THE BOGHAUNTER

Occasional News About the Dragonflies and Damselflies of Vermont

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Going for Gomphids

Rearing Into Clubtail Success

By Nick Donnelly

Tired of being skunked by your buddies when you go looking for odes? Tired of them finding all the good ones, leaving you with a meager list of mainly pond damselflies and skimmers? Now you can get back at them. You, too, can find all those great clubtails that elude you on every trip. The secret, boys and girls, is REARING.

Gomphids are among the real prizes for people who chase odes. They tend to be elusive. As adults, they are extremely wary. Because of their large body weights and relatively small wings (high wing loading, in the terminology of aerodynamics people) they tend not to rely on their maneuverability, which is more limited than for most other dragonflies. The result is that they are inclined to take evasive action very quickly. Some spend most of their adult life in trees — ***Gomphus vastus*** **(Cobra Clubtail)** and ***G. quadricolor*** **(Rapids Clubtail)**, for example. Others, such as ***Stylurus spiniceps*** **(Arrow Clubtail**), spend their time who knows where – probably also in trees but possibly also away from the water. They are not just eluding the collector – they are also eluding the kingbirds and other predators who would just love pigging out on a juicy clubtail if they could only find one. So your problem is the same as the predatory bird: how to find them.

Adding to the difficulty of finding them is their tendency to "mass emerge," so that at least some will make it through to breeding even if the population suffers greatly from a mass

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Stylurus spiniceps **(Arrow Clubtail)**

A New Vermont Site for *Williamsonia fletcheri*

By Kevin Hemeon

Warm, sunny weather has been hard to come by this spring but May 11 was on the warm side, and with a week of rain in the forecast, my thoughts turned to insects.

Two bogs in Bennington County have been on my agenda for the past couple of years. Across a road from each other, the bogs have great differences in vegetation. One is a black spruce bog, with leatherleaf, cottongrass and highbush blueberry. I have been hoping to find Vermont's first *Callophrys lanoraieensis* (Bog Elfin) for the Vermont Butterfly Survey at this site.

The weather on May 11 was mostly cloudy and windy, not the best for butterflying. So I opted to try the second bog for odonates. This bog is sedge dominated at its center and is where I had previously found a colony of *Lycaena epixanthe* (Bog Copper). The dream list included ***Williamsonia lintneri*** (Ringed Boghaunter), yet to be found in Vermont, and ***W. fletcheri*** (Ebony Boghaunter), known from only one site in the state.

I was aware that both Williamsonia aren't necessarily found in the bog but rather

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Northeast DSA Meeting in NH

Here's your chance to rub shoulders with the likes of Nick Donnelly, Dennis Paulson and perhaps both Coenagrion species

The next Northeast regional gathering of the Dragonfly Society of the Americas will be held in and around Twin Mountain, New Hampshire, from June 22-25, 2006.

Besides the Coenagrion, local highlights include ***Calopteryx amata*** (Superb Jewelwing), Gomphids, Corduliids (perhaps including some early ***Somatochlora***), and five species of ***Leucorrhinia*** (Whitefaces).

Twin Mountain is conveniently located near the Pondicherry Wildlife Refuge, Franconia Notch, Crawford Notch, and the Kancamagus Highway, all of which host various combinations of northern bogs, swift rocky streams, and mountain ponds.

Just to the south, and as an option for more distant Sunday excursions, is the Merrimack River Valley with a completely different set of Gomphids and two species of *Neurocordulia*.

This year will also mark the first official attempt to evaluate the conservation status of the Odonata in New Hampshire and, with hope, a small scientific program will focus on Odonata conservation in the broader New England region.

For more information contact Pam Hunt at biodiva@fcgnetworks.net or visit:

http://home.comcast.net/~smirick/odes/meeting/NEmeeting.html

If you'd like to carpool from Vermont, contact Bryan Pfeiffer at Bryan@WingsEnvironmental.com.

THE BOGHAUNTER is an occasional newsletter about the dragonflies and damselflies of Vermont. It is available for no charge, although contributions to help offset postage and printing are welcome.

CONTRIBUTIONS to **THE BOGHAUNTER** can take two forms: financial and editorial. The newsletter appears two or three times per year. Even a donation of $5 to $10 would help offset printing and postage expenses, which are borne entirely by the editor. Your articles, photos, and ideas are welcome as well. The next issue should appear in December.

THE BOGHAUNTER is on the web in color at: www.wingsenvironmental.com/boghaunter.

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Now Flying in Vermont

By Bryan Pfeiffer

We almost began building arks. With rainfall exceeding seven inches for the month of May, a new Vermont record, odonates weren't really flying in force until the rain stopped on May 24. In southern Vermont Mike Blust and Kevin Hemeon were finding a lot of what Bryan Pfeiffer was finding in northern Vermont. Here's a *partial* list as of June 2:

Calopteryx amata	Superb Jewelwing
Calopteryx maculata	Ebony Jewelwing
Chromagron conditum	Aurora Damsel
Coenagrion resolutum	Taiga Bluet
Enallagma boreale	Boreal Bluet
Enallagma vernale	Vernal Bluet
Ischnura verticalis	Eastern Forktail
Ischnura posita	Fragile Forktail
Nehalennia Irene	Sedge Sprite
Anax junius	Green Darner
Basiaeshna janata	Springtime Darner
Gomphus borealis	Beaverpond Clubtail
Gomphus spicatus	Dusky Clubtail
Gomphus descriptus	Harpoon Clubtail
Lanthus vernalis	Southern Pygmy Clubtail
Didymops transversa	Stream Cruiser
Epitheca canis	Beaverpond Baskettail
Epitheca cynosura	Common Baskettail
Epitheca spinigera	Spiny Baskettail
Somatochlora franklini	Delicate Emerald

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***Epitheca canis* (Beaverpond Baskettail)**

Ladona julia	Chalk-fronted Corporal
Libellula lydia	Common Whitetail
Libellula quadrimaculata	Four-spotted Skimmer
Leucorrhinia intacta	Dot-tailed Whiteface
Leucorrhinia frigida	Frosted Whiteface
Leucorrhinia hudsonica	Hudsonian Whiteface
Leucorrhinia glacialis	Crimson-ringed Whiteface
Leucorrhinia proxima	Belted Whiteface

Nymphs: Seduction at a Price!

By Mike Blust

In mythology, nymphs are beautiful, playful spirits of nature with a dual essence of godlike and human qualities. The terms "beautiful" and "playful" are not usually associated with Odonata nymphs, though familiarity helps in our admiration of these creatures. However, as a biologist I do find a certain duality in adding nymphs to the repertoire of "ways to relate" to odes. If you mess around with nymphs, you must decide whether their gifts are worth the sacrifice!

THE GIFTS

Breeding confirmed – When you catch that Somatochlora adult as you walk a dirt road, you have an indication that that species *may* be coming from that bog nearby, but you cannot be sure. Adults can wander pretty good distances. This is more true of dragons than damsels, but damsels can be transported by weather systems. However, when you find nymphs of a species, you know that body of water can serve as a breeding ground for that species. This can be particularly important in land conservation/protection decisions.

The Rest of the Year – Birders change birds with the seasons, but they never have "birdless" months. Odonatists can extend their field season by looking for nymphs in the early spring and late fall. I suppose you could work through the winter, but maybe that is best left for working with specimens and data. Extended seasons are particularly useful since flight seasons of some species are short and it is difficult to get to many places simultaneously during that "prime time." As an example, I worked with a student this past fall on a survey of the Poultney River. Among other things, we documented Spine-crowned clubtails *(Gomphus abbreviatus)*. We were able to do this long after the flight season was done for the year. Remember, all species are out there in some life-stage, all the time!

Easier to catch (sometimes) – Certain odes have adult habits that make them difficult to find or catch. They may wander far from water, keep to the treetops, be found only at dusk, or use their speed and maneuverability to make us look like klutzes. Finding the nymphs may be far easier. They don't wander from the water, they are often within reach (we will cover this under "sacrifice" as well), time of day is irrelevant, and they are a few orders of magnitude slower. Still want to see/ photograph/voucher an adult? Then you can try to…..

Rear nymphs (especially mature nymphs) to adults – Mature nymphs require no feeding. Just add water and something for them to emerge on. Some sort of confinement for the adult may prevent you from spending 15 minutes or more scouring your lab/office until you find the skin of a Spine-crowned clubtail on the side of a chair and eventually find the adult hanging on the side of a couch –strictly hypothetical mind you!

© Mike Blust

Dromogomphus spinosus
(Black-shouldered Spinyleg)

THE SACRIFICE

ID is not easy – Identification of adults, in general, is easier than identification of nymphs. There are a number of reasons for this. One is that the adults are the breeders. Evolution favors species-specific differences for recognition and correct copulatory pairing that would not be necessary in nymphs, whose job is to eat without being eaten. Identification may only be possible on the more mature nymphs. Nymphs go through about 12 molts (+/-) and the identification keys are based on features that may not be present until the final (or close to it) stage.

ID keys are not easy – There are no "field guides" to nymphs. While there are a few nymphs that are distinctive, and many that can be readily placed to family or genus, you will need to purchase one of the "manuals" with dichotomous keys. These keys are great – except for the technical terms, subjective couplets, undocumented errors, complexity due to wide area coverage, paucity of illustrations for some features, and specimens that don't quite fit any of the choices.

Microscope – Yup. More optics! More bucks. But then again, what you see is better than the money you spend on TV!

Washer and Dryer – You probably get a little muddy and wet going after adult odes. If your spouse is just barely able to tolerate this, don't plan on getting into nymphs.

More collecting equipment – Nets and containers primarily. A little bit of expense, but perhaps the bigger issue is the decisions you have to make each time you go into the field. What will I bring this time? Rest assured that you will frequently regret not bringing everything, and that you will frequently regret bringing everything.

More storage equipment – Nymphal specimens need to be kept in vials/jars or ethanol. I have access to them through my work as a biologist. Options for others may be more limited. You need a way to organize and store them as well. Some maintenance is required to make sure the alcohol does not evaporate from vials that do not seal well.

One point I have not yet mentioned is exuviae or "skins". These nymphal shells are easier to collect than nymphs, but are seasonal and are even harder to identify due to distortion and their fragile nature. Many odonatists collect the skins. If you are going to go that far into the nymphal world, you might as well get in deeper.

Mike Blust is a professor of biology at Green Mountain College. He is compiling data for a publication on the distribution of Odonata in Vermont.

New Vermont Site for *Williamsonia fletcheri*

***Williamsonia fletcheri* (Ebony Boghaunter)**

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perched on tree trunks or rocks or the ground in surrounding sunny breaks. They also seem to prefer light-colored perches. My plan was to walk the road that runs between the bogs and see what, if anything, might be there.

I went to park and noticed a small, white birch-lined path on the east side of the bog. The path was close to the crest of a hill whose west facing slope leads to the bog. I thought it looked promising and decided to walk that instead.

Once I entered the woods the wind subsided. The slope and trees formed a good windbreak and the sun hit a larger than normal patch of blue. Looking around I noticed some ***Ischnura verticalis*** (Eastern Forktail) on the path; my hopes rose.

Not 50 feet down the path I noticed a small black dragonfly tentatively alighting on a birch trunk, never settling but looking like it might. I crept in for a closer look. The ode, of course, flew downslope towards the bog. I quickly lost it in the dappled shade and began a search of the birch and beech trunks up and down the slope. While I was hoping for ***W. fletcheri***, I didn't see this escapee clearly enough to rule out a ***Leucorrhinia*** (Whiteface) species.

I returned to the trail and headed past the original birch towards the road. Twenty feet from the tree was the remains of a fallen birch. The bark was still intact and on it was a small black dragonfly. Heart pounding I eased my net closer and flipped it over the ode. It didn't even react until the net was over it and flew weakly when I raised the mesh so it would fly up into the cone.

The first thing I checked when I pulled it from the net was the face. Not white! With that and a confirmation from Mike Blust, I was happy to have found a second site for ***Williamsonia fletcheri*** in Vermont. All the better because the first site was in the northeast and this was in the southwest. Hopefully, this means the potential for finding more sites exists throughout the state.

Heck, you might not even need to get your feet wet!

Even though he lives in New York (not far from Bennington County), Kevin Hemeon has fast become a legend of sorts among Vermont lepidopterists. We call him Kevin "Sweet Nectar" Hemeon for his propensity to find new state butterflies as a volunteer with the Vermont Butterfly Survey. And now, at long last, Kevin is aiming his net and artful swing toward dragonflies. Expect new state ode records.

Calendar of Entomological Events

Vermont Entomological Society Annual Spring Picnic

June 24 / Noon to whenever
Emerald Lake State Park / Dorset

Bring a dish to share or something to grill for our annual pot-luck picnic and invertebrate excursion. We'll spend the afternoon searching for insects at the park.

MES Diptera BioBlitz

July 14-17

The Maine Entomological Society will again cooperate with Acadia National Park, Maine Forest Service, University of Maine and the George B. Dorr Museum of Natural History (College of the Atlantic) in Bar Harbor for this BioBlitz.

Flying Nightlife - Burlington

August 5 / 8 pm to bedtime

We'll search for moths and other nocturnal insects during our first nighttime foray into Vermont's largest city. Watch for details about where to meet and what to bring in our next newsletter.

Massachusetts Ode Trips

June 17 / 9 am
Myles Standish State Forest
Plymouth, MA

A search for some early season Coastal Plain specialties, such as Pine Barrens Bluet and Blue Corporal. Meet at the east entrance to the park at the intersection of Long Pond Road and Alden Road. Leader: Blair Nikula (508-432-6348; odenews@odenews.org).

July 2 / 9:30 am
Athol Dragonflies

Join Dave Small and Lula Field as we explore local wetlands and water courses for summer dragonflies. Bring your lunch, insect net, your sense of adventure, and be prepared to get wet wading in shallow water. Meet at the Millers River Environmental Center, 100 Main Street, Athol. Information: Dave Small (978-249-2094; dhsmall@gis.net).

July 15 / 9:30 am– 3:30 pm
Norcross Odonates

Join an exploration of the wilds of Norcross Wildlife Sanctuary in a effort to discover what kinds of dragonflies and damselflies it harbors. This is a joint effort of the Athol Bird and Nature Club (ABNC) and Norcross Wildlife Sanctuary, led by Dave Small and Norcross naturalist, Jennifer Ohop. Bring lunch, and a net if you have one. Pre-registration required. Call Norcross at 413-267-4859. Attendees are limited to 10. Athol contingent will leave from MREC at 8:15 am.

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***Ischnura verticalis* (Eastern Forktail)**

July 20 / 7:30 pm
Millers River

Target bugs: shadowdragons! Meet at MREC at 7:30 pm (that's in the evening, folks) and we'll carpool to the river. Bring nets and footgear for wading. Leaders: Dave Small (978-249-2094; dhsmall@gis.net) and Lynn Harper (978-249-9436; HarperLynn@msn.com).

July 22 / 9 am. – 3 pm
Quabbin Butterflies and Dragonflies

Join Dave Small as we explore Quabbin's wetlands and water courses for summer dragonflies. Bring your lunch, insect net, and your sense of adventure. Meet at the Millers River Environmental Center, 100 Main Street, Athol, MA. Preregistration is requested. Contact:abnc@millersriver.net or 978-448-9491.

July 23 / 9:30 am
World's End Dragonfly Survey

The Boston Harbor Island National Park is seeking amateur and professional naturalists to help us identify and count dragonflies, damselflies and butterflies at World's End in Hingham on Sunday, July 23, 2006. Help us as we make progress on an exciting and ambitious project, an all-taxa biodiversity inventory (ATBI) of the insects and invertebrates of the islands. This project is led by the Harvard Museum of Comparative Zoology and the event is held in conjunction with The Trustees of Reservations. Through this citizen science effort we hope to gain new scientific information on the biodiversity of the park and raise public awareness of biodiversity and its relevance to everyday life. For more information and to register, contact Mary Raczko at 617-223-8596 or Mary_Raczko@nps.gov. Reservations are required; the event begins at 9:30 am.

August 5 / 9 am
Bristol County

Meet at the Shaw's Supermarket on King's Highway (Exit 4, off Route 140) in New Bedford to explore some little-known areas in Bristol County. Leaders: Blair Nikula (508-432-6348; odenews@odenews.org) and Dan Zimberlin (zimberlin@hotmail.com).

August 6 / 9 am
Conant Brook Reservoir, Monson

This state reserve hosts a rich variety of odonates (49 species recorded in just two visits). Meet behind the McDonalds on Route 32, just north of the MassPike toll booth (Exit 8). Leader: Blair Nikula (508-432-6348; odenews@odenews.org).

August 19 / 9 am
Deerfield River

Canoe/kayak/tube the lower Deerfield River, from the Stillwater Road bridge to a take-out spot yet to be determined. Target bugs: all of them! Meet at MREC at 8 am, or at the Stillwater Road bridge in Deerfield at 9 am. Bring lunch, water, sunscreen, nets, and prepare to get wet. This stretch of the Deerfield is low-gradient, so there shouldn't be any rapids to worry about. Leaders: Dave Small (978-249-2094; dhsmall@gis.net) and Lynn Harper (978-249-9436; HarperLynn@msn.com).

Going for Gomphids

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***Hagenius brevistylus* (Dragonhunter)**

slaughter during emergence, mainly by red wings and grackles. A mass emergence means the total adult lifetime of the species collectively is briefer than for more laid-back species, such as the skimmers, which fly with far more prowess, and trust in their ability to elude nasty birds.

Early in my ode career I had a good friend at Cornell (Bob Gibbs, who went on to become a noted ichthyologist) who was handy with dredges, seines and the other tools that one uses to sample streams. So we went out around Ithaca in May and collected oodles of live larvae. Their fully developed wing pads meant they were about to emerge. We brought these back and kept them in five-gallon aquaria in our rooms, with some screen wire for emergence, and simply waited for something to happen. Towards the end of May our tanks produced oodles of adults, who emerged literally by the dozen on some mornings.

Thus, at an early stage in my career I was rearing abundant ***Ophiogomphus carolus* (Riffle Snaketail)**, which the noted Cornell professor James Needham had pronounced "rarely seen in the wild." This wasn't and still isn't really true, but what *is* true is that rearing quickly became the method of choice for finding gomphids. In one local stream I reared six species of ***Gomphus***, and at another I found abundant ***Stylurus scudderi* (Zebra Clubtail)**, which I never found as adults around Ithaca. I was hooked. I got George Beatty in Philadelphia interested in rearing and he found many good things in the Delaware valley. At one point he mailed me a dozen live larvae in a quart milk container (this was before there was a Department of Homeland Security). The ***Neurocordulia*** all perished, but one of the ***Macromia alleghaniensis*** (Allegheny River Cruiser) survived and emerged in my aquarium. These dudes are tough.

At the same time I was collecting around my home in Washington, DC. I dredged ***Stylurus*** larvae at many places, and, upon rearing them, found that ***Stylurus laurae*** (Laura's Clubtail), which had never been recorded anywhere near Washington, was really one of the most common local gomphids.

After a round of graduate school, I settled in Houston, Texas, for seven years. I discovered the east Texas piney woods and dredged up a storm. Shortly I was rearing more ***Stylurus laurae*** (a state record for Texas, and I am not certain it has ever been taken in Texas subsequently). I also found the first ***Gomphus modestus*** (Gulf Coast Clubtail) for the state this way, and the first ***Gomphus apomyius*** (Banner Clubtail) ever were found. Some time after I left Texas for the sunny North, friends who began to retrace my steps down there said they could never find many of the things that I had recorded. Why? They didn't rear anything.

Recently I have also added ***Gomphus quadricolor*** (Rapids Clubtail) to our county fauna and established ***Gomphus viridifrons*** (Green-faced Clubtail) as an inhabitant of the upper Delaware River. But one of the most important payoffs from my years of rearing is that I now possess a nice collection of identified exuviae. The finding of exuviae is one of our most valuable tactics for establishing the local faunae. But their identification is a very difficult exercise, and even careful following of published keys is a chancy proposition at best. To identify exuviae properly, one really has to have a good collection of identified species. ***Gomphus descriptus*** (Harpoon Clubtail) and ***G. lividus* (Ashy Clubtail)** are almost identical, but for those who possess reared specimens, it is possible to identify females rather easily, and even males. Just try distinguishing ***Ophiogomphus rupinsulensis*** (Rusty Snaketail) and ***O. carolus*** (Riffle Snaketail) from the book – the characters of the labium are very subtle without reference material.

So, friends, if you want to survey an area, you will miss a lot of things if you don't rear.

What is involved? It is all very simple. You need a water tank. I prefer a five-gallon fish tank, but I also use a 20-gallon

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tank. You need some clean sediment (stream sand is great) for the bottom, so your little buddies can burrow. You should have a "air bubbler," which is a very simple and cheap accessory available at fish stores. Finally, you need to have some stiff screen (I prefer 1/4 inch hardware cloth) in the tank so that the emerging ode can climb out of the water. I found that the position of the wire is unimportant. Even if they emerge in the wild on a horizontal surface, they will happily emerge on a vertical surface, as long as they have a substrate that allows them to hook their little tarsi firmly.

What do you feed them? Nothing. If you take them in early May, they will already probably be beginning their "resting" phase before emerging, and they can easily coast through to emergence with what they already have in their tummies. If you want, however, you can feed them a variety of small wiggly things, including some commercial live fish food. It is fun to watch them grab and consume critters you put in the tank. But don't be surprised if they don't eat at all. ***Cordulegasters*** are really fun – watching them eat small worms is like seeing a kid eat spaghetti by sucking in single strands.

A problem with a crowded tank is that they may eat each other, or just take a chomp out of their neighbor. I have lost a few specimens that way. Another small complication I found is that a tank full of ***Ophiogomphus*** might produce a mass emergence, and more than once I have returned to my room in the afternoon to find nearly a dozen adults clinging to the wire screen on the sides, with a dozen exuviae also on the screen. Which adult goes with which exuviae? Obviously, there is no certain way of knowing. Thus a refinement that you might consider is placing each larvae in a small cylinder (say about three to four inches in diameter and about a foot long) rolled from window screen, and with the ends pinched closed. The cylinder with the larvae is placed in the tank, so that it is about half beneath the water, with the upper part dry. Then they will simply emerge in their individual cages, and the adult and its cast skin are kept together.

What to do with the adult specimens? You can simply release them after inspecting them and recording the species. I like to keep most of them in the collection, but as tenerals they are too soft for decent preservation. I transfer them to a softer cage made from plastic window screening (the same as I carry in the field for teneral specimens if I really want to bring them back for identification) and let them harden up a bit. They never really develop full adult hardness, but at the same time they display bright colors you may never see in the field, unless you come upon a very freshly emerged specimen. An example is ***Gomphus lividus*** (Ashy Clubtail). Adults are among the least vividly colored gomphids, but a freshly emerged male will have vividly contrasting yellow and dark on the thorax, and the end of the abdomen will be a bright chestnut color. In the wild, the colors rapidly dull up, and many adults in the north quickly become a dull gray.

This is just the season to rear things in the northeast. The best time for collecting the larvae is during May, with emergences expected mainly at the end of the month and into early June. What are you waiting for?

Nick Donnelly has been studying odonates across North American and the world for over half a century, and is one of the world's pre-eminent odonatologists. He was a founding member of the Dragonfly Society of the Americas and edits its newsletter, Argia*. He has published scores of papers about odonates worldwide, and is currently working on a guide to North American Odonata.*

Gomphus vastus **(Cobra Clubtail)**

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Libellula cyanea (Spangled Skimmer)