

**STUDIES OF THE SUBTRIBE TACHYINA (COLEOPTERA: CARABIDAE:
BEMBIDIINI), SUPPLEMENT D: DESCRIPTION OF A MALE OF
COSTITACHYS INUSITATUS ERWIN, WITH NOTES ON DISTRIBUTION OF
THIS SPECIES**

TERRY L. ERWIN
Department of Entomology
U.S. National Museum of Natural History
Smithsonian Institution
Washington, DC 20560, U.S.A.

AND

DAVID H. KAVANAUGH
Department of Entomology
California Academy of Sciences
Golden Gate Park
San Francisco, CA 94118, U.S.A.

Abstract

Newly discovered specimens of *Costitachys inusitatus* Erwin provide characters of the male, heretofore unknown, and extend the range beyond the type locality into two biogeographic regions of South America, the "North Atlantic Coast" and "Lower Amazon—Mid-Atlantic Coast." Male characters provide little additional information useful in establishing relationships of this remarkably distinctive species, although they affirm its position among the higher Tachyina.

Costitachys inusitatus Erwin was described in 1974 on the basis of a single female from Santarem, Pará, Brazil. This beetle's distinctive form (see Erwin 1974, fig. 1), striking among Tachyina worldwide, warranted its description as both a new species and new genus. Since then, only two additional specimens, one male and one female, have been found among the unsorted carabid beetles of the California Academy of Sciences (CASC) and Museo Goeldi (MGBB). Unfortunately, neither of these specimens is accompanied by data that indicate anything about the habitat in which adults live, whether they are arboreal or terrestrial, markedly seasonal in occurrence or not, or anything else about their natural history. However, they do extend the known geographical range of this species, and the acquisition of the first known male provides the opportunity to describe its sexually unique attributes. The purpose of this paper is to present this new information.

Methods and Material

The two specimens reported here are labelled as follows "Trinidad, Cocos Bay, 11-1-1969, L. & C. W. O'Brien" [a female in CASC], and "Brazil, Pará, Santa Isabel, VI-6-1962, J. & B. Bechyné, [a male, in MGBB].

The male specimen was dissected as previously described (Erwin and Kavanaugh 1981) and the aedeagus and parameres were drawn using a camera lucida mounted on a Leitz compound microscope.

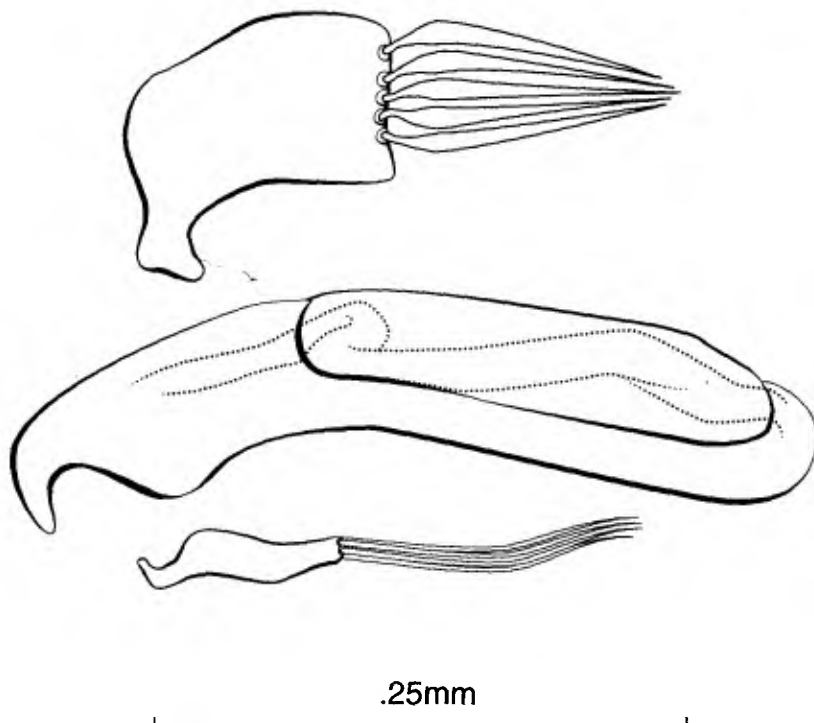


Fig. 1 *Costitachys inusitatus* Erwin, male aedeagus (left lateral aspect) and parameres (left paramere, larger, left lateral aspect; right paramere, smaller, right lateral aspect).

Morphological Features and Phylogenetic Considerations

The male of *C. inusitatus* differs from conspecific females in having the basitarsomere (tarsomere 1) on the anterior tarsi expanded, about 1.5 times wider than the tarsomere 4, and medially dentiform (tarsomere 1 is more slender and edentate in females). In addition, the male lacks the small pubescent patch located medially on sternum VI in females between the two "ambulatory" setae. The male aedeagus is illustrated in Figure 1.

Phylogenetic relationships of this remarkably distinctive tachyine remain obscure. The emarginate apex of the anterior tibia supports placement within the *Tachyina* as currently recognized, and the absence of mental foveae suggest that it represents a primitive tachyine clade, with *Elaphropus* (sensu Erwin 1974) and its allies. However, the numerous (five) and lanceolate setae of the male parameres are unique among tachyines, which typically have three or fewer (non-lanceolate) setae. Among all other members of the supertribe *Trechitae* examined to date, only two *Pogonus* (sensu Jeannel 1941) species (as illustrated by Jeannel 1941) are known to have five-setose parameres, but the setae are not lanceolate). The vestiture of the left paramere in *C. inusitatus*, therefore appears to be an **autapomorphic** feature, one that contributes little to

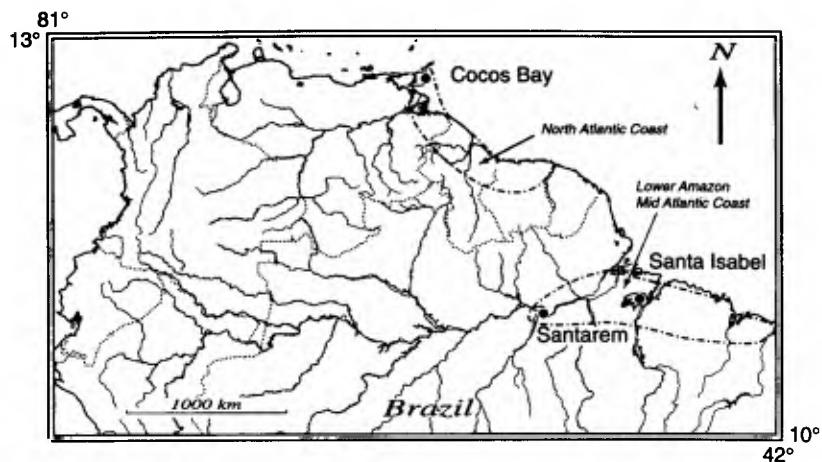


Fig. 2. Known geographical distribution of *Costitachys inusitatus* Erwin.

our understanding of the relationships of *Costitachys*. Further speculation concerning possible relationships seems premature at this time, pending completion of a phylogenetic analysis of the Bembidiini (Erwin and Kavanaugh, in progress).

Zoogeographical Considerations

Discovery of this species in Cocos Bay, Trinidad, extends its known geographical range north by 1,550 km; and the record from Santa Isabel, Pará, extends its range 720 km to the east. It is now known to occur on both sides of the Amazon River (Fig. 2), and it has been found in two biogeographic regions; namely, the "North Atlantic Coast" and "Lower Amazon—Mid-Atlantic Coast" (Erwin and Pogue 1988).

Acknowledgments

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