A publication of the Michigan Odonata Survey

# Williamsonia

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## *Epitheca costalis* (Stripe-winged Baskettail) in Michigan: Update

By Mark O'Brien
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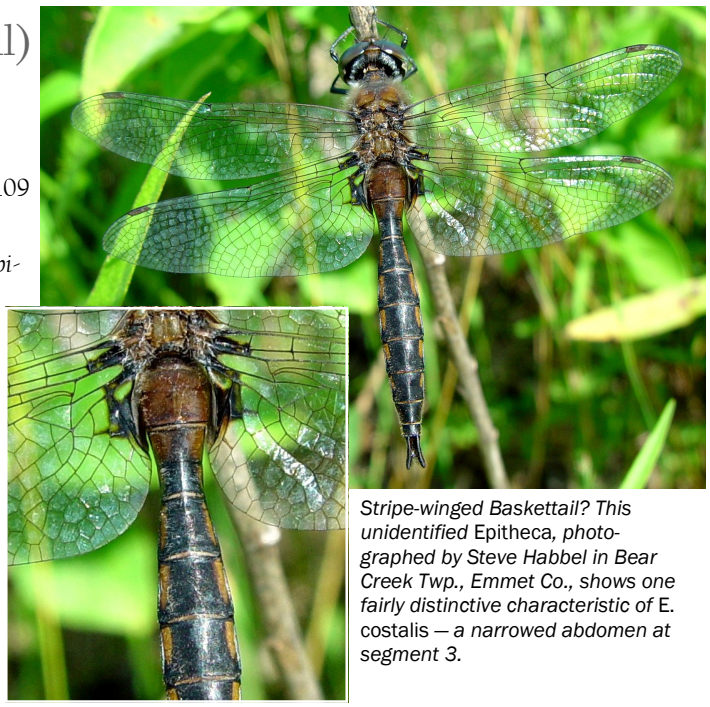
Last year, I alerted MOS members to the possibility of finding *Epitheca costalis* in Michigan, since Nick Donnelly reported specimens that were either true *costalis* or intergrades between *costalis and E. cynosura* (Common Baskettail) in Ohio. I sent Nick a box of specimens to see if there were any possible *E. costalis* from southeast Michigan. At first, Nick felt that most were *cynosura* with a few possible intergrades. After some re-examination of the data, Nick sent me an e-mail listing *E. costalis* that he identified from lower Michigan:

Mark - I continue to go over the *Epitheca*. I now think that several of your specimens are *costalis*. The problem I had was that your specimens were at the very north edge of the range and thus varied somewhat from more southern specimens. Because



*Stripe-winged Baskettail? This unidentified* Epitheca*, photographed by Steve Habbel in Bear Creek Twp., Emmet Co., shows one fairly distinctive characteristic of* E. costalis *— a narrowed abdomen at segment 3.*

*(Continued on page 2)*

## Subarctic Darner, *Aeshna subarctica* – a historical oddity?

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Earlier this year, I was assisting the DNR in determining the status of species of Odonata that may be of special concern within Michigan (see page 9). There are not many aeshnids on this list, and one of them is questionable. Subarctic Darner (*Aeshna subarctica*) was reported from Michigan early in the last century, and the records from the UMMZ Collection are from a few spots in the Upper Peninsula and Isle Royale.

| | | | | |
|---|---|---|---|---|
| Keweenaw Co. | Isle Royale | 16 Aug 1905 | Adams | MOS0006820 |
| Chippewa Co. | Whitefish Point | 31 Aug 1916 | A.F. Combs | MOS0006564 |
| Keweenaw Co. | Isle Royale | 5 Aug 1905 | Adams | MOS0006352 |
| Keweenaw Co. | Isle Royale | | Gleason | MOS0016796 |
| Keweenaw Co. | Isle Royale | | Gleason | MOS0016727 |
| Keweenaw Co. | Isle Royale | Aug 1905 | C.C. Adams | UMMZODO-3333 |

*MOS Records of Aeshna subarctica from the UMMZ Insect Collection.*

*(Continued on page 2)*

## Stripe-winged Baskettail, cont.

*(Continued from page 1)*

it occurs in Williams Co., OH, it is not surprising to find it in Michigan. Note that Kormondy essentially omitted the counties where it is most common! If only he had gotten to Sanilac and Tuscola counties!

I ended up with four "intergrade" specimens. Two have spotted wings and fit well with *cynosura* and two have clear wings and fit with *costalis*. I am not confident that they represent intergrades. For the moment, pending further study, it seems best to call them *costalis*. I hope to discuss all this in Iowa.

| | | |
|---|---|---|
| Sanilac Co. | 5-Jul-97 | Obee Rd, ponds on W side, T.V. Healy |
| Sanilac Co. | 5-Jul-97 | Obee Rd, ponds on W side, T.V. Heatley |
| Tuscola Co. | 17-Jun-02 | Mayville, 2158 West Saginaw Rd, M. Willard |
| Washtenaw Co. | 7-Jun-99 | Pittsfield Twp, Sec 26, Peplau's Pond, M. O'Brien |
| Bay Co. | 11-Jun-02 | Hampton Twp, Knight Rd at Bay Quanicasse SWA, M. Willard |
| Washtenaw Co. | 7-Jun-99 | Pittsfield Twp, Sec 26, Peplau's Pond, M. O'Brien |
| Lenawee Co. | 20-May-98 | Onsted SGA, One Mile Lk & Cleveland Lk, M. O'Brien et al |
| Monroe Co. | 15-Jul-97 | London Twp, T5S R7E S18, across Wanty Rd Rod & Gun Club, J. Farmer |

*Specimens in the UMMZ collection that are E. costalis (first four) or E. costalis/cynosura intergrades.*

So, it now seems that we should add *Epitheca costalis* to the state list of species, based upon Nick's analysis. Of course, additional material is welcome, especially from the southeastern part of the state. This once again underscores the need to collect specimens and not rely solely on visual records. Without the actual specimen, there is no way that Nick could have done his analysis. Note that all the records are recent, perhaps indicating a recent incursion into Michigan by *Epitheca costalis*. This also underscores the need to recheck recently collected sites and to examine carefully for specimens that look a bit different. *Epitheca cynosura* is a common species across Michigan, so many collectors get one at a site and go on from there.

Since it is too late in the season to collect more *Epitheca*, I will try and have a comparison chart ready for next spring's issue of *Williamsonia* to show the critical differences between *E. costalis* and *cynosura.* Perhaps we'll be able to add more localities and add to our knowledge of this species in Michigan.

## Subarctic Darner, cont.

*(Continued from page 1)*

The six records (five adults and two larvae) are quite old, and in the years since 1916, we have had numerous collections made in the UP (substantial collections have been made in Alger, Gogebic, Marquette, Ontanogan, Mackinac, Chippewa, and Schoolcraft counties), yet no more *A. subarctica* have been reported. Kormondy (1958) cited Byers (1927) as listing *A. subarctica* from Gogebic Co. However, there are no specimens to substantiate Byers' identification. Byers (1927) also listed *A. subarctica* from Houghton Co., and I have not been able to find those specimens. It is certainly possible that he misidentified some *Aeshna* specimens at that time.

This species is Holarctic, and known from areas with bogs, muskeg pools, or deep fens (Walker 1958, Cannings and Cannings 1997). There are a few records from the eastern US, but most North American records are north of the U.S. border and from the Pacific Northwest (Cannings and Cannings 1997, DuBois et al. 1999, Nikula et al. 2001, Donnelly 2004). Walker (1958) described it as flying with *Aeshna juncea*, *Somatochlora minor*, *Leucorrhinia hudsonica*, *Coenagrion resolutum* and *C. interrogatum*.

This leads me to wonder if the species should no longer be listed for Michigan, but classified as a historical record. Obviously, our list of Odonata should reflect more than just a list of species recorded for the state, but act as a list of species that are known to occur. This species has turned up in the Northeast and in Wisconsin (DuBois et al. 1999, Nikula et al. 2001), so there is always the possibility that small populations have escaped our nets in the Upper Peninsula, or they may recolonize the area once again in the future. There is the possibility that *A. subarctica* is still present on Isle Royale, though none have turned up in the several other collections made there in the past 99 years. I certainly recommend that the U.S. National Park Service support an effort to

*(Continued on page 3)*

## Subarctic Darner, cont.

*(Continued from page 2)*

sample the remote island for marginal species.

Of course, the question is "why?" Perhaps the species used to occur across the Upper Peninsula, but by the time it was collected in 1905, it was on its way out due to environmental changes caused by logging practices that greatly affected the coniferous forests of Michigan and associated riparian areas. Another possibility is that it was never really established, but the few specimens collected merely reflect a few individuals that were blown in from Canada and established a short-lived presence.

Populations of living things contract and expand over time, and given the dramatic changes in the Great Lakes Region over the past 8,000 years, and just as significantly, the past 150 years, we should expect that some species that were on the edge of the boreal forest will no longer be found in Michigan. As we have not seen any Michigan *Aeshna subarctica* since 1916, it should probably have its status changed – to a historical record only.

In contrast – Zigzag Darner, *Aeshna sitchensis* and Sedge Darner, *A. juncea*, which were also found in early collections from the UP, have both been collected throughout the last century and during the last 10 years, and are therefore **not** historical species. Of course, is the lack of records in the past nearly 100 years a reflection of collection effort or real evidence of the species' absence? Since various collectors have visited the same areas, and the original collections were made by non-specialists, I would say that collecting effort is not the problem. Therefore extirpation of what were previously small populations due to environmental or human-induced changes may explain their long absence, and that any new colonists would have to travel across Lake Superior or over from Wisconsin.

My proposal is that we remove *A. subarctica* from the Michigan list until someone proves this to be wrong (a new goal for Stephen Ross!).

### Literature Cited

Byers, C.F. 1927. *An Annotated list of the Odonata of Michigan*. Occ. Pap. Mus. Zoology, Univ. Mich. No. 183.

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Donnelly, T.W. 2004. Distribution of North American Odonata. Part I: Aeshnidae, Petaluridae, Gomphidae, Cordulegastridae. *Bulletin of American Odonatology*. 7:61-90.

DuBois, R., R. Johnson and S. Putz. 1999. Aeshna subarctica (Odonata: Aeshnidae) in northwestern Wisconsin. *Great Lakes Entomol*. 31:29-31.

Kormondy, E. J. 1958. *Catalogue of the Odonata of Michigan*. Misc. Publications, Mus. Zool., Univ. of Mich. No. 104.

Nikula, B., J.L. Sones, & J.R. Trimble. 2001. New and notable records of Odonata from Massachusetts. *Northeastern Naturalist*. 8: 337-342.

Walker, E.M. 1958. *The Odonata of Canada and Alaska*. Vol. 2. Toronto: University of Toronto Press.

The first Common Green Darner (*Anax junius*) of 2004 was apparently found by Steve Ross at Haymarsh State Game Area in Mecosta Co. on 16 April, when the temperature there was 77°F.

*This cooperative Swamp Spreadwing (Lestes vigilax) was photographed by Julie Craves in Sumpter Twp., Wayne Co.*

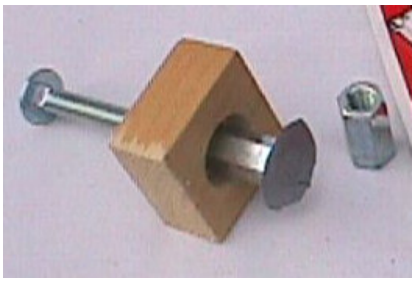
# Tricks of the trade

*Do you have any clever devices or handy tips for your odonata outings? Send them to the editor! Steve Ross of Mecosta Co. begins...*

**Telescoping net handles.** Recently, while looking for a window-washing item in Meijer's, I found several items with which I made a telescoping handle for a dragonfly net. There were several telescoping handles ranging in price from about $5.00 for a single extension to about 6.5 feet, to $32.00 for a four-part extension to about 17 feet (that would be too heavy to use). I chose a single extension that will go from 53 to 96 inches for about $10.50. [Ed note: I've seen these in the paint department for paint rollers.]

*Section of 3/4 –inch telescoping pole with mop screw fitting removed.*

To modify for a net: remove the plastic screw from the extension used to put on the squeegee, mop, or broom. This leaves a bare, open tube end through which the net will go. I purchased a 5/16th-inch coupling nut and a 5/16th-inch bolt at the hardware store. I also purchased from Bioquip (www.bioquip.com) the wing nut (#7360, red T knob, but a thumb screw would also work) and the flat net-ring (#7353 for 18" net ring, other sizes available) for the 7300 series replacement net. The coupling nut is set into the tube, flush with the top, for the T knob to hold the net ring.



*Carriage bolt, wood block, and coupling nut.*

To center the nut inside the tube, I drilled a hole with a ¾ inch chipper bit, matching the outside tube diameter, partway through a small piece of ¾ inch pine. Then I bored a centered ¼ inch hole the rest of the way through. From the flat side, I threaded the bolt through to the bored side so that it was exposed enough to hold the 5/16th inch coupling nut. Using epoxy, I coated the nut around what would be the bottom of the coupler to set the coupling nut in the tube when placed there. I cut a piece of duct tape slightly larger than the tube and pressed it to the bottom of the nut to keep the epoxy from dripping before setting. The block then is placed over the end of the tube to center the coupler inside the tube. After the epoxy is set, I removed the block and filled in the empty space with more epoxy until it was flush with the top of the tube and nut. Getting the epoxy in took some careful poking with the end of a paper clip. The epoxy eventually settles in when the tube is left upright for awhile, and a second helping of epoxy was needed to fill the space. Put a small piece of tape over the hole of the coupler so none of the epoxy drips into the threads.

*Centering block in position to hold the coupling nut while epoxy sets.*

To affix the net, I bored a 5/16th inch hole across the tube and nut completely though the tube, centered 3/8th inch below the top. Then the net ring can be placed through that hole and tightened by the T nut or thumbscrew.

**Net bag camouflage.** I use the Bioquip 7218GR green net bags. These have white muslin rims. I spray paint these with black, green, or brown paint to help camouflage them. These bags (and none of the other bags I've tried) do not dye well. Save your time and effort.

*(Continued on page 5)*

# An unusual mode of contraception

By Mark O'Brien
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Last year, Stephen Ross sent a big batch of voucher specimens from his work in the UP in Gogebic Co. for the Forest Service. In that lot of specimens were many good records, and one that really made me laugh. One unfortunate male Rapids Clubtail (*Gomphus quadricolor)* was collected by Stephen with the terminal abdominal segments of a female still attached to the the male's penis. I suppose that had the male lived beyond Stephen's capture, he may have been able to disengage himself, but in this instance, he was removed from the gene pool apriori. I have often seen female *Argia* with male abdominal segments still clasping as though the male were mate-guarding, but of course, the head and thorax of the male missing -- probably in the stomach of some avian predator or dragonfly. These females would presumably be prevented from mating again unless the lifeless male abdomen were to fall off. In this case of the *Gomphus quadricolor*, it is the first time I have seen such a predicament on a male.

The collection information of the specimen is as follows-- MICHIGAN: Gogebic County, Tenderfoot Creek upstream about 1/4 mi from CR 527 bridge, over stream, 46i16.542N x 89i31.552W, July 12, 2003, Stephen Ross, MOS0029328. The photograph was taken through a microscope with a Nikon Coolpix camera.

# Tricks of the trade, continued

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*(Continued from page 4)*

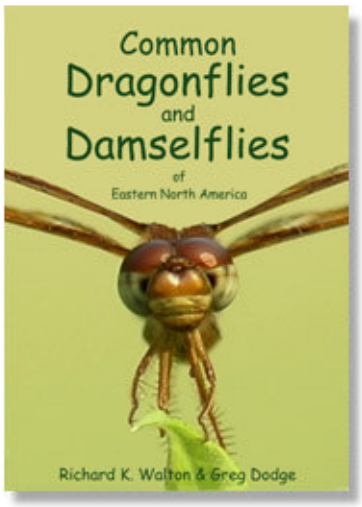
**Flaccid, unruly net bags.** One thing about net bags is that the tip tends to flop around while approaching the insect, occasionally causing the target to fly away. I usually hold a finger with the bag end against the pole and let the bag slip away as I swing, but this won't work in a stretch situation. To remedy this, I wrapped a strip of adhesive-backed Velcro (fuzzy side) around the end of the net pole near the bag attachment. Then I sewed a small piece of the hook side of Velcro at the tip end of the bag. Lightly sticking this to the Velcro on the pole holds the bag, preventing it from flopping, and when the net is swung, it releases.

**Tips on glassine envelopes.** I cut off the "teeth" before using to prevent snagging on the net, particularly if I plan to use them to slide up my net to a captured butterfly I don't want to handle. For dragonflies, I cut off one corner and make a small snip about the fold line. I fold the glassine top down about ¼ of the way and fit eight empties to Maxalt box ahead of time for field use. When ready to put the day's catch into acetone, I clip them together with a large paperclip into site- or day-related groups and let the paperclip sink the group into the acetone. The corner cut hole lets the air out quickly. I have a bent wire hook to fish the glassines out by way of the paper clip.

Although pencil works well to label glassine envelopes, it can sometimes be hard to press hard enough when standing midstream (plus the pencil lead can break). Instead, I like to use Pigma Micron 0.25mm line-width archival ink pens for labeling, as the ink is acetone- and alcohol-proof and dries quickly. It doesn't take much pressure to apply the ink. The pens aren't too expensive and can be obtained at office-supply stores.

*More tips next issue!*

## Review: Common Dragonflies and Damselflies of Eastern North America




By Mark O'Brien

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I recently received an evaluation copy of the DVD "Common Dragonflies and Damselflies of Eastern North America" by Richard Walton and Greg Dodge, of Brownbag-productions (brownbagproductions.com).

After viewing it several times, I am impressed with the overall video quality and presentation. Having menus to navigate and skip back and forth is a wonderful thing, and makes the DVD well-suited to teaching situations. Of course, it is geared towards beginners, who have to be the biggest beneficiaries of all the ode work that has gone on so recently.

The DVD has a distinct advantage over their previous effort on VHS (which I liked). You can play it on your computer if it has a DVD player AND it's easy to go to a specific segment an view it. A great thing for those giving presentations to small groups, etc.

The DVD is well edited, with very good video footage of our favorite beasts. It is well presented and organized. My only less-favorable comment would be that although the narrative is well done, it would be good to have someone narrate with a higher pitched voice and more inflection. The current narration detracts from the overall experience.

However, the DVD is definitely worth having -- a great idea to have a copy or two at nature centers, where people could view it at any time. At a stand-alone video kiosk, it would be really great. It's desirable to have for the great video footage alone, and as I watched it on a snowy February day, it made me anxious for the season to start! I certainly recommend it to get beginners started, and as a general educational tool.

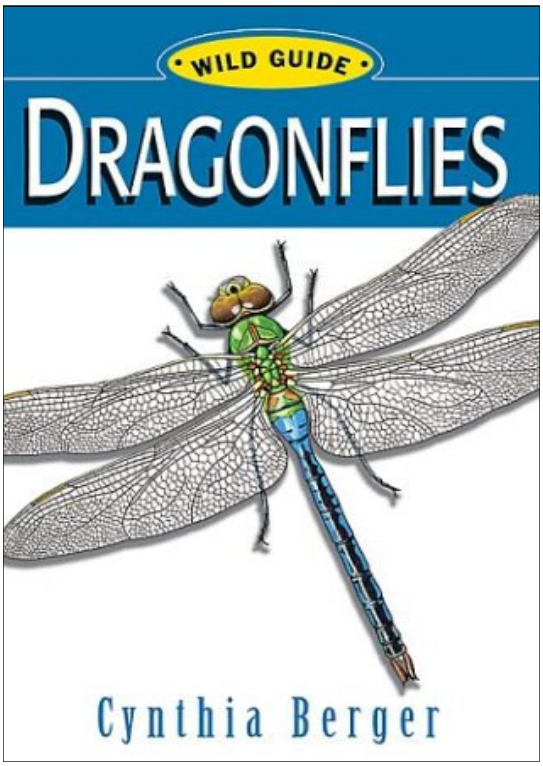
## Meet Lucas Langstaff

Lucas Langstaff at work in the UMMZ Odonata Range. Luke is a junior in UM's School of Natural Resources and Environment. His interest is in aquatic biology, and last summer worked for the US Forest Service in Hiawatha National Forest. He has been learning about all things odonatological over the past few months, and hopes to continue surveys for USFS-designated "sensitive species" in the coming months. Luke's combination of good humor, hard work, and quest for knowledge should prove valuable in any future career. We expect some good records from Luke from his home area in the UP, too!

# Review: Wild Guide: Dragonflies

*Wild Guide: Dragonflies*, by Cynthia Berger; Stackpole Books, 2004.

by Darrin O'Brien, Dearborn, MI




I always look forward to new books on odes and I find this one has an additional connection. Our own leader, Mark O'Brien, was the technical editor for this publication.

According to the introduction, this book is intended as an introductory book to dragonflies for those of us birders that have taken an interest in odes or others interested in learning more about dragonfly life cycles and behaviors. The book begins with chapters (about 40% of the book) on life cycles and behavior, followed by selected species accounts (about 50% of the book), with the remaining portion covering suggestions for watching odes and resources for more information. I would purchase this book as a learning aid for understanding these interesting insects, but not as a field guide. The pictures in the book are not photographs but are drawings. In most cases the illustrator was able to accentuate the particular details needed, but sometimes I feel the drawing didn't do the subject justice such as making the particular dragonfly look too soft or cartoonish. That said, I really did enjoy reading the book.

The portion of the book describing the life cycle and behavior was very informative. Some information I had read previously, while other details were new to me such as "How Nymphs Breathe". There are also several great drawings that show details of the body such as the labium (or lower jaw) of nymphs and the features of the head.

The largest portion of the book includes the species accounts for which I have mixed feelings about since I generally like books to have them all or none at all. There is a good phenology table towards the beginning of the chapter showing the possible flight times of several odes. Each species account gave me new and interesting information in "About the name:" and "Behavior:" Thus, it's worth reading each account since one will learn a bit of Latin in doing so. However, more information could have been given in the "Similar species:" sections such as noting Comet Darners relative to female Common Green Darners, Illinois River Cruisers relative to Royal River Cruisers, or Beaverpond and Spiny Baskettails relative to Common Baskettails. Once again I must realize that I didn't pick up this book as a field guide.

The next chapters of the book include information on watching and attracting dragonflies. Many basic ideas are given regarding equipment, where to go, when to go, etc. I was very disappointed to see a special section noting traditional methods for capturing dragonflies which I believe is inappropriate for a book like this since the techniques have a higher likelihood of injuring or killing the dragonflies and not necessarily for a scientific purpose since the audience of this book is likely beginning or amateur odonata enthusiasts. [Ed note: The original text read "buggers." This seemed inappropriate, but so does "oders." What DO we call ourselves?]

The final chapter lists many resources such as textbooks, field guides, videos, organizations, and websites. This listing can be very helpful for one that wants to learn even more about odes or find other people with similar interests.

Overall, I found the book to be useful and informative. I've noted some issues but these are minor when compared with the purpose of this publication. Thus, I'd recommend this to anyone wanting to learn more about dragonfly life history or wanting to add to their ode library.

# Recent Odonata Literature

De Block, M. and R. Stoks. 2004. Life-history variation in relation to time constraints in a damselfly. *Oecologia* 140:68-75. Examined the effects of photoperiod on development of *Lestes viridis* ("Green Emerald" Spreadwing). These authors published a very similar paper in *Jrl. Evolutionary Biology* last year.

Eason, P. K. and P. V. Switzer. 2004. The costs of neighbors for a territorial dragonfly, Perithemis tenera. *Ethology* 110:37-47. Costs of territoriality in the Eastern Amberwing.

Fincke. O. M. 2004. Polymorphic signals of harassed female odonates and the males that learn them support a novel frequency-dependent model. *Animal Behaviour* 67:833-845. Examines male reactions to females that are andromorphic (colored like males) and heteromorphic (not like males).

Hovmoller, R. and F. Johansson. 2004. A phylogenetic perspective on larval spine morphology in Leucorrhinia (Odonata: Libellulidae) based on ITS1, 5.8S, and ITS2 rDNA sequences. *Molecular Phylogenetics and Evolution* 30:653-662. Some taxonomy of the white-faces based on molecular study, and the role of abdominal spines on the larvae as defense.

Johansson F. and F. Suhling. 2004. Behaviour and growth of dragonfly larvae along a permanent to temporary water habitat gradient. *Ecological Entomology* 29:196-202. Study took place in the Namibian semi-desert.

Koskimaki, J., M. J. Rantala, J. Taskinen, K. Tynkkynen, and J. Suhonen. 2004. Immunocompetence and resource holding potential in the damselfly Calopteryx virgo L. *Behavioral Ecology* 15:169-173.

Petrulevicius, J. F. and A. Nel. 2003. Frenguelliidae, a new family of dragonflies from the earliest Eocene of Argentina (Insecta: Odonata): phylogenetic relationships within Odonata. *Jrl. Natural History* 37:2909-2917. Something new in bedrock: the authors describe still more fossil odes from South America.

Rantala, M. J., J. Ilmonen, J. Koskimaki, J. Suhonen, and K. Tynkkynen. 2004. The macrophyte, Stratiotes aloides, protects larvae of the dragonfly Aeshna viridis against fish predation. *Aquatic Ecology* 38:77-82. The authors get more mileage out of their study of an endangered European darner (see Suutari et al.)

Suutari, E., M. J. Rantala, J. Salmela, and J. Suhonen. 2004. Intraguild predation and interference competition on the endangered dragonfly Aeshna viridis. *Oecologia* 140:135-139. *Aeshna viridis* is a rare European darner which relies on the aquatic plant *Stratiotes aloides* for ovipositing. This paper examined competition from two co-occurring Aeshnas: *A. grandis* and *A. juncea*.

Tsubaki, Y. and R. E. Hooper. 2004. Effects of eugregarine parasites on adult longevity in the polymorphic damselfly Mnais costalis Selys. *Ecological Entomology* 29:361-366. Gut parasites had a greater impact on a larger, orange-winged territorial morph of a Japanese damselfly than on the clear-winged, non-territorial type.

**A publication of the Michigan Odonata Survey**
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## DRAGONFLIES AND DAMSELFLIES OF GREATEST CONSERVATION NEED
Michigan Wildlife Conservation Strategy

| | | |
|---|---|---|
| **Family AESHNIDAE** | | |
| *Aeshna juncea* | Sedge Darner | |
| *Aeshna mutata* | Spatterdock Darner | |
| *Aeshna sitchensis* | Zigzag Darner | |
| *Aeshna subarctica* | Muskeg Darner | |
| *Boyeria grafiana* | Ocellated Darner | |
| **Family CALOPTERYGIDAE** | | |
| *Hetaerina titia* | Smoky Rubyspot | |
| **Family COENAGRIONIDAE** | | |
| *Coenagrion interrogatum* | Subarctic Bluet | |
| **Family CORDULEGASTRIDAE** | | |
| *Cordulegast er erronea* | Tiger Spiketail | |
| *Cordulegaster obliqua* | Arrowhead Spiketail | SC |
| **Family CORDULIIDAE** | | |
| *Neurocordulia yamaskanensis* | Stygian Shadowdragon | |
| *Somatochlora cingulata* | Lake Emerald | |
| *Somatochlora hineana* | Hine's Emerald | FE |
| *Somatochlora incurvata* | Incurvate Emerald | SC |
| *Williamsonia fletcheri* | Ebony Boghaunter | |
| *Williamsonia lintneri* | Ringed Boghaunter | |
| **Family GOMPHIDAE** | | |
| *Gomphus lineatifrons* | Splendid Clubtail | SC |
| *Gomphus quadricolor* | Rapids Clubtail | SC |
| *Ophiogomphus anomalus* | Extra-striped Snaketail | SC |
| *Ophiogomphus howei* | Pygmy Snaketail | SC |
| *Stylurus amnicola* | Riverine Snaketail | SC |
| *Stylurus laurae* | Laura's Snaketail | SC |
| *Stylurus notatus* | Elusive Snaketail | SC |
| *Stylurus plagiatus* | Russet-tipped Clubtail | SC |
| **Family PETALURIDAE** | | |
| *Tachopteryx thoreyi* | Grey Petaltail | SC |

(This list as excerpted from the DNR's May 2004 list via Amy Clark Eagle)