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## New State Record and Notable Range Extension for *Libellula semifasciata* (Odonata: Libellulidae)

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### Abstract

The painted skimmer, *Libellula semifasciata* Burmeister (Odonata: Libellulidae), is an eastern species of dragonfly that has never been documented in Iowa. In this note we report two observations and the collection of a voucher for this species in southeast Iowa in the last three years. Based on other records of this species, including those from neighboring states and more northerly latitudes, we propose that these observations are evidence of a range extension.

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The painted skimmer (*Libellula semifasciata* Burmeister 1839) is an uncommon eastern species of dragonfly (Odonata: Libellulidae) known to inhabit ponds, wetlands, and occasionally slow-moving streams, where it is often found perched atop tall plants (Dunkle 2000). Usually seen in the spring, it can be identified by a distinct wing pattern of amber bands (Dunkle 2000, Needham et al. 2000). To our knowledge this species has never been reported from the state of Iowa. Previously published papers that recounted or included Iowa Odonata (Elrod 1898; Miller 1906; Wilson 1909, 1921; Wells 1917; Hoffman 1924; Yeager 1932; Loudon 1933; Hummel and Haman 1975, 1977; Cruden and Gode, Jr. 1998, 2000; Beckemeyer 2002) and recent North American distribution maps and descriptions (Dunkle 2000, Needham et al. 2000, Donnelly 2004a) do not include *L. semifasciata* as a species occurring within the State.

In early May of 2008 during a survey conducted as part of the Iowa Department of Natural Resources Multiple Species Inventory and Monitoring program approximately 25 *L. semifasciata* were observed in Louisa County, Iowa near the Horseshoe Bend Division of the Port Louisa National Wildlife Refuge (J.G.O., unpublished data). Unfortunately, no voucher specimens were obtained at the time of this observation.

On 12-Jun-2010 a single adult male *L. semifasciata* was collected along Fox Creek in Davis County, Iowa (40° 46' 5.74", -92° 24' 42.80"). The specimen was found in open grassland composed primarily of introduced cool season grasses and surrounded by both permanent and seasonal wetlands. The surrounding habitat was a diverse matrix of deep ponds, permanent and ephemeral wetlands, native grass plantings, and tree and shrub plantings on bottomland ground along the creek. The entire area was in agricultural row crop production as recently as 15 years ago and was restored through enrollment in the Conservation Reserve Program (CRP) with the United States Department of Agriculture. Air temperature was 23.1° C with a dew point of 22.1° C. Winds were from the East-Southeast at 6.4 km/h and humidity was 94%. A thunderstorm had recently passed through the area.

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The voucher specimen was deposited in the collection of the International Odonata Research Institute at the Florida State Collection of Arthropods, Museum of Entomology, in Gainesville, Florida. The existence of this species in both Davis and Louisa Counties based on the specimens collected and observed (Fig. 1) suggests that the presence of *L. semifasciata* in Iowa may not be an isolated or accidental occurrence.

In addition to being a new state record for Iowa this is also a noteworthy expansion of the known range of *L. semifasciata*. The closest published observations of *L. semifasciata* are roughly 58 km to the southwest in Putnam County, Missouri (McKenzie 2005) and approximately 136 km southeast in Adams County, Illinois (Donnelly 2004a). However, the nearest vouchers of this species that we were able to confirm were collected in Sangamon County, Illinois (Everett D. Cashatt, Illinois State Museum Research and Collection Center, personal communication), a distance of 260 km to the southeast.

Many species of Odonata, including some members of the Libellulidae, exhibit a proclivity to disperse appreciable distances from their established ranges (Donnelly 2004b) and this species in particular is also suspected of long migrations in response to climatic conditions (Soltesz et al. 1995). Specimens have been collected at more northerly latitudes than the Davis County site; however the currently accepted distribution map indicates a northeasterly to southwesterly limit that presently excludes Iowa (Dunkle 2000, Donnelly 2004a).

Donnelly (2004b) considered the concept of Odonata ranges to be crudely understood and suggested collection efforts along the margins of known ranges. In their paper on Iowa's Odonata, Cruden and Gode, Jr. (2000) likewise recommended additional collecting for Odonata throughout most of the State due to insufficient data on the distribution of many species. Distribution patterns of some Iowa Odonata have also shifted in response to anthropogenic pressure

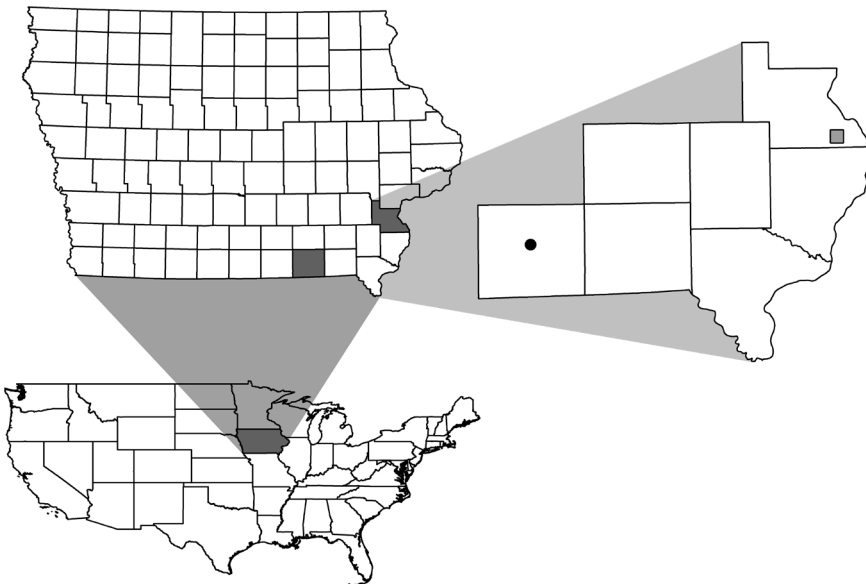


Figure 1. Locations where *L. semifasciata* have been documented in southeastern Iowa. The location of the voucher Davis County specimen (2010) is designated by the black circle. The location of the first observation of this species in Louisa County (2008) is designated by the gray square.

(Cruden and Gode, Jr. 1998). Based on the distance to the nearest documented record for this species it is conceivable that *L. semifasciata* may also be present in additional southeastern Iowa and northeastern Missouri counties. Continued surveys for Odonata in these areas are recommended in order to determine if *L. semifasciata* is both present and persisting.

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