

Report

***Cisthene kentuckiensis* (Dyar) (Lepidoptera: Erebiidae: Arctiinae): First Record for Missouri**

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Introduction

The Lithosiini (Erebiidae: Arctiinae) feed as caterpillars on algae growing on stones or epiphytic algae on woody vegetation, or they might feed upon the algal layer of lichens (Haybeck 1987) or on lichens themselves (Triplehorn and Johnson 2005). Lichens are bioindicators of air quality (Nylander 1866, Jovan 2008) and the presence of Lithosiini species may also be a bioindicator of air quality (Simonson 1996).

Cisthene is a primarily tropical/subtropical genus within the Lithosiinae with 20 species occurring north of Mexico in the United States (Knowlton 1967). Of these 20 species, *C. plumbea* Stretch, *C. packardii* (Grote), and *C. picta* (Barnes & McDunnough) were previously known to occur in Missouri (Opler et al. 2011).

Cisthene kentuckiensis (Dyar) is an uncommon moth with a flight season from July to October and generally ranging from New Jersey to north Florida and west to Kentucky and Mississippi (Covell 2005). Although NatureServe globally ranks the species as G4 (apparently secure range-wide) (NatureServe 2011), the Delaware Division of Fish and Wildlife (2005) and the North Carolina Natural heritage Program (Hall 2007) list *C. kentuckiensis* as a species of conservation need. In Delaware *C. kentuckiensis* is known from historical records only (Delaware Division of Fish and Wildlife 2005).

Sighting and Confirmation

On 29 August 2009 one adult *C. kentuckiensis* was discovered perched about one meter above the ground on a leaf of roadside vegetation along the Moccasin Springs road within Trail of Tears State Park during a fall seasonal butterfly count (NABA 2010) and photographed by KF (Figure 1). This individual was vouchered immediately after photography and deposited in the personal collection of MGS. The photograph was submitted for inclusion in the Butterflies and Moths of North America (BAMONA) database (Opler et al. 2011), and is sighting record 467949. Author PEK is the regional coordinator for BAMONA and submitted the documentation to Dr. James Adams who verified KF's initial identification. MGS also had the identity confirmed by Don Bowman. In addition to the BAMONA database, PEK also consulted the nearly 200,000 butterfly and moth records in Heitzman's Lepidoptera of Missouri Database (managed by PEK) to confirm this sighting is the first documented record for the state of Missouri.



Figure 1. *Cisthene kentuckiensis*: Trail of Tears State Park, Cape Girardeau County, Missouri, 29 August 2009.

Discussion

Trail of Tears State Park has a unique forest compared to the remainder of Missouri, with the tree species *Fagus grandifolia* Ehrh., *Liriodendron tulipifera* L., and *Magnolia acuminata* (L.) being relatively common, as they are in forests farther east (McDowell and MacRae 2008). Surveys by MGS in the two weeks following the 29 August 2009 discovery found five *C. packardii* and four *C. plumbea*. Surveys by MGS and KF in 2010 failed to find another *C. kentuckiensis* specimen, but it is possible the species is resident in low numbers, given the eastern affinities of the location in which the specimen was found.

The fact that this specimen was discovered during a survey for more charismatic Lepidoptera might suggest that Lithosiini is easy to survey. Bioindicators of habitat quality and environmental change must be quantitatively identified and independently tested to confirm their utility (Samways 2005). A recent specimen of *C. kentuckiensis* from Oklahoma (Moore and Mather 2011) suggests there is more to learn about the range of this moth in addition to its habits.

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