

ISSN 1061-8503

ARGIA

The News Journal of the Dragonfly Society of the Americas

Volume 23

17 March 2011

Number 1



Published by the Dragonfly Society of the Americas

<http://www.DragonflySocietyAmericas.org/>

In This Issue

Be sure to check out the Calendar of Events below, as there are a lot of great meetings planned for this year. Details of many of these meetings can be found in this issue, so start making your plans.

Nick Donnelly reports on the death of one of the giants in the study of Oriental Odonata in the last century. Syoziro Asahina left a long, rich legacy of dragonfly research behind. I'm sure there will be a commemoration at the International Congress of Odonatology held in Japan this August.


For a touch of the creative side, we are often treated to one of Ken Tennessen's poems, but in this issue, Jerry Hatfield has written an eloquent narrative about chasing dragonflies in the Texas panhandle. Ângelo Pinto and Alcimar Carvalho clarify a mistake in the distribution of *Neocordulia batesi* in Brazil that has been repeated in the literature over the years.

↓ Bruce Lund and Alan Myrup provide a synopsis of 70 years of study on the Muddy River Watershed in Clark County, Nevada. Long-term study sites like this are invaluable, but rare. I can think of a number of others, but there aren't near enough.

Paul Catling, Brenda Kostiuk, and Douglas Tate confirm the existence of River Jewelwing (*Calopteryx aequabilis*) in the Northwest Territories of Canada extending this species' range to above 60°N. John Klymko also reports Extra-striped Snaketail (*Ophiogomphus anomalus*) for Nova Scotia for the first time.

Burton and Chelsey Cebulski report on the dragonflies of The Nature Conservancy preserve, Ives Road Fen, in southeast Michigan. Fred Sibley has been working on the odonate fauna of Nebraska and provides an updated account of that state's numbers and new records.

Cary Kerst discusses how wetland mitigation sites can be beneficial and productive habitats for odonates. Scott King relays the fun had by all in western Minnesota at last year's MOSP gathering.

Finally, there are two new books to announce. Hal White has written a book on the Natural History of Delmarva Dragonflies and Damselflies and I have a new book on the Damselflies of Texas. Details on both are given at the end of this issue. 

1937-2010: Odonata Associated with the Muddy River Watershed in Clark County, Nevada

Bruce Lund, PO Box 697, Moapa, NV 89025 <blund@mvdsl.com> and **Alan Myrup**, 914 South 1635 West, Orem, Utah 84058 <alanmy@comcast.net>

Long term surveys combined with short term intensive surveys where daily observations are repeated over a few seasons at the same sites, reveal species diversity and trends that cannot be observed any other way. Indeed, as one expert commented, "... after decades of study in Broome County, NY ... I can probably find no more than 80% of the total species in a single given year" (Donnelly, 2004). In the Muddy River watershed, Dr. Richard Baumann of BYU-Provo and students have conducted surveys on a few days each month from March through October from 1984 to 2009 and Bruce Lund has been doing daily surveys in all months, but mainly from May through November from 2008 to 2010. As a result, the Muddy River watershed has the most surveyed and best documented Odonata fauna in Clark County, Nevada and this paper provides an up-to-date report. Of the forty-eight species listed in the Odonata Central Clark County list,

thirty-nine have been documented in the Muddy River watershed with two new species added.

The Muddy River Ecosystem and Odonata Survey Sites

The Muddy River ecosystem is unique for a number of reasons: 1) it originates from and is sustained by more than 20 warm (32°C) headwater and riverside springs, 2) the groundwater springs sustain a consistent 36,000 acre-foot year-round flow as the river meanders for 32 river miles from its headwaters starting at 550 m elevation to its mouth at Lake Mead at 385 m, 3) while flowing through Mojave Desert that is the hottest and driest of the North American deserts with a 10 cm average annual precipitation, this river ecosystem includes warm spring, stream, river, marsh, pond, adjacent field and woodland habitats that support a relatively high concentration and diversity

of Odonata species, and 4) the warm head-water springs and streams create warm microhabitats that support year-round flight periods for a number of Odonata species.

History of Odonata Surveys

The North American Odonata Dot Map Project documented species occurrences in Nevada back to the first published literature in 1915, providing early records for state and Clark County species (Donnelly, 2004a,b,c). The Clark County checklist on the OdonataCentral web site incorporates the North American Odonata Dot Map records to 2004 plus new records and photographs (referred to as "OC#" in this paper) to 2010 (Abbott, 2010). The first surveys conducted in Clark County were by Ira LaRivers in 1937–1938 where he documented eleven species that were confirmed by Dr. James Needham (LaRivers, 1938, 1940). However, LaRivers seems to have done a minimum of surveying in the Muddy River area because while his publication map shows Overton, Nevada as a survey site, he only lists a *Sympetrum corruptum* (Variegated Meadowhawk) collection. Even so, this is the first odonate record for the Muddy River area.

The next Muddy River surveys began nearly fifty years later led by Dr. Richard Baumann and BYU students from September 1984 to September 2009. A brief article in ARGIA listed 25 species from five families collected from 1996–1997 that were vetted by Dr. Sidney Dunkle and that "four species represent new state records for Nevada" (Baumann & Huillet, 2000). However, this claim was modest because an analysis of the specimens in the BYU–Provo collections shows that Baumann and students have accumulated the first Clark County records for 17 species, four being state records.

In 2000, Potter photographed and Paulson confirmed *Libellula luctuosa* (Widow Skimmer) as the first Clark County record from Bowman Reservoir (Paulson & Potter, 2000). Subsequent sightings have shown this to be a common species over large ponds at the Hidden Valley (OC# 313359) and the Overton Wildlife Management Area (OC# 314396) sites.

Table 1. Species occurrences throughout Muddy River sites. **MRH** = Muddy River Headwaters, **MVWC** = Meadow Valley Wash: Clark Co., **MVWL** = Meadow Valley Wash: Lincoln Co., **HVR** = Hidden Valley Rd. Pond and Marsh, **OWMA** = Overton Wildlife Management Area, **BR** = Bowman Reservoir.

Species	MRH	MVWC	MVWL	HVR	OWMA	BR	Males	Females	Paired	Egg-laying
<i>Anax junius</i> (Common Green Darner)	•	•	•	•	•		•	•	•	•
<i>Argia agrioides</i> (California Dancer)	•			•			•			
<i>Argia immunda</i> (Kiowa Dancer)	•						•	•	•	•
<i>Argia moesta</i> (Powdered Dancer)	•	•	•	•	•		•	•	•	•
<i>Argia nabuana</i> (Aztec Dancer)	•						•			
<i>Argia sedula</i> (Blue-ringed Dancer)	•	•	•	•	•		•	•	•	•
<i>Brachymesia furcata</i> (Red-tailed Pennant)	•						•			
<i>Brechmorhoga mendax</i> (Pale-faced Clubskimmer)	•		•	•	•		•			
<i>Enallagma carunculatum</i> (Tule Bluet)	•				•		•			
<i>Enallagma civile</i> (Familiar Bluet)	•	•	•	•	•		•	•	•	
<i>Enallagma praevarum</i> (Arroyo Bluet)	•			•	•		•	•		
<i>Erpetogomphus compositus</i> (White-belted Ringtail)	•	•	•	•	•		•	•		
<i>Erythemis collocata</i> (Western Pondhawk)	•	•	•	•	•		•	•	•	•
<i>Hetaerina americana</i> (American Rubyspot)	•	•	•	•	•		•	•		
<i>Ischnura barberi</i> (Desert Forktail)	•	•		•	•		•	•	•	
<i>Ischnura cervula</i> (Pacific Forktail)	•									
<i>Ischnura denticollis</i> (Black-fronted Forktail)	•	•	•	•	•		•	•	•	
<i>Ischnura hastata</i> (Citrine Forktail)	•									
<i>Libellula comanche</i> (Comanche Skimmer)	•	•	•	•	•		•	•	•	•
<i>Libellula composita</i> (Bleached Skimmer)	•						•			
<i>Libellula forensis</i> (Eight-spotted Skimmer)	•	•	•	•	•		•			
<i>Libellula luctuosa</i> (Widow Skimmer)	•	•		•	•	•	•	•	•	
<i>Libellula nodisticta</i> (Hoary Skimmer)	•						•			
<i>Libellula pulchella</i> (Twelve-spotted Skimmer)	•	•			•		•	•		
<i>Libellula saturata</i> (Flame Skimmer)	•	•	•	•	•		•	•	•	•
<i>Macrodiplax balteata</i> (Marl Pennant)	•			•			•	•	•	
<i>Orthemis ferruginea</i> (Roseate Skimmer)	•	•	•		•		•	•		
<i>Pachydiplax longipennis</i> (Blue Dasher)	•	•	•	•	•		•	•	•	•
<i>Pantala hymenaea</i> (Spot-winged Glider)	•	•	•		•		•			
<i>Perithemis intensa</i> (Mexican Amberwing)			•	•	•		•	•		
<i>Plathemis subornata</i> (Desert Whitetail)	•	•					•			
<i>Progomphus borealis</i> (Gray Sanddragon)	•	•	•				•			
<i>Rhionaeschna multicolor</i> (Blue-eyed Darner)	•	•	•	•	•		•	•	•	•
<i>Stylurus intricatus</i> (Brimstone Clubtail)				•						
<i>Stylurus plagiatus</i> (Russet-tipped Clubtail)	•	•	•		•		•	•		
<i>Sympetrum corruptum</i> (Variegated Meadowhawk)	•	•	•		•		•	•	•	•
<i>Telebasis salva</i> (Desert Firetail)	•	•		•	•		•	•	•	•
<i>Tramea lacerata</i> (Black Saddlebags)	•		•	•	•		•	•	•	•
<i>Tramea onusta</i> (Red Saddlebags)	•	•	•	•	•		•			

Lund conducted 226 surveys at five Muddy River sites (Muddy River Headwaters 151 visits, Meadow Valley Wash Clark County 12 visits, Meadow Valley Wash Lincoln County 14 visits, Hidden Valley pond and marsh 18 visits, and Overton Wildlife Management Area 31 visits)

from August 2008 to November 2010. Site visits were made in all months with most in May through November when Odonata numbers and variety of species were at their peaks. These surveys added five new County records and one Nevada state record.

There were six main survey sites along the Muddy River in northeast Clark County, Nevada (Muddy River Headwaters, Meadow Valley Wash Lincoln County, Meadow Valley Wash Clark County, Hidden Valley Pond and Marshes, Overton Wildlife Management Area, Bowman Reservoir). GPS locations, elevations, and habitat descriptions for each site (except for Bowman Reservoir) can be found as part of individual species records on the OdonataCentral web site.

Species Observations and Comments

Table 1 shows species occurrences throughout the study area. Twenty-three of 39 species have been found at either four or five of the five survey sites. These 23 species are considered “common” and should be expected to be found on any survey in suitable habitat in the Muddy River area during their seasonal flight periods and Table 2 illustrates the annual flight occurrence periods observed for all species to date.

Special comments are noted below for first Clark County and Nevada state records in the Muddy River area, and a few other noteworthy observations.

Argia agrioides (California Dancer) is confirmed in the Muddy River from OdonataCentral vetted photograph (OC# 314758) from Lund; however, no specimens were collected by Baumann and students. *A. nahuana* (Aztec Dancer) is confirmed by 31 specimens collected by Baumann and students in the BYU-Provo collections and from OdonataCentral photographs (OC# 313320, 313321, 322483) from Lund. Since the ranges of these two species overlap in Clark County and there is high quality habitat in the Muddy River ecosystem, a more equal occurrence record between the two species would seem to be expected. However, it is noteworthy that similar uneven occurrence counts are seen in two other sources. An Odonata survey at the Ash Meadows National Wildlife Refuge documented only a single *Argia agrioides* occurrence in 19 survey sites as compared to 17 *Argia nahuana* occurrences spread over 9 of the 19 sites (Stevens & Bailowitz, 2008). Ash Meadows NWR is in Nye County, Nevada, less than 20 miles west of Clark County, is also well within the range of both species, and has high quality wetland habitats similar to those in the Muddy River. The North American Odonata Dot Maps show a single occurrence in Nevada for *A. agrioides* and three for *A. nahuana* (Donnelly, 2004c). These two species are similar and notoriously difficult

to identify and a focus on these species should be made to understand their status in the Muddy River area.

Argia immunda (Kiowa Dancer) was collected by Baumann and Huillet as the first Clark County record in the Muddy River Headwaters site. They recognized this as an outlying population hundreds of miles to the north and west of its contiguous range by noting that this “large *Argia immunda* population was somewhat surprising” (Baumann & Huillet, 2000). Indeed, Lund’s surveys have found this population to be well established and one of the most abundant species to be found in the Moapa Valley NWR within the Muddy River Headwaters site. Here they occur in association with the warm springs and streams in virtually all months of the year. The North American Odonata Dot Map shows two occurrences in Nevada with one being the Baumann and Huillet occurrence (Donnelly, 2004b).

Brachymesia furcata (Red-tailed Pennant) was photographed as the first Nevada state record by Lund in the Muddy River Headwaters site in 2009 with at least four males interacting in an abandoned spring-fed swimming pool (OC# 314669, 314706). At least two males were observed again in the same site in 2010 and suggest this may be a resident species at this site. The North American Odonata Dot Map shows no occurrences in Nevada (Donnelly, 2004c).

Brechmorhoga mendax (Pale-faced Clubskimmer) was collected by Baumann and Huillet as the first Nevada state record in 1997 in the Muddy River Headwaters site. Subsequent collections and photographs made by Lund in the same site (OC# 314666) and other Clark County sites (OC# 7088) suggest this is a resident species. The North American Odonata Dot Map shows one occurrence that is the Baumann and Huillet point (Donnelly, 2004b).

Enallagma carunculatum (Tule Bluet) was collected as the first Clark County Record from two BYU specimens collected on September 2009 at the Muddy River Headwaters site. Lund photographed a subsequent sighting at the Hidden Valley Marsh site (OC# 313354). The North American Odonata Dot Map shows 15 occurrences in northern Nevada (Donnelly, 2004c).

Ischnura barberi (Desert Forktail) was collected as the first Nevada state record by Baumann and Huillet in the Muddy River Headwaters site in 1997. Lund subsequently collected specimens and photographs at three other Muddy River sites that suggest this is a resident species (OC# 314618, 314496, 314322, 313387). The North American Odonata Dot Map shows three occurrences in northern Nevada (Donnelly, 2004c)

Ischnura hastata (Citrine Forktail) was collected as the first Nevada state record by Baumann and Huillet in the Muddy River Headwaters in 1997 and is the only state occurrence to date. The North American Odonata Dot Map shows no occurrences in Nevada (Donnelly, 2004c).

Libellula composita (Bleached Skimmer) was photographed as the first Clark County record by Lund in the Muddy River Headwaters site in 2009 (OC# 314388). A sighting in 2010 at the same site suggests this may be a resident species at this site. Lund also collected a specimen in the Virgin River in Clark County in 2010. The North American Odonata Dot Map shows seven occurrences in the northern half of Nevada (Donnelly, 2004a).

Libellula forensis (Eight-spotted Skimmer) was photographed as the first Clark County record by Lund in the Overton Wildlife Management Area in 2009 (OC# 314394). Additional 2010 occurrences have documented this species at each of the five Muddy River survey sites which suggests this is a resident species. However, it is interesting to note that there has only been one individual seen at each of the five sites to date. The North American Odonata Dot Map shows fourteen occurrences in the northern half of Nevada (Donnelly, 2004a).

Libellula nodisticta (Hoary Skimmer) was photographed as the first Clark County record by Lund in the Muddy River Headwaters site in 2010 (OC# 322340). This is the only occurrence to date. The North American Odonata Dot Map shows eight occurrences in the northern half of Nevada (Donnelly, 2004a).

Macrodiplax balteata (Marl Pennant) was photographed and collected as the first Clark County record by Lund in the Hidden Pond and Marshes site in 2009 (OC# 314733, 314780). Multiple males and females were observed and photographed in 2009 and 2010 flying in pairs and ovipositing indicating this is a resident species at this site. A 2010 observation in the Muddy River Headwaters site suggests species may occur more widely or be spreading out from the Hidden Pond site. The first and only other Nevada record to date was made in 2005 at Ash Meadows National Wildlife Refuge (Stevens & Bailowitz, 2008). The North American Odonata Dot Map shows no occurrences in Nevada (Donnelly, 2004a),

Plathemis subornata (Desert Whitetail) was collected as the first Clark County record by Huillet in the Muddy River Headwaters in 1997. A second sighting was photographed in the Meadow Valley Wash Clark County site by Lund (OC# 313394). This seems an unusually low occurrence rate for the species since the Muddy River is in the middle of its natural range and has quality habitat. The

North American Odonata Dot Map shows eleven occurrences in the northern half of Nevada (Donnelly, 2004a).

Progomphus borealis (Gray Sanddragon) was photographed as the first Clark County record by Lund in the Muddy River Headwaters in July 2009 (OC# 314162). Subsequent sightings at the Muddy River Headwaters and Meadow Valley Wash sites in 2009 and 2010 (OC# 314329, 314478) suggest this is a resident species. The North American Odonata Dot Map shows one occurrence in northern Nevada (Donnelly, 2004a).

Stylurus intricatus (Brimstone Clubtail) was collected as the first Clark County record from the Muddy River area by J. Cross & J. Proscu in (no date) and vetted by D.B. Thomas in the BYU collection. Its location was generally described but would place it in or near the Hidden Valley Pond and Marshes site. North American Odonata Dot Map shows three occurrences in northern Nevada (Donnelly, 2004a).

Stylurus plagiatus (Russet-tipped Clubtail) was collected as the first Nevada state record by Baumann and Huillet in the Muddy River Headwaters in 1997. Subsequent photographs by Lund in 2003 (OC# 325936) and in 2009 (OC# 313115) and numerous field observations in the Muddy River Headwaters suggest this is a resident species at this site. The North American Odonata Dot Map shows no occurrences in Nevada (Donnelly, 2004a).

Argia sedula (Blue-ringed Dancer), *Argia immunda* (Kiowa Dancer), *Ischnura denticollis* (Black-fronted Forktail), and *Hetaerina americana* (American Rubyspot) have been observed flying as occasional individuals throughout the winter months of December, January, and February by Lund. These were in association with warm springs and streams where warm water and air microhabitats may allow them and their insect prey to be active during colder temperatures.

Acknowledgments

We express our sincere thanks to Sidney Dunkle who verified many of the collections for Richard Baumann and his BYU students, John C. Abbott and his expert vetters at OdonataCentral who identified many species as evidenced by the photographs referenced in this paper, and to Dennis Paulson who has been unfailingly helpful in identifying photographs and specimens in general and for reviewing and correcting identifications of *Argia agrioides* photographs in particular. We also offer our gratitude and appreciation to Dr. Richard Baumann for his mentoring role over the years and providing access to the BYU-Provo invertebrate collections.

Literature Cited

- Abbott, J.C. 2010. OdonataCentral: An online resource for the distribution and identification of Odonata. Texas Natural Science Center, The University of Texas at Austin. Available at <<http://www.odonatacentral.org>>.
- Baumann, R., and A. Huillet. 2000. Odonata of Moapa Warm Springs, Clark County, Nevada. ARGIA 12: 2-3.
- Donnelly, T.W. 2004a. Distribution of North American Odonata. Part I. Aeshnidae, Petaluridae, Gomphidae, Cordulegastridae. Bulletin of American Odonatology 7: 61-90.
- Donnelly, T.W. 2004b. Distribution of North American Odonata. Part II. Macromidae, Corduliidae, Libellulidae. Bulletin of American Odonatology 8: 1-32.
- Donnelly, T.W. 2004c. Distribution of North American Odonata. Part III. Calopterygidae, Lestidae, Coenagrionidae, Protoneuridae, Platystictidae. Bulletin of American Odonatology 8: 33-99.
- LaRivers, I. 1938. An Annotated List of the Libelluloidea (Odonata) of Southern Nevada. Pomona College Journal of Entomology and Zoology.
- LaRivers, I. 1940. A Preliminary Synopsis of the Dragonflies of Nevada. The Pan-Pacific Entomologist, p 111-123.
- Paulson, D. and S. Potter. 2000. Three Dragonflies New to Nevada. ARGIA 12: 3.
- Paulson, D. 2009. Dragonflies and Damselflies of the West. Princeton University Press, Princeton, NJ.
- Stevens, L. and R. Bailowitz. 2008. Odonata of Ash Meadows National Wildlife Refuge, Southern Nevada, USA. Journal of the Arizona-Nevada Academy of Science 40: 128-135.
- 