

CRYPTOTERMES ABRUPTUS, A NEW DRYWOOD TERMITE
(ISOPTERA: KALOTERMITIDAE) FROM SOUTHEASTERN
MEXICO

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ABSTRACT

Cryptotermes abruptus n. sp. is described from soldiers and alates collected on Isla de Cozumel, Mexico, and vicinity. It is the fifteenth neotropical *Cryptotermes* species to be described. The overhanging frons in the soldier caste of this species is unique among all termites worldwide.

Key Words: taxonomy, new species, Neotropics, Yucatan peninsula, Quintana Roo

RESUMEN

Cryptotermes abruptus n. sp. es descrito basado en soldados y alados recolectados en México en la Isla Cozumel y los alrededores. Hasta donde se conoce, ésta es la decimoquinta especie neotropical de *Cryptotermes* descrita. El gran desarrollo de la frente en la casta de los soldados es único entre las termitas a nivel mundial.

The tropicopolitan genus *Cryptotermes* Banks consists of nearly 50 living species (Bacchus 1987, Gay & Watson 1982, Scheffrahn 1993) of which fourteen are known from the Neotropical Region. Two neotropical species, *C. brevis* (Walker) and *C. cavi-frons* Banks, have ranges that also include the southern Nearctic Region. Only three *Cryptotermes* species are known from Mexico, including *C. brevis*, an introduced pest with an obscure New World origin, and the native species, *C. fatulus* (Light) and *C. longicollis* Banks (Araujo 1977).

On a recent expedition to Isla de Cozumel, one of us (J. A. C.) took samples from three colonies of a most unusual new *Cryptotermes*. A reexamination of older material collected from Mexico by J. K. yielded a fourth sample of this species from the nearby Yucatan coast. Herein is provided a description of the imago and soldier of *C. abruptus* n. sp.

MATERIALS AND METHODS

Morphometrics of specimens preserved in 85:15 ethanol:water were made with a stereomicroscope fitted with a calibrated ocular micrometer. Measurements and nomenclature were adopted mainly from those of Krishna (1961), Gay & Watson (1982), and Bacchus (1987). Structures useful in describing the phragmotic head capsule of *Cryptotermes* soldiers include the frontal flange or ridge dividing the vertex and frons;

and two pairs of protuberances, one dorsal pair in front of the antennal fossae and one ventral pair projecting forward from the genae called the frontal and genal horns, respectively (Krishna 1961, Gay & Watson 1982). The frontal flange of *Cryptoterme abruptus* n. sp. is modified with a projection that we term the frontal peak.

Prints of scanning electron micrographs were scanned at 600 dpi, the digital image outline traced using photograph-enhancing software (Photo Magic, Micrographx Inc., Richardson, Texas), and the background converted to black. Emission of wing membrane iridescence was induced by overlapping folded wings of fresh (ca. 2 month-old) alates and viewing in 85% ethanol over a black background under reflected light.

The holotype soldier and morphotype imago are deposited in the collection of American Museum of Natural History, New York. Paratype soldiers and alates are deposited in the National Museum of Natural History (Smithsonian), Washington, D.C.; the Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services, Division of Plant Industries, Gainesville; and in the first author's collection at the University of Florida Research and Education Center, Ft. Lauderdale.

Cryptoterme abruptus Scheffrahn and Křeček, **new species**

Imago (Table 1)

General color pale yellow to pale orange-yellow except as noted. Darkest pigmentation in forewing scales which form a median chevron pattern. Pale V-shaped area underlying frontal suture; antennae pale yellow; pronotum outlined by darker orange-yellow; abdominal tergites and sternites yellow-brown; femora pale yellow, tibia darker. Head subquadrate; cranial suture indistinct to whitish. Pronotum as wide as head capsule, widest in middle; anterior margin weakly concave; posterior margin weakly biconvex. Antennae of 16-19 segments, usually 17-18; relative length formula 2 = 3 = 4 = 5, sometimes 2 > 3, 3 < 4, or 4 < 5. Eyes ovoid, flattened on edge near antennal fossae. Ocelli white, ovoid; abutted against eyes. Sclerotized wing venation

TABLE 1. MEASUREMENTS OF *CRYPTOTERMES ABRUPTUS* IMAGO.

Measurement in mm (n = 7 ♀, 7 ♂ from 2 colonies)	Range	Mean ± S.D.	Morphotype
Head length with labrum	1.10-1.24	1.17 ± 0.036	1.16
Head length to postclypeus	0.82-0.87	0.84 ± 0.014	0.85
Head width, maximum at eyes	0.89-0.93	0.91 ± 0.014	0.92
Eye diameter, maximum	0.28-0.31	0.30 ± 0.0083	0.30
Eye to head base, minimum	0.14-0.16	0.15 ± 0.0092	0.14
Ocellus diameter, maximum	0.11-0.14	0.13 ± 0.0084	0.12
Pronotum, maximum length	0.65-0.72	0.69 ± 0.019	0.65
Pronotum, maximum width	0.85-0.93	0.88 ± 0.026	0.85
Total length with wings	8.09-8.80	8.49 ± 0.17	8.38
Total length without wings	3.83-4.90	4.27 ± 0.33	3.91
Forewing length from suture	6.25-6.96	6.66 ± 0.22	6.67
Forewing, maximum width	1.81-1.98	1.91 ± 0.43	1.86

light brown; wing membrane faintly golden-brown; iridescence golden-green or golden-purple. Subcosta, radius, and radial sector sclerotized; radius joining costal margin at midwing; radial sector with 4-5 anterior branches, media unsclerotized, joining radial sector beyond midwing. Arolium present.

Soldier (Fig. 1, Table 2)

Head nearly black in anterior, grading from chestnut brown to orange in posterior 1/5-2/5. Antennae pale, more yellow in proximal articles. Mandibles black, grading to chestnut brown near bases. Rugosity of head capsule shallow, composed of sinuous, evenly spaced striations along sides, frontal peak, and occiput. Head, in dorsal view, much longer than wide with slight to moderate median constriction; vertex extended on same plane with frontal flange to terminate as bluntly pointed peak forming 120-130° angle. Frontal peak overhanging mandibles, frons, genal horns, and labial palps beneath. Frontal flange posterior delineated in dorsal view by a very slight V-shaped elevation suggesting a median notch behind frontal peak; combination of posterior elevation of frontal flange and frontal peak rhomboidal in outline; frontal flange becoming more narrow and elevated lateral to frontal peak. In lateral view, frons sloping back about 30° beyond vertical and overhanging mouthparts. Plane of frons elevated along vertical midline from frontal peak to base of postclypeus (Fig. 1C); less rugose than head capsule. Distinct knob on lateral base of head capsule at insertion of ventral mandibular condyle. Anteclypeus very narrow. Labrum very small; usually cradled in slot formed by crossed mandibles or bent upward and supported on closed mandibles. Frontal horns shallow, evenly rounded; anterior to, and even with antennal fossae. Genal horns very small, pointed, projecting forward; directly abutting and behind frontal horns. Mandibles very short and small, blades angled 40-50° from base in ventral view; little or no basal hump; mandibles angled on their long axis to form cradle; dentition weak. Eye, when visible, faint, narrow; near lower middle of head capsule. Antennae with 12-14 articles; relative length formula $2 \geq 3 \geq 4 = 5$. Pronotum somewhat wider than long; anterior margin finely serrate and weakly concave.

Comparisons.

The imago of *C. abruptus* is close to *C. cavifrons* in overall size, coloration, and shape. *Cryptotermes abruptus* has more pilous head, pronotum, legs, and wing scales than *C. cavifrons*. The golden iridescence of overlapping *C. abruptus* wing membranes is absent in *C. cavifrons* and all other known neotropical congeners.

The soldier of *C. abruptus* is readily distinguished from all other *Cryptotermes* species and all other termite taxa, by its broadly overhanging frontal peak which eclipses the dorsal view of all underlying structures including the frontal horns and mouthparts, including the mandibles, labrum, and palps (Fig. 1B). In this view, only the vertex and antennae are visible. The nearest soldier is that of *C. domesticus* (Haviland), a somewhat variable species, which has a vertical or only slightly overhanging frons and a notched frontal peak. Unlike *C. abruptus*, the frontal peak of *C. domesticus* does not block the dorsal view of the genal horns and mouthparts. The mandibles and genal horns of *C. domesticus* are much more prominent than those of *C. abruptus*, while the frontal horns of *C. domesticus* are smaller than those of *C. abruptus*.

Type Material

Holotype soldier and 2 paratype soldiers collected in Mexico, Quintana Roo State, on Isla de Cozumel near El Caracol; other paratype soldiers from Cozumel near La-

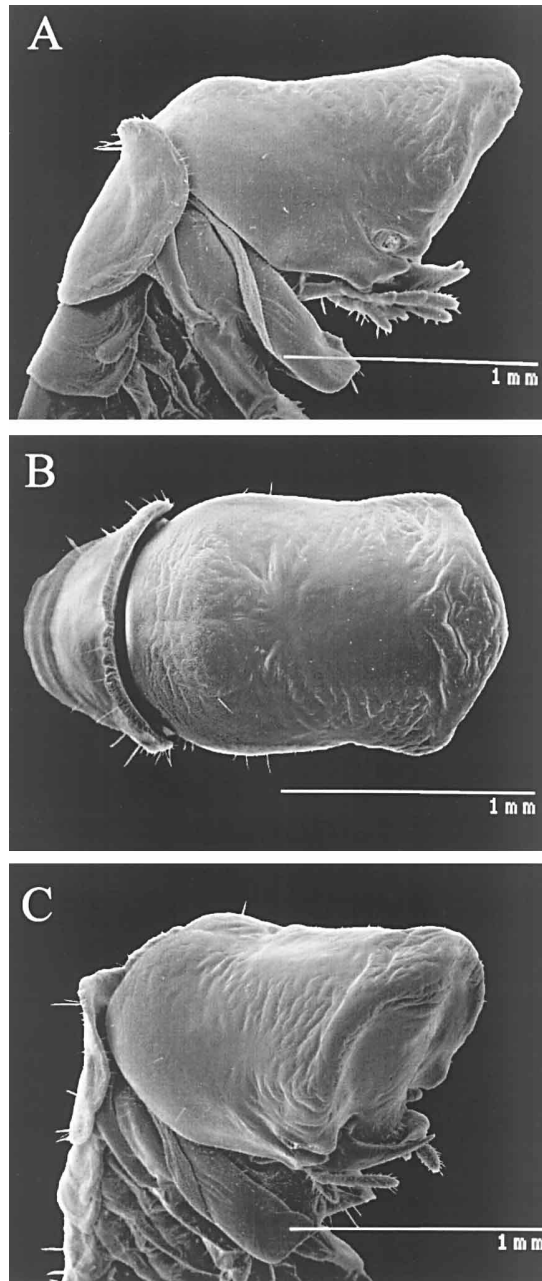


FIG. 1. Scanning electron micrographs showing lateral (A), dorsal (B), and oblique (C) views of soldier headcapsule of *Cryptotermes abruptus* n.sp. Antennae removed for clarity.

TABLE 2. MEASUREMENTS OF *CRYPTOTERMES ABRUPTUS* SOLDIER.

Measurement in mm (n=10 from 4 colonies)	Range	Mean \pm S.D.	Holotype
Head length with frontal flange	1.38-1.75	1.55 \pm 0.13	1.67
Head length to tip of mandibles	1.38-1.57	1.46 \pm 0.056	1.47
Head length to frontal horns	1.18-1.32	1.26 \pm 0.044	1.27
Frontal flange width	0.98-1.13	1.07 \pm 0.044	1.13
Frontal horns, outside span	0.82-0.92	0.86 \pm 0.027	0.85
Head width, maximum	1.10-1.21	1.16 \pm 0.028	1.18
Head height, excluding postmentum	1.03-1.11	1.07 \pm 0.027	1.06
Pronotum, maximum width	1.08-1.19	1.14 \pm 0.033	1.19
Pronotum, maximum length	0.75-0.90	0.85 \pm 0.045	0.88
Left mandible length, tip to ventral condyle	0.52-0.59	0.56 \pm 0.023	0.59
Total length	3.96-4.60	4.24 \pm 0.20	4.26

guna de Columbia and Punta Chiquero by J. A. C. on 7-V-1997, and Quintana Roo State, Puerto Morelos, by J. K. on 9-VIII-1987. Morphotype winged imago and 11 paramorphotype imagos from the Laguna de Columbia colony and 2 paramorphotype imagos from the Puerto Morelos colony.

Etymology

Abruptus (Latin = steep), in reference to the precipitous inclination of the frontal peak and frons in the soldier.

BIOLOGY

Colonies of *C. abruptus* were encountered in dead, dry limbs of various woody hosts at the type localities. This habit is unremarkable, being typical of most congeners.

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