FIRST STATE RECORDS FOR **MEROPE TUBER** (MECOPTERA: MEROPEIDAE) IN FLORIDA AND BIOGEOGRAPHICAL IMPLICATIONS

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The earwigfly, *Merope tuber* Newman, is 1 of only 2 extant members of the family Meropeidae worldwide (Kaltenbach 1978; Byers 2005). This family was once considered a hypothetical primitive taxon in the order Mecoptera (Tillyard 1926, 1935; Remington 1968); however, recent phylogenetic work disputes this placement (Willmann 1987, 1989; Whiting 2002). The immature stages have not been described to date, and much of its general biology remains unknown. Adults are nocturnally active and for many years were considered rare, but recent collection methods (especially flight traps) have led to the finding that *M. tuber* is more common than once thought (Byers 2005). Byers (1973, 1993) recorded the range of *M. tuber* from southeastern Canada to northern Georgia, west to Kansas, Minnesota, and eastern Iowa, largely restricted to environmental conditions similar to those known along the Appalachian range and eastern mesic forests. Recent collection records indicate that *M. tuber* is found further west and south, suggesting that it may have found refuge in disjunct areas during glacial advances (Byers 1969, 1993; Schiefer & Dunford 2005). We present the first records of *M. tuber* in Florida, the southernmost localities for this insect, and provide new phenological data associated with adult activity. *Merope tuber* presently has a NatureServe Global Conservation Status Rank of G3G5 (=vulnerable to secure globally, but there is not enough information to give it a definite rank), and the Florida Natural Areas Inventory (FNAI) has State-listed it as S1S2 (=critically imperiled due to extreme rarity based on current information, but may be less rare than is known at present) based on the data provided herein.

Yearlong, general insect surveys were conducted at The Nature Conservancy (TNC) Apalachicola Bluffs and Ravines Preserve (ABRP), and Tall Timbers Research Station and Land Conservancy (TTRS) by P. W. Kovarik in 1996. Passive insect traps including baited and unbaited pitfall traps, Lindgren funnel traps, and flight intercept traps were established within mesic hardwood forests at each locale and checked biweekly. Adult *M. tuber* were taken at 3 sites in Leon and Liberty Counties in the Florida panhandle (Table 1). A total of 16 males and 24 females were collected from 20 Apr-30 Nov in the flight intercept traps set in primarily beech-magnolia dominated forests. Seasonal records previously reported for *M. tuber* included dates encompassing early May through late Oct (Webb et al. 1975; Byers 1993; Griffiths 1995). Johnson (1995) reported having a Malaise trap set from May 1992 through Nov 1993 in Ohio, and provided a range of collection dates from 9 Jul-24 Sep. Unpublished collection records of *M. tuber* adults housed in the National Museum of Natural History (NMNH) include one female taken in Essex County, Virginia, between 24 Oct and 20 Nov 1995 (D. Smith, pers. comm.). Early season Florida samples span late Apr through early May; thus, we cannot definitively report the end of Apr as an early seasonal record. However, one of our samples included only the latter part of Nov (16-30); thus, we confidently report this range of dates as latest seasonal records. Although 39 of the 40 Florida specimens conformed to the overall dull, colorless appearance that typifies this species (Fig. 1—male collected Jun-Jul) (Newman 1834; Byers 1973), a single female from Woodyard Hammock, TTRS, Leon Co., collected between 17-28 Jun has an unusual degree of melanism, including stigmate apical wing margins and black terminalia (Fig. 1).

Our collection localities were in proximity to the Apalachicola and Ochlockonee Rivers (Fig. 2), and likely represent disjunct, southern Appalachian refugia. Upland longleaf pine savannahs interspersed with mixed hardwood forests in steepheads characterize the Apalachicola Bluffs