

ISSN 1061-8503

ARGIA

THE NEWS JOURNAL OF THE DRAGONFLY SOCIETY OF THE AMERICAS

VOLUME 11

25 OCTOBER 1999

NUMBER 3



PUBLISHED BY THE DRAGONFLY SOCIETY OF THE AMERICAS

THE DRAGONFLY SOCIETY OF THE AMERICAS

Business address: c/o T. Donnelly, 2091 Partridge Lane, Binghamton NY 13903

EXECUTIVE COUNCIL 1999-2001

President	M. May	Cranbury NJ
President Elect	D. Paulson	Seattle WA
Past President	K. Tennessen	Florence AL
Past President	G.L. Harp	Jonesboro AR
Past President	T.W. Donnelly	Binghamton NY
Past President	C. Cook	Center KY
Vice President, SIO Affairs	M. Westfall, Jr.	Gainesville FL
Vice President, Canada	R. Cannings	Victoria, British Columbia
Vice President, Latin America	R. Novelo G.	Jalapa, Veracruz
Secretary	S. Dunkle	Plano TX
Treasurer	J. Daigle	Tallahassee FL
Regular member	R. Beckemeyer	Wichita KA
Regular member	J. Abbott	Denton TX
Regular member	S. Valley	Albany OR

JOURNALS PUBLISHED BY THE SOCIETY

ARGIA, the quarterly news journal of the **DSA**, is devoted to non-technical papers and news items relating to nearly every aspect of the study of Odonata and the people who are interested in them. The editor especially welcomes reports of studies in progress, news of forthcoming meetings, commentaries on species, habitat conservation, noteworthy occurrences, personal news items, accounts of meetings and collecting trips, and reviews of technical and non-technical publications. Articles for publication in **ARGIA** should preferably be submitted as hard copy and (if over 500 words) also on floppy disk (3.5" or 5.25"). The editor prefers MS DOS based files, preferably written in WORD, WORD for WINDOWS, WordPerfect, or WordStar. Macintosh WORD disks can be handled. All files should be submitted **unformatted and without paragraph indents**. Each submission should be accompanied by a text (=ASCII) file. Other languages should be submitted only as text (=ASCII) files. Line drawings are acceptable as illustrations.

T. Donnelly (address below) is the interim editor of **ARGIA**.

BULLETIN OF AMERICAN ODONATOLOGY is devoted to studies of Odonata of the New World. This journal considers a wide range of topics for publication, including faunal synopses, behavioral studies, ecological studies, etc. The **BAO** publishes taxonomic studies but will not consider the publication of new names at any taxonomic level. Enquiries and submission of manuscripts should be made to **BAO** editor T. Donnelly, 2091 Partridge Lane, Binghamton NY 13903. Final submissions (after review) should be made on floppy disk, as above, with illustrations in final form and preferably adjusted to final size.

MEMBERSHIP IN THE DRAGONFLY SOCIETY OF THE AMERICAS

Membership in the **DSA** is open to any person in any country. Dues for individuals in the US, Canada, or Latin America are \$15 for regular membership and \$20 for contributing membership, payable annually on or before 1 March of membership year. Dues for members in the Old World are \$20. **ARGIA** is mailed Air Mail outside of the US and Mexico, and First Class in those countries.

The **BULLETIN OF AMERICAN ODONATOLOGY** is available by a separate subscription at \$15 for members and \$18.75 for non-members and institutions.

Cover: *Somatochlora hineana*, photo supplied by Tim Cashatt

IN THIS ISSUE

upright angle while the hind wings remain flat and the abdomen is held at an upright angle.

D. velox is a species of the southern tier of states from Arizona to North Carolina, and in the plains states north to Kansas (Bick and Mauffray 1999). Whether this record represents a range expansion or not is conjectural. Carle (1982) predicted that *velox* "undoubtedly occurs in streams of the coastal plain and piedmont" of Virginia. But the species is conspicuous, has a long flight season, and is easily identifiable in the field, so it shouldn't be overlooked. There is a history of recent range expansion as in southern Louisiana (Mauffray 1997).

The record from Philpott Reservoir in Patrick County, Virginia is nearly contiguous with North Carolina records from the northern county of Rockingham (Carle 1982). But the Chesterfield County location is disjunct from previous records and represents a northern and eastern range extension. Since *D. velox* is not illustrated in any currently available field guide, observers unfamiliar with the species may want to consult the series of images available on Digital Dragonflies at <http://stephenville.tamu.edu/~fmitchel/dragonfly/Libellulidae/dythe.htm>

References

Bick, G.H. and B. Mauffray. 1999. Distribution summary of North American anisoptera. <http://www.afn.org/~iori/nalist>

Carle, F.L. 1982. A contribution to the knowledge of the Odonata. Unpub. Ph.D. thesis, Virginia Polytechnic and State University, Blacksburg, Virginia. 1095 pp.

Mauffray, B. 1997. The Odonata of Louisiana. Bull. of Amer. Odonatology. Vol 5 (1).

== == == == == == == == == == == ==

FIRST TEXAS RECORD OF THE BAR-WINGED SKIMMER (*LIBELLULA AXILENA*) WESTWOOD

Robert A. Behrstock

The most recent accounting of Texas odonates was published by Abbott and Stewart (1998), and that specifically of the odonates of the Big Thicket Region by Abbott et al. (1997). County-level distribution maps of these records are available on the Internet (Abbott 1999). Based on these, Bar-

winged Skimmer (*Libellula axilena*), widespread in swampy woodlands of the SE United States and ranging north to Massachusetts (Bick and Mauffray 1999), is not known from Texas.

On 20 June 1999, I located a male *axilena* at the SE corner of the John H. Kirby State Forest, Tyler Co., Texas. It lies on the western side of U.S. 69/287, approximately 13.5 miles south of its intersection with U.S. 190. Tyler Co. comprises much of the northern half of the Big Thicket National Preserve (Abbott et al. 1997), the core of the Big Thicket Region, an area rich in odonates and odonate habitats, with more than 110 species recorded.

The skimmer was located along the edge of a sunny dirt road, perched ca. 1 m above a shallow ditch, at dense brushy forest edge. A small, partially shaded, tannin stained pool was present nearby. From approximately 11:30 a.m. to 12:15 p.m. CST, Linda Walsh (Houston, TX) and I observed the skimmer as it flew, took various perches, and interacted, usually as the subordinate, with three male Blue Dashers (*Pachydiplax longipennis*). Perches included vertical and leaning twigs and grass stems, as well as the tips of tall (2 – 3 m) dry stems. When perched, the dragonfly's body was always diagonal with the ground, generally parallel with the axis of the perch. We observed the skimmer to change perches more than 20 times, always returning to an area about 10 x 2 m; thus, it appeared territorial.

Field marks readily visible included the overall dark blue coloration, small pruinose white patches at the base of the hind wings, paler dorsal areas on the thorax and anterior part of the abdomen, and a black band running down much of the dorsum of the abdomen. In camera lens and close-focusing binoculars, the following black areas of the wings were noted: narrow margin of the wing tip from the apex forward through the stigma, a bar on the leading edge of each wing between the stigma and the nodus, the nodus itself, and a bar at each wing base continuing distally as a thin line to the level of the nodus. Eleven slides depicting these features were taken. Voucher slides are on deposit with Sid Dunkle (Plano, TX), and John Abbott (Avondale, PA). Other odonates in the vicinity were: Swamp Darner (*Epiaschna heros*), Black-shouldered Spinylegs (*Dromogomphus spinosus*), Halloween Pennant (*Ceithemis eponina*), Golden-winged Skimmer (*Libellula auripennis*), Slaty Skimmer (*L. incesta*), and Great Blue Skimmer (*L. vibrans*).

male Roseate Skimmer! It was frequenting the same shallow cove at the east end of the lake where we had found the Hyacinth Glider. The location of this second *Orthemis ferruginea* was 6.4 miles east of Font Hill Park at the shallow east end of 37 acre man-made Lake Elkhorn, constructed in 1974 in the village of Owen Brown on the east side of Columbia, Howard County, Maryland. The lake is located at 39° 11' 40" N and 76° 50' W at an elevation of about 300 feet. The three of us (Czaplak and the Solems) immediately went to Lake Elkhorn. When we arrived at the lake at 1:00 p.m., the dragonfly was still perched where Dave had last seen it on a twig (<0.5" diameter) extending a foot above the mud within easy sight of the footbridge, but out of net range. Both Dave and Bob photographed it.

Monday, 19 July the Roseate Skimmer appeared on its perch at 9:45 a.m. The abdomen looked even more intensely pink and it was easier to see that this individual's thorax had a lovely purplish sheen, something we had not detected on the Font Hill Wetland Park male. The face showed red against the deep red-brown of the eyes. We laid a path of dead branches across 15 feet of mud to get within netting distance, but we were unsuccessful in capturing the skimmer. After this disturbance *Orthemis ferruginea* disappeared. It was not seen again despite searching likely sites by us and Richard Orr on two successive days.

Orthemis ferruginea has been recorded in 15 states (Bick and Mauffray, 1997-1999). A sixteenth state record appears to be unpublished: A specimen was taken in South Carolina about 15 years ago (S. Roble, pers. comm.) Of special pertinence is the item by D. Czaplak (1998) in which he notes a sighting of *Orthemis ferruginea* at a pond at the National Arboretum in Washington, D.C. on 18 July 1998. The date falls within the same time span as the two Howard County specimens.

Our thanks to Charlie Peregoy, Howard County Department of Recreation and Parks, for supplying information about the ponds at Font Hill Wetland Park. Maud Banks, Owen Brown covenant administrator, provided information about Lake Elkhorn as did Columbia Association ecologist Charles Rhodehamel. We are grateful to both of them. To have Dave Czaplak verify our sight record with a second sighting and photographs was quite amazing. Richard Orr's enthusiasm, research, and support were much appreciated. We thank Steve Roble for unpublished records.

References

Bick, G.H. and B. Mauffray. 1997-1999. Distribution summary of North American Anisoptera. Available on the Internet at <http://www.afn.org/~iori/nalist.html>

Czaplak, D. 1998. *Orthemis ferruginea* in Washington, D.C.? **ARGIA** 10(3):23-24.

Dunkle, S.W. 1989. Dragonflies of the Florida Peninsula, Bermuda and the Bahamas. Scientific Publishers, Gainesville, Florida. 155 pp.

=|=

BIG NEWS FROM RHODE ISLAND

e-mails from Ginger Carpenter

I've had a very interesting early odonate season and wanted to report some updates to you from the Rhode Island Atlas project. First, we have had four new species added to our list: *Epitheca canis*, *Gomphus spicatus*, *Lanthus vernalis*, and (finally!) *Cordulegaster obliqua* (a female ovipositing in water pooled in tire ruts). So many species are having huge years compared to the past 4 or 5: *Nasiaeschna pentacantha* is everywhere this year, as is *Dorocordulia lepida*, *Gomphaeschna furcillata*, *Basiaeschna janata*

I also have some great news from the Rhode Island Atlas: a female *Somatochlora georgiana* was taken last week on a small forested stream in southwestern Rhode Island (Washington Co.), not too far from the Connecticut border.

We have been hunting hard for *Enallagma pictum* records here. Prior to this year we had only three sites and all were in Washington County, in the southern part of the state. We have now added at least 8 new sites, and the species was taken from the northwest corner of Rhode Island on Sunday (adding Kent and Providence Counties {

=|=

ANOTHER SOMATOCHLORA GEORGIANA RECORD FROM MASSACHUSETTS

e-mail from Blair Nicula

2 Gilbert Lane, Harwich Port, MA 02646
mailto:odenews@capecod.net

The little-known Coppery Emerald (*Somatochlora georgiana*) has been found at another site in Massachusetts.

few bugs in some areas near the river in Amherst and Hadley. Most notable, were at least five more Skillet Clubtails (*G. ventricosus*) in a small clearing on the road up Mt. Holyoke (about half a mile from the river). These were all mature males. At a very small, woodland stream in South Hadley, Jeremiah Trimble caught a Southern Pygmy Clubtail (*Lanthus vernalis*), a first for Hampshire County. We finished off the trip with another quick visit to the Northampton dock where we netted three more Stygian Shadowdragons (*N. yamaskanensis*) in as many minutes. A nice ending to a very productive two-day trip!

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=

1999 HAS BEEN A BUMPER YEAR IN NEW YORK

Nick Donnelly

This was certainly a year to add county records to the New York list. Since my 1992 publication, there have been nearly 50% new county records!

One of the most satisfying county records in New York this year was also one of the easiest. One morning in June Ailsa walked out to get the newspaper, accompanied by Gerhard Jurzitza, who was staying with us for a few days. They came back with a dead *Gomphus vastus*, which was lying on the driveway! This species had been present in nearby Susquehanna County PA for three years in the late 60's, but it has not been seen around here since then.

The Adirondack gathering was wet and fairly unproductive, but on the last sunny day before the group assembled, Bill Mauffray took a *Somatochlora kennedyi* in Hitchins Pond Bog, Saint Lawrence County. Our records of this species had been limited to an incomplete male from Asbany County and an old record for "*semicircularis*" from Essex County. It is nice to put this species firmly on the New York list with a fresh specimen. At the same meeting, Jeremiah Trimble found a *Neurocordulia yamaskanensis* in the damp gloom of evening at Lake St. Regis. "Ya gotta get wet to get 'em."

The International Odonata Symposium in July at Colgate University brought a large number of Odonatists to upstate New York. Here they enjoyed our celebrated scenery and hospitality – not to mention a blazing hot, dry spell that left everyone a bit wilted in the summer sun. Nevertheless, all those eager nets found many new

records of interest. During lunch of the first day of the meeting, John Michalski and I wandered out for a noontime stroll. We quickly found *Somatochlora tenebrosa* flying around. When we returned with this information, several eager people tumbled out of the dining hall, nets in the hand and glimmers in the eye. The sight of Tim Vogt, uncharacteristically dressed in suit and tie, wielding his giant net on the hill, will linger for a long time. By the end of the week several people had collected this lovely insect, and a few came back with *S. walshii*, which was flying with it. Another emerald, *S. williamsoni*, was taken in no less than three new counties (Onondaga, Chenango, Madison) to add to our records of this genus. Another record which pleases me is *Argia apicalis* from Cayuga County – well north of anything heretofore in the state.

Enallagma basidens is increasing its range in New York. We have now doubled its counties to six, adding Onondaga (several participants at the Symposium found it), Chemung (Doug Bassett), and Westchester (Ken Soltesz).

Doug Bassett of Letchworth State Park has begun adding much-needed records for western New York. Among his more interesting finds are no less than three new county records for *Boyeria grafiana* (Broome, Steuben, Wyoming), extending its range well into the western part of the state.

Fred Sibley added another record of *Cordulegaster erronea* from Schuyler County, near Seneca Lake. This extends its range far to the west in the state. Ken Soltesz has an additional site for this rare species in Westchester County.

Ken also found a new record for *Gomphus fraternus* on the Wallkill River in Orange County. Curiously, he found exuviae with it that turned out to be *Gomphus vastus*. This is similar to the situation on the Connecticut River, where Dave Wagner takes almost entirely *fraternus* adults but finds almost entirely *vastus* exuviae. Yet another record for *Gomphus fraternus* was made by Martha Reinhart, who photographed one in Livingston County.

Finally, the Bobsey Twins of the New York *Ophiogomphus* world (*anomalus* and *howei*) continue to command our attention. Fred Saint Ours and his Dutch fellow collectors found lots of exuviae and one adult female of *anomalus* on the Moose River in Herkimer County, a new drainage for this elusive insect. Paul Novak found exuviae

Jiménez, 1970). This small territory was declared a "Reserva Natural" in 1966. Cayo Palma is much smaller and is located east of Cayo Caguanes, very close to the mainland. On both islands the predominant vegetation is semideciduous scrub forest on limestone.

Although the taxonomy of the Cuban odonate fauna is known relatively well (Alayo, 1968; Flint, 1996), there exists very little information on the geographic distribution of the species nor of the composition of odonate communities.

This report discusses the odonates collected in 1996 and 1997 on these islands. In the report, CC represents Cayo Caguanes and CP, Cayo Palma. The abundance of each species is given as "scarce" (present in less than 50 % of the collecting sites), "common" (more than 50 %), and "very common", (in all sites). The material examined is deposited in the author's collection. Only one species (*Anax junius*) was not captured and was listed solely on the basis of sight records.

24 species were found (30% of the Cuban fauna), belonging to three families and 14 genera (35 % of the total). All species were represented in Cayo Caguanes, but only 9 were found in Cayo Palma. Nevertheless, it is possible that these figures may increase with further collecting.

List of odonates, with distribution and abundance:

Suborder Zygoptera, Family Coenagrionidae

Ischnura hastata (Say). CC, mangrove and pasture; very common

Ischnura ramburii (Selys) CC, mangrove and pasture; common

Telebasis dominicana (Selys) CC, mangrove, scarce

Leptobasis vacillans Hagen. CC, mangrove, common

Enallagma coecum cardenium Hagen. CC, mangrove, common

Suborder Anisoptera, Family Aeshnidae

Gynacantha nervosa Rambur. CC, mangrove and semideciduous scrub, common

Triacanthagyna septima (Selys). CC, mangrove and semideciduous scrub, common

Anax junius (Drury). CC and CP, mangrove and semideciduous scrub, scarce

Family Libellulidae

Dythemis rufinervis (Burmeister). CC and CP, mangrove, common

Erythemis vesiculosa (Fabr.). CC and CP, mangrove and semideciduous scrub, common

Erythemis plebeja (Burmeister). CC, mangrove, scarce

Erythemis simplicicollis (Say). CC, mangrove and semideciduous scrub, scarce

Erythrodiplax justiniana (Selys). CC, mangrove and semideciduous scrub, very common

Erythrodiplax fervida (Erichson). CC and CP, mangrove and semideciduous scrub, very common

Erythrodiplax umbrata (Linn.). CC, mangrove, common

Erythrodiplax berenice naeva (Hagen). CC and CP, mangrove, very common

Miathyria marcella (Selys). CC and CP, mangrove, scarce

Micrathyria hagenii Kirby. CC, mangrove and semideciduous scrub, common

[*Orthemis ferruginea* (Fabr.)*]. CC and CP, mangrove and semideciduous scrub, very common

Pantala flavescens (Fabr.) CC and CP, mangrove and semideciduous scrub, very common

Tholymis citrina Hagen. CC, mangrove and semideciduous scrub, very common

Tramea abdominalis (Rambur). CC, mangrove, common

Tramea calverti Muttkowski. CC and CP, mangrove, common

Acknowledgments. My most sincere thanks to Dr. Luis F. de Armas, of the Institute of Ecology and Systematics, Cuba, for reviewing the manuscript

and for his helpful suggestions; to Dr. Rodolfo Novelo Gutierrez of the Institute of Ecology, Veracruz, Mexico; and to Bill Mauffray of IORI, for the transmission of valuable literature.

References

- Alayo D., P., 1968, Las Libélulas de Cuba (Insecta; Odonata). Torreia, n.s., 2: 1-102 (Part I text, 3: 1-54 (part II, plates).
- Flint, Jr., O.S., 1996, The Odonata of Cuba, with a report on a recent collection and checklist of the Cuban species. COCUYO, 5: 17-20
- Núñez Jiménez, A., 1970, Caguanes pictográfico. Acad. Cien. Cuba, ser. Espellog. Carsol., 16: 1-72
- Needham, J.G. and Westfall, Jr., M.J., 1955, A Manual of the Dragonflies of North America (Anisoptera). Univ. California Press, Berkeley, 615 p.
- Novelo G., R., Canul G., O., and Camal-Mex, J., 1988, Los Odonatos del estado de Quintana Roo, México (Insecta: Odonata). Folia. Entomol. Mex., 74: 13-68

* In the Antilles the very common skimmer which has been called *Orthemis ferruginea* apparently belongs to an undescribed species. Ed.

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=

MIGRATION OF DRAGONFLIES A MOVING TOPIC IN 1999

I have distilled several accounts of migrations from e-mail messages. Some of these have been edited.

The migration reports started this year with Bob Barber reporting on 27 July, "A small number of Spot-winged Glider (*Pantala hymenaea*) were seen migrating northward past my workplace on the Delaware Bay yesterday. This morning, beginning around 0700, it started again and very large numbers are passing as I write. There are also large numbers of Wandering Glider (*Pantala flavescens*), and small numbers of Black Saddlebags (*Tramea lacerata*), Swamp Darner (*Epiaeschna heros*) moving with them." The next day he again reported, "The flight of *Pantala hymenaea* (Spot-winged Glider) up the Delaware Bay shore peaked about mid-morning with up to 30/min passing a fixed point. After about 1100 there was a lot of milling and active feeding around the buildings and salt marsh, although they were still moving in a northward direction. Between 1200 and 1300, numbers declined rapidly, and by 1430 few were seen, and they appeared to be feeding only. I could only check what was going on periodically (I was working) but numbers of

Pantala hymenaea were certainly many thousands, and *Pantala flavescens* many hundreds. *Epiaeschna heros* (Swamp Darner) was in small numbers, as was *Anax junius* (Green Darner) and *Tramea lacerata* (Black Saddlebags). A few *Libellula pulchella* (Twelve-spot Skimmer) and *Pachydiplax longipennis* (Blue Dasher) appeared to be moving with the others as well."

On 8 September Terry Morse reported, "We're in the season of mass directional flights of *Sympetrum corruptum* on the central Oregon coast, USA. I observed a modest flight (ca. 1.5 dragonflies/minute) on 27 August 1999. On the morning of 2 September, I noticed a sudden influx of *S. corruptum* in Newport. On the morning of 3 September, they appeared to be gone. Although no one appears to have observed it, there may have been a flight on the 2nd. This morning, there was a more extensive flight (ca. 8-9 dragonflies/minute) along the central Oregon coast. The flight seems to have ended by about 10 a.m., but numerous *S. corruptum* remained in vacant lots and other vegetated areas, so there may be additional flights within the next few days. . . . Of 9 perched individuals I got a good look at today, 6 were males. Two of the males showed significant red coloration; the remainder were yellow with the usual *S. corruptum* markings. If generally accurate, this suggests that the dragonflies emerged fairly recently. The direction of the flights is southward. We don't know where the dragonflies are coming from, or where they are going. I've never seen *S. corruptum* mating or emerging on the Oregon coast. However, my observations are limited to the Newport area, so they might be reproducing elsewhere on the coast. "

On 10 September Tim Cashatt passed along this tidbit from Jill Niland, reporting from the Chicago area: " Last night at 7:30 from my neighborhood (southeast Ravenswood in Chicago) I saw a migration of perhaps 20 nighthawks but hundreds/thousands of dragonflies--there were at least a dozen or so buzzing around in every yard I passed in a 12 square block area. This A.M. at Montrose Jeff Sanders reported a mass migration of dragonflies along the Skokie Lagoons last night, and other birders had seen the dragonflies near the lakefront as well. Good for the nighthawks but a bad coincidence perhaps for the insects. I didn't know dragonflies migrated . . . first time I'd seen this behavior."

movements, probably of *Anax junius*, in Iowa and Missouri, about Sept. 4-6."

On the same day David and Yvette Bree reported from southern Ontario, "Today at Sandbanks Prov. Park on the west shore of Prince Edward County, Ontario there were a number of what I take to be migrating dragonflies. There was a strong west wind blowing off Lake Ontario, and just back of the fore dunes in some shelter were pockets of large dragonflies, mostly *Tramea lacerata*. Over 50 seen today but the largest single group was about 15-20. Also present were 5-8 *Pantala flavescens*, and 3-4 *Anax junius*. Also present in the area were 5-6 *Libellula pulchella* (12-spot Skimmer), mostly males but 1 female seen, and a few *Sympetrum* . . . The *Tramea* were foraging over open areas at heights of 2 feet to ten+ feet, but never going very high. I was able to catch two (and very proud of that modest effort too!). One was male, and one was female and both were new and fresh looking. From modest range visual inspection the *Pantala* and 12-spots too looked like near tenerals."

More from Terry Morse,

"11 September 1999. While walking to work from the vicinity of Yaquina Bay Bridge in Newport to Yaquina Head Outstanding Natural Area (YHONA) at the north end of Newport, I encountered a modest number of *S. corruptum* on the ground or perched in low vegetation. . . A sudden increase in the number of *S. corruptum* on the ground seems to precede a mass flight by one to several days. At 1021 hours, I saw one *S. corruptum* on a bush in the JC Market parking lot, 107 N. Highway 101. The sky was clear, temperature 60 degrees F, and the wind calm. I also saw one *S. corruptum* flying approximately east or northeast across Hwy. 101 at about 6th Street. . .

"At 1043 hours, I saw a moderate number of *S. corruptum* on the lawn between Hwy. 101 and the Wal-Mart parking lot at 25th St. and N. Hwy 101. I saw no indication of a flight in progress. In an unrelated but interesting note, there was a large emergence of winged termites at YHONA in the early evening (between at least 1930 and 2030 hours, probably longer).

"12 September 1999. At 0830 hours, I woke up and saw large numbers of *S. corruptum* streaming past the window of my apartment. Clearly, a significant flight was in progress. . . At around 0840, I counted 112 *S. corruptum* flying south across an observation line perpendicular to the direction of

flight in a period of 3 minutes (37.3 per minute). . . I observed dragonflies flying from approx. 3 inches above the ground to as much as 10 meters or more up, though most I could see were within ca. 5 meters of the ground. At 0903, I counted 137 *S. corruptum* in 5 minutes flying south across a different observation line, about half a block south of Bay St. on SW 10th St. The bearing of the flight was ca. 162 degrees, slightly east of south. This is a rough approximation, . . . and the flight path was somewhat erratic as the dragonflies maneuvered around obstacles and over the buildings. Length of line was again approximately 40 meters, also facing east. Height above the ground still ca. 3 inches to 10+ meters. I also saw one larger dragonfly, possibly an *Aeshna* sp., during the count. . .

"1004 hours: Walking to work along Hwy 101. Temperature . . . was 73 degrees F. The wind was from the east, gusting to about 9 mph . . . The flight bearing was approximately 173 degrees. I didn't have time to take a count, but *S. corruptum* were flying steadily past me.

"1040 hours: Lighthouse Rd. and Hwy 101 in north Newport. *S. corruptum* still flying steadily south. Between N. 25th St. and Lighthouse drive, I saw dragonflies flying east across the highway wherever there was a break in the woods on the west side of Hwy. 101 (i.e., wherever a road intersected the highway, creating a break in the trees), but almost none flying above the level of the tall trees lining the road between breaks. Turning west onto Lighthouse Rd., I entered Yaquina Head ONA.

"At 1119 hours, I saw substantial numbers of *S. corruptum* flying east into the wind along the south side of the headland, where the road down to Quarry Cove intersects Lighthouse Drive. Many *corruptum* were "stacked up" in the lee of a ca. 10-meter tall spruce at the intersection of Quarry Cove road and Lighthouse Drive (SE corner), before continuing east into the wind. Dragonflies were sparse along Lighthouse Drive west of Quarry Cove road, though I did see 1 flying approximately south at the entrance to the Interpretive Center parking lot, more than halfway to the tip of the headland. 1215 hours. Now, by Yaquina Head Lighthouse at the tip of the headland, I saw large numbers of *S. corruptum* flying east past the lighthouse. I counted 40 in 5 minutes along a 15-meter observation line, between ground level and ca. 3 meters above ground, facing south on the south side of the lighthouse. It was difficult to see the lower-flying dragonflies against the background vegetation, so this is doubtless an undercount. [There were

due to the sheltered location. At 1630 hours, there was still a sparse flight occurring by the lighthouse.

"At 1648 hours, I returned to Quarry Cove and counted 59 *S. corruptum* flying east in 5 minutes along an observation line approximately 25 meters long and 3-4 meters high. Between 1700 and 1905, I was working indoors and unable to observe any flight, so I couldn't tell when the flight actually stopped. By 1905 hours, however, a heavy fog had blown over the headland on a south wind, and I saw no more dragonflies. 13 September 1999. Yaquina Head.

"During the course of the afternoon, I saw 2 *S. corruptum* flying from brushy vegetation on the south side of the headland, but no evidence of any mass directional flight. Another exciting flight on the Oregon coast!"

Still more from Oregon (14 September) from Dennis Paulson: "It is fascinating that the dragonflies were both flying south, as expected in fall, but also east, heading back inland from the ocean into an east wind. Perhaps these were all blown out to sea. Many years ago I identified stomach contents from some Coho Salmon (*Oncorhynchus kisutch*) off the Oregon coast. These surface-feeding fish stomachs were packed with immature *Sympetrum corruptum*! Salmon, of course, start their lives in fresh water feeding on insects that fall to the surface of their stream, so they are programmed to respond to this stimulus. But can you picture a salmon thinking "good grief, what's an insect doing way out here in the ocean

PHOTO FILES FOR ODONATE RECORDS

What we know about the distribution of Odonata has been based almost entirely on specimens in collections until now, and this should remain the primary source of locality records. Nevertheless, with a tremendously increased interest in Odonata among amateurs and a proliferation of state and provincial surveys, more and more locality records will be based on either sight reports or photographs. This is already the case in some European countries and is happening rapidly in North America.

Just as the camera has largely replaced the shotgun in documenting bird records, so it will increasingly replace the net in documenting odonate records. I strongly support the taking of specimens instead of photographs as vouchers for important records, as

encyclopedias aren't usually the work of one person, "astonishing" must be added. This book will stand as the paradigm of a definitive summary of the biology of an insect order.

What is in DBEO? Just about everything, I would say, following the dragonfly on a logical procession from habitat selection and oviposition through larval and adult life to reproductive behavior, beginning the cycle again. Not surprising, the final chapter is on conservation, sorely needed everywhere wetlands are threatened -- that is, everywhere. Each of the 12 chapters has an overview or synopsis or both, and reading those sections would provide an instantaneous Odonata education. The 96 well-chosen color photos add a very nice touch and could stand alone as a pictorial guide to dragonfly biology.

The amount of raw material presented by DBEO is staggering. Despite four decades dedicated to learning about dragonflies, I can find something new on just about every page. And supplementing the written accounts are the tables--190 of them. The tables contain so much information that it is almost beyond comprehension how the author was able to invest the time and intellectual resources necessary for such a compilation. Think of any aspect of odonate behavior or ecology that interests you, and you'll find a table or two dealing with it, unless it is quite inadequately studied. It helps to know worldwide dragonflies, as the tables don't just list examples of better-known taxa or from more-studied faunas--they are virtually comprehensive guides to published research.

And beyond the tables are the references. Corbet cited about 500 references in his 1963 book and 230 additional references in the 1980 supplement to it. In contrast, DBEO cites over 4,000 references, with a supplementary list of 96 references that were published too late to be included in the text. A unique attribute of DBEO is the number of references attributed to personal communications, perhaps 5-10% of the total. This is the only aspect of the book that I would criticize, as it is frustrating to learn something but not to be able to expand on it or even to be able to confirm it. Nevertheless, it is clear that much information is in this book only because of the author's long friendships with many odonatologists willing to contribute their unpublished observations to the cause.

What big gaps in our understanding of odonates are pointed out by this book? For one thing, we still do not have a soundly based phylogeny of

dragonflies, the result of molecular as well as morphological data, to place ecology and behavior clearly in an evolutionary context. For another thing, our knowledge of many phenomena is based on a smattering of species in a few well-studied families, with few or no representatives from the many tropical zygopteran families. Some subjects stand out as being inadequately studied, for example dragonfly coloration. Its sparse treatment in the book underscores the crying need for research in this area. Finally, only just over 900 species are mentioned, 17% of the total diversity of the order.

Readers should be aware that a work of this scope cannot be error-free, for example the caudal appendage of *Mecistogaster modesta* in Figure 4.6 attributed to *M. ornata*, and dusk-flying of *Epitheca sepia* (p. 310) attributed to *E. stella*. I have been informed that the author welcomes corrections, and I hope anyone coming across a discrepancy of any sort will make it known to him.

As I first browsed through this book, I wondered if perhaps there wasn't enough Corbet in Corbet, that the author had minimized his own speculations to report objectively on the voluminous published literature (in which of course his own work features prominently). But with further perusal, I found more and more occasions of his own syntheses to be among the major contributions of the book. For example, look at the elegant classifications of larval morphology/behavior, life cycles, adult behavior, types of flights, mating success, and mating systems. All of these are models to be tested as well as classifications. Furthermore, there are not only haiku scattered through the text but also snippets of subtle humor, if one looks for them. For example, "In view of the involvement of ducks as predators of dragonfly larvae, it is reassuring to the tidy-minded comparative ecologist to learn that larvae feature also in the food of the duck-billed platypus . . ." (p. 137).

Above all, the finest thing about DBEO will be its influence on dragonfly research to come. Its treatment is so comprehensive that it is just about safe to say that if it isn't in Corbet, it hasn't been done. A summary of what we know to date, crisply organized and including all pertinent references, is there for the taking. A proliferation of graduate theses on the Odonata should follow. And think of the 4,500 species not even cited in the book!

We can only hope that Philip Corbet now has in mind another book oriented more toward the

DRAGONFLIES OF WASHINGTON, by
Dennis Paulson
Seattle Audubon Society, 8050 35th Ave. NE,
Seattle WA 98115 (206-523-4483); price \$6.50

Reviewed by **Nick Donnelly**

This is a 32-page paper-back guide to the Odonata of Washington. Although aimed at beginners, it is of high quality and will be useful to veteran students of Odonata. At first glance, it reminds one of the superb two-number set by Roy Beckemeyer for Kansas Dragonflies and Damselflies. There are more similarities than differences, and I hope that these two authors will now start towards a more complete coverage of the United States.

Beginners over a wide range of the western United States will find this guide invaluable. There are very good color photographs of almost all the species that occur in the state. A person working in northern California or Idaho will find most of his/her species illustrated here. A few species, especially some of the damselflies, will not be identifiable from these photos, and Paulson has

provided some line drawings and textual clues for their identification.

This is an attractive guide and it should find wide usage among a large audience.

BOOK NOTICE: CHECKLIST OF NORTH AMERICAN ODONATA, by **D.R. Paulson** and **S. Dunkle**, available from Dennis Paulson, Slater Museum of Natural History, University of Puget Sound, Tacoma WA 98416. Paperback, price \$7.50.

ARTICLE NOTICES

The dragonflies and damselflies of Cranesville Swamp, Garrett County Maryland, and Preston Co, West Virginia. Richard Orr, The Maryland Naturalist, 42(3-4): 52-59, 1998

Distribution of damselflies and dragonflies of Maine, United States. Paul Brunelle, Northeastern Naturalist, 6(2): 95-118, 1999

TRAMEA

Nick Donnelly

Antoine van der Heijden has a website with information about European odonates, including pictures. There are also several pictures from Indonesia and India. The URL is <http://fly.to/dragonflies>

A stunning picture of *Brachytron pratense* taking off is at
<http://dspace.dial.pipex.com/town/place/xcj80/brachy.htm>

Gaylor Mink has taken still images from video footage of dragonflies taking off and landing. His sequence of *Sympetrum corruptum* (variegated meadowhawk) is especially good.
<http://www.angelfire.com/wa/minkgi/index2.html>

You can download many of Jurg DeMarmel's papers, a few in English, on Venezuelan Odonata from this website: <http://www.redpav-fpolar.info.ve/entomol>

Steve Valley has added to his superb Oregon website with information of migrations of western Odonates:
http://www.ent.orst.edu/ore_dfly/migrate.htm

Bob Behrstock has sent along the following information for Texas:

Digital Dragonflies (Texas A&M) grows and grows. It is full of good information and scans at
<http://www.dragonflies.org/>

For a list of prizes this site has (very deservedly!) won, and URLs to other good insect sites, visit

<http://stephenville.tamu.edu/~fmitchel/damselfly/awards/index.html>

John Abbott's dot maps for Texas (and neighboring states) are available at:
<http://www.esb.utexas.edu/jcabbott>

Until recently, Texas Gulf Coast naturalists have relied almost exclusively on Florida Odonate guides written by Sidney Dunkle. Currently, Internet access is the most powerful tool for viewing images of East Texas Odonates and learning about their local ranges. Based on new records provided by its authors (Richard Orr, Bob Honig, and Bob Behrstock), Webmaster Melinda Parmer has extensively revised **THE DRAGONFLIES AND DAMSELFLIES OF HOUSTON, TEXAS, AND VICINITY: (Harris, Galveston, Chambers, Brazoria, Fort Bend, Waller, Montgomery, San Jacinto and Liberty Counties)**. The updated Houston area site may be accessed directly at <http://www.io.com/~pdhulce/dragon.html>



Group photo of the Adirondack meeting. Photo by Blair Nicula, who pasted himself in.



Momentary pause in the rain at an Adirondack Bog. Beckemeyer, Abbott, Trimble, Dunkle, Hutchings. Nicula photo.

BACK ISSUES OF ARGIA AND THE BULLETIN OF AMERICAN ODONATOLOGY

The editor is able to provide back issues of **ARGIA**. Please contact T. Donnelly, 2091 Partridge Lane, Binghamton NY 13903. The present price schedule takes into account the different costs of duplication of each number of **ARGIA**. In the event that an issue becomes exhausted, then xerox copies will be sent. **Prices are \$2.00 per issue; these do not include postage; see below.**

Back Issues of the **BULLETIN OF AMERICA ODONATOLOGY** can be furnished at the prices given below. **Prices do not include postage; see below.**

- 1(1) The Odonata of New York, Thomas W. Donnelly p. 1-28 \$3.00
 1(2) Distribution of Dragonflies and Damselflies in Florida, Sidney W. Dunkle p. 29-50 \$2.50
 1(3) Morphological and ecological differences among species of *Ladona*, Michael L. May p. 51-56 \$1.50
 Comportamiento reproductivo y policromatismo en *Ischnura denticollis* Burmeister, Alejandro Córdoba Aguilar [with English summary] p. 57-64
 1(4) A checklist of the Odonata of the Dominican Republic by Province, Jerrell James Daigle p. 65-69 \$1.50
 Odonata de la Sierra de Huauchinango, Puebla, Mexico [with English summary], José A. Gómez Anaya and Rodolfo Novelo Gutiérrez p. 71-73
 2(1) La Náyade de Archilestes latialatus Donnelly, 1981 [with English summary], R. Novelo-Gutiérrez p. 1-7 \$1.50
 Descripción e Historia Natural de las Larvas de Odonatos de Costa Rica. III *Gynacantha tibiata* (Karsch 1891) [with English summary], Alonso Ramírez p. 9-14
 2(2) Description of the Nymph of *Epitheca* (*Tetragoneuria*) *spinosa* (Hagen, K. J. Tennessen p. 15-19 \$1.50
 The Larva and Adult Male of *Somatochlora georgiana* Walker, Jerrell J. Daigle p. 21-26
 2(3) *Macromia illinoiensis* and *georgina*: a Study of heir Variation and Apparent Subspecific Relationship, T.W. Donnelly, K.J. Tennessen p. 27-61 \$3.00
 2(4) The Subgenus *Tetragoneuria* (*Anisoptera: Corduliidae: Epitheca*) in New Jersey, Michael L. May p. 63-74 \$1.50
 3(1) The Odonata of Ohio - a Preliminary Report, Robert C. Glotzhober p. 1-30 \$3.00
 3(2) Four Decades of Stability and Change in the Odonata Population at Ten Acre Pond in Central Pennsylvania, Clark N. Shiffer & Harold B. White p. 31-40 \$1.50
 Descripción e Historia Natural de las Larvas de Odonatos de Costa Rica. IV. *Mecistogaster ornata* (Rambur, 1842) [with English summary], Alonso Ramírez p. 43-47
 3(3) The Distribution of Odonata in Alabama, Kenneth J. Tennessen, James D. Harper, R. Stephen Krotzer, p. 49-74 \$3.00
 3(4) Distribution Records of the Odonata of Montana, Kelly B. Miller and Daniel L. Gustafson, p. 75 - 88 \$1.50
 4(1) An Annotated List of the Odonata of New Jersey, With an Appendix on Nomenclature in the Genus *Gomphus*, Michael L. May & Frank L. Carle p. 1 - 35 \$3.00
 4(2) The Odonata of Patuxent Wildlife Research Center and Vicinity, Richard L. Orr p. 37 - 67 \$3.00
 4(3) The Status of *Lestes apollinaris* Navás and *L. henschawi* Calvert, Thomas W. Donnelly p. 69-74 \$1.50
 4(4) The Dragonflies of Washington, Dennis R. Paulson p. 75-90 \$1.50
 5(1) The Dragonflies and Damselflies (Odonata) of Louisiana, Bill Mauffray p. 1-26 sub*
 5(2) The Odonata of the Cayman Islands: a Review, R.R. Askew, R. Prosser, and P.S. Corbet p. 27-32 sub*
 TAXONOMIC AND Population Studies of British Columbia *Aeshna* species, G. Peters p. 33-42
 5(3) Adapting the Townes Malaise Trap for Collecting Live Odonata, Robert C. Glotzhober & Dan Riggs, p. 43-48 sub*
 Archilestes grandis (Great Spreadwing) in Central New Jersey, with Notes on Water Quality, David P. Moskowicz and David M. Bell, p. 49-54
 Variation in Head Spines in Female *Ophiogomphus*, with a Possible Example of Reproductive Character Displacement (Anisoptera: Gomphidae), Dennis R. Paulson, p. 55-58
 5(4) The Odonata fauna of Connecticut, David L. Wagner and Michael C. Thomas, p. 59-85 sub*

* subscription

Mailing and Handling Costs:

	SURFACE		AIR MAIL	
	1st number	each additional	1st number	each additional
United States	\$1.25	\$1.00	---	---
Canada, Mexico	\$1.25	\$1.00	\$1.50	\$1.25
Western Hemisphere	\$1.50	\$1.25	\$2.00	\$1.50
Europe, Asia, etc	\$1.50	\$1.25	\$3.00	\$2.50

ARGIA

Binghamton, New York
IN THIS ISSUE

Vol. 11, No. 3, 25 October 1999

WEST TENNESSEE REGIONAL MEETING A SUCCESS	Ken Tennnessen	1
1999 DSA MEETING IN THE ADIRONDACKS AT PAUL SMITH'S COLLEGE AND ENVIRONS	Roy Beckemeyer	2
NEW HINE'S EMERALD (<i>SOMATOCHLORA HINEANA</i>) DRAGONFLY SITES FOUND IN 1999	Tim Cashett	3
<i>DYTHEMIS VELOX</i> , A NEW SPECIES FOR VIRGINIA	Paul Bedell and Anne Chazal	4
FIRST TEXAS RECORD OF THE BAR-WINGED SKIMMER (<i>LIBELLULA AXILENA</i>) WESTWOOD	Robert A. Behrstock	5
FIRST MARYLAND RECORD OF <i>ORTHEMIS FERRUGINEA</i> (ODONATA: LIBELLULIDAE)	Robert P. Solem and Joanne K. Solem	6
BIG NEWS FROM RHODE ISLAND	Ginger Carpenter	7
ANOTHER <i>SOMATOCHLORA GEORGIANA</i> RECORD FROM MASSACHUSETTS	Blair Nicula	7
MASSACHUSETTS <i>TRAMEA CALVERTI</i>	Fred Goodwin	8
<i>LEUCORRHINIA PATRICIA</i> IN NEW BRUNSWICK	Stuart Tingley	8
MAINE SNAKETAIL (<i>OPHIOGOMPHUS MAINENSIS</i>), NEW TO ONTARIO	Paul Catling and Vivian Brownell	9
RIVERINE CLUBTAIL (<i>STYLURUS AMNICOLA</i>) NEW TO ONTARIO	Paul Catling and Vivian Brownell	9
LAURA'S CLUBTAIL (<i>STYLURUS LAURAE</i>) NEW TO CANADA	Paul M. Catling and Cory H. Catling	10
OPHIOGOMPHUS COLUBRINUS ON THE AUSABLE RIVER	Dave Czaplak	11
THE SOMATOCHLORA SWAT TEAM VISITS MAINE	Blair Nicula	11
THE SWAT TEAM GOES CANOEING	Blair Nicula	12
1999 HAS BEEN A BUMPER YEAR IN NEW YORK	Nick Donnelly	13
ODONATA GLEANINGS - PHYLOGENY AND PERCHING BEHAVIOR	Dennis Paulson	14
<i>HAGENIUS BREVISTYLUS</i> PERCHING	Ken Tennnessen	15
LIST OF THE ODONATA (INSECTS; ODONATA) FROM CAYO CAGUANES AND CAYO PALMA, SANCTI-SPIRITUS PROVINCE, CENTRAL CUBA	José M. Ramos Hernandez	15
MIGRATION OF DRAGONFLIES A MOVING TOPIC IN 1999		17
PHOTO FILES FOR ODONATE RECORDS	Dennis Paulson	19
ODONATISTS IN THE NEWS		20
ONTARIO SUMMARY AND SURVEY		20
DRAGONFLIES: BEHAVIOR AND ECOLOGY OF ODONATA, by Philip S. Corbet	Reviewed by Dennis R. Paulson	20
CORRIGENDA FOR "DRAGONFLIES: BEHAVIOR AND ECOLOGY OF ODONATA"	Philip S. Corbet	22
THAILAND BOOK AVAILABLE		22
UPDATED MANUAL OF THE DRAGONFLIES OF NORTH AMERICA: EXPECTED WINTER 1999-2000	Bill Mauffray	22
DRAGONFLIES OF WASHINGTON, by Dennis Paulson	Reviewed by Nick Donnelly	23
BOOK NOTICE: CHECKLIST OF NORTH AMERICAN ODONATA		23
ARTICLE NOTICES		23
TRAMEA	Nick Donnelly	24