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R. Duncan Cuyler, 1929–2010

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Front cover: Duncan Cuyler collecting along Spring Creek at the 1990 DSA annual meeting in Jonesboro, Arkansas.
 Photo by Jerrell Daigle.

In This Issue

We begin this issue with the very sad news of Duncan Cuyler's passing. Duncan was a friend to many of us. Nick Donnelly, Carl Cook, and Sid Dunkle all provide personal remembrances and a glance into the person who conducted the legendary groundwork for North Carolina odonatology. Duncan will be missed.

Odonates have been in the news recently, but not in their usual good way. A photograph of an oil-covered *Enallagma* from the Louisiana coast was front and center on the on-line Internet newspaper, The Huffington Post (see pg. 15).

Steve Collins, Bryan Reece, and Nancy McIntyre provide a report on their study of the genus *Lestes* on the understudied playas of the southern high plains of Texas.

Walter Chadwick made a recent visit to Costa Rica and reports on his findings, while Jerrell Daigle reports on the eastern-most records of Southern Snaketail (*Ophiogomphus australis*) in Florida.

We have two articles from Alaska in this issue. John Hudson reports on discoveries made in 2009 and Lisa Saper-

stein provides an account of the 2nd annual Dragonfly Day in Fairbanks.

We also have two articles from the other end of the New World. Ângelo Parise Pinto discusses the state of *Orthemis sulphurata* in northeastern Brazil. Fredy Palacino and Carlos A. Millán report on a migratory event in Colombia.



Tell Your Friends!

Dick Walton generously donated 100 copies of the wonderful "Common Dragonflies and Damselflies of Eastern North America" DVD that he and Greg Dodge made, to the DSA. These will be used as membership incentives and given to new DSA members with a paid membership. Please use the opportunity to spread the word and help us boost the DSA's membership. If you are not familiar with the video, visit <<http://www.rkwalton.com/drags.html>>.

Calendar of Events

For additional information, see <<http://www.odonatacentral.org/index.php/PageAction.get/name/DSAOtherMeetings>>.

Event	Date	Location	Contact
2010 DSA Annual Meeting	24–27 Jun 2010	Orono, Maine	< http://www.wingsenvironmental.com/dsa/ >
CalOdes 2010 Dragonfly Blitz	26–27 Jun 2010	Trinity Co., Calif.	Kathy Biggs < bigsnest@sonic.net >
1st European Cong. on Odonat.	2–5 Jul 2010	Portugal	< http://www.europeandragonflies.com/ >
2010 SE DSA Meeting	8–10 Jul 2010	Panama City, Florida	Jerrell Daigle < jdaigle@nettally.com >
Great Lakes Odonata Meeting	9–11 Jul 2010	Central Ohio	Bob Glotzhober < bglotzhober@ohiohistory.org >
2011 Int. Congress of Odonat.	19–24 Jul 2011	Odawara, Japan	< http://www.odonata.jp/wda2011/ >



2010 SE DSA Meeting in Panama City

Jerrell J. Daigle <jdaigle@nettally.com>

The 2010 SE regional DSA meeting will be held in Panama City, Florida 8–10 July. I have reserved a block of rooms at the Comfort Inn under my name/DSA. Please make your reservations ASAP. The Comfort Inn number is 850-769-6969 and ask for Karen. The rate is about \$69 plus tax and it is located at 1013 East 23rd Street, Panama City, FL, 32405.

Ed and Lisa Keppner and I will be hosting the meeting. We will be looking at new sites for *Libellula jesseana* (Purple Skimmer), *Progomphus belli* (Belle's Sanddragon), *Micrathyria* sp., and maybe look for larvae of *Ophiogomphus australis* (Southern Snaketail). Let me know if you have any questions. Talk to me later!



R. Duncan Cuyler, 1929–2010

Nick Donnelly, with assistance from Sid Dunkle and Carl Cook

Duncan Cuyler died on 3 May 2010 at the age of 81, in Durham, North Carolina, where he had lived for nearly his entire life. Duncan was the only child of Dr. Kenneth Cuyler, a research physician at the Duke Medical School, and his mother Julia. He obtained a bachelor's degree from Duke and a master's from North Carolina State. The Cuylers lived in a small house on about 70 acres of farm land (leased to a local farmer) just outside of Durham.

Duncan was noted, not only as the prime authority of the Odonata of North Carolina, but also as one of the most indefatigable odonate students of the entire country. He began at an early age to explore North Carolina for Odonata, and it is safe to say that no one single person ever achieved a fraction of his knowledge of the odonates of any state. He not only knew where they were found, but he knew their habits intimately. In the early 90s I was beginning to assemble records for the dot-map project. Duncan was one of only two submitters who did not use a computer, and his records were an information-packed stack of paper. Each page represented a species, and on the page were the counties (in alphabetical order) for which he had records of this species. At the end of a numbing data input session I could recite nearly perfectly the names of all 100 counties in North Carolina. (I still find myself muttering from time to time, "Alamance, Alexander . . . Yadkin, Yancey"). When I began to experiment with map plots, I found that, for many species, the state of North Carolina appeared as a close-packed mass of dots, leaving adjoining Virginia and South Carolina apparently (and unfairly) undersurveyed! I asked Duncan about some of the more interesting records, and found that he could remember the circumstances of each one.

In his later years Duncan gained a reputation for showing up at DSA meetings, never having revealed in advance that he intended to come. At the Bishop, California, post-meeting trip in 2003 we were having a group dinner in a local restaurant when a waiter came to our table and asked hesitantly if anyone was named "Donnelly". It turned out that Duncan was in the local hospital, having driven across the entire US to our meeting with no notice, and deciding that he wanted to visit the famous *Cordulegaster deserticola* site in the arid mountains east of Bishop. But he went to the wrong location, got his vehicle bogged down in sand, and had to hike a long way to the highway to find a lift into Bishop. (This is all right next to Death Valley, by the way.) The following day a re-hydrated Duncan retrieved his vehicle and vanished as mysteriously as he had arrived. I later found that he actually netted a

deserticola in this debacle. Duncan was never daunted by little mishaps like this.

Failing health also never daunted Duncan. Many of us remember his heart attack in Gainesville, Florida, at the 1997 DSA meeting, after which he finally had installed the pacemaker which he had needed several years before. Few of us knew that a year earlier, on his way to the 1996 meeting in St. Stephens, New Brunswick, he had checked himself into a Danbury, Connecticut, hospital for an earlier cardiac incident. Duncan never considered himself frail, and there is a lesson there for all of us, although I am not certain how I would phrase it.

Duncan was so fixated by dragonflies that few of us remember conversations about anything else. He could discuss the merits of various brands of pipe tobacco at length, and occasionally would cheerily launch into a vigorous discussion of conservative politics, although neither tobacco nor politics had much traction in dragonflies' conversations.

In the final year of his life, Duncan sought assisted care, with the kind and extensive assistance of his friend John Thomas, to whom we are all indebted. Duncan was always a good friend to the dragonfly community, generously sharing his knowledge and specimens. Many people are referred to as "one of a kind", but Duncan really was, and we will all miss him.

Following are some personal remembrances:

Carl Cook: "I first became acquainted with Duncan around about 1947. I remember back then the journal *Entomological News* contained a "Wanted" page where subscribers could advertise their wants for any needed research material or even exchanges among amateurs. Being a freshman dragonfly enthusiast eager to add new specimens to my collection, I advertised my desire to trade. Duncan was one of those who responded, and we begin exchanging specimens, and developed a friendship that lasted until Duncan's death sixty-two years later, I received my last communication from him, a Christmas Greeting Card, in December 2009.

"In the early 1950s my dragonfly activities were somewhat curtailed during a tour of duty in the US Air Force, but in the summer of 1951 I



R. Duncan Cuyler (right) with Carl Cook at the 1994 SE regional DSA meeting in Monroeville, Alabama.

was stationed at Suffolk, Virginia, within easy driving distance of Duncan's place in Durham, North Carolina. This gave me the opportunity to meet Duncan in person and join him to collect *Somatochlora*s at some of his legendary North Carolina Sand Hills locations, Duncan had not only discovered one of the most *Somatochlora*-rich areas in the southern US, but he had also begin to develop his own techniques to collect these difficult-to-catch dragonflies. In my opinion there were two persons whom I have known who were masters at collecting *Somatochlora*s. One was Homer Price, with his legendary big-hoop net; the other was Duncan Cuyler, with his equally well-known long-handled net. If these two gentlemen had lived during the Stone Age, they undoubtedly would have invented a superior weapon and become legendary Mastodon hunters!

"But Duncan's success with hunting *Somatochlora*s entailed more than just adapting a more effective collecting device. He was also highly knowledgeable about their habits and range in the area where he collected, and this was undoubtedly the most important factor for Duncan's success. I recall asking Duncan for some tips about col-

lecting *Somatochlora provocans* before I came for a visit in the summer of 1951. He wrote back to me, "Be sure that you arrive here at my place by 4:00 AM; we will need to get an early start." I was rather puzzled why so early, because I was accustomed to thinking that dusk was the better time for them to fly. When I arrived, he guided us to a small woods-bordered open cove at a creek bend. Just as the sun got high enough for the fog to lift, some *Somatochlora*s begin to appear, but now these were flying at about shoulder-height rather than at treetop height! Duncan explained, "Their early flight is the best time to catch them; at dusk they will fly higher."

"So far as I'm aware, Duncan may have collected dragonflies in Kentucky only two times. He attended the DSA meeting held at Cave City, Kentucky, in 2006. He had also visited me in 1962 just to collect on the Little Barren River, which I had told him about. It was mid-June, and the prime Gomphidae flight season. Of course, gomphids were one the favored groups for both Duncan and myself, and I was delighted to guide him to several of my favorite collecting locations on both forks of that river in the vicinity of Center and Edmonton. It was a very good year, and gomphids were everywhere. I'm sure Duncan was as pleased with his collections here as I had been with the *Somatochlora*s in North Carolina many years ago.

"In 2006, when Duncan was here again, he said to me, "I don't think gomphines are as common here as the last time when I was here". I guess that Duncan was probably correct; some species of gomphids are now gone from the Little Barren, and I miss them. Some people who I have enjoyed collecting with on the Little Barren are gone too, and I will miss them too."

Sid Dunkle: "Jerrell Daigle and I visited Duncan at his home in North Carolina, in what seems now to be eons ago. As the most indefatigable collector I have ever known, Duncan knew where every species of dragonfly in the state was located, so he guided us to some great spots. He had found a mystery gomphid that we thought might be a new species, so we went to where he had collected a specimen. We were lucky enough to find it too. It turned out to be the Skillet Clubtail *Gomphus ventricosus*—not a new species, but a rare one, and a lifer for Jerrell and I."



R. Duncan Cuyler (second from right) at the 1990 DSA annual meeting in Jonesboro, Arkansas.

Nick Donnelly: “I first visited Duncan in March 1953 when, after a brief correspondence, I decided to visit him during my university’s spring break. I found his home small and cozy, and his parents very pleasant and hospitable. The first day we walked over barren farm fields (the crops had not yet started to grow), where Duncan guided me to my first *Epitheca spinosa*. The Cuyler family land holdings have long since been developed as Durham has grown to envelop Garret Road, and I am assured that there is no way I would recognize this once pastoral landscape today.

“Further from home he guided me to my first *Helocordulia selysii*, and he took pains to point

out the habitat differences between this species and its cousin *Helocordulia ubleri*. I was thrilled with the swift finding of two new bugs for me, and I was totally impressed with his thorough knowledge.

“In the early 90s, when Ken Tennessen and I were studying *Macromia illinoensis* and *georgina*, we borrowed for examination a great many specimens. The readers of this piece will all agree how difficult it is to net even one of these superb fliers. Duncan loaned us nearly 600 specimens. How many of you have caught even a few dozen of these swift fliers?

“In 2003, while going to the Junction, Texas, meeting, Ailsa and I stopped at a stream just outside of Waco, Texas. Also parked there was a red Jimmy covered with Republican slogans. A few hundred yards away I found an apparently snoozing old-timer sitting on the bank holding what looked like a long fishing net. It was Duncan, and of course it was a dragonfly net (I immediately realized that we were both there because of a mutual acquaintance with Curt Williams, who had taken many interesting *Macromia* near this place). While chatting about this and that, Duncan (who rarely moves very fast) suddenly thrust out his net and grabbed a *Macromia* which was trying to sneak past us. His quick reflexes and deadly eye remained a wonder until his final days in the field.”



***Lestes* on the Playas of the Southern High Plains of Texas**

Steve Collins, Bryan Reece, and Nancy McIntyre, Department of Biological Sciences, Texas Tech University, Mail-stop 3131, Lubbock, TX 79409-3131; <nancy.mcintyre@ttu.edu>

Approximately one-quarter of the 17 North American spreadwing (genus *Lestes*) species have a portion of their range within the Southern High Plains, a geographically distinct plateau that forms the southernmost edge of the Great Plains. Encompassing the entire Texas panhandle and extending slightly into eastern New Mexico, this region is also known as the Llano Estacado and is characterized by aridity, transitioning into desert along its southern border. However, there is a surprisingly large number

of lentic wetlands in the Southern High Plains, known as playas. Playas are intermittent wetlands that comprise the primary (and in most places, only) lentic habitat in the region. There are ~25,000 of these ephemeral, runoff-fed wetlands in the Southern High Plains (Smith, 2003). Analogous to the prairie potholes of the northern Great Plains, turloughs of Ireland, dambos of Africa, and vernal pools in alpine areas worldwide, these wetlands are regional nexuses of biodiversity (Bolen et al., 1989).

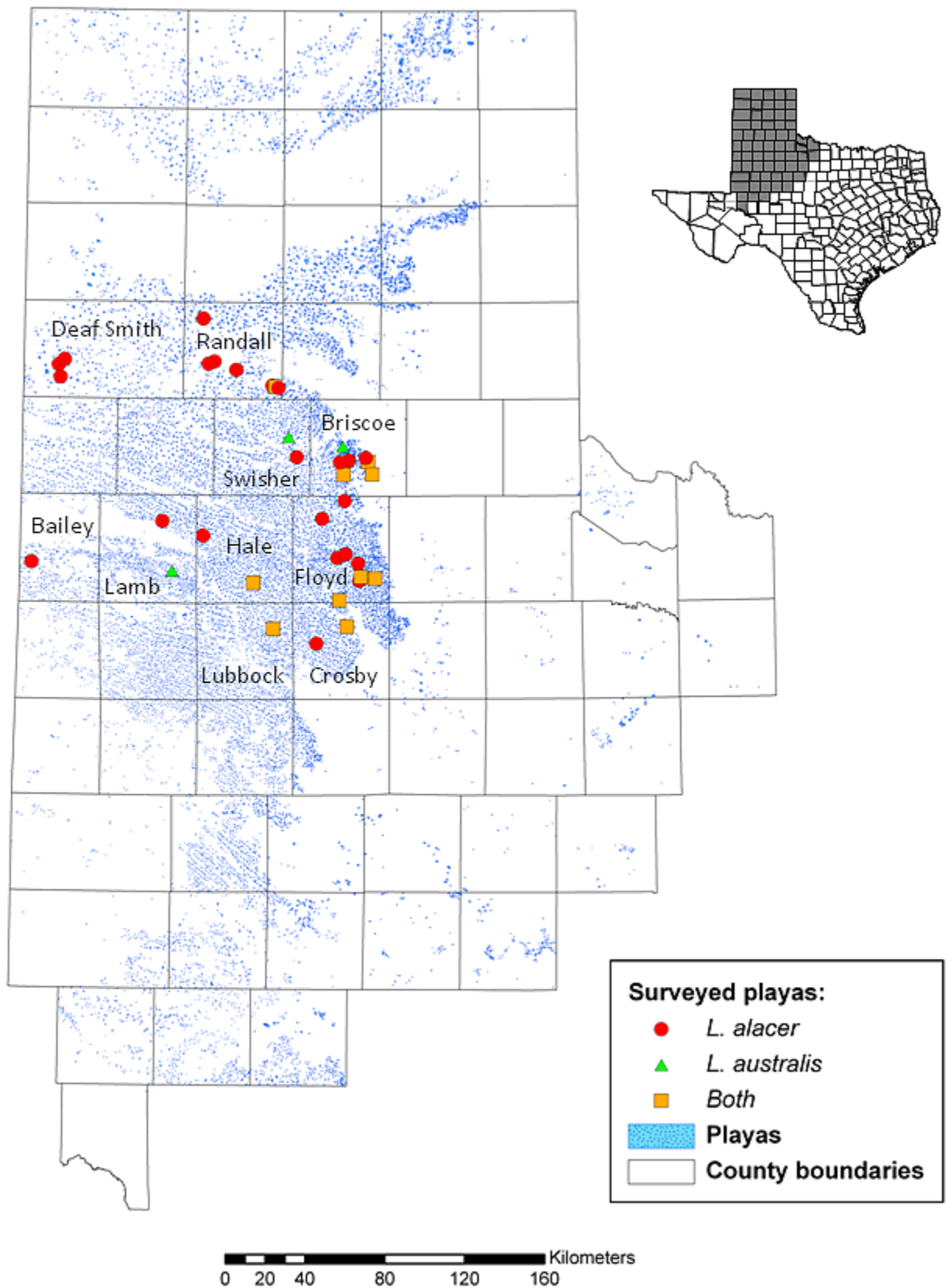


Figure 1. Map showing the distribution of playas in the Texas panhandle (shaded counties) and the location of the playas we surveyed for *Lestes*. Counties where *Lestes* were surveyed are named. Playas where only *L. alacer* was encountered are represented by red circles, playas where only *L. australis* were collected are green triangles, and playas where both species were observed are orange squares.

The odonates of the Great Plains are relatively depauperate relative to more mesic areas (Kalkman et al., 2008), but this stems, in part, from a lack of knowledge: the playa odonate fauna has been undersampled until relatively recently (Reece & McIntyre, 2009a, b). This is largely due to the fact that the majority of playas occur on private property (Haukos & Smith, 2003), which has limited the ability to access and study playa organisms. Given that over 98% of the freshwater wetlands that have been lost in the US since 1986 have been in the Great Plains, chiefly due to land conversion for agriculture and urban development (Dahl, 2000), biotic documentation of this region is more imperative than ever. This is particularly true for *Lestes*, whose distributions for the Great Plains are acknowledged to be poorly known (Paulson, 2009).

We examined spreadwings from playas throughout the Texas panhandle over a six-year period, documenting species occurrences and co-occurrences (sympatry), in this understudied area. Spreadwings were collected as part of a more comprehensive survey of adult odonates of playas of the Texas panhandle (Reece & McIntyre, 2009a, b). Specimens were collected from 37 wet playas in 10 counties in Texas (Bailey, Briscoe, Crosby, Deaf Smith, Floyd, Hale, Lamb, Lubbock, Randall, and Swisher; Fig. 1) from July 2003 to September 2009. Twenty of these playas were surrounded by grassland (grazed pastureland or former cropland restored to grassland); the other 17 were surrounded by active agriculture (chiefly wheat and cotton). Although more counties and playas were surveyed during this time, they were either dry or no spreadwings were encountered. Specimens were identified to species using taxonomic keys and field guides (Abbott, 2005; Westfall & May, 2006; Paulson, 2009). All specimens are currently curated in the Department of Biological Sciences at Texas Tech University.

Eighty-two adult *Lestes* specimens (13 females, 47 males, and 11 tandem pairs) were examined. The vast majority (79%) were *L. alacer* (Plateau Spreadwing); the remainder were *L. australis* (Southern Spreadwing). This finding is consistent with Larsen (2007), who found that *L. alacer* was the most common spreadwing in the eastern New Mexico portion of the Southern High Plains. Compared to distribution data from OdonataCentral (<http://www.odonatacentral.org>), these specimens represent county records for *L. alacer* in 5 counties in Texas (Floyd, Hale, Lamb, Randall, and Swisher) and for *L. australis* in 6 counties (Briscoe, Crosby, Hale, Lamb, Randall, and Swisher). We did not encounter any individuals of the other two species known to occur on the Southern High Plains (*L. rectangularis* [Slender] and *L. unguiculatus* [Lyre-tipped]), nor did we find any *Lestes* species that were not previously known from the Llano Estacado (Abbott, 2008).

There was localized sympatry of species (i.e., co-occurrence of multiple *Lestes* species at the same playa at the same time) at 10 playas. Additionally, for five of the 11 tandem pairs (netted while in copula), the species differed between the partners: the male was a *L. alacer* and the female was a *L. australis* in four tandem pairs, and the male was a *L. australis* and the female was a *L. alacer* in one pair. *Lestes* has previously been documented in tandem with members from other odonate families (Corbet, 1999: 491), so interspecific pairings within the genus are not surprising, although evidence of actual hybridization is lacking.

Although *L. alacer* was recorded at more grassland than cropland playas (19 grassland, 14 cropland) and *L. australis* was recorded from more cropland (8) than grassland (6) playas, the differences are so slight as to suggest that there is no strong selection for either land-use type by either species. Playas where both species were found were equally distributed between cropland and grassland.

Larsen (2007) described a forested communal roosting site in eastern New Mexico, where *L. alacer* were found in the evenings after hot days and in times of bad weather. This wooded roost was one-half mile away from the closest breeding habitat. It does not appear that nearby woodlands are a requirement for *L. alacer*, however: over 60% of the 33 playas where we recorded *L. alacer* did not have woodlands or mesquite shrublands within a one-mile radius.

The playa region is characterized by unpredictable amounts and locations of precipitation, leading to an unpredictable availability of aquatic habitat. Moreover, playas face numerous threats from pollution, tillage, and infill as well as from climate change (Smith, 2003). The odonates that occupy this unique and imperiled wetland system are still relatively poorly known and warrant further study.

Acknowledgments

Special thanks to Nick Donnelly for providing unpublished information on distinguishing *Lestes* species.

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Costa Rica in April

Walter Chadwick, Yonkers, New York <mrcnaturally@optonline.net>

From 14 to 20 April 2010 I visited Costa Rica, staying at Villa Lapas an ecolodge in Puntarenas Province. This hotel protects a natural reserve that follows the Río Tarcolitos and borders Carara National Park. The object of the trip was to see tropical nature with an emphasis on odonates and birds. This area is a transitional zone between the dry climate of Guanacaste and the humid southern Pacific coast. Hot and humid it was. The pool was used to cool off. Being 8 to 11 degrees north of the Equator the sun's intensity is strong. My stay was at the end of the dry season and the water level in the river appeared to be low.

The lodge is located in a rain forest and has a river flowing through it as well as gardens and lily ponds. There is plenty to explore on the lodge grounds where I spent most of my time. Carara National Park is about a ten-minute drive from the lodge. This is a 5,242 hectare park with a good trail system. You can join a guided tour or wander through the park on your own. I elected to explore by myself.

Thanks to Dennis Paulson not only for identifying the odonates but also for providing information before my trip.

Listed below are the species seen and the reproductive behavior observed. Common names are listed when they exist.



Dythemis multipunctata.

Villa Lapas

Acanthagrion trilobatum

Argia cupraurea

Argia indicatrix

Argia translata (Dusky Dancer)

Hetaerina occisa

Telebasis digiticollis

Dythemis multipunctata

Dythemis sterilis—in copula

Erythrodiplax fusca (Red-faced Dragonlet)—in copula, ovipositing

Erythrodiplax kimminsi
Orthemis discolor (Carmine Skimmer)
Perithemis domita (Slough Amberwing)

Hetaerina fuscoguttata
Orthemis levis—in copula, ovipositing
Uracis imbuta



Carara National Park

Argia sp. (undescribed species in *oculata* complex)

Dragonfly Investigations in Central Alaska, 2009

John Hudson, Juneau, Alaska <jhudson@gci.net>

The quest to learn more about dragonfly diversity and distribution in central Alaska continued for the third year in a row in 2009 thanks to funding and coordination from the US Fish and Wildlife Service (FWS). Collecting efforts began on 15 June in Galena, Alaska, headquarters of the Koyukuk and Nowitna National Wildlife Refuges (NWR). While surveys in this area in July 2008 produced numerous records, expectations for adding early-summer species to the area's growing odonate list were high. Shortly after arriving by plane from Fairbanks, I joined refuge biologist Karin Lehmkuhl Bodony on a search for odes at several sites within reach of the village's 8-mile long road system. On the following day, refuge pilot Jerry Floyd flew me into the southern edge of the refuge for a brief collecting trip. And during day three, Karen and I searched a few more spots near town.

All told, the Galena trip yielded 15 odonate species representing four families. The area's species list was expanded from 18 to 24 with the capture of six new species: Prairie Bluet (*Coenagrion angulatum*), Subarctic Bluet (*Coenagrion interrogatum*), Sedge Sprite (*Nehalennia irene*), Delicate Emerald (*Somatochlora franklini*), Hudsonian Whiteface (*Leucorrhinia hudsonica*), and Canada Whiteface (*Leucorrhinia patricia*). With the exception of Sedge Sprite, the above records represent westward range extensions in North America. Boreal Whiteface (*Leucorrhinia borealis*), first recorded in the Koyukuk NWR from a 2008 photograph, was collected at two localities in Galena. Additionally, on 21 June 2009 Karen collected a Crimson-ringed Whiteface (*Leucorrhinia glacialis*) at "Wood Gnome Lake", an abandoned side-channel of the Yukon River 3.5 km northwest of Galena. This record extends

the Alaska range 700 km northwest from the nearest known population in Tetlin NWR. The remaining Alaska records for this species are from Revillagigedo and Prince of Wales Islands, 750 km south of Tetlin NWR.

Next stop on the collecting tour was Fairbanks (18–20 June) where the second annual Dragonfly Day and two days of



Pauline Strong (left) and Lisa Saperstein search for emerald dragonflies at a bog in the heart of the Kanuti National Wildlife Refuge. Photo by John Hudson.

Table 1. Odonate species diversity in the six biogeographic regions of Alaska.

	Northern	Western	Central	Southwestern	South-coastal	Southeastern
Suborder Zygoptera (damselflies)						
Family Lestidae						
<i>Lestes disjunctus</i> (Northern Spreadwing)			•	•	•	•
<i>L. dryas</i> (Emerald Spreadwing)			•			
Family Coenagrionidae						
<i>Enallagma boreale</i> (Boreal Bluet)			•	•	•	•
<i>E. annexum</i> (Northern Bluet)		•	•	•	•	•
<i>Coenagrion angulatum</i> (Prairie Bluet)			•			
<i>C. resolutum</i> (Taiga Bluet)			•		•	
<i>C. interrogatum</i> (Subarctic Bluet)			•			
<i>Nehalennia irene</i> (Sedge Sprite)			•			
Suborder Anisoptera (dragonflies)						
Family Aeshnidae						
<i>Aeshna eremita</i> (Lake Darner)		•	•	•	•	•
<i>A. juncea</i> (Sedge Darner)	•	•	•	•	•	•
<i>A. sitchensis</i> (Zigzag Darner)			•		•	•
<i>A. subarctica</i> (Subarctic Darner)			•		•	•
<i>A. interrupta</i> (Variable Darner)	•		•		•	•
<i>A. septentrionalis</i> (Azure Darner)	•		•			•
<i>A. palmata</i> (Paddle-tail Darner)						
Family Corduliidae						
<i>Cordulia shurtleffii</i> (American Emerald)		•	•	•	•	•
<i>Somatochlora franklini</i> (Delicate Emerald)			•			•
<i>S. albicincta</i> (Ringed Emerald)		•	•	•	•	•
<i>S. hudsonica</i> (Hudsonian Emerald)			•			
<i>S. kennedyi</i> (Kennedy's Emerald)			•			
<i>S. minor</i> (Ocellated Emerald)			•			•
<i>S. sahlbergi</i> (Treeline Emerald)	•	•	•			
<i>S. semicircularis</i> (Mountain Emerald)						•
<i>S. whitehousei</i> (Whitehouse's Emerald)						•
Family Libellulidae						
<i>Leucorrhinia proxima</i> (Belted Whiteface)			•		•	
<i>L. hudsonica</i> (Hudsonian Whiteface)			•	•	•	•
<i>L. borealis</i> (Boreal Whiteface)			•		•	
<i>L. glacialis</i> (Crimson-ringed Whiteface)			•			•
<i>L. patricia</i> (Canada Whiteface)			•			
<i>Libellula quadrimaculata</i> (Four-spotted Skimmer)			•	•	•	•
<i>Sympetrum danae</i> (Black Meadowhawk)		•	•	•	•	•
<i>S. internum</i> (Cherry-faced Meadowhawk)			•			
Total	4	7	29	10	16	19

odonate identification workshops provided several collecting opportunities. These efforts failed to produce any new records for the area. A total of 14 species in four families were found at seven localities. Of the five most intensively surveyed sites in central Alaska, Fairbanks currently has the lowest diversity of odonates (20 species). Bogs and fens in the greater Fairbanks area have been under-surveyed in the past; a focus on these habitats will likely yield more records.

Next, the tour moved 300 km northward from Fairbanks to the village of Bettles where a small collecting party descended upon the Kanuti NWR between 22–24 June. The group consisted of Lisa Saperstein and Danielle Jerry from the FWS and Bob Armstrong, Pauline Strong, and myself. Odonates were collected at two primary sites in the refuge: VOR Lake (northern refuge) and “Rachel’s Lake” (central refuge), both located above the Arctic Circle. Although odonate collecting has occurred in the refuge annually since 2004, this survey was the first targeted investigation of the refuge’s bog habitats. Bogs are a common wetland habitat in the region and typically harbor a unique odonate community. While stormy, cool weather predominated, we took advantage of intermittent sunny and warm weather to sample the area’s fens, bogs, and small lakes.

A total of 15 species in four families were collected including a new state record, a single female Ocellated Emerald (*Somatochlora minor*). Three additional refuge records included Delicate Emerald, Kennedy’s Emerald (*Somatochlora kennedyi*), and Azure Darner (*Aeshna septentrionalis*), the latter collected on 25 July near Bettles. The discovery of Ocellated Emerald in Alaska represents a 1,000 km range extension from southwestern Yukon Territory. The range was further extended in July 2009 with the discovery of a second population in Juneau, 1,200 km to the southeast of Kanuti NWR. The great distances spanning the known localities of several species in Alaska highlight the general lack of knowledge concerning odonate distributions in this remote, expansive, and little-surveyed state.

Currently, 29 of the 32 odonate species that breed in Alaska have been documented in central Alaska, making it the most ode-diverse region of the state (Table 1). In 2010, FWS will again fund collecting trips in the region, including a westward expansion of efforts into the Selawik NWR and the city of Kotzebue on the Chukchi Sea.



People Swarm to 2nd Annual Dragonfly Day in Fairbanks, Alaska

Lisa Saperstein, Yakima, WA <lsaperst@gmail.com>

About 450 people flocked to the Creamer's Field refuge in Fairbanks, Alaska on 20 June 2009 to celebrate the second annual Dragonfly Day, a 50% increase over the previous year's attendance. Dragonfly Day and other associated activities were funded by a US Fish and Wildlife Service Challenge Cost-Share Grant. Partners in the event were Kanuti National Wildlife Refuge, John Hudson, Bob Armstrong, Friends of Creamer's Field, Nancy and Jim DeWitt, the University of Alaska Museum of the North, Friends of Alaska National Wildlife Refuges, the Alaska Department of Fish and Game, and the Alaska Bird Observatory. Hudson and Armstrong, coauthors of a field guide to Alaska's dragonflies, were the primary partners in the grant, devoting numerous volunteer hours to the efforts.

Dragonfly Day featured three scheduled dragonfly walks during which children and adults were provided with nets so they could personally experience the challenge of catching and identifying the fast moving, aerobic insects. The pond at Creamer's Field was mostly dry, with only one

small area of standing water. This didn't dampen peoples' enthusiasm, and there were still plenty of dragonflies to chase. Despite having to rescue a few kids mired knee-deep in the mud, three species were captured and released during the course of the day. Activities also included children's crafts (although quite a few adults were spotted at the crafts tables without a child escort), an aquatic invertebrate display, a dragonfly photography display, craft vendors, and showings of John Acorn the Nature Nut's humorous but informative dragonfly video.


Other educational activities were funded by the grant. Training in dragonfly identification was offered 18 and 19 June for people interested in learning about odonates and applying their knowledge in the field. Twenty-three people attended at least one day of the training, and many came both days. The sessions started with a brief introduction to odonates, concentrating on morphology and the identifying characteristics of species found in Alaska. This was followed by trips to lakes and ponds in the Fairbanks area to gain hands-on experience catching and identifying



2009 Dragonfly Day attendees gather at Creamer's Field in Fairbanks, Alaska before heading out on a dragonfly walk. Photo by Robert Armstrong.

dragonflies; three different lakes were visited each day and a total of 13 species were collected. Hudson and Armstrong also gave a public presentation at the University of Alaska Museum of the North the evening of 18 June. The talk focused on the natural history of dragonflies, with a closing segment on how to photograph them. The final educational effort was in Bettles, 180 miles northwest of Fairbanks and home of the Kanuti National Wildlife Refuge field station, on 21 June. Rain prevented planned

dragonfly walks, but the evening slide show was a popular activity and hopefully piqued people's interest in collecting and photographing dragonflies in this remote and under-collected part of the state.


In keeping with tradition, the third annual Dragonfly Day will be held near the summer solstice (19 July), again at Creamer's Field in Fairbanks. 

***Ophiogomphus australis* Sightings in Florida!**

Jerrell J. Daigle <jdaigle@nettally.com> and **Rick Abad** <Rick.Abad@dep.state.fl.us>

Many exuviae and last instars of *Ophiogomphus australis* (Southern Snaketail) were found in Panhandle Florida this spring, mostly in Escambia County. Rick Abad and Don Ray have found a few confirmed sites and many other potential sites. Fourteen exuviae were collected at Boggy Creek between 16 March and 15 April. Other locations include Brushy Creek and Canoe Creek just north of Pensacola, but south of the Alabama state line.

In addition, Andy Rasmussen found an exuvia near the Chipola River in Calhoun County which makes this record the furthest east in Florida. Photos were taken of several exuvia and emerging adults. No hard adults were found in the surrounding fields, and none were seen patrolling at the water. Two last instar larvae that were collected by Rick and Don from Boggy Creek later emerged in an aquarium as one male and one female.

We plan to host the 2011 SE regional meeting in Pensacola next spring. Hopefully, we can find and photograph mature adults in the field, and at the gravel streams. Hope to see you there next year! 



A Sertanejo's Trip: Occurrence of *Orthemis sulphurata* Hagen in Northeastern Brazil?

Ângelo Parise Pinto, Museu de Zoologia, Universidade de São Paulo, SP, Brazil <odonata_angelo@hotmail.com>

At the end of 2009 I traveled with my family to the Ceará state in the northeast region of Brazil, during the holidays of New Year's Eve. We moved away from our home approximately 2,000 km from Rio de Janeiro. The state houses some of the most famous and beautiful beaches in the country, including Canoa Quebrada (discovered by a hippies' community in the 1970s), and Jericoacara (known by its great rock with a big hole in the center, where in July the sun hits the center during sunset). In the southern portion of the state, you can find the Crato Formation in the Chapada do Araripe, a region well known for its amazing cretaceous fossil deposits (e.g. Martill et al., 2007). The northeast states as a whole are the poorest of Brazil and excluding the coastal portions of the region, possess a very dry climate, with pluviometric indexes similar to deserts. The local people living in this unfriendly region are known by the Brazilian Portuguese name Sertanejo.

My Aunt Salete and cousin André met us in the Fortaleza airport. About one and a half hours later, we arrived in the village of Barra Nova, located in the Cascavel municipality, about of 70 km from the capital city Fortaleza. Although it was a vacation tour, like other students of entomology, I am always attracted to flying insects that may be around. During this period I was able to "escape" for a total of three hours, on two different days (31 December and 1 January), and I headed in the direction of some coastal lagoons among sand dunes close to my family's house. The majority of these water bodies are temporary, and many will dry completely during periods of low precipitation. The lagoons are muddy, with the absence of emergent aquatic plants, and the sand terrain around them is covered with grassy vegetation and palm trees called "Buritis" (Fig. 1).

On my first day hunting dragonflies, I was accompanied by André who helped me search for the red ones. We were "armed" just with one net, some triangular envelopes made with a newspaper of the last day and dressed with Bermuda shorts and flip-flop shoes, which turned out to be a very bad choice. We saw several snails in the water and began wondering if they might be infected with *Schistosoma mansoni*; we became scared of the possibilities of contracting schistosomiasis. Under this context, I avoided entering the water, restricting my efforts to the lagoons borders. Adding to our misfortune, all the margins were inhabited by armies of voracious, but very small (2 mm) ants. They would bite our unprotected feet incessantly. Thus, I was able to collect just 19 specimens belonging



to ten species, and due the temporary characteristic of these lagoons, the dragonfly assemblage was composed almost exclusively of migrant and long dispersal species, i.e. *Lestes forficula* (Rainpool Spreadwing), *Ischnura capreolus*, *I. fluviatilis*, *Idiataphe amazonica*, *Brachymesia herbida* (Tawny Pennant), *Erythemis vesiculosa* (Great Pondhawk), *Erythrodiplax paraguayensis*, *E. umbrata* (Band-winged Dragonlet) and an unidentified female of *Macrothemis*. This specimen was separated in three parts when the net hit it. The abdomen stayed in the net, the head disappeared, and the thorax continued flying alone for a few seconds! In addition to the collected specimens, a male of *Erythemis peruviana* (Flame-tailed Pondhawk), some individuals of *Cacoides latro* and *Tramea abdominalis* (Vermilion Saddlebags), and specimens of two unidentified species, one a large pruinose blue *Erythrodiplax* and a medium-size quicker red libellulid (probably a *Planiplax*) were observed.

Orthemis ferruginea group, a continuing debate

Undoubtedly, the most interesting aspect of the species we saw was the presence of several individuals of *Orthemis* that were observed flying over every body of water. The most common complex of species in this widespread genus, the *ferruginea*-group, has been intensively investigated in the last few years (e.g. Donnelly, 1995, 2001; Paulson, 2001; Santos, 2004; Meurgey & Daigle, 2007; von Ellenrieder, 2009). These studies began with De Marmels (1988) revalidating the status of *O. discolor* (Carmine Skimmer). Part of the intricate taxonomic questions involving this species complex have been solved, but several nomenclatural/taxonomic problems persist. Among the several individu-

als I saw in the lagoons, just one was *O. discolor*; all others were a distinct species that appears to be very common in that region. I only caught two specimens, fortunately a pair in copula. Within the first moments in the field, I remembered two photographs of Brazilian specimens Dr. Dennis Paulson sent me from Bahia state; they were identified as *O. schmidtii*.

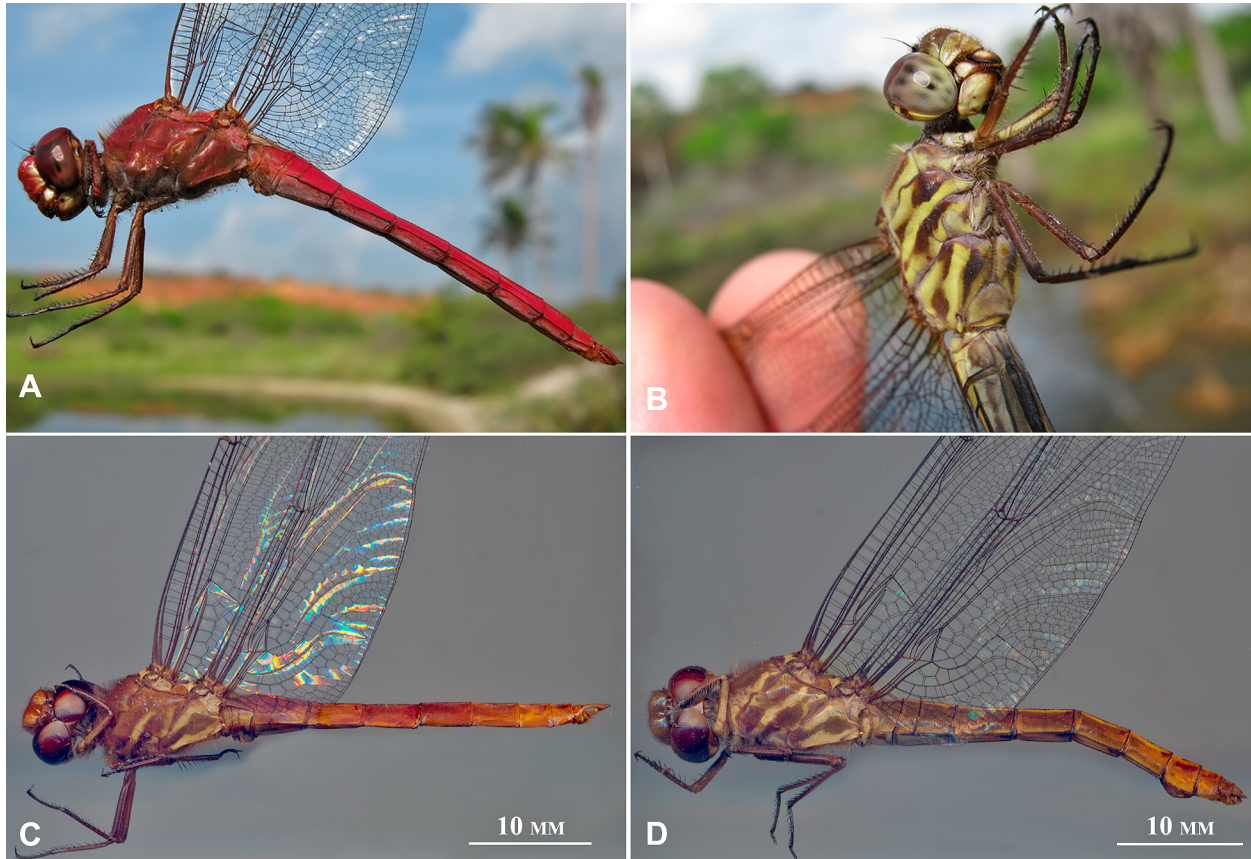
I sent photographs of the collected specimens to the “*Orthemis* discussion group” composed of J. Daigle, D. Paulson and T. Donnelly among other active collaborators. The consensus was that the Ceará’s specimens were not *O. ferruginea* (Roseate Skimmer), although the female presented similar “H-shape” pale stripes on the mesepimeron. Back in the laboratory, I was able to examine these specimens more carefully and realized that they were very similar to those from Pará state, also in Brazil, identified by Pinto & Carvalho (2009) as *O. ferruginea*, which was suggested be an eastern morph of *O. sulphurata* by Jerrell Daigle. Unfortunately the female holotype of this species is lost (Santos, 2004).

I compared the Ceará’s specimens with the original description of *O. schmidtii* by Buchholz (1950) using a translated version kindly furnished by Natalia von Ellenrieder with additional notes made by Paulson (2001). My conclu-

sion was that they were not *O. schmidtii*. The male has a black lateral carinae on all segments; they do not possess the dark longitudinal stripes on the ventral portion of the abdominal tergites (red after S4 in *O. schmidtii*), and they have a distinctive pruinosity on the ventral portion of the abdominal tergites (absent in *O. schmidtii*). Along the dorsal surface there is a very thin layer of pruinosity that is nearly absent (Fig. 2a). I also compared them with a few specimens I had determined as *O. schmidtii* from Maranhão and Pará states in Brazil, and from Suriname; they were significantly different.

The female (Fig. 2b), however, agreed with Donnelly’s (2001) description of *O. sulphurata*. The female had a marked thorax with distinctive antehumeral stripes, which are absent in Buchholz’s holotype of *O. schmidtii* (p. 80 “thorax dunkel rotbraun, kein antehumeralstreift . . .”). However this character is known to be variable and has been observed in *O. ambirufa* (N. von Ellenrieder pers. comm.). The only character cited by Hagen (1868) and Donnelly (2001), that was unclear, is the yellow color (sulphur?) of the legs; just the prothoracic femur is yellow.

Based on the female characters, I am secure in following J. Daigle’s opinion and determined them as *O. sulphurata*. I also examined the other specimens from distinct locali-



ties in Brazil and determined that all *O. ferruginea*-like specimens from Brazil are the same species from Ceará, probably *O. sulphurata* or another very close “species”, still undescribed. The specimens from Bahia (photographs sent by Dennis) are also very likely ‘*O. sulphurata*’ from Ceará. I was also able to identify specimens from Maranhão, Pará, Paraíba (Figs. 2c-d) and Rio de Janeiro states. These determinations follow the opinions of Dennis Paulson and Thomas Donnelly; both think it is unlikely that *O. ferruginea* occurs in Brazil. If these assertions are correct, *O. sulphurata* is a coastal species in Brazil, while *O. schmidti* is more abundant in the inland.

In spite of everything, I sent some of these specimens to J. Daigle to be included in his molecular/morphological studies; based on his replies, we can expect a solution to the majority of the questions concerning this group in the near future.

Acknowledgements

I wish to express my sincere thanks to all odonatologists that contributed e-mails to the “*Orthemis* discussion group”, sharing their unpublished information on this genus. In particular, D. Paulson, J. Daigle, T. Donnelly, R. Garrison, and N. von Ellenrieder. I also wish to thank A. L. Carvalho for help in subjects relative to odonatology.

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A Call for Papers for BAO

The Bulletin of American Odonatology is in need of manuscript submissions. It has been one year since the last issue of BAO appeared (vol. 11, no. 1), in case you haven't kept track. That issue contained six relatively short contributions. I now have two short manuscripts in the queue and two other possible manuscripts not yet submitted, but that is not enough to put out an issue. If you have a manuscript in preparation, please contact John Abbott (Editor in Chief) or myself and let us know your timetable.

If BAO is to continue to be a vehicle for timely reporting of research results on the Odonata of the New World, you are the ones who can make it happen. We can't publish manuscripts we don't receive.

Ken Tennessen <ktennessen@centurytel.net>, Editor, BAO

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All articles and notes are preferably submitted in Word or Rich Text Format, without any figures or tables, or their captions, embedded. Only minimal formatting to facilitate review is needed—single column with paragraph returns and bold/italic type where necessary. Include captions for all figures and tables in a separate document.

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Back cover: Three male *Telebasis inalata* photographed in Guayas Province, Ecuador, 20 February 2010, illustrating the progression of pruinescence with maturity starting with the least mature (top) to most mature (bottom). Significant pruinescence is unusual for a species of *Telebasis*, and this species is only known to become pruinose in the Pacific lowlands of Ecuador. Photos by Jim Johnson, <<http://odonata.bogfoot.net/>>.

