



## SHORT NOTE

### *Cataulacus nywelendefu* sp. nov. (Hymenoptera: Formicidae): a New Arboreal Ant from Tanzania

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#### Abstract

A new species of the genus *Cataulacus*: *Cataulacus nywelendefu* sp. nov. is described from the Segoma Forest in Northeastern Tanzania. An addition to the existing key for Afrotropical *Cataulacus* species is given.

#### Introduction

Afrotropical ant taxonomy is poorly developed, with most of the region's most diverse genera never having been revised (Robertson, 2000; Gómez et al., 2023). This deeply affects our understanding of ant diversity, as numerous species are not being properly identified and are listed as morphospecies in most publications. The estimated number of ant species present in the Afrotropical Region is expected to double its current numbers (Robertson, 2000; Oberski et al., 2025). The Afrotropical members of some genera have never been revised, including the most biodiverse (*Camponotus*, *Pheidole*, *Dorylus*, etc.), and a large part of those still undescribed species is expected to be discovered when these revisionary efforts are undertaken. Lack of sampling is another cause of the lack of knowledge. Sampling new locations is also a source for new species even in the revised genera, where new taxa are continuously being described (Gómez et al., 2024; Hita Garcia et al., 2025).

*Cataulacus* Smith, 1853 is one of the better known genera. Its distribution is primarily Palaeotropical, with its

greatest diversity to be found in the Afrotropical region with 39 species (Bolton, 2025). Its taxonomy is relatively well-established, having been initially revised on a global scale by Bolton in 1974. Later, Snelling (1979) added three species, two for the Afrotropical region, Bolton again provided an updated revision that included additional several new species and a species-level key (Bolton, 1982). Members of the genus *Cataulacus* are very conspicuous and all are exclusively arboreal. Nests are usually made in rotten or hollow twigs or stems but are sometimes constructed in large rotten branches, or in rotten cavities in trunks. Some of the smaller species nest in shallow rot-holes that may be concealed by superficial debris or moss, or under patches of rotten bark (Fisher & Bolton, 2016). Foraging usually takes place upon trees or shrubs where the nests are located, but some species will cross the ground and ascend adjacent plants.

We here describe a new species of *Cataulacus* that was discovered in material collected through canopy fogging in Tanzania, collected by Line L. Sørensen and Stuart McKamey and stored at the Zoological Museum, University of Copenhagen, Denmark.



## Material and Methods

Specimens were examined under a Leica MZ16A stereo microscope and measured at 100 x magnification. Morphological terminology follows Bolton (1994) and Borowiec (2016). Type images of the new species were taken with a Leica DMC4500 camera attached to a Leica Z6 APO microscope on a motorised focus stand, to produce raw photo stacks processed to single montage images with Leica LAS X. Additional images have been modified with permission from www.antweb.org. Images were edited from originals using GIMP free software (v. 2.10.38). Current taxonomic status and taxonomic history follow Bolton (2025).

Acronyms used for the collections:

KGAC = Kiko Gómez Abal Collection. Barcelona, Spain

RBINS = Royal Belgian Institute of Natural Sciences, Brussels, Belgium

ZMUC = Zoological Museum, University of Copenhagen, Denmark

Specimens examined have received alphanumeric specimen codes associated with them (i.e., CASENT#, KGCOL#, being # a number), which uniquely identifies the specimens for databasing purposes. All the data have been uploaded to AntWeb and details can be consulted via www.antweb.org/specimen.do?code=CASENT# and KGCOL#: Kiko Gomez unique collection number.

Surface sculpture terms follow Harris (1979). Measurements and indexes are as in Bolton (1982) and Fischer et al. (2012). All measurements are in mm.

Morphological terminology used:

Head Length (HL) = length of the head, excluding the mandibles, measured in a straight line from the anteriormost point of the median clypeal margin to the midpoint of the occipital margin in full face view.

Head Width (HW) = maximum width of the head in frontal view, measured behind the eyes;

CI = Cephalic Index:  $HW/HL*100$

Eye Length (EL) = maximum length of the eye in full-face view  
EI =  $EL/HW*100$

Scape Length (SL) = maximum straight line length of the antennal scape excluding the basal constriction or neck

Scape Index (SI) =  $SL/HW*100$

Pronotal Width (PW) = maximum width of the pronotum in dorsal view

Weber's Length (WL) = diagonal length of the mesosoma in profile from the point at which the pronotum meets the cervical shield to the posterior base of the metapleural lobes

Propodeal Spine Length (PSL) = Propodeal spine length as seen in dorsocaudal view, with the apex of the measured spine, its base, and the centre of the propodeal concavity between the spines in focus: measurement is taken from apex to base along one axis of a dual-axis micrometre, which is aligned along the length of the spine, crossing the second axis

at the base of the measured spine, and the latter connecting the base with the centre of the propodeal concavity.

$SPI = PSL/HW*100$

## Results

### SPECIES PLACEMENT

We assign the new species to the *guineensis* group as defined in Bolton 1974, due to the wide head ( $CI > 100$ ), small eyes (EI 28-33;  $< 45$  for the group), long, but not flattened propodeal spines and the pronotum expanded posterolaterally in a triangular tooth. The size, though, is smaller (HW 1.15-1.25) than for the other three species of the group: thus, *C. erinaceus* Stitz (HW: 2.22 - 2.70), *C. greggi* Bolton (HW: 1.30), and *C. guineensis* F. Smith (HW: 1.30-2.40) (Bolton 1974).

The pilosity, though, is so unusual in the genus that Bolton's 1982 key requires comparison with two species located in the *tenuis*-group (i.e., *C. elongatus* Santschi and *C. pilosus* Santschi). We offer image plates of the five species for comparison, although the new species can be distinguished from all the other Afrotropical *Cataulacus* described thus far because of its uniform, very long, thin, abundant white pilosity.

### SYNOPSIS OF AFROTROPICAL SPECIES

#### *huberi*-group

*egenus* Santschi, 1911

*huberi* André, 1890

*inermis* Santschi, 1924

*kohli* Mayr, 1895

*lobatus* Mayr, 1895

*oberthueri* Forel, 1891

*porcatus* Emery, 1899

*pullus* Santschi, 1910

*regularis* Forel, 1892

*tardus* Santschi, 1914

*theobromicola* Santschi, 1939

*wasmanni* Forel, 1897

#### *tenuis*-group

*adpressus* Bolton, 1974

*boltoni* Snelling, 1979

*brevisetosus* Forel, 1901

*centrurus* Bolton, 1982

*cestus* Bolton, 1982

*difficilis* Santschi, 1916

*elongatus* Santschi, 1924 (Fig 2)

*impressus* Bolton, 1974

*jacksoni* Bolton, 1982

*jeanneli* Santschi, 1914

*kenyensis* Santschi, 1935

*lujae* Forel, 1911

*moloch* Bolton,

*pilosus* Santschi 1920 (Fig 3)

*satrap* Bolton, 1982

*striativentris* Santschi, 1924

*taylori* Bolton, 1982

*tenuis* Emery, 1899

*weissi* Santschi, 1913  
*intrudens*-group  
*bequaerti* Forel, 1913  
*ebrardi* Forel, 1886  
*fricatidorsus* Santschi, 1914  
*intrudens* (Smith, 1876)  
*mckeyi* Snelling, 1979  
*micans* Mayr, 1901  
*mocquerysi* André, 1889  
*pygmaeus* André, 1890  
*traegaordhi* Santschi, 1914  
*voeltzkowi* Forel, 1907  
*wissmanni* Forel, 1894  
*guineensis*-group  
*erinaceus* Stitz, 1910 (Fig. 4)  
*greggi* Bolton, 1974 (Fig. 5)  
*guineensis* Smith, 1853 (Fig. 6)  
*nywelendefu* sp. nov.

#### MODIFICATION TO THE AFROTROPICAL *CATAULACUS* KEY

Bolton (1982) offers a key to the Afrotropical *Cataulacus*. Step 21 is modified as follows:

Couplet 21a. Propodeal spines very long, their length similar to petiole length (1B). Pronotum expanded posterolaterally,

projecting as a triangular spine (1C). Dorsal promesonotum strongly reticulate (1C). Petiolar dorsum longitudinally striate (1B). Gaster dorsally longitudinally rugulose (1B).....*Cataulacus nywelendefu* sp. nov.

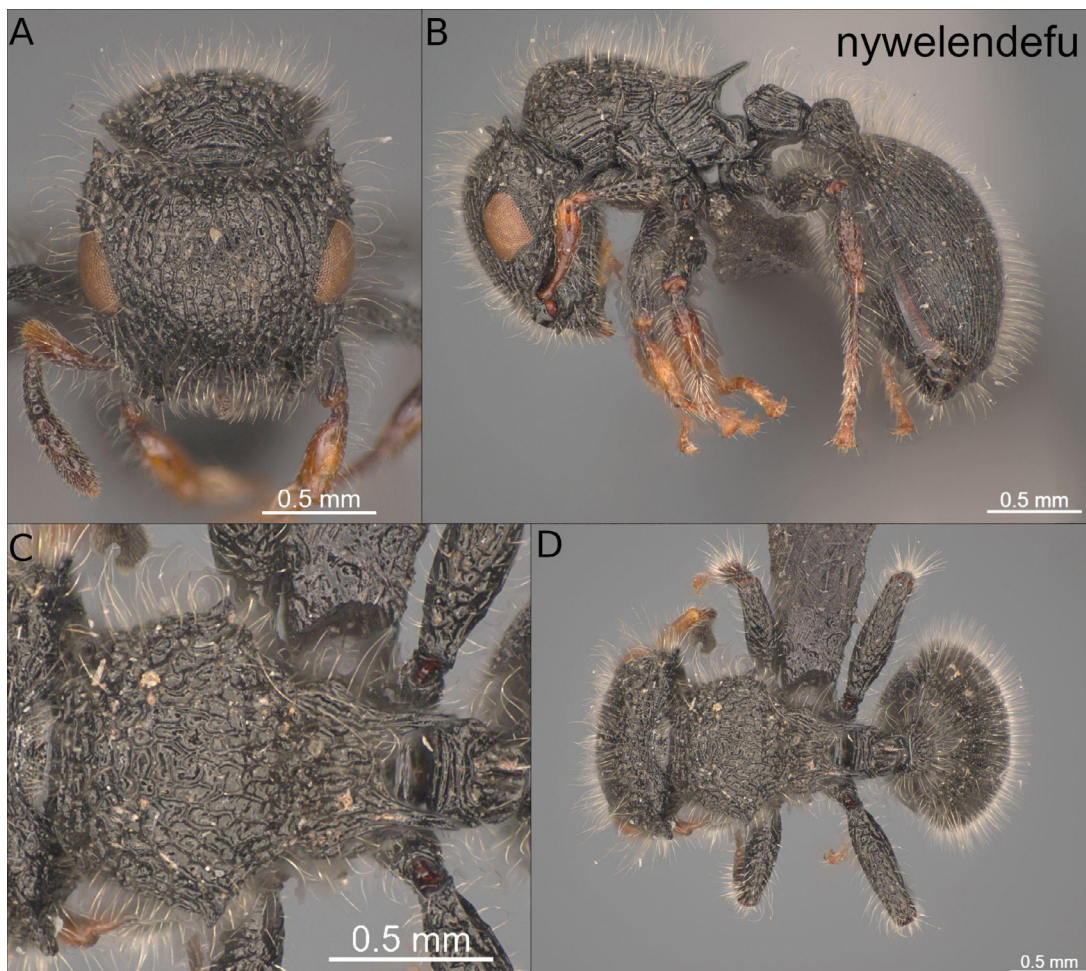
- Propodeal spines short, their length clearly smaller than petiole length (2A, 3A). Pronotum not expanded posterolaterally and not projecting as a triangular spine (2C, 3C). Dorsal promesonotum longitudinally striate (2C, 3C). Petiolar dorsum transversely striate (2C, 3C). Gaster dorsally mostly smooth (2D, 3D)..... 21b

21b. Propodeal dorsum longitudinally rugulose or rugose (2C). Postpetiole height clearly longer than postpetiole length and clearly higher than petiole (2B). Larger species, HL > 0.90, HW > 0.85..... *Cataulacus elongatus* Santschi, 1924

- Propodeal dorsum transversely rugulose (3C). Postpetiole height similar to postpetiole length and similar to petiole height (3C). Smaller species, HL < 0.90, HW < 0.85..... *Cataulacus pilosus* Santschi, 1920.

#### DESCRIPTION

Zoobank: 36DA3B32-6A49-4081-A393-7C1519913E5C  
 Figure 1 A-D



**Fig 1.** *Cataulacus nywelendefu* sp. nov. Holotype (KGCOL03946). A: Head frontal view; B: lateral view; C: Mesosoma dorsal view; D: Whole worker dorsal view.

Holotype worker, Tanzania: Tanga Region: Segoma Forest Reserve (Muheza District), 210m, -4.98333, 38.73333. Leg. L.L. Sørensen & S. McKamey (ZMUC) 11/11/1995, Canopy fogging (FOG20), 1 worker [KGCOL03946] (RBINS)

Paratype workers, same data: 1 worker [KGCOL03368] (RBINS) • 1 worker [KGCOL03944] (RBINS) • 1 worker [KGCOL03945] (ZMUC)

#### DIAGNOSIS

The species is unmistakable due to the combination of abundant, very long, slender setae that cover the whole body and the long propodeal spines. The other two Afrotropical species with abundant long setae, namely, *C. elongatus* and *C. pilosus*, have short spines and the setae are relatively shorter. Also, in this species the promesonotum is strongly reticulate, while it is longitudinally rugulose to striate in *C. elongatus* and *C. pilosus*. The gaster is also very different in the new species, with a rugulose sculpture, while it is smooth in the other two taxa.

#### DESCRIPTION. WORKER.

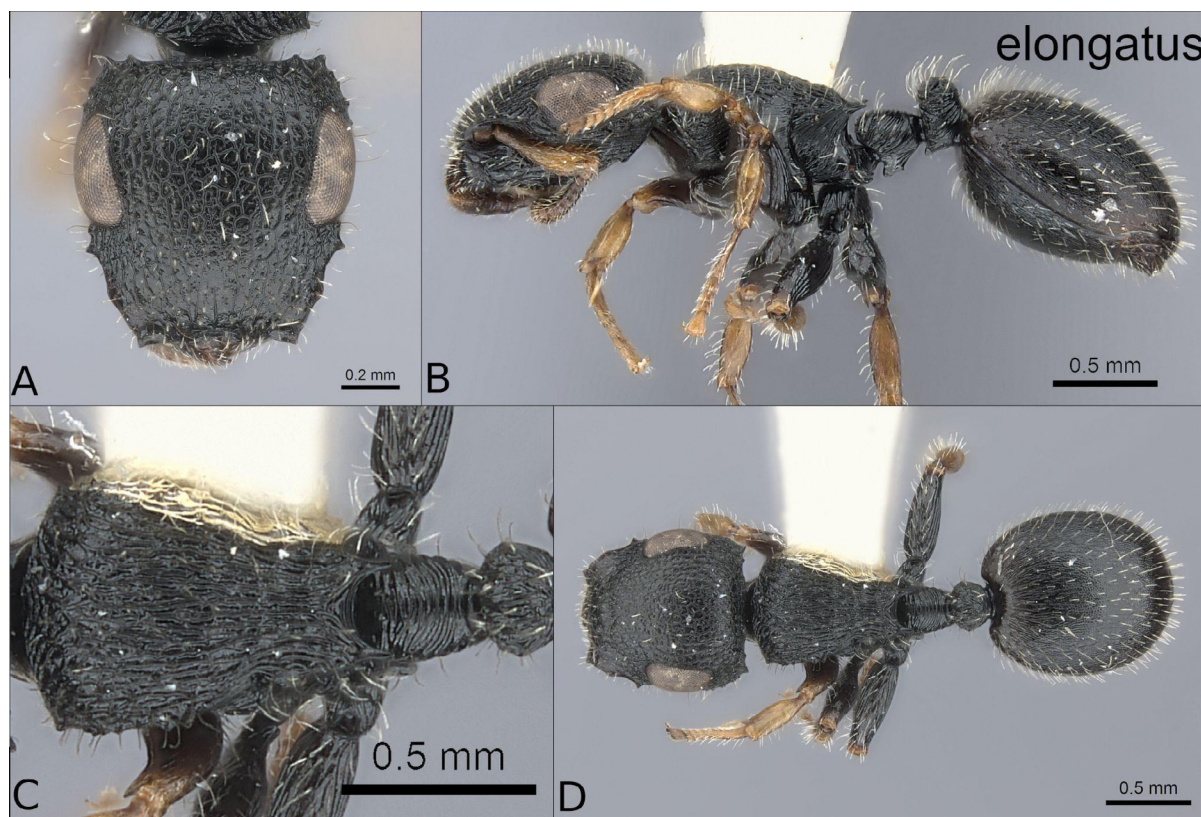
HL: 1.09-1.19; HW: 1.15-1.25; SL: 0.52-0.62; EL: 0.35-0.41; WL: 1.05-1.33; PW: 0.98-1.09; PSL: 0.26-0.32; CI: 105-107; EI: 28-33; SI: 44-50; SPI: 22-26 (n = 4)

Medium sized (HW 1.2). Head quadrate (CI 106), laterally convex and strongly denticulate and concave occipitally, head in profile with multiple small, triangular teeth, the occipital angles with two larger triangular teeth. Occipital crest absent. Pronotum marginate laterally, usually edentate but terminating laterally in a distinct triangular tooth. Sides of mesonotum and propodeum rounded, immarginate and without denticles. Propodeum with a pair of moderately long parallel spines. Promesonotal suture faint. Petiole, postpetiole and propodeum of similar height. Petiolar and postpetiolar anterior and posterior surfaces flat, meeting at an angle. Anterior petiolar length about two thirds of the posterior. Postpetiole with both surfaces similar in length. Petiolar process complex, parallelepipedic, oriented anteriorly, with concave bottom and a pronounced spine produced posteriorly. Postpetiolar process un conspicuous, very small, rectangular.

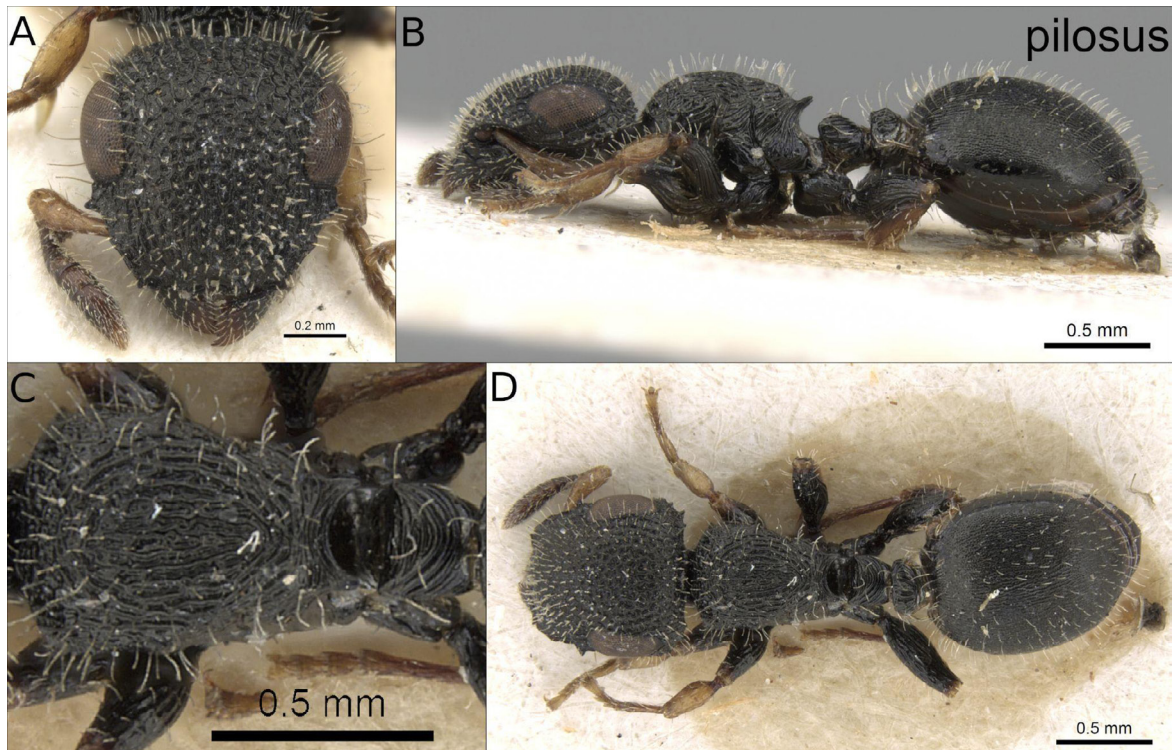
Head and mesosomal dorsum strongly reticulated; lateral mesosoma, petiole, postpetiole and gaster longitudinally rugulose; posteropropodeum and anterior face of petiole transversely rugulose; all interspaces smooth.

All of body, antennae and legs densely covered with very long, thin, pliable white setae, resulting in a woolly appearance.

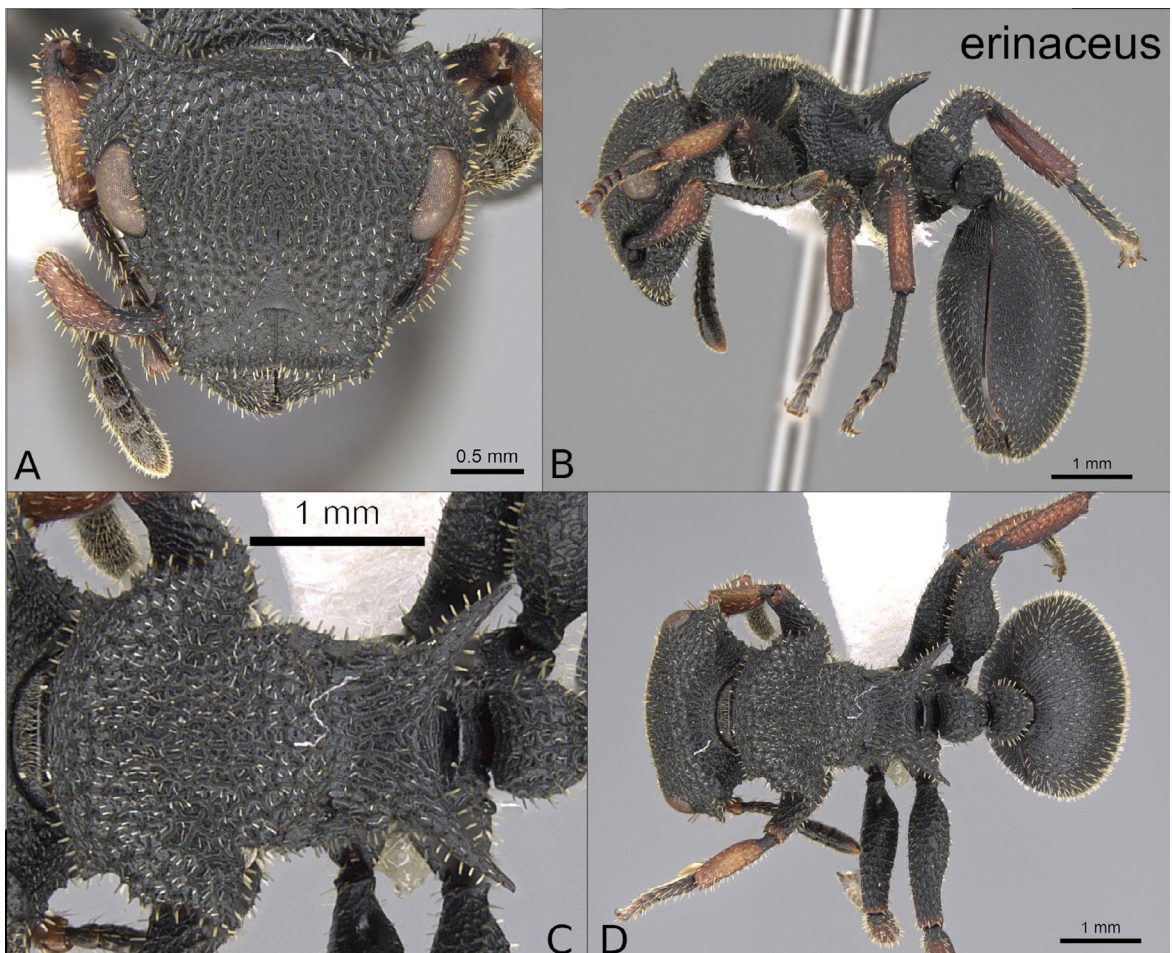
DERIVATIO NOMINIS: The species name *nywelendefu* is a non-Latin noun used in apposition and is the Swahili word for 'long hair' (nywele ndefu).



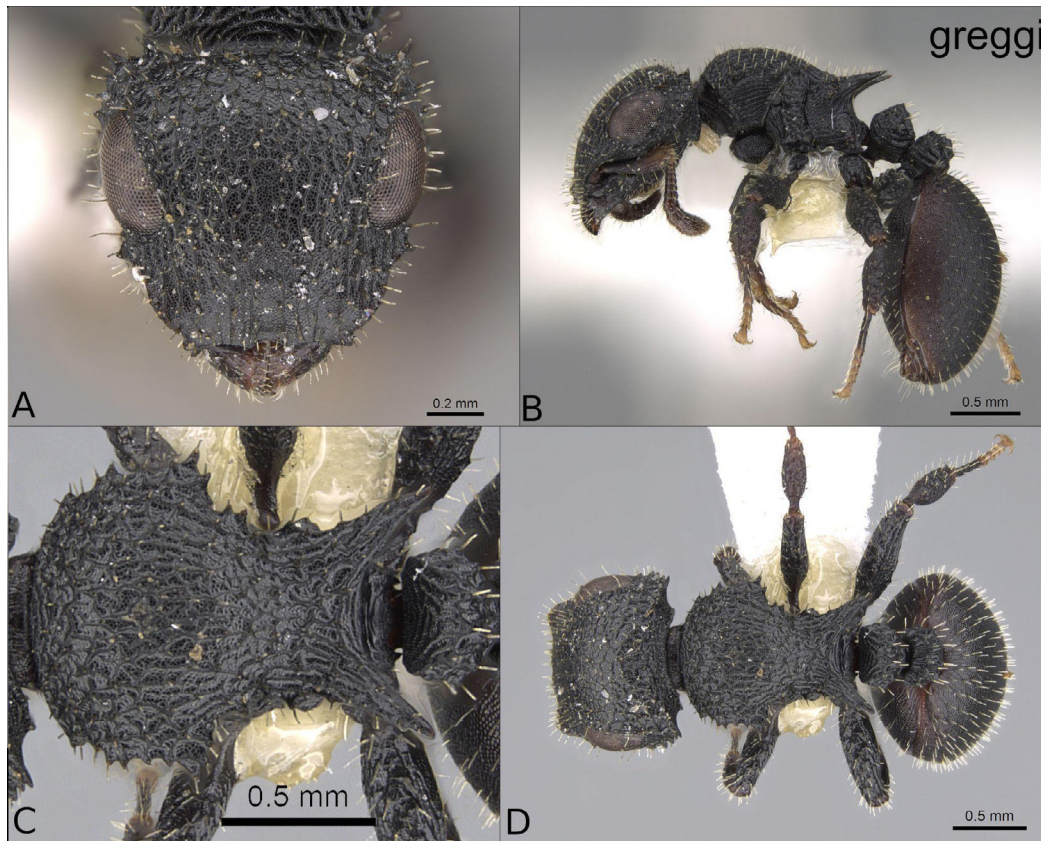
**Fig 2.** *Cataulacus elongatus* Santschi, 1924 (CASENT0217821). A: Head frontal view; B: lateral view; C: Mesosoma dorsal view; D: Whole worker dorsal view. Images by Shannon Hartman.



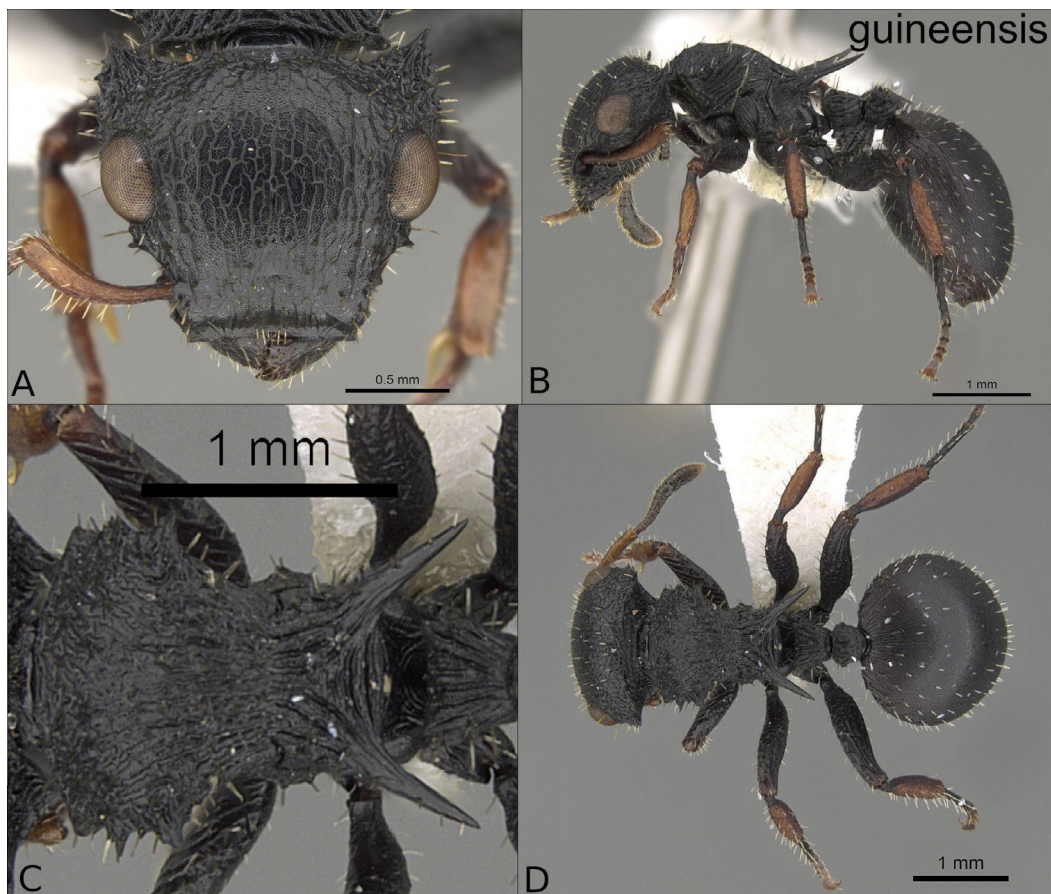
**Fig 3.** *Cataulacus pilosus* Santschi, 1924 (CASENT0280810). A: Head frontal view; B: lateral view; C: Mesosoma dorsal view; D: Whole worker dorsal view. Images by Shannon Hartman.



**Fig 4.** *Cataulacus erinaceus* Stitz, 1910 (CASENT0922492). A: Head frontal view; B: lateral view; C: Mesosoma dorsal view; D: Whole worker dorsal view. Images by Wade Lee.



**Fig 5.** *Cataulacus greggi* Bolton, 1974 (CASENT0922494). A: Head frontal view; B: lateral view; C: Mesosoma dorsal view; D: Whole worker dorsal view. Images by Wade Lee.



**Fig 6.** *Cataulacus guineensis* F. Smith, 1853 (CASENT0922495). A: Head frontal view; B: lateral view; C: Mesosoma dorsal view; D: Whole worker dorsal view. Images by Wade Lee.

## OTHER MATERIAL EXAMINED:

Known only from the type material (Figure 7)

## DISTRIBUTION:



Fig 7. Distribution map of *Cataulacus nywelendefu* sp. nov.

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### Authors' Contribution

K.G. & W.D.: Conceptualization, methodology, validation, verification, formal analysis, investigation, resources, data curation, writing and visualization.

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