Cupes boycei collected from Platanus racemosa Nutt, in California with a key to Nearctic species

(Notes on North American Coleoptera, No. 18)

by

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Only three taxonomic papers dealing with North American Cupesidae have been published. The members of this family are remarkable in habits and forms, and they are among the rarest beetles in collections. The first account of North American Cupesidae was published by LE CONTE (1874); this was followed by a short synopsis by CASEY (1897) and by a well-written taxonomic paper with discussion of the status of the whole family by BARBER & ELLIS (1920).

The systematic position of this family was quite a problem: LE CONTE & HORN (1883) and BLATCHLEY (1910) placed the family in the Serricornia, arrangement followed by BRUES & MELANDER (1915). LAMEERE (1903) independently placed the family in the Cupediformia, believing it to be a primitive type of the Adephaga. KOLBE (1901) at first thought the correct placement would be in the Adephaga, but later (1908) shifted Cupesidae to his new division Symphyogastra. BLACKWELDER (1944) commenced his monumental work with the suborder Archostemata, containing only the one family Cupesidae. Occasionally the family is mentioned in the literature also as Cupedidae or Cupidae.

There are two genera known to occur in the Nearctic region:

1. *Priacma* Le Conte (1874) with the following characters: Antennae less approximate at base, shorter and stouter, scarcely half as long as the body. Eyes small. Gular sutures distant, curved slightly outward. Double row of spicula present only on posterior half of elytral margin.

2. *Cupes* Fabricius (1801) with antennae more approximate at base, longer, less stout, exceeding half or more of the length of the body. Eyes larger. Gular sutures more approximate, not curved outward, parallel or converging behind. Spicula, if present, occupying the full length of the elytral margins.

Harold D. PIERCE, Plant Pest Control Division, United States Department of Agriculture, Riverside, California, an enthusiastic student of our desert Coleoptera, found several "dead, beetle-like creatures" while examining bark specimens of the California Plane Tree, better known as Western Sycamore (*Platanus racemosa* Nutt.). They are hard to recognize as beetles for their color blends perfectly with the chewings and excrements, and shamming death seems to be their natural habit, so even the experienced collector may be misled. At this time, February 18, 1960, PIERCE collected approximately 300 specimens from a few examples of dead Sycamore trees. On January 22, 1961, we re-visited the place and found only six specimens. The original collection was made from under bark of fallen trees, as deep as three feet. In 1961 we observed specimens at the same depth and also up to eight feet in the trunk of the three.

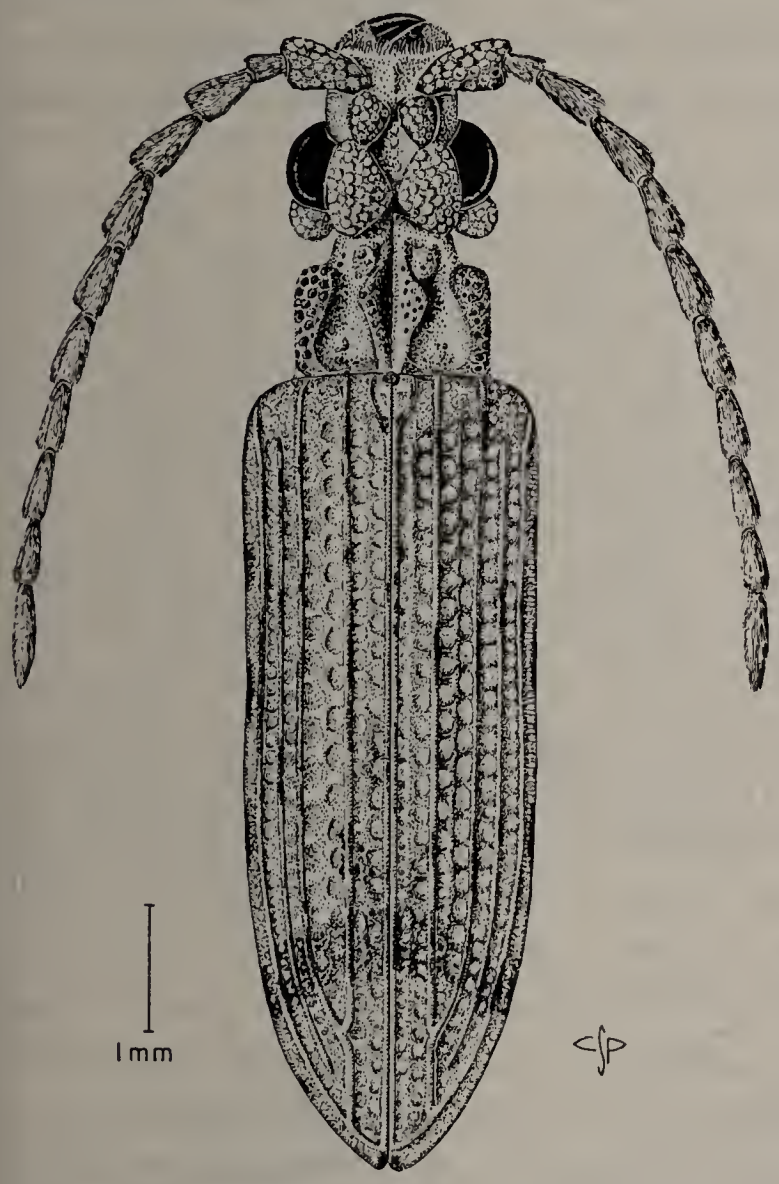
At my request PIERCE began to study the life history of this remarkable species. A complete description of the larva and pupa will be included in his study.

The author is grateful to Mr. C. Marvin BREWER, General Manager, Temecula Water Company, Corona, California, for his permission to collect specimens and to study the life history of these beetles in an area closed to the public.

After careful examination of the specimens the writer found them to belong to a species new to science. The description of this new species is as follows:

Cupes boycei, new species (Fig. 1).

Resembles *C. lobiceps* Le C., but differs in the length of the elytra, in the parallel-sided pronotum, and in color.



Cupes boycei, nov. sp.

M a l e : — Head approximately as wide as long, with the mandibles almost a third longer than the pronotum. Light brown with a slight tint of very light pink. Two pairs of lobes (which may be called tubercles) of which the anterior pair is about half as large as the posterior lobes. The surface of these lobes circularly granulated, somewhat lighter in color. The four lobes surrounding a wide, diamond-shaped depression, which is in its middle similarly granulated as the lobes, but the surface is slightly darker. — Eyes extremely large, largest of any known species. Black, very shiny, surface smooth, the outlines of the ocelli partially visible behind the thin surface. — Mandibles large, blackish-brown, moderately elevated, shiny, partially covered with light-brownish long hairs from the flat anterior capital margin. The posterior end follows the margin of the lobes. The corners are rounded and represent the end of a more or less triangularly shaped lobe of the ventral surface of the head, this lobe also circularly granulated as the dorsal lobes and of the same color. The sides of the head between the antennae and eyes parallel and flat, not, or very slightly, granulated and pale in color. — Antennae longer than half the length of the body, flat, and the same color as the body. The basal segment large, approximately as long as the second and third, roundly granulated, in sculpture the surface looks similar to the capital lobes. Slightly darker than the rest of the antenna, which is covered with longitudinally arranged scales. In live specimens the antennae are kept at about 45° to the long axis of the body, and twisted on the second joint so that the flat surface of the antennae is facing the direction of the movement. On the accompanying

illustration the antennae are twisted, which is not the natural position when the specimen is alive. The last joint is slightly longer than the basal segment and also slightly pointed.

Pronotum slightly wider than long, but shorter than the head. Sides parallel, composed of large longitudinal lobes, with dark brown and roundish scale-like pigmentation on the pale ground color. Anterior to these side-lobes the first fourth is sharply narrowed to join the head. With a well-developed longitudinal line in the middle, dividing a diamond-shaped narrow elevation in the central portion of the pale-colored pronotum, with the same markings on its surface as the side lobes. The two small tubercles behind the anterior margin are smaller, well-defined from the central longitudinal elevation. Between the side and the central diamond-shaped divided lobes the surface deeply depressed, sloping gradually from the center towards the inner sharp margin of the side-lobes. Posterior margin almost flat, the smoothly flowing line broken up by the end of the longitudinal elevations of the elytra.

Elytra almost three-times longer than wide, sides almost parallel, in the middle slightly narrower, apical fourth rounded, moderately pointed. Darker brownish in color, as the rest of the body. Shoulders rounded, wider than the pronotum. Surface with four longitudinal ridges, from which the first (exterior) follows the angle of the shoulder parallel to the sides and joins the sutural elevation at the apex; the second ridge begins and ends blindly between the first and third; the third runs parallel to the first, second and fourth, and joins the fourth behind the distinct black anal stripe of the elytra; the fourth is parallel with the sutural line. Sutura elevated, scutellum represented by a spherical dark tubercle, widely inclosed with the anteriorly divided continuation of the sutural ridges. The interspaces with moderately large and small, more or less roundish-quadrate punctures, which may be called structural depressions. These depressions hardly recognizable between the elytral margin and the first longitudinal ridge, here and there, however, some roundish impressions of punctures; between the third and fourth, and the fourth and the sutural ridges two rows of similar depressions, which are slightly larger in size than the others, more or less squarish. Irregularly placed black markings usually on the top of the longitudinal ridges; except the anal stripe which more or less covers the whole surface. This stripe is constant and present in all specimens examined; there is no set pattern for the other minute black markings. If the black markings are numerous, they are on or close to the sutural ridges.

A b d o m e n : densely covered with pearl-like, somewhat flattish granulation, in general resembling the surface of the pronotal tubercles. The first abdominal segment is the shortest; second, third, and fourth about the same in size, the fifth is longer than third and fourth together. The spicula wide, wider in the humeral half, narrower in the middle, behind which they are of even width to the apical portion, but narrower than in the anterior third. Surface of thin spicula with several patches of black color. Legs slightly darker, brown in color; femur with the same granulation as the abdomen; tibia, especially that of the median and posterior pairs, with some fine, pale-colored, dense patches of hairs on their posterior ventral ends, where two well-developed sharply pointed spines are also

situated; tarsi similar on their ventral sides, first segment almost as long as second and third together, third shorter than second but longer than fourth. The narrow fifth segment bearing the two narrow fine claws, wider at the end, light brown and with some fine pale-colored hairs on its posterior end. The claws are sharply pointed.

Female: — similar to male, only the elytra and abdomen are wider. Larger in size.

Measurements: Male 8.9—9.1 mm; females 7.2—11.2 mm.

Locality: Temescal Canyon, ca. 20 miles west of Riverside, California, under the bark of *Platanus racemosa* Nutt., on February 18th, 1960. Collected by Harold D. PIERCE, Plant Pest Control Division, United States Department of Agriculture, Riverside, California.

Type material: Type male [holotype], from the same location, presented to the Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands. Type female [allotype], from same location, also given to the Leiden Museum. — The following institutions have received material from the paratype series, males and females: Department of Entomology, Los Angeles County Museum, Los Angeles, California; Division of Life Sciences, University of California, Riverside; Department of Entomology, University of California, Riverside. — British Museum (Natural History), London, England; Deutsches Entomologisches Institut, Berlin-Friedrichshagen, Germany; Zoologisches Institut des Bayerischen Staates, München, Germany. Series of paratype specimens have been kept in the collections of Harold D. PIERCE and of the author.

This species is named in honor of Dr. Alfred M. BOYCE, for his leadership and contributions in the field of economic entomology.

CASEY (1897) set up a key of the species of the genus *Cupes,* which was adopted by BARBER & ELLIS (1920 : 202); it seems necessary to revise this key to include *Cupes boycei.* The characteristics of the two genera, *Priacma* and *Cupes,* have already been given above.

KEY TO NORTH AMERICAN *Cupes*

1 Supra-antennal tumid surface rounded and convex. Antennae shorter. Tempora more developed behind the eyes, which are usually smaller 2
— Supra-antennal tumidity obliquely angulate, antennae more elongate. Tempora short, the eyes very large. Body ochraceous in color. The elytra variegated with sublongitudinal patches of darker brown 3
2 Body black. Head pale and ochraceous yellow. Punctures of the elytral series very large, deep and quadrate — 7.0—10.15 mm long (East of the Mississippi, also Gulf States) ..... *capitatus* Fab.
— Body ochraceous with a tint of pinkish color. Elytra with blackish patches, and with prominent black band across the anal fourth. Punctures of the elytral series larger, squarish-round. — Male 8.9—9.1 mm, female 7.2—11.2 mm long. (Temescal Canyon, southern California) ..... *boycei* n.sp.
— Body ochreous. The elytra variegated with confused patches of dark piceous-brown. Punctures of the elytral series much smaller. — 11.0 mm long. (Southern California and southern Arizona) ..... *lobiceps* LeC.

3 Elytral series composed of large approximate quadrate punctures. Sides parallel. — 7.0—11.0 mm long. (Indiana, Massachusetts, New Hampshire, Georgia, Florida, Maryland, Michigan, Pennsylvania, New York) .... *concolor* Westw.

— Elytral series composed of narrow, elongate punctures. Antennae less elongate. — 8.5—9.7 mm long (Indiana, Maryland, Kansas, Florida, Texas, Michigan, New York) ..... *oculatus* Csy.

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Aantekeningen over Hymenoptera IV

door

G. VAN DER ZANDEN

Op de laatste Wintervergadering heb ik de volgende min of meer zeldzame aculeaten laten rondgaan.

43. *Colletes succincta halophila* Verhoeff. Bij een kleine collectie inheemse bijen, die de heer V. S. VAN DER GOOT mij afstond, bevond zich een ♂ van deze soort, gevangen 29.VIII.1954 op de Bosplaat (Terschelling). P. M. F. VERHOEFF beschreef het ras *halophila* in 1943 in het Verslag van de 76e Wintervergadering, aan de hand van exemplaren, welke op de Beer waren verzameld, als ook van enige stukken van Amsterdam (Zeeburg) en Pernis. Ter vergadering deelde de heer H. WIERING mede *halophila* o.a. ook op Walcheren te hebben gevangen. Bovendien is *halophila* uit Engeland bekend. Dat de oorspronkelijke