

Amblyopone boltoni, a New Ant Species (Hymenoptera: Formicidae) from India

by

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ABSTRACT

Amblyopone boltoni sp. nov. is described from India. This is the fourth species of the genus known in India with *A. bellii* Forel, 1900, *A. rothneyi* Forel, 1900 and *A. pertinax* Baroni Urbani, 1978 reported earlier. This also confirms the first record of the subfamily Amblyoponinae from Northwest Himalaya. An identification key to the worker caste of Indian species has been provided.

Keywords: India, Amblyoponinae, Formicidae, Hymenoptera, *Amblyopone*, new species.

INTRODUCTION

Amblyopone is a cosmopolitan genus of primitive ants, currently represented by 72 extant and 2 extinct species (Bolton 2011). After Brown's review and diagnosis (1960), other significant contributions to this genus include; Baroni Urbani 1978 (Mediterranean species key); Taylor 1979 (Melanesia species key); Morisita *et al.* 1989 (Japan species key); Terayama 1989 (Taiwan species key); Dlussky *et al.* 1990 (Turkmenistan species key); Lattke 1991 (New World species key); Atanasov & Dlussky 1992 (Bulgaria species key); Onoyama 1999 (Japan species key); Xu 2001 (East & South Asia species key); Lacau & Delabie 2002 (Neotropical species key); Xu 2006 (China species key); Arias-Penna 2008 (Neotropical species key); Terayama 2009 (Taiwan species key) and Heterick 2009 (south-western Australia species key).

From India, only three species of *Amblyopone* have been reported to date: *A. bellii* Forel, 1900, *A. rothneyi* Forel, 1900 and *A. pertinax* Baroni Urbani, 1978. *A. boltoni* sp. nov. is the fourth addition and differs significantly from already reported species.

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MATERIALS AND METHODS

The specimens were collected through winkler's extractor and soil core methods. These were preserved in 70% alcohol and later pinned as per standard procedure in ant taxonomy. The taxonomic analysis was conducted on a Nikon SMZ 1500 stereo zoom microscope. Digital color images were prepared by Erin Prado and Michele Esposito, California Academy of Sciences, vide specimen number CASENT0179570. Morphological terminology for measurements and indices (given in millimeters) include:

HL Maximum length of head in dorsal view, measured in straight line from the anteriormost point of the median clypeal margin to the midpoint of the occipital margin.

HW Maximum width of head in dorsal view.

ML Straight line length of mandible from apex to visible basal end, measured in dorsal view.

WL Weber's length measured from the anterior surface of the pronotum proper (excluding the collar) to the posterior extension of the propodeal lobes.

GL The length of the gaster in lateral view from the anteriormost point of first gastral segment to the posteriormost point (excluding sting).

PL Maximum length of the petiole from above.

PW Maximum width of the petiole from above.

PH Maximum height of the petiole in profile from apex of subpetiolar process to dorsalmost point.

TL Total length: $HL+WL+PL+GL$

CI Cephalic index: $HW/HL \times 100$.

SI Scape index: $SL/HW \times 100$.

PI Petiolar index: $PW/PL \times 100$.

SL Maximum length of the scape excluding the basal neck and condyle.

DESCRIPTION

Amblyopone boltoni sp. nov.

(Figs. 1-3)

Holotype worker: India, Himachal Pradesh, Terrace, 31.9234°N, 75.9294°E, 430m above msl, 17 July, 2010, winkler. Paratypes: 2 workers, India, Himachal Pradesh, Ghati Bilwan, 31.9300°N 75.9302°E, 400m above msl, 11 October, 2008; 6 workers, India, Himachal Pradesh, Khatiar, 32.0057°N 75.9388°E, 450m above msl, 18 October, 2010, soil core (coll. Aijaz A. Wachkoo).

Holotype and paratypes in Dr. Himender Bharti Collections-MoEF 1, Department of Zoology, Punjabi University, Patiala, India; one of the paratypes in California Academy of Sciences, San Francisco, United States of America.

Description of worker (Figs. 1-3):

Worker measurements: TL: 3.2-3.4; HL: 0.72-0.77; HW: 0.58-0.64; ML: 0.53-0.56; WL: 0.88-0.95; PL: 0.36-0.41; PW: 0.36-0.4; PH: 0.37-0.39; SL: 0.42-0.45; GL: 1.2-1.27. Indices: CI: 80.26-85.33; SI: 69.35-72.41; PI: 94.44-105.88 (9 individuals measured).

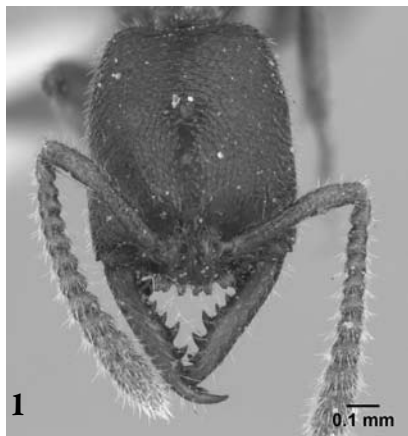


Fig. 1. *Amblyopone boltoni* sp. nov.; head in full frontal view.

Head: Head nearly trapezoidal, widened forward; much longer than broad, occiput emarginate, occipital corners round and prominent. Anterior margin of clypeus convex, with 7 teeth: 3 median bordered by a pair of fused teeth on each side. Anterolateral corners of head, near mandibular insertions, each with a distinct, well developed tooth. Mandibles narrow and slender, with 8 teeth, the 2 apical and 2 basal teeth are simple; middle 4 teeth are paired, arranged in two rows, with outer row having smaller teeth than inner row; apical tooth projecting and long; basal

most sub quadrate and broad. Antennae 12 segmented; scape reaching up to 2/3rd of posterior margin of head. Eyes rudimentary without distinct facets represented by a tiny black dot; placed above the middle line of head.

Alitrunk, Petiole: Alitrunk with flat dorsal margin, promesonotal suture marked, metanotal suture entirely effaced. Propodeal dorsum slightly higher

than rest of mesosomal dorsum, broadly curving into oblique declivious face. Alitrunk widest at pronotum, constricted at mesonotum; propodeum has broadly convex sides that diverge caudally. Petiole dorsally square shaped, sub petiolar process cuneiform, without any fenestra.

Gaster: Gaster elongate, sting exerted.

Sculpture: Head with regular punctures and noticeable longitudinal rugulae on anterior 1/3rd of head, much weaker rugulae, barely discernible extend toward vertex; oblique rugulae on gena and transverse on posterior 1/4th of head. A narrow longitudinal median strip of smoother sculpture extends from posterior end of frontal carinae to vertex. Clypeus with regular longitudinal striations. Mandibles densely sculptured with coarse striations. Alitrunk sculpturing consists of scattered punctures, restricted mainly to sides and anterior of pronotum. Pronotal sides smooth and shining, with few scattered punctures. Metepisternum and lateral propodeal faces shining except for inferoposterior transverse striations below propodeal spiracle. Katepisternum with transverse striations, anepisternum smooth and shining. Petiole and gaster shining covered with scattered shallow punctures.

Pilosity: Moderate; reclinate, suberect, denser on flagellum of antennae; longest on mandibles and at apex of gaster.

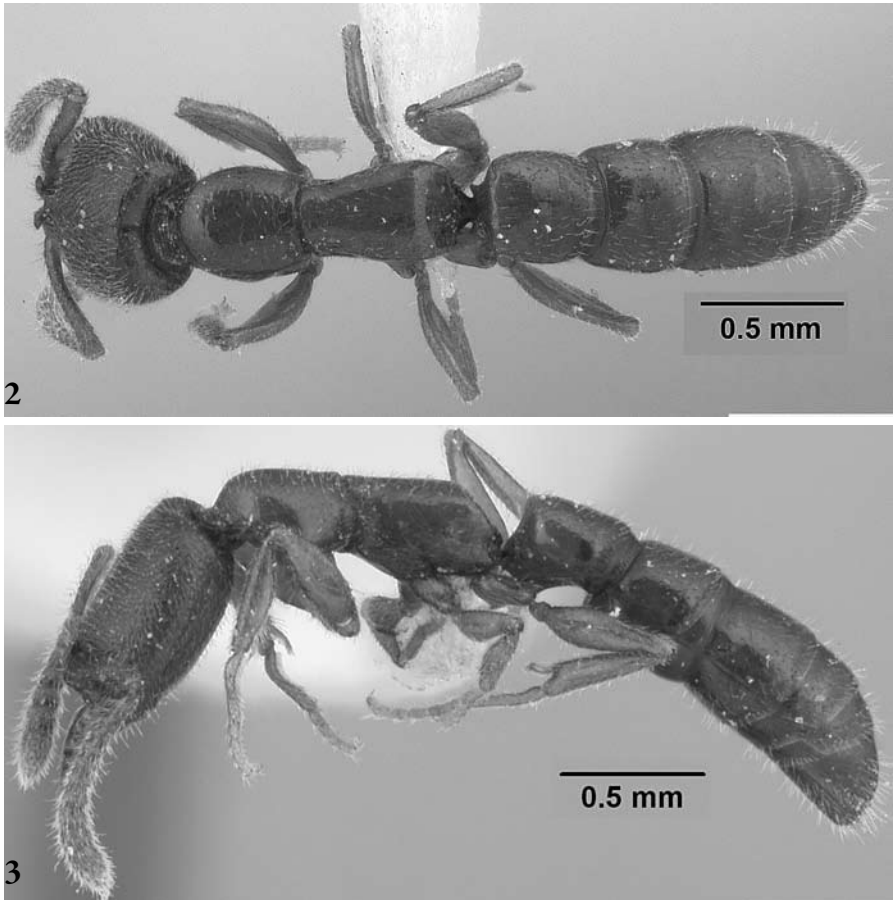
Color: Reddish-yellow to brown with antennae and legs pale.

Distribution and Habitat: This species is uncommon in the Shivalik range of North-west Himalaya and was found only in 3 localities of Himachal Pradesh adjacent to each other during the intensive surveys. The species inhabits well developed lowland subtropical, semi-evergreen forests influenced by a relatively strong dry season, it constructs nests in soil, forages in soil, under leaf litter and has been collected only by soil core and winkler extraction methods.

Etymology: The species is named in the honor of Barry Bolton.

Remarks: This species is quite different from the previously known Indian species. It is easily distinguishable from *A. pertinax* by its 12 segmented antennae (in *A. pertinax* antennae are 11 segmented); whereas it separates from *A. bellii* and *A. rothneyi* by a combination of several characters: reduced eyes without distinct facets, 7 strong clypeal teeth with a unique arrangement, delicate sculpture, prominent sub petiolar process, smaller

size etc. However, it is somewhat allied to Mediterranean *Amblyopone emeryi* (Saunders, 1890), but can be easily distinguished from it by combination of sculpture, scape length, shape of alitrunk, meso-metanotal suture and structure and arrangement of clypeal teeth. In *A. boltoni* sp.nov., the sculpture of the head is more pronounced and regular on the frontal part, with clypeal teeth blunt and 3 median teeth bordered by a pair of fused teeth on each side, and scapes are shorter SL: 0.42-0.45, which is not the case in *A. emeryi*, having feebler sculpture, free and pointed teeth, scape length SL: 0.64–0.67, and mesonotum strongly constricted, resembling a dumbbell in dorsal view.



Figs. 2-3. *Amblyopone boltoni* sp. nov. 2) dorsal view; 3) lateral view.

KEY TO SPECIES OF *AMBLYOPONE* OF INDIA BASED ON THE WORKER CASTE

1. Antenna 11 segmented..... *A. pertinax* Baroni Urbani
- Antenna 12 segmented.....2
2. Eyes prominent with distinct facets; clypeal denticles in a continuous series.....3
- Eyes rudimentary without distinct facets represented by a tiny black dot; clypeus with 3 median and a pair of fused teeth on each side
.....*A. boltoni* sp. nov.
3. Head distinctly longer than broad; anterior margin of clypeus with 10-12 fairly discernible denticles; color brown*A. rothneyi* Forel
- Head as broad as long; anterior margin of clypeus with more than 12 minute denticles; color blackish..... *A. bellii* Forel

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