

Taxonomic Redescription of *Messor Himalayanus* Forel (Hymenoptera: Formicidae), New Report from South India

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Abstract: Ants are dominant insects and highly developed social animal. They are widely distributed throughout the world. Currently there are 28 subfamilies and 408 genera. (Bolton et.al, 2007) The species *Messor himalayanus* Forel belongs to the subfamily Myrmicinae of family Formicidae. The present study was carried out in three places of Kollam district viz. Kuriottumala, Punalur and Yeroor. The ecology of this species ie; nesting pattern, habit, habitat, food preferences, active involvement in day timings and colonial behavior are observed. The species *Messor himalayanus* Forel resdescribed, compared with other species of *Messor* and similarities and dissimilarities are also provided. Currently there are only two species of *Messor* reported from India and only one from South India and the species *Messor himalayanus* Forel adds a new report to South India.

Keywords: *Messor himalayanus*, Myrmicinae, New report, Resdescription, South India.

I. Introduction

The genus *Messor* was established by Forel in 1890 as subgenus of *Aphaenogaster*. In 1892d Emery synonymised as *Cratomyrmex* based on the type-species *Cratomyrmex regalis* by monotypy, 1895 as subgenus of *Stenammas*. In 1903 Bingham raised *Messor* as genus based on the type species *Formica Barbara*, in 1917 *Veromessor* by Forel as subgenus of *Novomessor*. The genus *Veromessor* was recently synonymised with *Messor* (Bolton, 1982). Currently there are 112 species, 49 subspecies in world (Bolton, 2012). In India there are only two species of *Messor*. (Himender Bharti,2011)

The genus *Messor* is commonly known as Harvester ants. Harvester ants are species that regularly store collected seeds in underground granaries (Hölldobler and Wilson, 1990), thus shaping the physical, chemical and hydrological properties of the soil (Cammeraat et al., 2002). The colonies can be often seen in grassy areas where seeds are available. This kind of land forms a suitable place for *Messor himalayanus* Forel for nest construction. Most of them construct the nest behind the roots of grass.

II. Materials And Methods

2.1 Study site

The study was performed in a typical grassland area ie; Kuriottumala (Kollam). The soil is mainly sandy. The typical vegetation is composed of herbaceous plants, mostly dominated by grasses.

Specimens were collected by all out search method on the ground. Collected specimens were mounted on rectangular cards and pinned with Asta insect pins of size 38 mm x 0.53 of 3 (made by Newy Goodman Ltd U K). Ants up to the genus level by using Stereoscopic binocular microscope (Getner 40x) and species level identification is carried out using Leica MZ6 stereo zoom microscope (Germany), based on taxonomic keys of (Bingham, 1903, Hölldobler & Wilson, 1990; Bolton, 1994). The unmounted specimens were stored in 70% alcohol in ependoff tubes and kept in refrigerator for further studies.

III. Measurements

AL: Alitrunk length .the diagonal length of the Alitrunk in profile from the point at which the pronotum meets the cervical shield tho the posterior base of the metapleuron

ED Eye diameter: maximum diameter of compound eye measured in oblique lateral view.

F1-F12: Funicular segments, Length of the antennal segments (funnicles) except scape

HL: Head length: maximum distance from the mid-point of the anterior clypeal margin to the mid-point of the posterior margin of the head, measured in full-face view;

HW: Head width: measured at widest point of the head, in full-face view behind eye-level.

PW: Pronotal width: maximum width of pronotum measured in dorsal view.

SL: Scape length: maximum scape length, excluding basal condyle and neck..

IV. Indices

CI: Cephalic index (HWx100)/HL

SI: Scape index (SLX100) /HW

V. Results

5.1 Worker measurements & indices

5.2 Worker minor

TL= 6.5 mm; HL= 2 mm; HW= 2 mm; CI= 100 mm; SL= 1.5 mm; SI=75 mm; ED= 0.25 mm; PW= 1 mm; AL= 2 mm

5.3 Colour

Head, thorax and abdomen black; antennae, legs reddish brown.

5.4 Sculpture and hair pattern

Yellowish white, abundant, appressed hairs are present all over the body.

Head anteriorly, pronotum above, abdomen, smooth, polished and shining; mesonotum above in profile and laterally, very densely transversely striated; pronotum laterally, head posteriorly, nodes of pedicel rugulose; mandibles longitudinally striated.

5.5 Head

Excluding mandibles head square; posterior region of head distinct, emarginated, vertex anteriorly little truncated; antennae 12 segmented with indistinct club, antennal groove distinct, scape of the antennae short, slender, cylindrical, reach upto 3/4th from its insertion to the top of the head; eyes small, round, mid-laterally located; ocelli absent; frontal carinae short, distinct, widely divergent; clypeus triangle, slightly emarginated posteriorly, transverse anteriorly; mandibles curved inwards, strong, massive, dentition obsolete.

5.6 Thorax

Pronotum and mesonotum forming a single convexity, pronotum forming a shield above, promesonotal groove distinct; mesometanotal groove deep; mesopleuron with single impression in the middle; metanotal spiracle, metapleural gland bulla distinct, metanotum unarmed; coxa of legs rectangular; trochanter thickened in middle, narrowed posteriorly; femur slender not dichromatic.

5.7 Abdomen

Two nodes of pedicel distinct, first node anteriorly attenuated, emarginated above, conical; helcium present; second node of pedicel rounded above, as long as broad. Gaster opaque, broadly oval.

5.8 Plesiotype:

Worker major N 8° 29' 18.2872" E 76° 55' 7.7743", INDIA: Kerala, Trivandrum (Veli) Presty: 20.IV.2011 [DZSXCA).

5.9 Other materials examined:

2 W: INDIA: Kerala, Kollam (Kuriottumla) Presty John 07. X. 2011., 2W: INDIA: Kerala, Kasargod (Bekkel) Presty John, 20.I.2011, 2 W: INDIA: Kerala, Kollam (Yeroor) Presty John 26.I.2012 1W: INDIA: Kerala, Kollam (Punalur) Presty John 19.IV.2012.

5.10 Distribution: INDIA [Kerala: Kollam; Trivandrum; Kasargod];

5.11 Biology: Unknown.

5.12 Habit: Granivorous.

5.13Habitat: Collected from grassy plains.

VI. Discussion

Messor himalayanus Forel closely resembles with *Messor barbarous* Linnaeus in having 1. Sides of thorax transversely striate. 2. Abdomen highly polished, smooth and shining. 3. Mandibles longitudinally striated. However *Messor himalayanus* Forel differs from *Messor barbarous* Linnaeus in having 1. Meatnotum unarmed (in *Messor barbarous* Linnaeus metanotum is dentate). 2. Pilosity wanting ((in *Messor barbarous* Linnaeus Pilosity abundant). 3. Head with scattered punctures ((in *Messor barbarous* Linnaeus head is without punctures).

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