NOTES ON *CICINDELA NIGROCOERULEA SUBTROPICA* IN TEXAS (COLEOPTERA: CICINELIDAE)[1]

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ABSTRACT: *Cicindela nigrocoerulea subtropica* was rediscovered after 33 years and two new populations were sampled. The known range of the subspecies is extended into Cameron Co., Texas. The subspecies is partially redescribed and illustrated based upon a recently collected series.

George B. Vogt (1949a) described *Cicindela nigrocoerulea subtropica* from a series of 22 specimens (8♂♂, 14♀♀) collected between September 29 and October 27, 1946 in Hidalgo Co., Texas. He described the preferred habitat of the subspecies as clearings in the mesquite forestland and along lonely roadways through second-growth mesquite (*Prosopis* sp.) and huisache (*Acacia farnesiana*) growing in a government-maintained floodway of the Rio Grande.

This area of southern Texas has undergone extensive development since 1946. Hidalgo County has become a major agricultural production area for Texas. This, and the massive influx of winter residents/tourists, has resulted in virtually all the native land being converted from it's native vegetation to intensive agriculture, dwelling sites, RV parks, etc.

Despite efforts by several students of the Cicindelidae to collect and study *C. n. subtropica,* it has remained virtually unknown since 1946. More recently it was thought to be extinct due to the loss of suitable habitat.

During the fall of 1979 the authors compared the known habitat preference with similar existing habitat in Hidalgo County to determine if any populations have been overlooked. A small population was discovered five miles southwest of Mission at the type locality (Vogt 1949 a&b). Adults were observed on bare patches of soil among short grasses comprised predominantly of Bermuda grass (*Cynodon dactylon*). The area had received a heavy rain a few days prior to our arrival.

Subsequent visits to the area during the years 1980-1984 have revealed the population to be secure but extremely small and localized. *C. n. subtropica* is apparently active only during the late fall and early winter months. A measurable rainfall is apparently critical to its emergence. Following a rain, which triggers emergence, adults are active as long as the

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soil stays moist. Temperatures are usually high enough (30-35°) during this time of year to dry out the soil within a few days after a rain, causing the adult activity period to end for the year. Subsequent visits following rains, after the initial emergence, have resulted in observations of little or no adult activity. This behavior pattern is probably responsible for the taxon eluding so many collectors over the years and explains its absence from collections.

Besides the type locality, the subspecies is also known from two other locations within the lower Rio Grande Valley of Texas. Table 1 lists all the known Texas records for *C. n. subtropica* since its description. The Cameron Co. location (La Feria) represents a new county record. The two 1976 records came from the Perry Glick collection with labels indicating they were collected in a citrus grove. The other Weslaco specimen was taken along the edge of a plowed field by the senior author. The subspecies probably occurs elsewhere throughout the Rio Grande Valley. It has adapted well to disturbed areas and likely places to look would be citrus groves and along drainage ditches.

The series of 30 specimens taken during the years 1976-1984 represent all known specimens except the types and has enabled an extensive examination of taxonomic characters and provided a good indication of the variation within this subspecies. In the original description, Vogt (1949a) stated he was not " ... able to base this sub-species (sic) on any single character." He went on to say that *C. n. subtropica* is somewhat smaller, black in color, with a significantly greater tendency to be maculated and the apical region of the region is somewhat more convex.

The authors feel *C. n. subtropica* is a valid subspecies, phenotypically and geographically distinct from *C. n. nigrocoerulea* LeConte. Table 2 gives two characters not mentioned by Vogt (1949a) that can be used to separate the two taxa along with color, size and maculation. Character expression was found to be constant only within the females.

According to Vogt (1949a), *C. n. subtropica* has bluish-piceous antennae; ventrally, it is black with faint bluish reflections; tibiae are greenish-black with violaceous tarsi. Comparison of series of nominate *C. nigrocoerulea* and *C. n. subtropica* indicates that Vogt's (1949a) description actually fits the nominate form closer than it does *C. n. subtropica.*

An examination of 33 available specimens of *C. n. subtropica*, including the holotype and two paratypes, was made. All specimens were taken at the type locality or from areas near where the paratypes were collected. The definition of *C. n subtropica* should include the following revisions:

> antennae black, not bluish-piceous; ventral surfaces black without bluish reflections; tibiae and tarsi predominantly black with faint testaceous hues; only three percent of specimens have greenish-black tibiae; none possess violaceous tarsi.

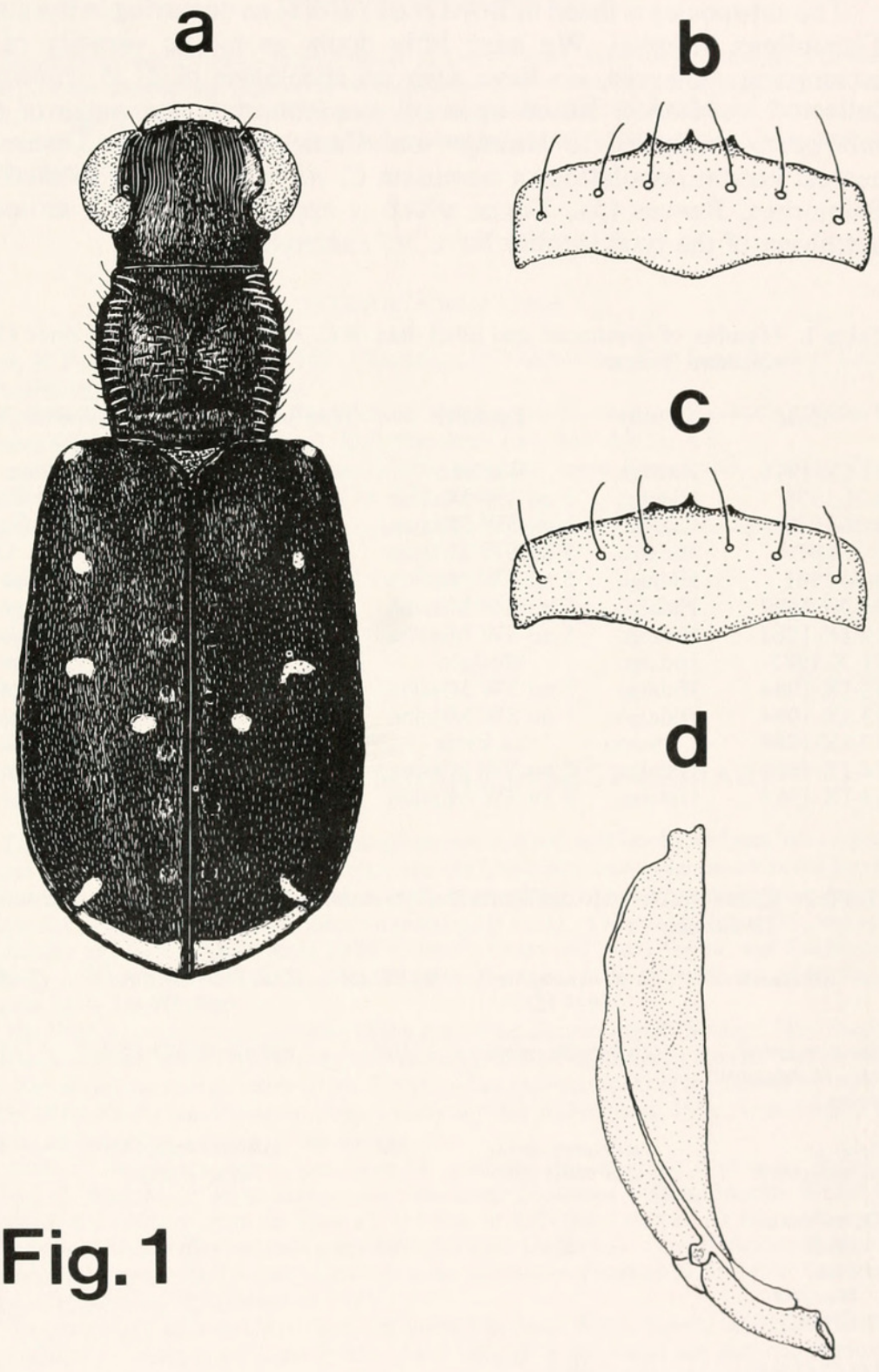

Fig. 1

Fig. 1 a-d. a. Dorsal habitus of holotype female; b. Dorsal view of labrum of holotype female; c. Dorsal view of labrum of male topotypical specimen; d. Dorsal view of aedeagus.

The subspecies is listed in Boyd *et al.* (1982) as occurring in the state of Tamaulipas, Mexico. We have little doubt as to the veracity of that assumption; however, we have seen no specimens of *C. n. subtropica* collected in Mexico. Based upon all available data the range of *C. n. subtropica* is limited to Hidalgo and Cameron Counties, Texas. The nearest known population of nominate *C. nigrocoerulea* is located near Balmorhea, Reeves Co., Texas which is approximately 748 airline km northwest of the type locality for *C. n. subtropica.*

Table 1. Number of specimens and label data of ***C. n. subtropica*** taken since 1946 in southern Texas.

Date	County	Locality	Number	Sex	Collector(s)
11-IX-1976	Hidalgo	Weslaco	2	F	Unknown
4-X-1979	Hidalgo	5 mi SW Mission	4	F	Sumlin & Gage
4-X-1979	Hidalgo	5 mi SW Mission	3	M	Sumlin & Gage
6-X-1979	Hidalgo	5 mi SW Mission	1	M	E.V. & C.L. Gage
9-X-1981	Hidalgo	5 mi SW Mission	1	M	E.V. Gage
24-XI-1982	Hidalgo	5 mi SW Mission	1	F	E.V. Gage
19-IX-1983	Hidalgo	5 mi SW Mission	1	F	E.V. Gage
11-X-1983	Hidalgo	Weslaco	1	F	E.V. Gage
13-IX-1984	Hidalgo	5 mi SW Mission	1	F	E.V. Gage
13-IX-1984	Hidalgo	5 mi SW Mission	3	M	E.V. Gage
13-IX-1984	Cameron	La Feria	1	M	E.V. Gage
14-IX-1984	Hidalgo	5 mi SW Mission	5	F	E.V. Gage
14-IX-1984	Hidalgo	5 mi SW Mission	6	M	E.V. Gage

Table 2. Characters used to differentiate ***C. n. subtropica*** Vogt from ***C. n. nigrocoerulea*** Le Conte.

Character	*C. n. subtropica* ♀ (n = 15)	% of Total	*C. n. nicrocoerulea*[1] ♀ (n = 18)	% of Total
Setae on lateral edge of abdominal sterna	moderately setose	100	glabrous/lightly setose	100
Setae on proepisternum	moderately setose over entire plate	100	glabrous except for anterior edge	100
Dorsal color				
Black	X	100	X	11
Blue			X	33
Blue-green			X	22
Green			X	33
Length ($\bar{x}$ mm)	10.4		11.8	
Range (mm)	9.2-11.5		11.4-12.2	

[1] Specimens collected in southeastern Arizona, southwestern New Mexico and western Texas.

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NEAL A. WEBER SOCIAL INSECT LIBRARY

Dr. Neal A. Weber has donated his extensive collection of books and reprints on social insects to the University of North Dakota, and the University has designated it as the Neal A. Weber Social Insect Library. Weber received his bachelor's and master's degrees from the University of North Dakota and, after completing his Ph.D. at Harvard University, served on the faculty at North Dakota from 1936 to 1947. From 1947 to 1974 he was Professor of Zoology at Swarthmore College. Since then he has been Adjunct Professor of Biology at Florida State University.

Dr. Weber is a long time member of the American Entomological Society. He joined the society in the late 1940's and during his residency in the Philadelphia area he was an active member of various society committees. He served as vice-president of the society in 1954-55 and in 1958-59. He was President of the society in 1960. In February, 1976, he was made, and still is, an honorary member of the society.

Weber's interest in ants stems from his graduate student days, first under Professor George C. Wheeler at North Dakota and then under Professor William Morton Wheeler at Harvard. Research in tropical America led him to undertake studies on the relationships between leaf-cutting ants and the fungi they cultivate in their nests. The summation of 40 years of study of this remarkable symbiotic association was the publication of his book "Gardening Ants: The Attines," published in 1972.

His collection is housed in a room, designated the Neal Weber Room, in Starcher Hall on the University campus in Grand Forks. Also housed in this room are reprints of most of Weber's more than 145 publications. Requests for reprints should be directed to Dr. Paul B. Kannowski, Department of Biology, University of North Dakota, Grand Forks, ND 58202-8238, USA.