Perithemis tenera*\* (July 4-Sep. 5); — *Sympetrum costiferum* (Aug. 8, probably more common than indicated, perched on vegetation on the outer reaches of Ponkapoag Bog); — *S. internum*\* (June 13-Oct. 1, identified as *S. rubicundulum* in previous publications, abundant); — *S. semicinctum*\* (July 6-Sep. 23); —

*S. vicinum*\* (July 31-Oct. 29).

**References** — HOWE, R.H., 1917-1921, *Mem. Thoreau Mus. nat. Hist.* 2: 1-8 (1917), 9-24 (1917), 25-40 (1918), 41-66 (1919), 67-94 (1920), 95-102 (1920), 103-114 (1921); — 1921, *Mem. Thoreau Mus. nat. Hist.* 3: 1-14; — WHITE, H.B., 1969, *Ent. News* 80: 88; — WHITE, H.B. & R.A. RAFF, 1970, *Psyche* 77: 252-257; — WHITE, H.B., P.S. MILIOTIS & C.W. LEAHY, 1974, *Ent. News* 85: 208-210.

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