

## New Distributional Records of *Tetraponera Rufonigra* (Jerdon) From Gilgit Baltistan, Pakistan

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### Abstract

New distributional records of *Tetraponera rufonigra* (Jerdon) from Gilgit Baltistan during 2016, Pakistan are provided. It was first reported in 1961 from Lahore (capital city of Punjab Province), Pakistan. Here we report it for the first time from Gilgit Baltistan, formerly known as the Northern Areas, highly a mountainous area in comparison to Lahore. This study indicates the distribution of *T. rufonigra* from plane to mountainous areas in Pakistan. Main identification characters illustrated with micrographs, synonymy, distribution, measurements and habitats are given for further research.

**Keywords:** Distribution, *Tetraponera rufonigra* (Jerdon), Gilgit Baltistan, Pakistan

### Introduction

Ants are the most diverse group of insects with 12 500 identified species belonging to 307 genera throughout the world (Hölldobler and Wilson, 1990; Guénard, 2013). They play economic role in agriculture and considered as seed and nutrients harvester and also involved in pollination (Mueller et al., 2005). In pest management, ants also play role in biological control (Way and Kho, 1992). The individuals belonging to subfamily Pseudomyrmecinae (Myrmecinae: Formicidae) are thin bodied with large compound eyes (Ward, 2001). These individuals have been reported to be with twig nesting habits, occupying dead stems and branches of many kinds of plants, usually living in cavities previously excavated by coleopterans or lepidopterans immatures (Ward, 1991). The individuals of genus *Tetraponera* live in rotten wood (Bingham, 1903). According to Ward (1990) mostly members of this genus are arboreal, live in mutualistic associations with particular plant species by making cavities as their nest. In this way, they use plants as living places and in return provide plants protection against other herbivores. Most species feed solely on

sweet exudates of pseudococcids (Buschinger et al., 1994). Their associations with various enterobacterium have been evaluated to be group specific and long-term (Stoll et al., 2007). Van Borm et al. (2002) determined that some *Tetraponera* sp. have host nitrogen-fixing endosymbiotic bacteria performing the same function as those found in root nodules of legumes, which are proposed to fix nitrogen for their hosts. These associations of this genus attracted various scientists to study their interactions with plants, their defensive chemistry and gut analysis etc.

About 110 species belonging to genus *Tetraponera* have been reported throughout the world (Ward, 1990; Bolton, 1995). Various scientists have recorded different species of the genus from various parts of the world like Indo-Australian region (Ward, 2001), India (Bharti and Akbar, 2014), China (Zhenghui and Zhengqun, 2004), Taiwan (Terayama, 2009), Afrotropical region (Ward, 2006, 2009), Pakistan (Bodlah et al., 2016), Europe (Dlussky, 2009) etc. *Tetraponera rufonigra* has been reported from various parts of the world like Afrotropical region (Ward, 2006) Malaysia (Norasmah et al., 2012) and Thailand



(Potiwat and Sitcharungsi, 2015) including in neighbouring countries like India (Gosh et al., 2005) China (Guénard and Dunn, 2012) and In Pakistan, it was first reported from district Lahore. Here we report it for the first time from Gilgit-Baltistan (Pakistan).

## Materials and Methods

A survey was conducted during 2016 (September) from Gilgit Baltistan (Pakistan). Ant specimens were collected from trees and ground surface during net sweeping. Ants were also collected with the help of mouth aspirator. Identification of collected specimen were done under labomed microscope, micrographs were prepared with the help of Nikon SMZ 1500 stereoscope. Identified ant specimens were mounted on triangular card and also preserved in 75% ethyl alcohol. All observed specimen were deposited in Laboratory of Biosystematics, Department of Entomology, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Pakistan.

## Results and Discussion

### ***Tetraponera rufonigra* (Jerdon) Fig.1 (a-d)**

1851 : *Ection rugunigrum* Jerdon, *Madras j. Lit . Sci.*, 17: 111 (female worker)

1903 : *Simarufonigra*, Bingham , *Fauna Brit. india. Hymenoptera*, 2; 108

1921: *Sima (sima) rufonigra* , *Bmery , Genera insect .*, 174 A : 23,

1943 : *Sima rufonigra* Donishthorpe, *Ann . Mag .Nat. Hist*, (11) 10;

1951: *Tetraponera (Tetraponera) rufonigra*, *Chapman and capoo, Monogr Inst, Sci, Tech., Manila (Check List Ants Asia)*, 1 : 81,

1994: *Tetraponera (Tetraponera) rufonigra*, *Tiwari et al., state Fauna series3: Fauna of west Bengal*, part 8: 252.

### **Identification characters:**

Head, abdomen, legs and post petiole blackish in colour and remaining parts of the body of light red to

deep dark reddish in colour. Mandibles with five or six teeth. Thorax is not smooth and consists white pubescent. Head is slightly longer than broad and with rounded occiput. Abdomen polished and little punctured. ♀ are similar to ♂ but larger in size (Bingham, 1903).

### **Coloration:**

Head and abdomen black, thorax and first node of pedicle orange- red in colour; legs blackish, stained with orange- red ; clypeus and antennae yellowish red in colour.

### **Measurements (mm) worker:**

Head length.1.9 mm, head width.1.7 mm, Scape length. 1.0 mm, Eye length and width 0.5mm and 0.4 mm, Pronotum width. 0.5 mm, Thorax length 4.2 mm, Petiole length.1.3 mm, Petiole hight.0.9 mm, Post petiole length. 1.2 mm, Post petiole width. 0.8 mm.

### **Distribution:**

India, China, Pakistan, Afro topical region and Taiwan.

### **Habitat:**

Collected from forest trees with the help of sweep net.

### **Material Examined:**

vi ♂, Forest area, Naltar village, 15.09.2016, leg. Imran Bodlah; ii ♂, vegetation, Gizzar, 25.9.2016 leg. Muhammad Tariq Rasheed; ix ♀, Tree trunk, Rama village, Munir Ahmad.

### **Comments:**

The specimens collected were compared with published description (Bingham, 1903) and found to be similar.

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**Fig.1:** External morphology of *Tetraponera rufonigra* (Jerdon)

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