DISJUNCT DISTRIBUTIONS OF PSEUDOPOMALA BRACHYPTERA AND CAMPYLCANTHA OLIVACEA (ORTHOPTERA: ACRIDIDAE) IN THE BLACKLAND PRAIRIES OF MISSISSIPPI, U.S.A.

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ABSTRACT: Reports of disjunct distributions of two grasshoppers, Pseudopomala brachyptera and Campylacantha olivacea are given.

KEY WORDS: Disjunct distribution, Pseudopomala brachyptera, Campylacantha olivacea. Blackland Prairies, Mississippi, U.S.A.

Mississippi has two physiographic regions characterized by prairie, the Black Belt Prairie and the Jackson Prairie (Figure 1). The Black Belt Prairie is a crescent-shaped region that extends from McNairy County in southern Tennessee through east-central Mississippi to Russell County, Alabama, near the Georgia border (Low, 1921; Smith, 1926; Stephenson and Monroe, 1940; Schierer, 1998). The Black Belt is underlain by Cretaceous Selma chalk that is composed of fossiliferous, soft, white-gray limestone that weathers into fertile black soil for which the region is named (Logan, 1903; Low, 1913; Stephenson and Monroe, 1940; Hicks and Haynes, 2000).

Floristic surveys of the prairies in the Black Belt have revealed a distinct plant community that is similar to that of the Great Plains (Schuster and McDaniel, 1973; MacDonald, 1996; Leidolf and McDaniel, 1998). The most common grasses (Poaceae) include Bouteloua curtipendula (Michx.) Trn., Panicum virgatum L., Schizachyrium scoparium (Michx.) Nash, and Sorghastrum nutans (L.) Nash. Prominent forbs include Asclepias viridis Walter (Asclepiadaceae), Dalea candida (Michx.) Wild., D. purpurea Vent. (Fabaceae), Lithium squarrosa (L.) Michx., L. squarrosa Michx. (Asteraceae), Rathitina pinutina (Vent.) Barh. (Asteraceae), Silphium laciniatum L., and S. terebinthinaceum Juss. (Asteraceae).

The Jackson Prairie extends eastward from central Mississippi to just across the Alabama line into Washington County. The soils of this region, like those in the Black Belt, are formed from fossiliferous chalk that weathers into a dark rich soil (Morgan et al., 1997).

The Mississippi Entomological Museum (MEM) has been surveying the insect fauna of the prairie regions of the state since the late 1980s. These surveys have documented populations of the bee, Tetralonia alata (Cresson) (Anthophoridae), four species of Cerambycidae, and several species of moths that are disjunct from the Great Plains (MacGown and Schiefer, 1992; Schiefer, 1998; Brown, 2003).

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Recent collections of grasshoppers in prairie regions of the state have documented two additional species with disjunct distributions. Examinations of grasshopper holdings in the University of Mississippi insect collection and MEM have revealed additional records of one of these species in the latter collection. Voucher specimens of newly collected material have been deposited in the MEM collection.

_Pseudopomata brachypiera_ (Scudder)

Orte (1981) reported the distribution of _Pseudopomata brachypiera_ as "mainly northern United States and western Canada, but ranging southward through Kansas and Oklahoma." This species has been reported to be commonly found on Little Bluestem, _Schizachyrium scoparium_, a dominant plant on Mississippi's prairies (Morse, 1896; Blatchley, 1920). _Pseudopomata brachypiera_ was found at only one of the three Jackson Prairie sites that were surveyed, at which it was relatively common. Because of its restricted distribution in Mississippi, only a limited number of voucher specimens were collected.

_Mississippi Records._ Scott Co.: Pakistan Hill, TSN 956; Sec.17, Jackson Prairie, 30 June 2001 (2 females), 12 July 2003 (2 males, 1 female).
Campylacantha olivacea (Scudder)

The known distribution of Campylacantha olivacea extends from Illinois west to Nebraska and southeastern Colorado and south to Fort Worth, Texas, with disjunct populations reported from Macon, Georgia, and Marengo County, Alabama (Rehn and Hebard, 1916; Blanchley, 1920; Dakin and Hays, 1970). It is interesting to note that these disjunct populations, as well as the Mississippi records of C. olivacea reported here, all occur on or are associated with blackland prairies.

Dakin and Hayes (1970) list two specimens from Marengo County, Alabama, which lies within Alabama's Black Belt and historically contained about 4150 ha of prairie according to surveys made in the 1800s (J. A. Barone, pers. comm.). The older Mississippi specimens are labeled as having been collected at either Agricultural College, or A&M College, both of which are former names for Mississippi State University. Parts of the campus lie at the edge of the Black Belt in Oktibbeha County and still contain prairie features to this day. The most recent specimens from Mississippi were taken on Western Ragweed (Ambrosia psilostachya DC.) from a prairie remnant at Oktibbeha, Oktibbeha County. This is consistent with Rehn and Hebard (1916) who state that this species is often very abundant on large ragweeds (Ambrosia spp.) in Georgia. Blackland prairie remnants were recently described in Houston and Bleckley counties, which lie just south of Macon, Georgia, near where C. olivacea was historically collected (Klaus and Patrick, 2002).

Mississippi Records. Chickasaw Co: Buzza Vista, 4 Aug. 1916 (1 female); Oktibbeha Co: Agricultural College (Mississippi State University), 19 Aug.-12 Nov., 1914-1951 (13 females); Oktibbeha, 33°36'41"N 89°4'31"W (Black Belt Prairie), 14 Aug. 2000 (1 female); 13 Oct. 2003 Swemping, Ambrosia psilostachya DC., Black Belt Prairie (2 males, 1 female).

Another orthopteroid with a disjunct distribution in the Southeast is the Prairie Tree Cricket, Oecanthus argentinus Saussure. This species was found in the western United States east to Ohio, with disjunct populations occurring in Alabama and Florida (Helfer, 1971; Walker and Moore, 2004). Dakin and Hays (1970) list O. argentinus as a species inhabiting the Black Belt Prairie in Alabama, but this species has not yet been found in Mississippi's Black Belt. The distribution of these three species adds additional support to Brown's (2003) hypothesis that the Black Belt was a refugium for Great Plains species during and after the Wisconsin glaciation (approximately 0.1-0.01 million years ago). Further biogeographical studies are needed to better understand how isolated open habitats in the southeast, such as the Black Belt and Jackson Prairie, are associated with each other and with the Great Plains.

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