

NOTES ON HOST ASSOCIATIONS OF *TAPHRO CERUS GRACILIS* (SAY)
(COLEOPTERA: BUPRESTIDAE) AND ITS LIFE HISTORY IN MISSOURI

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Abstract

Taphrocerus gracilis (Say) was observed mining the leaves of *Rhynchospora corniculata* (Lam.) A. Gray (new larval host record) at several locations in southeast Missouri. Two generations per year were observed, and no other plant species were observed being utilized as larval hosts. The beetle is also reported from *R. corniculata* in Mississippi.

Taphrocerus gracilis (Say) occurs across much of the eastern United States and southeastern Canada (Nicolay and Weiss 1920; Davies 1991). Despite its broad distribution, the only definitive report on host plant utilization by this species is that of Chapman (1923), who described its life history in New York on river bulrush, *Scirpus fluviatilis* (Torr.) A. Gray [= *Bolboschoenus fluviatilis* (Torr.) Soják, fide Kartesz and Meacham (1999)] (family Cyperaceae). Adults have also been reported on flowers and leaves of *Cephalanthus occidentalis* L. (Blatchley 1910), “myrtle bush” (Nicolay and Weiss 1920), *Rumex verticillatus* L. (Nelson *et al.* 1981), and *Baccharis halimifolia* (Lago *et al.* 2002); however, these latter records surely represent incidental associations. The biologies of few other species in this genus are well known, however, nearly all reports of host associations within this genus are from the family Cyperaceae (Story *et al.* 1979; Nelson *et al.* 1981, Westcott *et al.* 1989; Nelson and MacRae 1990; MacRae 1991; MacRae and Nelson 2003). A notable exception is *T. chalumeaui* Hespeneheide, which was collected on leaves of *Euterpe globosa* Gaertner (family Arecaceae) in Guadeloupe, West Indies (Hespeneheide 1997). Although not yet reported in the literature, there are in fact a number of tropical *Taphrocerus* spp. that utilize palms as hosts.

MacRae (1991) reported *T. gracilis* in Missouri based on eight specimens, most of which were “swept from sedges in wet roadside drainage ditches.” Recently, this species was observed abundantly at several localities in the lowlands of southeastern Missouri mining the leaves of shortbristle horned beaksedge, *Rhynchospora corniculata* (Lam.) A. Gray (family Cyperaceae). Specific collection data are: MISSOURI: Bollinger Co., Duck Creek CA (Conservation Area), NE corner of Pool 2, T28N R9E S32, 19.V–4.VIII.1996, 27.VII.1997, and 3.V–20.IX.1998, feeding on leaf margins of *R. corniculata*; Butler Co., Coon Island CA, T22N R7E S7, 31.VIII.1997, extracted from mined leaves of *R. corniculata*; Stoddard Co., Otter Slough CA, trail from W parking lot, T24N R9E S17, 16.VI–4.VIII.1996, 27.VII–27.IX.1997, and 3.V.1998, feeding on leaf margins of *R. corniculata* [all collections by T. C. MacRae, deposited TCMC (Arnett *et al.* 1993)] (**new adult and larval host records**). Adults were also reared from larvae in mined leaves collected 4.VIII.1996 at Duck Creek and Otter Slough and 31.VIII.1997 at Coon Island (mined leaves detached from plant, placed in petri dish with moist filter paper, and incubated at 27°C and 14:10 L:D photoperiod).

In addition to *R. corniculata*, many other cyperaceous plant species are known to occur in the southeastern Missouri lowlands (Yatskievych 1999). Specifically, *Carex crus-corvi* Shuttlew. ex Kunze, *C. hyalinolepis* Steud., *C. lupulina* Muhl. ex Willd., *C. muehlenbergii* Schkuhr. ex Willd., *C. tribuloides* Wahlenb., *C. typhina* Michx.,

Cyperus pseudovegetus Steud., *Eleocharis palustris* (L.) Roemer and J.A. Schultes, and *Scirpus georgianus* R. M. Harper were documented from those areas where *T. gracilis* was also observed. An occasional *T. gracilis* adult was observed feeding on leaf margins of *C. hyalinolepis* at both Duck Creek and Otter Slough (**new adult host record**), however, larval mines were never observed on any plant other than *R. corniculata*. Interestingly, *T. gracilis* does not appear to utilize *B. fluviatilis* in Missouri. Although this plant was not documented in any of the areas where *T. gracilis* was observed, stands were located in northcentral (Linn Co.: Fountain Grove CA and Pershing State Park) and northeastern (Clark Co.: Rose Pond CA) Missouri. Plants within these stands were examined on 5.V.2001 (Pershing), 12.VIII.2001 (Fountain Grove and Pershing), and 5.X.2002 (Rose Pond). No *T. gracilis* adults or evidence of larval mining were observed on any of the plants at these localities on the above dates. It is possible that *T. gracilis* utilizes different hosts in different parts of its geographical range, however, the following record suggests that *R. corniculata* is utilized across a broad part of the geographical range of *T. gracilis*: MISSISSIPPI: Noxubee Co., Noxubee National Wildlife Refuge, vic. Beaver Dam trail, 24.VIII.1997, T. C. MacRae, feeding on leaf margin of *R. corniculata* (deposited TCMC), larval mines also evident on many plants. Clearly, additional information on host utilization by this species in other parts of its range would be desirable.

Chapman (1923) reported one generation per year for *T. gracilis* in New York, however, field observations at Duck Creek indicate that at least two generations occur in southeastern Missouri. Adults become abundant on emergent *R. corniculata* plants by early May, where they feed on the margins of the leaves and mate. Eggs are deposited singly on the dorsal surface of the leaves in the basal rosette and covered with a black tar-like substance. As spring progresses, adult populations diminish while larval mines become evident on the plants. Usually only one larval mine is found on a single leaf, but up to three per leaf have been observed. Pupae can be found in their mines by mid- to late June, and high adult populations are again encountered during late June and early July. By this time, the plants exhibit fully elongated stems bearing inflorescences, and eggs from females of this second generation are deposited on the upper surface near the base of bracts on the upper stem. Larvae develop as summer progresses, and by late August, nearly every plant is extensively mined. Adults begin emerging again during August, and high adult populations can be observed feeding on emergent leaves during August and September. As observed by Chapman (1923), no adults were encountered after first frost until early spring, indicating that adults pass the winter in protected habitats and resume activity when temperatures warm in spring.

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