

Dragonflies and Damselflies (Odonata): Field Techniques and Identification

July 5 - 11, 2015

General Seminar Information

Although dragonflies and damselflies are fairly easy to learn, they can be hard to catch or observe in the field. This seminar will emphasize practical field skills for locating, identifying and enjoying members of the order Odonata.

Morning lectures will cover biology, taxonomy, and ecology. In the field, students will learn visual identification, net technique, catch-and-release identification, specimen collection, and (for those interested) photography. Most important, the seminar will feature a truly “generic” approach to this order: we will cover

the particular habitat requirements, field techniques, and appropriate morphological characteristics for the more elusive (and prized) genera, including *Ophiogomphus* (Snaketails), *Stylurus* (Hanging Clubtails), *Somatochlora* (Striped Emeralds) and certain members of other genera. For example, although many *Somatochlora* and *Leucorrhinia* species inhabit peatlands, your approach to finding and identifying them are entirely different. Evening sessions will cover identification, specimen preparation and photography. We will use mounted specimens for indoor lessons in field macro photography. Although students will be busy with adult dragonflies, we will briefly cover nymph collection and identification.

This seminar is suitable for beginning and advancing odonatologists, and for collectors and observers alike. You will get wet and be happy in the company of these charismatic insects.

Instructor

Although he is most certainly a field entomologist, Bryan Pfeiffer (bryan.pfeiffer@uvm.edu) is probably more of a teacher at heart. Over the course of three decades, he has lectured and guided people in the discovery of birds and insects. As a consulting field birder and entomologist, Bryan has worked for governments, timber companies, private landowners, and conservation groups. He has netted and photographed dragonflies and damselflies from tropical forests to above the Arctic Circle. As an educator, Bryan teaches professional writing to graduate students in the University of Vermont’s Field Naturalist and Ecological Planning Programs. Because he would rather spend time in the field, Bryan has a relatively small list of publications in odonatology to his credit, and is only making grudging progress on a book about dragonflies called *Pantala: What an Insect Tells us about Sex, Evolution, and the Human Condition*.

Class limit: 16 participants

Seminar location: Steuben, Maine, and nearby field sites



Lecture and Field Schedule

You'll probably find Bryan before breakfast each morning on a birdwalk, which you're welcome to join. At 8:30 AM, after breakfast, we'll be in lectures and discussion on odonate biology most mornings. We'll get into the field each day either by late morning (with a boxed lunch) or after lunch indoors. We'll return to Steuben from the field no later than 6PM so that you'll have an hour to decompress before supper at 7 PM. At 8 PM each night, we'll begin optional specimen work, photography practice or other assignments or independent studies. Recognize that we need sunshine for odonates in the field; so this schedule could change with the weather.

July 5

- Afternoon to early evening – informal greeting and acquaintance
- 7 PM – Supper
- 8 PM – Odes and Us: A general discussion of the course, who we are, and our objectives

July 6

- 8:30 AM – Morning presentation and discussion:
 - *From the Devonian to Darwin: The Rise of Dragonflies* (400 million years of evolution in about in 40 minutes)
 - Odonata anatomy and life cycle
 - Taxonomy and family values (family characteristics)
- 12:30 PM – Lunch
- 1:30 PM – Net technique and field exuberance: “Good things come to those who wade.”
- 3-5:30 PM – In the field near Eagle Hill (with emphasis on catch-identification-and-release)
- 7 PM – Supper
- 8-9 PM – Fundamentals of field photography

July 7

- 8:30AM Morning presentation and discussion:
 - Actualizing Aeshnidae and Getting Gomphidae
 - Enallagma Enlightenment
 - Insect macro photography
- 12:30PM – Lunch
- 1:30-6 PM – In the field
- 7 PM – Supper
- 8-9 PM – Specimen preservation and curation

July 8

- 8:30AM Morning presentation and discussion:
 - Courting Cordulegastridae and Coveting Calopterygidae
 - Catching Corduliidae and Managing Macromiidae
- 12:30PM – Lunch
- 1:30-6 PM – In the field
- 7 PM – Supper
- 8-9 PM – Specimen work and photography practice

July 9

- 8:30AM Morning presentation and discussion:
 - Learning Libellulidae and Lestidae
 - Nymph (Larval) collection and identification
- 12:30PM – Lunch
- 1:30-6 PM – In the field
- 7 PM – Supper
- 8 PM – Specimen work (adults and nymphs) and photography practice

July 10

- 8:30AM Morning Discussion:
 - North temperate odonate natural communities
 - Generic approaches to *Ophiogomphus*, *Stylurus*, *Somatochlora*, *Williamsonia*, *Leucorhinnia*
- 12:30PM – Lunch
- 1:30-6 PM – In the field
- 7 PM – Supper
- 8-9 PM – *Dragonfly Sex and the Most Amazing Experiment in the World* (rated PG, for politely graphic)

July 11

- Morning discussion
- Departure after breakfast

Books, Field Guides and Other References

The following field guides are required for lectures and field investigations:

- *The Dragonflies and Damselflies of Algonquin Provincial Park and the Surrounding Area* by Colin D. Jones, Andrea Kingsley, Peter Burke and Matt Holder: <http://store.algonquinpark.on.ca/cgi/algonquinpark/00517.html>. This guide not only features the vast majority of species we'll encounter in Maine, it is an excellent resource for learning odonate morphology.
- *Damselflies of the Northeast* by Ed Lam: <http://www.edlam.net/book.html>

These field guides are highly recommended but not required:

- *Dragonflies and Damselflies of the East* by Dennis Paulson: <http://press.princeton.edu/titles/9538.html>
- *A Field Guide to Dragonflies and Damselflies of Massachusetts* by Blair Nikula, Jennifer L. Loose, and Matthew R. Burne: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/publications-forms/publications/>

Other general references (not required for the seminar):

- *The Maine Damselfly and Dragonfly Survey Final Report (2005)*, which can be downloaded at: mdds.umf.maine.edu/
- *Dragonflies: Behavior and Ecology of Odonata* by Philip S. Corbet. Comstock Publishing Associates. 1999.
- *Dragonflies of North America 3rd Edition* by James G. Needham, Minter J. Westfall, Jr., & Michael L. May. 2014
- *Damselflies of North America 2nd edition* by Minter J. Westfall, Jr., and Michael L. May, (revised by Mike May). 2012. (plus a supplementary companion volume of color plates.)

Web Resources:

- Odonata Central – <http://odonatacentral.bfl.utexas.edu/>
- International Odonata Research Institute – <http://www.iodonata.net/>
- Maine Damselfly and Dragonfly Survey – mdds.umf.maine.edu/
- The Dragonfly Society of the Americas – <http://odonatacentral.bfl.utexas.edu/index.php/PageAction.get/name/DSAHomePage>
- Northeast Odonata (Facebook group) – <https://www.facebook.com/groups/241657275954604/>

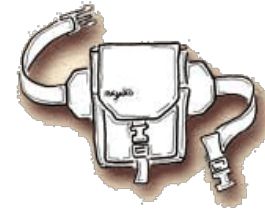
Field Clothing

Wear standard field attire and plan to get wet. In the company of odonates, which have amazing visual acuity, brightly colored clothing is a “fashion violation.” So wear muted greens, tans, browns, grays or camouflage. Loose-fitting cotton or quick-dry nylon is great. Because we'll be wading a lot, quick-dry nylon pants are highly recommended. Other important points about field clothing for odonates:

- **Footwear** – You can elect to keep your feet dry throughout this seminar, but to really know dragonflies and damselflies you must get wet. We'll wade into lakes, ponds, wetlands and rivers. Many odontologists wade with old lightweight boots or beat-up tennis shoes. Specialized water sandals or water shoes are fine (you might want to wear them with socks in lentic situations). High rubber boots will often work for pursuing odonates, but you run the risk of water higher than your boots; rubber boots also take on water from the top when you kneel in most bogs for macro photography or close looks at plants and insects.
- **Field Vest** – If you like to use a vest, bring it; but it's not necessary for this seminar. At most, you'll carry a field book, a field guide (or portions of a field guide to be supplied for the seminar), and a box for your specimens (if you choose to collect or temporarily hold odonates for identification later “on the shore”). For many of us, a standard field bag on a belt or a lumbar (fanny) pack will hold most of the field supplies we need (see below).

Field Supplies

- **Field Bag** – If you'll be collecting odonates or doing catch-identification-and-release, you'll need something easily accessible for holding live specimens. Your best bet is a field bag worn around your waist that holds your specimen box, glassine envelopes, a field book and pencils, a few vials, and perhaps a field guide. One option is a Pajaro brand field bag or something similar: <http://www.pajaro.com/fieldbag.shtml#original>. Also check Army surplus shops for field bags.



- **Hand Lens** – Get yourself either a 10x or 14x hand lens. (No field naturalist should be without one.) Your best lens is a Bausch & Lomb Hastings Triplet. Second best would be a Bausch & Lomb Coddington. Otherwise, you can find budget hand lenses for \$10 to \$20. A hand lens is required for the seminar.



- **Specimen Box** – If you'll be catching odonates for specimens or for identification-and-release, you'll need a sturdy box to hold your live subjects in glassine envelopes measuring 3" x 5". Don't get a box more than one or two inches deep (so that it can fit easily fit into your field bag). Plastic or aluminum is fine. One or two of these is required unless you do not plan to catch any odonates.



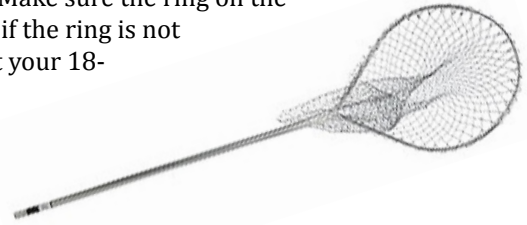
- **Vials or Small Tackle Boxes** – Although we won't spend a lot of time collecting odonate nymphs (larvae), plastic vials or small tackle boxes are idea for holding specimens, including exuviae. Check your local hunting shop or mega-sporting-goods store. A box that fits into your field bag, the cargo pocket on your pants or your shirt pocket is great. Larger versions of these plastic tackle boxes are also great for holding miscellaneous field supplies – everything from pencils to hand lenses to spare batteries. Your instructor will have extra vials and specimen storage boxes to lend. Getting your own is optional.



- **Insect Net** – Although it's not required, a net will help you learn during this seminar. Because dragonflies are fast and agile, you'll want a net that you can swing hard and fast. Standard insect nets, like those from BioQuip, which tend to have skinny handles and flexible net rings, are okay but not ideal. What you want for dragonflies is a net with a stout handle (about four or five feet long) and a stiff, tubular net ring, either 15 inches or 18 inches in diameter. A long-handled fishing landing net (fitted with an insect net bag) can be great for dragonflies (see below). Your instructor, Bryan Pfeiffer, will have a few extra nets for the course. If you're in the market for a net contact Bryan (bryan.pfeiffer@uvm.edu) or check out the resources below:

- **BioQuip** (<http://www.bioquip.com>) – Consider a 15" or 18" net ring on a telescoping handle, with a green (rather than white) aerial net bag. If you plan to order a net from BioQuip, DO IT NOW; don't wait until the last minute or you may be without your own net during the seminar. Again, these BioQuip nets are okay but not ideal.
- **Rose Entomology** (<http://www.roseentomology.com>) – If you suspect dragonflies will be a bit part of your future (and you can afford a net at heart-stopping prices), do yourself a favor and buy a collapsible net from Rose Entomology. Your instructor knows of no better net (other than homemade) on the market. Get Rose's collapsible handle (it's a single tripod leg), an 18-inch net ring, and a green standard net bag (not the fine mesh bag that Rose suggests). If Rose doesn't have green bags, go with white or buy a green one from BioQuip to match the size of you net ring.

- Modified Landing Nets** – Make your own dragonfly net from a standard aluminum fishing landing net (either long-handled or telescoping) with a round or (more often the case) teardrop-shaped ring (pictured below). You cut off the fish netting, carefully remove the ring from the handle, and (sometimes with difficulty) fit the ring with an 18-inch BioQuip aerial net bag, and then reattach the ring. Two important points: 1) Make sure the ring on the landing net is no more than 18 inches in diameter or, if the ring is not round, has a circumference of about 56 inches so that your 18-inch insect net will fit. 2) Make sure the ring can be removed and reattached to the net handle. If you think you might want to make your own net, contact Bryan for advice (bryan.pfeiffer@uvm.edu).



Other Supplies and Lab Materials

Mandatory	Highly Recommended	Optional	To Be Supplied for You
<ul style="list-style-type: none"> Daypack 	<ul style="list-style-type: none"> Field book and mechanical pencils or pens for notes in the field 	<ul style="list-style-type: none"> Camera (even if you're not attending for photography) 	<ul style="list-style-type: none"> Glassine envelopes for field use
<ul style="list-style-type: none"> Water bottle 	<ul style="list-style-type: none"> Dissecting Scope (if you happen to have one and care to bring it; we'll have other scopes on hand) 	<ul style="list-style-type: none"> Bug dope, sunscreen, personal first aid, GPS unit 	<ul style="list-style-type: none"> Mylar envelopes for specimen storage
	<ul style="list-style-type: none"> A small towel for drying off in the field 	<ul style="list-style-type: none"> Laptop computer for preparing specimen labels, storing photographs, etc. 	<ul style="list-style-type: none"> Acetone and other supplies for specimen preparation

Credits and Grading

College/University Credits

Most participants will be taking this seminar for reasons other than degree purposes. Nonetheless, participants may obtain credits through their own college or university by way of an agreement for transfer of credit. We can supply your institution/advisor with a course syllabus and instructor(s) Curriculum Vitae. Such an arrangement must be finalized before arrival at Eagle Hill. Five-day seminars generally qualify for 2 university credits. You will need to work with the instructor(s) in advance to the seminar to determine the grading criteria. If interested, notify Marilyn (marilyn@eaglehill.us) at least 3 weeks before the seminar. Note, there is a \$50 fee.



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CEU (Continuing Education Credits)

Seminars related to professional duties of teachers and field biologists qualify for continuing education units (recertification credits). Notify Marilyn upon your arrival. Note, there is a \$50 fee.