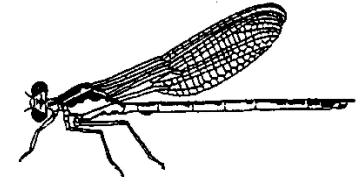


# Ode News



An Occasional Newsletter about Dragonflies and Damselflies in Southern New England

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Spring greetings! Spring, at long last, does seem to have arrived, though with the annoying ambivalence we expect here in southern New England. We experienced another old-fashioned and seemingly endless winter with an abundance of cold and snow. Here on Cape Cod, where of course it “never snows,” over 100 inches of the white stuff fell, about three times normal, establishing a record we’re not eager to break! In addition, ice persisted on the local ponds through the end of March.

But that’s all behind us now (knock on wood!) and it’s time to shake the cobwebs out of our nets, clean our close-focusing binoculars, and head out to find what the 2005 field season has in store. One thing we can expect is high water levels. While this may be beneficial to odonates, it often presents access problems for their terrestrial admirers!

As usual, the first locally emerging odonates were Ringed Boghaunters (*Williamsonia lintneri*), hundreds of which were already on the wing on 18 April at one of the region’s strongholds for the species in Rhode Island. Two days later, Maria Aliberti spotted the first Common Green Darner (*Anax junius*), also in Rhode Island, but, remarkably, no others were reported in April. Michael Veit found the first ode in Massachusetts, a teneral Hudsonian Whiteface (*Leucorrhinia hudsonica*), on 21 April, and the following day discovered three teneral Ringed Boghaunters at a new site in Groton.

In this issue, Mike Thomas and Dave Wagner provide a summary of the 2004 field season in Connecticut, along with an accounting of the state-listed species in that state, Michael Veit chronicles his search last summer for rare riverine dragonflies in Massachusetts, Fred SaintOurs describes his efforts to learn more about the distribution and habitats of the Umber Shadow-dragon, and Dan Zimmerlin draws our attention to under-surveyed Bristol County.

Note also the list of upcoming walks and programs on pages 2-3. The Dragonfly Society of the Americas holds its annual meeting in Ottawa this July, within a day’s drive for those of us in southern New England, and we hope to see to a large turnout from this area. It should be a great meeting.

It looks like another exciting and productive season (but aren’t they all) and we look forward to seeing you in the field!



Spangled Skimmer (*Libellula cyanea*) — male  
Harwich, MA — July 1994

This common skimmer, with its distinctive black and white stigmata, is one of our most easily recognized dragonflies.

© Blair Nikkula

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## 2005 MASSACHUSETTS WALKS AND PROGRAMS

Following are some of the activities scheduled in Massachusetts this season. Most of these events are free, but some are scheduled by organizations and require registration and/or a fee. Many are weather dependent, so if in doubt please call the leader to check on status.

**May 15 (Sunday), 9:00 a.m. Odes and Butterflies.** Meet at the Millers River Environmental Center, 100 Main Street, Athol. Leaders: Lulu Field and Dave Small (978-249-2094; dhsmall@gis.net).

**May 21 (Saturday), 9:30 a.m. to 3:30 p.m. Norcross Wildlife Sanctuary, Wales, MA.** Join an exploration of the wilds of the Norcross Wildlife Sanctuary. This is a joint effort of the Athol Bird and Nature Club (ABNC) and Norcross Wildlife Sanctuary, led by Dave Small, President of the ABNC, and Norcross naturalist, Jennifer Ohop. Bring lunch and a net if you have one. **Pre-registration required.** Limited to 10 participants. Call Norcross at 413-267-4859. Athol contingent will leave from MREC at 8:15.

**May 22 (Sunday), 9:00 a.m. Concord Early Season Odes.** Explore Concord and vicinity for early fliers, possibly including Ringed Boghaunter. Meet at Nine Acre Corner Convenience Store (intersection of Rte. 117 & Sudbury Road), Concord. Leader: Dick Walton (978-369-3729; dick@concord.org).

**June 9–12. DSA Northeast Meeting in State College, Pennsylvania.** See details on page 3.

**June 18 (Saturday), 9:00 a.m. Coastal Plain Odes on Cape Cod.** A search for early season specialties of Coastal Plain ponds. Meet at the entrance to Nickerson State Park (parking lot on the right just past the entrance gate) off Route 6A in Brewster. Leader: Blair Nikula (508-432-6348; odenews@odenews.org).

**July 3 (Sunday), 9:00 a.m. Connecticut River Canoe Trip.** A canoe trip for clubtails and other "Big River" specialties. Bring a canoe or kayak and lunch. Meet at the small

dirt parking area on the west side of the river on River Road, at the intersection of Route 116 (west end of the Sunderland Bridge) in Deerfield. Leader: Blair Nikula (508-432-6348; odenews@odenews.org).

**July 5–23 July. Dragonfly Institute at Broadmoor Wildlife Sanctuary in Natick.** See details on page 3.

**July 8–12. DSA National Meeting in Arnprior, Ontario.** See details on page 3.

**July 23 (Saturday), 8:00 a.m. Mystery Trip to Southern Vermont.** Join Lynn Harper, Dave Small and Vermont's Mike Blust in a search for new county records, new state records, or any odes at all for that matter, in Southern Vermont. Bring your lunch, your net, your sense of adventure, and prepare to get wet. Meet at the Millers River Environmental Center, 100 Main Street, Athol. Or contact Lynn (978-249-9436; HarperLynn@msn.com) for an alternate meeting spot near our first stop.

**July 27–30. Dragonflies of Cape Cod Workshop.** Part of the Field School program at MassAudubon's Wellfleet Bay Wildlife Sanctuary. Instructor: Gail Howe Trenholm. Cost: \$225/members; \$255/non-members. For info or to register, call: 508-349-2615 or email: wellfleet@massaudubon.org.

**August 6 (Saturday), 9:00 a.m. Northern Berkshire County.** A trip to look for darners and other late season species in the Savoy State Forest and vicinity. Meet at the dirt parking area on the north side of Route 2 just east of the entrance to the Mohawk State Forest. Leader: Blair Nikula (508-432-6348; odenews@odenews.org).



**September 3 (Saturday), 9:30 a.m. Late Season Specialties of the Millers River.** Meet at Millers River Environmental Center, 100 Main Street, Athol, MA. Leader: Dave Small (978-249-2094; dsmall@gis.net).

**September 10 (Saturday), 8:00 a.m. Ashuelot River in Southern NH.** Look for

late season odes with Lynn Harper and Earle Baldwin on this day-long excursion to our neighboring watershed. Bring your lunch, your net, your sense of adventure, and prepare to get wet. Meet 8 AM at the Millers River Environmental Center, 100 Main Street, Athol, MA. For additional information contact Lynn at 978-249-9436; HarperLynn@msn.com.

## 2005 DSA NORTH AMERICA MEETING

The Dragonfly Society of the Americas will hold their 2005 national meeting in Arnprior, Ontario, 8–12 July. Arnprior is situated on the Ottawa River at the confluence with the Madawska River, about 25 miles west of Ottawa, and offers the possibility of Elusive Clubtail (*Stylurus notatus*), Midland Clubtail (*Gomphus fraternus*), Horned Clubtail, (*Arigomphus cornutus*), Extra-striped Snaketail (*Ophiogomphus anomalus*), Broad-bodied Shadowdragon (*Neurocordulia michaeli*), and Stygian Shadowdragon (*Neurocordulia yamaskanensis*), among the 110 species that have been recorded in the area. One day will be devoted to indoor programs. A 2-3 day post-conference trip will travel north to search for rare emeralds. Details can be viewed online at:

<[www.afn.org/~iori/oinevent.html#DSA2005](http://www.afn.org/~iori/oinevent.html#DSA2005)>

## BROADMOOR DRAGONFLY INSTITUTE

This three-week beginner's course, sponsored by MassAudubon's Broadmoor Wildlife Sanctuary in Natick, Massachusetts, will focus on the life cycle, habitat, behavior and identification of dragonflies. Conducted from July 5–23, it will consist of three evening lectures and three field trips: slide lectures on Tuesday evenings (7:00 – 8:30 p.m.) July 5, 12, and 19, with field trips on Saturdays (10:00 a.m. – 2:00 p.m.), July 9, 16, and 23. Close-focusing binoculars recommended.

Instructor: Bob Bowker. Special guest Blair Nikula will give the last lecture and lead the last field trip. The fee is \$45 for MassAudubon members; \$50 for non-members. To register, call the Broadmoor Sanctuary at: 508-655-2296.

## 2005 DSA NORTHEAST MEETING

The DSA's 2005 northeast regional meeting will be in State College, Pennsylvania, 9–12 June. The location is near Ten Acre Pond, a site that has received 50 years of continuous odonate surveys—a record of longevity unsurpassed in North America! Some 85 species have been recorded at this site, including Spatterdock Darner, Comet Darner, four species of whiteface, and nine species of spreadwings. In addition, a variety of other habitats are nearby where petaltails, clubtails, spiketails, emeralds, and others are likely. Long-time odonatologist Hal White is hosting the meeting. Details are online at:

<[www.udel.edu/chem/white/TAP.html](http://www.udel.edu/chem/white/TAP.html)>

## ADDITIONAL 2004 MASSACHUSETTS HIGHLIGHTS

The following records from Nancy Goodman were not received in time for the last issue of *Ode News*.

**Ocellated Darner** (*Boyeria grafiana*) [SC]: Twelve adults, eight males and four females, were netted, and two ovipositing females were seen, on the Green River in Colrain on 29 August; four more males were netted and 12 exuviae found farther south on the Green River in Greenfield on the same date.

**Rusty Snaketail** (*Ophiogomphus rupinsulensis*) [WL]: Four exuviae were found on the Connecticut River in Hadley on 14 August.

**Arrow Clubtail** (*Stylurus spiniceps*) [T]: One exuviae was found on the Connecticut River in Hadley on 14 August.

## CONNECTICUT HIGHLIGHTS – 2004

Mike Thomas & Dave Wagner

Lyre-tipped Spreadwing, Rapids Clubtail, Tiger Spiketail, Bar-winged and Great Blue Skimmers — 2004 was a good year. Over 1,400 records were added to the state's odonate database, including 14 new county records. Of the 148 species documented for Connecticut, 128, or 86%, were reported during the 2004 field season. A summary of noteworthy finds is provided below.

Connecticut state-listing designations: [E] = Endangered; [T] = Threatened; [SC] = Special Concern. *Observers:* Margaret Ardwin, Giff Beaton, Andy Brand, Greg Hanisek, Jay Kaplan, Cindy Kobak, Bob Muller, Noble Proctor, Dave Provencher, Mark Szantyr, Mike Thomas, Bill Yule, Steve Walter.

**American Rubyspot** (*Hetaerina americana*) [SC]: The only report for this striking damselfly again came from a known site on the Naugatuck River (Harwinton) on 24 August (MS). With the number of new sites reported from Massachusetts and Rhode Island (*Ode News*, Vol. XI, No.2), it seems likely that this late-season species has been overlooked in Connecticut.

**Great Spreadwing** (*Archilestes grandis*): For the fifth consecutive year, this southern spreadwing was reported from the state, with reports from North Branford on 26 August and 1 September (NP, MT) and North Guilford on 20 September and 4 October (CK). This species appears to be expanding its range northeastward and should be sought in Rhode Island and Massachusetts.

**Lyre-tipped Spreadwing** (*Lestes unguiculatus*): The first confirmed state record of an adult in over 80 years was provided by a male captured on 24 July (MT) in a sedge meadow in Farmington. The record was the first for Hartford County.

**Little Bluet** (*Enallagma minusculum*) [SC]: Several individuals captured at Uncus Pond (Lyme) on 31 May (NP) established a new early date, with other observers reporting individuals from this site in early July (JK, NP, MS).

**Scarlet Bluet** (*Enallagma pictum*) [SC]: Three males observed on 30 June (NP) at Bailey Pond in

Voluntown established a new early date for this handsome northeastern endemic.

**Citrine Forktail** (*Ischnura hastata*): This easily overlooked damsel was reported at several coastal sites from 31 May to 7 October (NP, MS). Most surprising was an inland site north of Hartford, where several adults were found in a sandplain on 20 July (MT). These were the first records for Hartford County.

**Comet Darner** (*Anax longipes*): Unlike the previous two years, there were numerous reports of this large coastal plain species from 9 June to 26 July in Middlesex, New Haven, and New London Counties (CK, GH, NP, MZ). Females were observed ovipositing at several traditional sites (NP), reinforcing our hopes that this species is a state resident.

**Mustached Clubtail** (*Gomphus adelphus*) [T]: A female and two males were found at a new site on the East Branch of the Shepaug River in Milton (Litchfield Co.) on 9 June (SW). Surprisingly, this is the only known population in the western half of the state. The only other reports came from a known site on the Eight Mile River in East Haddam, where adults were observed on 28 June and 7 July (NP, MT).



Mustached Clubtail (*Gomphus adelphus*) — male  
Cummington, MA — June 1996

© Blair Nikula

**Midland Clubtail** (*Gomphus fraternus*) [T]: With the Connecticut River running higher than normal, the traditional sandy beach sites in Cromwell and Portland were completely submerged during the early June flight. Other perching sites, including large boulders, dirt parking lots, and plowed fields along the river yielded several males from 5 June to 28 June (AB, GB, MT).

**Rapids Clubtail** (*Gomphus quadricolor*) [T]: Only recently rediscovered in the state (2003) along the Farmington River in Hartford County, this elusive and enigmatic clubtail was discovered at a second site on 31 May (DP, MS), when a male was taken in a field adjacent to the Shepaug River in Washington (Litchfield County).

**Zebra Clubtail** (*Stylurus scudderi*): The only report of this striking insect was of three individuals patrolling on the Salmon Brook in Granby (Hartford County) on 25 August (JK).

**Arrow Clubtail** (*Stylurus spiniceps*): Several adults were observed on the Farmington River in Simsbury on 25 August and 2 October (JK). This species is more widespread and abundant than previously thought, and was recently dropped from the State's endangered species legislation (it was formerly listed as a species of Special Concern).

**Umber Shadowdragon** (*Neurocordulia obsoleta*): Few Shadowdragons were observed patrolling along the Connecticut River at a site in Cromwell that perennially has had good numbers of adults during the month of June. On 27 June, a male Umber Shadowdragon was netted alongside a boat dock at 8:30 PM (GB, MT). For unknown reasons, **Stygian Shadowdragons** (*Neurocordulia yamaskanensis*) went unreported at this site for the first time in 10 years.

**Tiger Spiketail** (*Cordulegaster erronea*) [T]: Several males were observed along a small, forested stream on 17 July (NP) at a traditional site in Killingworth. A male discovered perching in a vegetable garden in Canton on 31 July (JK) provided an unexpected first Hartford County record for this regionally rare species, and established a new late date.

**Ski-tailed Emerald** (*Somatochlora elongata*) [SC]: A male of this seldom encountered emerald was netted and photographed along a small forested stream in Norfolk on 24 June (MS), establishing a new early date.

**Mocha Emerald** (*Somatochlora linearis*): This southern emerald was reported earlier than in previous years, with individuals found at Devil's Hopyard in East Haddam on 28 June (GB, MT). It was also seen at Iron Stream, in Haddam on 29 June (NP), and at Lake Gaillard in North Branford on 19 July (MA).

**Williamson's Emerald** (*Somatochlora williamsoni*): A male captured on 20 July (NP) in North Madison provided a first for Middlesex County. Two earlier records include a male from Lyme on 6 July (MS) and a female captured 7 July (MS) from Great Mountain Forest in Norfolk.

**Ringed Boghaunter** (*Williamsonia lintneri*) [E]: Several adults of this rare spring species were observed and photographed at a known site in Hampton between 13 May and 30 May (JK, NP, MS).

**Blue Corporal** (*Ladona deplanata*) [SC]: This coastal plain species was again reported in the vicinity of Uncus Pond in Lyme from 31 May to 7 July (NP, MS).



Blue Corporal (*Ladona deplanata*) — male  
Dennis, MA — June, 1994

© Blair Nikula

**Bar-winged Skimmer** (*Libellula axilena*): First documented in 1997, Bar-winged Skimmers moved into the state in good numbers in 2004, although to a lesser extent than Great Blue Skimmers. Noble Proctor and others (DP, MS, MT) reported them from seven coastal towns between 11 July and 7 August, including the first county records for Middlesex (NP) and New London (NP).

**Great Blue Skimmer** (*Libellula vibrans*): First documented in the state in 1993 and 1997 as single individuals, a major influx of this species was recorded this year by Noble Proctor and other observers along the southern half of the state, with 39 records added to the database. Great Blue Skimmers were reported from 21 towns (MA, AB, CK, DP, MS, MT) during the period 31 May to 13 September,

with first county records documented for Fairfield (NP), New London (MS), and Windham (DP) counties. Females of this species and the Bar-winged Skimmer were observed ovipositing at several sites. It will be interesting to revisit these sites to determine the degree of reproductive success.

Additional county records documented during the 2004 season include: **Hagen's Bluet** (*Enallagma hageni*) – New London (MT); **Mottled Darner** (*Aeshna clepsydra*) – Middlesex (NP); **Lilypad Clubtail** (*Arigomphus furcifer*) – New London (NP); **Petite Emerald** (*Dorocordulia lepida*) – New Haven (MA); and **Racket-tailed Emerald** (*Dorocordulia libera*) – New London (MT).

**Migratory Movements:** During the first week of June, a large northward movement of **Spot-winged Gliders** (*Pantala hymenaea*), along with a lesser number of **Painted Skimmers** (*Libellula semifasciata*) and **Common Green Darners** (*Anax junius*), was observed by Bill Yule at Hammonasset Beach State Park in Madison. The following week the species mix changed, with **Painted Skimmers**, **Black Saddlebags** (*Tramea lacerata*), and **Spot-Winged Gliders** observed in approximately equal numbers, along with a few **Twelve-spotted Skimmers** (*Libellula pulchella*) and **Common Green Darners**. Bob Muller reported a large southward migration of **Common Green Darners** on 10 September, with hundreds passing through his yard in Milford between noon and dusk.

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## CONNECTICUT'S RARE AND ENDANGERED ODNATES

Mike Thomas & Dave Wagner

The Connecticut Department of Environmental Protection maintains a list of rare and threatened species that are protected under the Connecticut Endangered Species Act (Public Act 89-224). The goal of the legislation is “to conserve, protect, restore and enhance any endangered or threatened species and their essential habitat.”

The first State Endangered Species List, which included four odonates, became official in 1992. As mandated, the list is reviewed every five years by an advisory committee consisting of DEP staff and a committee of six taxonomic experts. In 2003, the advisory committee recommended several additions, deletions, and changes to the list that were reviewed, accepted, and made official last year.

Of the 148 species of odonates documented for Connecticut, 18, or 12%, are currently state-listed as Endangered (1 species), Threatened (7 species), or Special Concern (10 species).

### DAMSELFLIES

**Sparkling Jewelwing** (*Calopteryx dimidiata*) - Special Concern  
**American Rubyspot** (*Hetaerina americana*) - Special Concern  
**Atlantic Bluet** (*Enallagma doubledayi*) - Special Concern  
**Little Bluet** (*Enallagma minusculum*) - Special Concern  
**Scarlet Bluet** (*Enallagma pictum*) - Special Concern

### DRAGONFLIES

**Mustached Clubtail** (*Gomphus adelphus*) - Threatened  
**Harpoon Clubtail** (*Gomphus desertus*) - Threatened  
**Midland Clubtail** (*Gomphus fraternus*) - Threatened

**Rapids Clubtail** (*Gomphus quadricolor*) - Threatened  
**Cobra Clubtail** (*Gomphus vastus*) - Special Concern  
**Skillet Clubtail** (*Gomphus ventricosus*) - Special Concern  
**Common Sanddragon** (*Progomphus obscurus*) - Special Concern  
**Riverine Clubtail** (*Stylurus amnicola*) - Threatened  
**Tiger Spiketail** (*Cordulegaster erronea*) - Threatened  
**Ski-tailed Emerald** (*Somatochlora elongata*) - Special Concern  
**Ringed Boghaunter** (*Williamsonia lintneri*) - Endangered  
**Blue Corporal** (*Ladona deplanata*) - Special Concern  
**Crimson-ringed Whiteface** (*Leucorrhinia glacialis*) - Threatened

If you encounter any of these state-listed odes, please submit your records to the Connecticut Department of Environmental Protection, Environmental and Geographic Information Center, 79 Elm Street, Store Level, Hartford, CT, 06106, or to either of us. Such data are used by state and local municipalities when evaluating projects that require a state permit, and help guide conservation actions in the state. Connecticut residents can also help protect Connecticut's imperiled wildlife by contributing to the Connecticut State Income Tax Fund on their yearly tax return and/or purchasing one of the state's new environmental plates (<http://dep.state.ct.us/burnatt/wildlife/geninfo/licplate.htm>).

## A SURVEY FOR STATE-LISTED RIVERINE DRAGONFLIES IN MASSACHUSETTS

Michael Veit

In 2004 I obtained a Small Research Contract from the Massachusetts Natural Heritage and Endangered Species Program to survey some of Massachusetts' less surveyed rivers for rare and endangered odonates. The primary objective of this study was to fill in some of the gaps in our knowledge of the distribution of state-listed riverine odonates on the Merrimack and Ware Rivers. Additional surveying was conducted on three other under-surveyed rivers: the Blackstone, Deerfield, and Quaboag. What follows is a brief summary of my findings.

**Methods:** I surveyed for larvae, exuviae, and adult dragonflies. However, I captured virtually no larvae during the first few visits, especially on the larger rivers. As I discovered that searching for exuviae was much more productive, I conducted larval dredging less frequently and concentrated on searching for exuviae. I encountered adults more sporadically and their presence was much more weather dependant than that of exuviae.

For most visits, I surveyed the river sections primarily by canoe. This seemed to be a very effective and fairly comprehensive method for finding evidence of odonates, since it allowed for close inspection of sections of the rivers that were relatively undisturbed and otherwise inaccessible. I paddled slowly and as close to shore as possible, and surveyed the shoreline, often with the aid of close focusing binoculars, for both exuviae and adults. Closer inspection was made on foot for exuviae at likely eclosion sites as well as for adults in fields and other sunny open areas.

**Results:** Over 15 river sections/sites within 19 townships were surveyed between 29 May and 1 September. From one to three visits were made to each section/site. Each visit lasted from 45 minutes up to five hours depending upon the methods employed and the length of the section being surveyed. Twelve species of state listed dragonflies were encountered in approximately 50 site records.

The vast majority of records were of exuviae. See Table 1 for a synopsis of the results.

**Major Conclusions:** Sampling for larvae was disappointing, and often seemed to be a waste of time, especially in the larger rivers, primarily the Merrimack. Although some of the lack of success may have been due to a general paucity of nymphs, it seems more likely that it was a consequence of the sampling method and timing. The nymphs of most of the burrowing, big river species probably spend their larval life in deeper water where the substrate and food availability is better, only approaching the shoreline in numbers just before eclosion. This makes larval sampling from the shoreline of limited success at any other time.

Still somewhat of a mystery is why exuviae of species such as Cobra Clubtail (*Gomphus vastus*) and the shadowdragons (*Neurocordulia* spp.) are so frequently found on man-made structures such as bridge abutments and retaining walls. There are at least two possible explanations. First is that the solid underwater portions of these structures are the preferred larval habitat. This may especially be the case for shadowdragons. A second is that eclosion is no more common here than on the shoreline, but that the exuviae simply are more resistant to destruction or removal, since these structures afford more protection from rain and wind than more exposed natural shoreline features.

At least two state-listed species were recorded on each of the five rivers surveyed (except for the Green, on which only one 45-minute stop was made), and at least one state-listed species was found at most sections/sites. This is a very telling statistic, as these are only a small selection of the possible sections/sites that could have been surveyed within a small sample of rivers in the state. Significantly more effort needs to be made to document the occurrences and natural history of rare and endangered riverine odonates so that we can better know their distributions and the



Rapids Clubtail (*Gomphus descriptus*) — female  
Pittsburg, NY — June, 1995

© Blair Nikula

specific threats to their existence, and so the state list can be refined accordingly.

Some species records made in this survey are of particular note. Of the state-listed species found, Spine-crowned Clubtail (*Gomphus abbreviatus*) and Arrow Clubtail (*Stylurus spiniceps*) were the most widespread. Both were found to be quite abundant on certain visits, over fairly large stretches of rivers, and each in three separate rivers. Based upon these findings and those of others, these two species are widespread throughout much of Massachusetts, and their status on the state list should be reconsidered and perhaps modified. The rarest species found during this survey was Riverine Clubtail (*Stylurus amnicola*). The only other records for this species in Massachusetts are from the Connecticut River. Specific effort should be made to further elucidate the status and range of this species on the Merrimack River.



Riverine Clubtail (*Stylurus amnicola*) - male  
Longmeadow, MA — June, 1998

© Blair Nikula

Other species records that deserve mention include the single adult female Harpoon Clubtail (*Gomphus descriptus*) found on the Green River, and the single Riffle Snaketail (*Ophiogomphus carolus*) exuviae found on the Ware River. Although the female *descriptus* most likely emerged from the Green River, larval sampling as well as exuvial surveying should be performed in the spring in order to confirm the status of this species in the Green River. Likewise, more extensive surveying should be performed for Riffle Snaketail along the Ware River at the appropriate time of the year and specifically in the vicinity of the 2004 record to determine if there is indeed a breeding population of *carolus* there.

*Acknowledgements:* Special thanks to Jennifer Loose and the Massachusetts Endangered Species & Natural Heritage Program, without whose help and support this project would not have been conducted.

**Table 1. Township Records for State-Listed Riverine Dragonflies—2004 Survey**

River	County	Township	A. mutata	B. gratiana	G. abbreviatus	G. descriptus	G. vastus	N. obsoleta	N. yamaskanensis	O. aspersus	O. carolus	S. amnicola	S. scudderi	S. spiniceps
Blackstone River	Worcester	Northbridge								A				E
Deerfield River	Franklin	Conway/Shelburne							E		A			
	Franklin	Buckland	A	E	A				E					
	Franklin	Deerfield												
Green River	Franklin	Leyden/Colrain				A								
Merrimack River	Essex/Middlesex	Lawrence												
	Essex/Middlesex	Methuen					E	E						E
	Essex/Middlesex	Andover						E						
	Essex	Haverhill					E	E						E
	Middlesex	Tyngsboro					A,E	E				E		E
Quaboag River	Worcester	Warren			A									
	Worcester	Palmer			A					E				
Ware River	Worcester	Hardwick/ New Braintree			E								A	E,L
	Worcester	Warren			A,E					E	E			

A = Adult, E = Exuviae, L = Larvae



## CHASING SHADOWDRAGONS

*Fred SaintOurs*

The Umber Shadowdragon (*Neurocordulia obsoleta*) lives up to its name, not just for its color, but for its interesting habit of appearing only at dusk. Around 8:15 p.m. during June and July a persistent, mosquito-proofed observer can find these shadowy creatures skimming along the surface of rivers and lakes. Presently this species and the Stygian Shadowdragon (*N. yamaskanensis*) are listed as Species of Special Concern in Massachusetts. However, these secretive insects have been observed at an increasing number of locations throughout New England in the past few years. In 2004 I conducted a much-needed regional assessment of their distribution and abundance, under contract with the Massachusetts Natural Heritage and Endangered Species Program.

Members of the genus *Neurocordulia* are generally found near running water; indeed, in Massachusetts both species have been observed at large to mid-sized rivers. However, *obsoleta* also has turned up at wind-swept lakeshores in Maine, New Hampshire, New York, as well as at man-made reservoirs in Massachusetts. A review of existing records showed patchy distribution throughout the northeast, with Maine having the greatest number of records and locations. Umber Shadowdragons had previously been observed in Massachusetts at water bodies ranging in size from small municipal reservoirs with a drainage area of only a few square miles to the Connecticut and the Merrimack Rivers. Because rivers and reservoirs are common throughout the state, it was difficult to narrow choices for site visits given how little regional information was available on this genus. There are nearly 300 reservoirs in Massachusetts, as many as 500 large dams (source: MassGIS), and thousands of smaller dams and bridges. Interestingly in suburban landscapes, emerging *obsoleta* larvae appear to have an affinity for human constructions. At some localities, exuviae have been found year after year on concrete walls,

dams, fish ladders, and especially on support structures beneath bridges, while being scarce on natural landscape features.

For the Massachusetts surveys, 25 trips were made in search of exuviae and adults during the flight season to 48 potential *Neurocordulia* habitats across the state during June and July of 2004. Six new localities were discovered. Four were suburban reservoirs and two were mid-sized rivers, the Charles River and the Concord River. The distribution of *obsoleta* appears to be limited to the eastern part of the state; all sites except the Concord River are east of I-95. However, *yamaskanensis* apparently has a very different distribution, having been found only from Worcester County westward (during this survey a small number of exuviae were collected from one location in Franklin County).



Umber Shadowdragon (*Neurocordulia obsoleta*) — male  
Waltham, MA — June, 1996

© Blair Nikula

While two locations produced more than 30 *obsoleta* exuviae each, most sites produced fewer than ten. Past efforts have yielded counts of more than 50 exuviae at one site in Plymouth County, though counts there this year yielded only 33. Searches under the bridge upstream from this site yielded 20 or more exuviae in past years, but none in 2004. Reduced counts at this site may indicate a population decline from previous years due to low water levels in 2001 and 2002, or may be due to physical changes in the river bottom below the bridge. No more than 10 adults have been seen at once at any location, and in most cases only one or two individuals

have been observed.

One site was visited several times to assess the persistence of exuviae under natural conditions. On the concrete walls of a fish ladder and spillway it was easy to monitor the shells in their original positions with binoculars. Most were collected, but 12 were left intentionally; positions ranged from fully exposed on vertical walls to protected corners and under overhanging vegetation. From emergence in

early June many (8) remained until mid July and five were still present on 31 July, including some that were fully exposed on the sides of the fish ladder. By mid August they all had disappeared, presumably due to heavy rains earlier that month.

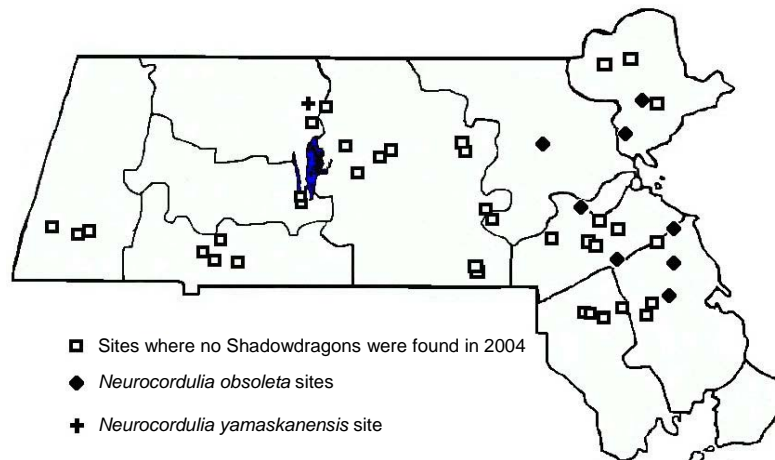
#### Discussion.

One physical characteristic stood out with regard to microhabitat of *obsoleta* exuviae: vertical surfaces. The most productive sites had extensive underwater vertical concrete surfaces directly below the exuviae. Bridge support structures in rivers and the underwater walls created by dams provide substantial vertical surfaces, both above and below the waterline. The concrete or stone embankments supporting bridges and riverbanks where the water is flowing perennially, and riprap reservoir dams exposed to prevailing winds, apparently provide ideal habitats for *Neurocordulia* larvae. All of the reservoir dams and bridge embankments where *obsoleta* exuviae were found had relatively steeply inclined ( $>30^\circ$ ) riprap banks that extended into the water. Exuviae in these places were found on sides of boulders from a few centimeters to about 2 meters above the waterline, in spaces protected from wind and waves. The spaces between the boulders underwater may provide a somewhat natural larval habitat. Emergence appears to be as straight upward as possible.

Rivers, reservoirs, and bridges with shallow banks, soft bottoms, and little or no vertical underwater surfaces did not provide any records during this survey. Coldwater rivers did not appear to support *obsoleta* populations. However, the reservoirs where they were found tended to be deeper and probably slightly cooler than typical lakes and ponds in the region. Shallow, weedy, warm water ponds such as Lake Nippenicket, and reservoirs with low shoreline profiles such as Wenham Lake, provided no records for this species.

Both *Neurocordulia* species appear to be relatively uncommon throughout the northeast. However, Michael Veit recorded more than 300 *Neurocordulia* exuviae on the Merrimack River in 2004, providing the greatest number recorded from a single location in the state.

2004 Shadowdragon Survey Sites



Interestingly all of the emergence substrates observed in Massachusetts during this study were man-made, primarily riprap dams and bridge supports, though in New Hampshire and Maine most exuviae were found on natural substrates. Although *obsoleta* populations do seem to benefit from some human habitat alteration, some threats exist from sediment loading and heavy recreational activities in lakes and rivers; fortunately, shadowdragons emerge in early June, avoiding the heaviest motorboat traffic. Although the drinking water reservoirs where *obsoleta* occur are protected from intensive recreational use, these populations appear to be relatively small and isolated and may be subject to severe fluctuations in water levels.

### ODE NEWS WEB SITE CHANGE

Due to a series of frustrating circumstances, culminating in the pirating of the "odenews.net" domain name, it became necessary to change the address of the Ode News web site. It is now located at:

<[www.odeneews.org](http://www.odeneews.org)>

Likewise, the email address has changed and is now:

[odenews@odenews.org](mailto:odenews@odenews.org).

## THE MISSING ODES: GAPS IN THE KNOWLEDGE OF BRISTOL COUNTY ODONATA

Dan Zimmerman

While new county records have started to slow as some heavily covered counties reach their species saturation point, there are still many gaps to be filled in the Bristol County list. The county total currently is 89 species, eight of which are known from historical records only.

With the exception of heavily developed Suffolk County, Bristol County is the only mainland county with under 100 species. Work during the mid 1990's by Mark Mello and Tom Pucci of the Lloyd Center in Dartmouth, while doing surveys for the Massachusetts Endangered Species and Natural Heritage Program for rare bluets, yielded 19 new county records and three species had their status upgraded from historical. While the work by the Lloyd Center greatly increased the county list, Bristol County still lags behind. I believe the county list with better coverage could be increased to at least 110 species.

Potential new species are listed in the table to the right. Almost all of these species have been recorded in nearby Norfolk or Plymouth counties. While some of these species are possible almost anywhere, many of them are most likely in the northern portion of the county. Most of the potential vagrant or new state records, however, are more likely in the southern part of the county.

I encourage anyone to search for these odonates. Much work needs to be done in this area and with everyone's participation we can meet the goal of breaking 100 species in Bristol County. I look forward to reading any reports about the discovery of these species in future issues of *Ode News*!

Thanks to Blair Nikula for reviewing drafts of this article.

### Species recorded historically:

Lyre-tipped Spreadwing (*Lestes unguiculatus*)  
 Lake Darner (*Aeshna eremita*)  
 Black-shouldered Spinyleg (*Dromogomphus spinosus*)  
 Illinois River Cruiser (*Macromia illinoensis*)  
 Uhler's Sundragon (*Helocordulia uhleri*)  
 Great Blue Skimmer (*Libellula vibrans*)  
 Elfin Skimmer (*Nannothemis bella*)  
 White-faced Meadowhawk (*Sympetrum obtrusum*)

(Of these, all but the darner and sundragon likely still occur in the county.)

### Potential New Species

(asterisk denotes high probability)

River Jewelwing (*Calopteryx aequabilis*) \*  
 Amber-winged Spreadwing (*Lestes eurinus*) \*  
 Blue-fronted Dancer (*Argia apicalis*)  
 Marsh Bluet (*Enallagma ebrium*)  
 Hagen's Bluet (*Enallagma hageni*)  
 Slender Bluet (*Enallagma trivatum*) \*  
 Turquoise Bluet (*Enallagma divagans*) \*  
 Eastern Red Damsel (*Amphiagrion saucium*) \*  
 Rambur's Forktail (*Ischnura ramburii*) \*  
 Sedge Sprite (*Nehalennia irene*) \*  
 Powdered Dancer (*Argia moesta*) \*  
 Taper-tailed Darner (*Gomphaeschna antilope*)  
 Cyrano Darner (*Nasiaeschna pentacantha*) \*  
 Spatterdock Darner (*Aeshna mutata*) \*  
 Lilypad Clubtail (*Arigomphus furcifer*)  
 Spine-crowned Clubtail (*Gomphus abbreviatus*) \*  
 Ashy Clubtail (*Gomphus lividus*)  
 Southern Pygmy Clubtail (*Lanthus vernalis*) \*  
 Brook Snaketail (*Ophiogomphus aspersus*)  
 Common Sanddragon (*Progomphus obscurus*)  
 Least Clubtail (*Stylogomphus albistylus*) \*  
 Zebra Clubtail (*Stylurus scudderi*)  
 Arrow Clubtail (*Stylurus spiniceps*)  
 Delta-spotted Spiketail (*Cordulegaster diastatops*) \*  
 Twin-spotted Spiketail (*Cordulegaster maculata*) \*  
 Stream Cruiser (*Didymops transversa*) \*  
 Racket-tailed Emerald (*Dorocordulia libera*) \*  
 Beaverpond Baskettail (*Epitheca canis*)  
 Spiny Baskettail (*Epitheca spinigera*)  
 Umber Shadowdragon (*Neurocordulia obsoleta*) \*  
 Coppery Emerald (*Somatochlora georgiana*)  
 Brush-tipped Emerald (*Somatochlora walshii*)  
 Williamson's Emerald (*Somatochlora williamsoni*)  
 Crimson-ringed Whiteface (*Leucorrhinia glacialis*)  
 Red-waisted Whiteface (*Leucorrhinia proxima*)  
 Blue Corporal (*Ladona* [*Libellula*] *deplanata*) \*  
 Bar-winged Skimmer (*Libellula axilena*)  
 Chalk-fronted Corporal (*Libellula julia*) \*  
 Needham's Skimmer (*Libellula needhami*) \*  
 Four-spotted Skimmer (*Libellula quadrimaculata*) \*

### Possible vagrants or new (+) state records

Blackwater Bluet (*Enallagma weewa*) (+)  
 Southern Sprite (*Nehalennia integricolis*) (+)  
 Yellow-sided Skimmer (*Libellula flavida*) (+)  
 Variegated Meadowhawk (*Sympetrum corruptum*)  
 Striped Saddlebags (*Tramea calverti*)

## HUMBOLDT ODONATE COURSE

The Humboldt Institute in eastern Maine will be offering a series of entomology seminars in 2005, including "Damselflies and Dragonflies: Systematics and Biomonitoring," 29 May – 2 June. This seminar is offered for naturalists and specialists involved with or interested in aquatic insect inventory and biomonitoring. The program will cover several topics in the study of Odonata including their life cycle, morphology, behavior, and species distributions in the Northeast, as well as sampling and preservation techniques. Fieldwork will provide experience in survey methods for all life stages. Lab work will focus on identification, as well as the use and creation of virtual collections using digital images. The course is being taught this year by Frederick H. SaintOurs, who has been documenting and studying Odonata throughout the Northeast and the American tropics for the last several years. Currently he is developing image-based, web-accessible invertebrate identification tools. For more information phone: 207-546-2821; or visit the Humboldt web site at: [<www.eaglehill.us/index.html>](http://www.eaglehill.us/index.html)

## Ode News

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