

First Records of the Western Pondhawk (*Erythemis collocata*) for Oklahoma

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During a mid-May 2013 visit to the International Odonata Research Institute (IORI), in Gainesville, Florida, we came across the first record of the Western Pondhawk (*Erythemis collocata*) for Oklahoma. Prior to finding this specimen, we had only speculated about the presence of the species in Oklahoma, but had not confirmed it. Part of our speculation came from seeing George H. Bick's note cards (Fig. 1) for the Eastern Pondhawk (*Erythemis simplicicollis*)—on two lines he had written “*collocata?*” aside certain specimen records from the Oklahoma panhandle (Cimarron, Texas, and Beaver Counties).

Bick's queries piqued our interest, so we decided that on our next visit to the collection we would review those specimens. MAP pulled all *E. simplicicollis* specimens from the panhandle, including Bick's five “*collocata?*” specimens (2♂, 3♀), while BSP worked on a different species. After a while MAP had BSP come to a table to examine specimens he had laid out at random. Without prompting, she zeroed in on the one and only specimen he thought was *E. collocata*, an adult ♂ collected by Lothar E. Hornuff at Black Mesa State Park, Cimarron County, on 5 August 1970 (Fig. 2 and 3). Because black cerci may be misleading—at times the cerci are merely stained—and abdominal shape could be distorted, which is sometimes the case in dried specimens, we re-read a description of *E. collocata* in Needham and Westfall (1955, details of which were carried forward in Needham *et al.*, 2000). In the key we noted a characteristic that had not caught our attention previously: “On the middorsal carina of segment 10 is a dash of yellow, which, conjoined with yellow of intersegmental

Erythemis simplicicollis				OKLA	
932	VII-18-70	JEP	Sequoyah	Salisaw 7.8 N	right
932	VII-22-70	GHB	Marshall	Little City	"
942	VIII-1-70	GHB	Woodward	Woodward, 411E	Sight
944	VIII-2-70	"	"	Fort Supply Reservoir	"
945	"	"	"	Fort Supply	"
946	"	"	Ellis	Gage, 2.7N	"
947	"	"	"	Gage	"
950	VIII-3-70	"	Beaver	Sight, 2W	107 LEH coll.
952	"	"	"	Beaver 2.5N	"
956	VIII-9-70	"	Cimarron	Black Mesa Park	18 LEH collocata?
960	VIII-5-70	"	"	"	27, 28 LEH
1366	VIII-10-73	LEH	"	Boise City, 30.5 mi SW	107

Figure 1. One of George Bick's note cards for *E. simplicicollis*. On lines #956 and #960, he made the notation “*collocata?*”, indicating he suspected these specimens from Black Mesa State Park, Cimarron County, Oklahoma, may have been *E. collocata*, even though he later published them as first county records of *E. simplicicollis* for Cimarron and Beaver counties (Bick 1991).

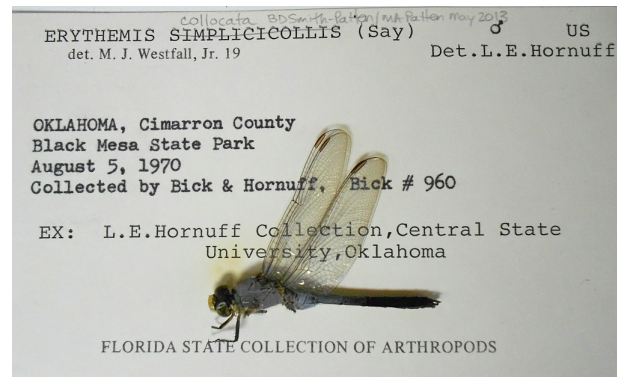


Figure 2. Specimen was re-identified as *E. collocata*. Adult ♀ collected by Lothar E. Hornuff at Black Mesa State Park, Cimarron Co., Oklahoma on 5 August 1970, housed at International Odonata Research Institute (IORI), Gainesville Florida.

membrane, makes a yellow T mark on back.” The 1970 specimen had a yellow T on S10. As a further confirmation, we ran through Needham's key, which also pointed to *E. collocata*. No other panhandle specimen struck us as other than a fairly routine *E. simplicicollis*.

On our return to Oklahoma we initiated a discussion with Bill Mauffray (IORI Director), Dennis R. Paulson, John C. Abbott, and Thomas W. Donnelly regarding the identification of this specimen. As much controversy surrounds the species limits of the *E. simplicicollis*/*E. collocata* complex, we expected a variety of opinions. We were not disappointed. The gist is that Mauffray examined the specimen himself and confirmed our identification and, from our photographs of the specimen, Paulson agreed that the specimen is *E. collocata* (with the caveat that it falls within current taxonomy). In contrast, Donnelly and Abbott tended to feel that *E. collocata* does not warrant species status, so neither offered his judgment as to the specimen's identification.

As if our discovery of the IORI specimen were not fortuitous enough, on 5 July 2013, at Lake Carl Etling in Black Mesa State Park during our second survey of the panhandle for the year, MAP



Figure 3. Ventral view of abdomen of specimen re-identified as *E. collocata*; note the parallel sides of segments 3 and 4. Adult male collected by Lothar E. Hornuff at Black Mesa State Park, Cimarron Co., Oklahoma on 5 August 1970, housed at IORI, Gainesville, Florida.

came up to BSP, net in hand, beaming smile, and said “Well, here’s a first state record for us. Not for the state, just for us.” Eyebrows knit, she reached into the net and to pull out a classic female *E. collocata* (OdonataCentral [OC] 401514, SP 743 [Smith-Patten/Patten collection, housed at the Oklahoma Biological Survey], Fig. 4), an individual, we soon learned, virtually identical to the top female depicted in Paulson (2009). But as if to bear out Donnelly’s and Abbott’s concerns, later that day, at a couple of pools on North Carrizo Creek, 7 km north of Kenton, Cimarron Co., we encountered five male and two female *Erythemis* pondhawks. Both females looked to be typical *E. simplicicollis*: black femora, abdomens patterned distinctly and sharply in black and white (i.e., no brown shading), and without the “stubby” look of *E. collocata*. Three of the males likewise appeared to be typical *E. simplicicollis*, but the remaining two individuals were trickier. We collected both; one (SP 746) had black cerci and a pale middorsal carina on segment 10, but the abdomen was not perfectly parallel sided. The other specimen (SP 745) also had a pale middorsal carina on S10, indicative of *E. collocata*, but it had gray cerci and a similarly ambiguous abdominal shape. Were these features indicative of a *E. simplicicollis* x *collocata* hybrids? Such hybrids are perhaps expected along the western edge of the Great Plains, where there may be a “hybrid swarm” (Paulson, 2009), just as there are between many species of birds (Rising, 1983).



Figure 4. Female *E. collocata* collected at lake Carl Etling, Black Mesa State Park, Cimarron Co., Oklahoma on 5 July 2013, Smith-Patten/Patten collection specimen SP 743, housed at the Oklahoma Biological Survey.

We were puzzled and wanted to collect some more specimens, but by the time we managed to collect these two, we were too overheated from the roughly 100°F afternoon to try further for any of the males whose cerci gleamed white. Given that we were headed north out of Oklahoma, we proceeded up the road (for a rest in the cool car) and stopped in Baca County, Colorado, at a crossing of the same creek in the Comanche National Grassland. The creek at this point was just a pond next to the road, but

not nearly as muddy as the portion in Oklahoma. There we saw three male pondhawks, two of which we managed to collect. One (SP 748) had white cerci and an abdomen shape of *E. simplicicollis* but had a pale middorsal carina on S10, whereas the other (SP 749) had black cerci, a nice yellow T atop S10, and distinctly parallel sides to the abdomen. We happily identified the second individual as *E. collocata*.


This mixture of characters is of interest. In the past year we have collected 74 *Erythemis* specimens in 34 counties across Oklahoma, largely in an effort to supply Donnelly with a good series with which to evaluate species limits. Only our specimens from the western panhandle (Cimarron County east through central Texas County) show any semblance of a yellow T atop S10, although a few individuals across the state have the cerci grayish rather than clean white (staining?). Such confusing characteristics explains why a 30 September 2008 record of a possible male *E. collocata* from near Kenton, Cimarron Co., cannot be confirmed (OC 283762). That individual appears to have the yellow T, but it has dark gray cerci and an ambiguous abdominal shape. Our experiences in the panhandle have emphasized why Donnelly has spent so much time and energy trying to determine if *E. simplicicollis* and *E. collocata* are truly separate species.

For now we follow current taxonomy and added the Western Pondhawk to the state list, making it, at the time, the 159th species; we added two more within a few weeks of our visit to IORI (Smith-Patten and Patten, 2013; Patten and Smith-Patten ms.). Our judgment is that, “at worst,” the taxa are subspecies, in that they are diagnosably distinct (by the standard 75% rule; Patten and Unitt, 2002) and occupy separate geographic ranges but are not reproductively isolated. “At best,” the taxa will continue to be recognized as species, as have many closely related species of birds and other vertebrates that hybridize on the Great Plains, many of which were described as species, lumped when hybridization was discovered, but later split when additional evidence of assortative mating and phylogeography was amassed. Either way, the entity *E. collocata* has been documented in Oklahoma.

Acknowledgements

Thanks to Bill Mauffray, for facilitating access to the IORI collection and for confirmation of the specimen in question. Thanks also to Dennis R. Paulson, John C. Abbott, and Thomas W. Donnelly for an enlightening discussion and sometimes agreeing to disagree on the taxonomy.

References

- Bick, G.H. 1991. Oklahoma Revisited: Unpublished Records. *ARGIA* 3(1): 1–4.
- Needham, J.G. and M.J. Westfall, Jr. 1955. A Manual of the Dragonflies of North America (Anisoptera), including the Greater Antilles and the Provinces of the Mexican Border. University of California Press, Berkeley and Los Angeles, California.
- Needham, J.G., M.J. Westfall, Jr., and M.L. May. 2000. A manual of the Dragonflies of North America, rev. ed. Scientific Publishers, Gainesville, Florida.
- Patten, M.A. and P. Unitt. 2002. Diagnosability versus mean differences of Sage Sparrow subspecies. *Auk* 119: 26–35.
- Paulson, D.R. 2009. Dragonflies and Damselflies of the West. Princeton University Press, Princeton, New Jersey.
- Rising, J.D. 1983. The Great Plains hybrid zones. *Current Ornithology* 1: 131–157.
- Smith-Patten, B.D. and M.A. Patten. 2013. A checklist of Oklahoma Odonata (dragonflies and damselflies). Oklahoma Biological Survey. <<http://www.biosurvey.ou.edu/>>. 

Odonata in the News

A sampling of newsworthy odonata includes: investigating prey capture mechanisms in dragonflies by attaching tiny backpacks to them to monitor nerve impulses as they hunt <<http://blogs.scientificamerican.com/talking-back/2013/06/17/dragonflies-with-backpacks-may-advance-the-science-of-prey-capture/>>; analyzing the molecular basis of color change during maturation of male *Sympetrum* and *Crocothemis* <<http://www.scientificamerican.com/article.cfm?id=male-dragonflies-color-shift&page=2>>; a new public health effort in Tamil Nadu, India using dragonflies to control mosquitoes <http://articles.timesofindia.indiatimes.com/2013-08-02/chennai/41005478_1_dragonflies-mosquito-larvae-medical-entomology>; and the DSA meeting makes headlines in the Prince Albert Daily Herald <<http://www.paherald.sk.ca/News/Local/2013-07-14/article-3314724/Here-be-dragonflies%3A-Dragonfly-Society-of-the-Americas-holds-annual-meeting-in-P.A./1>>.

Keep Your Eyes Peeled, Dude! About an Old-New Record of *Telebasis carminita* Calvert, 1909 (Odonata:Coenagrionidae) from Suriname

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Odonatological investigations in South America have been undergoing dramatic changes over the last few years, with new research groups founded and new researchers arising from different countries, of which I am pleased to be one. In a recent paper, co-author Alcimar L. Carvalho and I present a complete checklist of specimens held by two important Brazilian institutions of the large American genus *Telebasis* Selys, 1865, the firetails (Pinto and Carvalho, 2012). We cited 121 specimens of *Telebasis carminita* Calvert, 1909, a very small damselfly easily distinguished from all other species in the genus by the unique shape of its caudal appendages. It was originally described from two males collected by Herbert Huntingdon Smith in the municipality of Cuyabá [current spelling Cuiabá], Mato Grosso State, Brazil (Calvert, 1909). The material I examined is deposited in the Museu de Zoologia, Universidade de São Paulo (MZSP; <<http://biocol.org/urn:lsid:biocol.org:col:33949>>), almost all from the municipality of Rondonópolis in Mato Grosso, except for a unique male from Suriname, which was very likely collected by the late Dirk

Cornelis Geijskes in the Para District (Pinto and Carvalho, 2012). This specimen was almost excluded from the manuscript due to the virtually illegible handwritten collecting data on the envelope. Later, I carefully compared this envelope with similarly hand-written envelopes in the MZSP that gradually became clear and I was able to properly decipher the data. Dirk C. Geijskes was the first Dutch researcher from the “Leiden’s school”, founded by still incomparable odonatologist Maurits Anne Lieftinck, who focused his interests on the Neotropical fauna, in particular South American fauna (see sketch biography in Hummelinck, 1972). He was followed by the extremely fruitful researcher and major gomphid specialist, Jean Belle (see van Tol, 2001).

How material from Geijskes’s expeditions arrived in MZSP is still unknown. Well before I realized that this material came from his collections, I was quite intrigued as to who had identified the specimens. Apart from some outdated species concepts or old combinations, such as