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## Introduction

Information on the ant fauna of Qatar, and more generally its insect fauna is very limited. There are few published studies described the insect fauna in the country (Pittaway, 1979; Abdu and Shaumar, 1985; Abushama, 1997; 1999; 2006; Soldati, 2009; Lush, 2009 and Kardousha, 2015; 2016). However, Qatar ants fauna has been poorly investigated, so far only six species of Formicidae (ants) belonging to five genera have been recorded from Qatar; *Brachyponera sennaarensis* (Mayr, 1862), *Camponotus maculatus* (Fabricius, 1782), *Cataglyphis niger* (André, 1881), *Monomorium tumaire* (Collingwood and Agosti, 1996), *Trichomyrmex destructor* (Jerdon, 1851) and *T. mayri* (Forel, 1902) (Abdu and Shaumar, 1985; Abushama, 1997; Lush, 2009; Wetterer, 2013 and Sharaf et al., 2016), which revealed the huge gap and information shortage regarding our knowledge of the ant fauna of Qatar. Therefore, the purpose of this study is to report for the first time on the ant fauna of Qatar by describing Qatari ant fauna using morphological taxonomy, differentiating between native and invasive ant species in Qatar and establishing a database of Qatar ant species that can be useful for future studies as well as biodiversity monitoring.

## Methodology

### Study Area

The State of Qatar is a small peninsula which located in the northeast part of the Arabian Peninsula (Fig.1). It is classified as a subtropical desert with a very extreme harsh climatic conditions in summer and mild winter. The present study was conducted from April 2015 to June 2019 and ant specimens were collected from different locations (Fig.1).

Specimens examined for this study were deposited in the following institutions:

**MHNG** Muséum d' Histoire Naturelle, (Forel Collection), Geneva, Switzerland.

**NHMB** Naturhistorisches Museum, (Snatschi Collection), Basel, Switzerland.

**NHMBE** Naturhistorisches Museum, (Agosti Collection), Bern, Switzerland.

### Ant sampling

All Ant specimens were collected using Pitfall traps, aspirators, litter sifting or hand collecting.

### Ant Imaging /Illustrations

Specimens were photographed at the Natural History Museum of Bern (NHMB), Bern, Switzerland, using a VHX Digital Microscope Keyence.

## Results

Most of the collected ants were new records for the state of Qatar. 51 species belonging to 21 genera of five subfamilies; **Dolichoderinae**, **Formicinae**, **Myrmicinae** and **Ponerinae** all belonging to one single family Formicidae of order Hymenoptera are reported from Qatar.

In the present study 45 species are newly recorded for the ant fauna of the state of Qatar (Fig.2) and by including the present records, the total number of ant species from Qatar has increased to 51 species. Among the identified genera, 16 were recorded for the first time in Qatar. Further, among the identified subfamilies, one additional subfamily recorded for the first time in Qatar; Dolichoderinae.

## Results



Figure 2. Representative of newly recorded species from Qatar. 1,2 *Tapinoma melanocephalum* Fabricius, (1) head in full view. (2) body in profile. 3,4 *Tapinoma simrothi* Krausse, (3) head in full view. (4) body in profile. 5,6 *Camponotus thoracicus* Fabricius, (5) head in full view. (6) body in profile. 7,8 *Cataglyphis livida* André, (7) head in full view. (8) body in profile. 9,10 *Cardiocondyla emeryi* Forel, (9) head in full view. (10) body in profile. 11,12 *Crematogaster antaris* Forel, (11) head in full view. (12) body in profile. 13,14 *Pheidole indica* Mayr, major worker (13) head in full view. (14) body in profile. 15,16 *Pheidole indica* Mayr, minor worker (15) head in full view. (16) body in profile. 17,18 *Trichomyrmex lameerei* Forel, (17) head in full view. (18) body in profile. 19, 20 *Tetramorium* sp. Mayr, (19) head in full view. (20) body in profile. (Photographs by S. AlHajri)

## Conclusion

Up to this study, only six species of ants belonging to five genera from Qatar (Abdu and Shaumar, 1985; Abushama, 1997 and Lush, 2009 ; Wetterer, 2013 and Sharaf et al., 2016). In the present study, 45 species are newly recorded for the ant fauna of the state of Qatar. By including the present records, the total number of ant species from Qatar has increased to 51 species, including one additional subfamily, 16 additional genera. This study is the first specific survey of Qatar's ant fauna. Further investigations are needed to complete the fauna and make ants a tool for monitoring changes in biodiversity.

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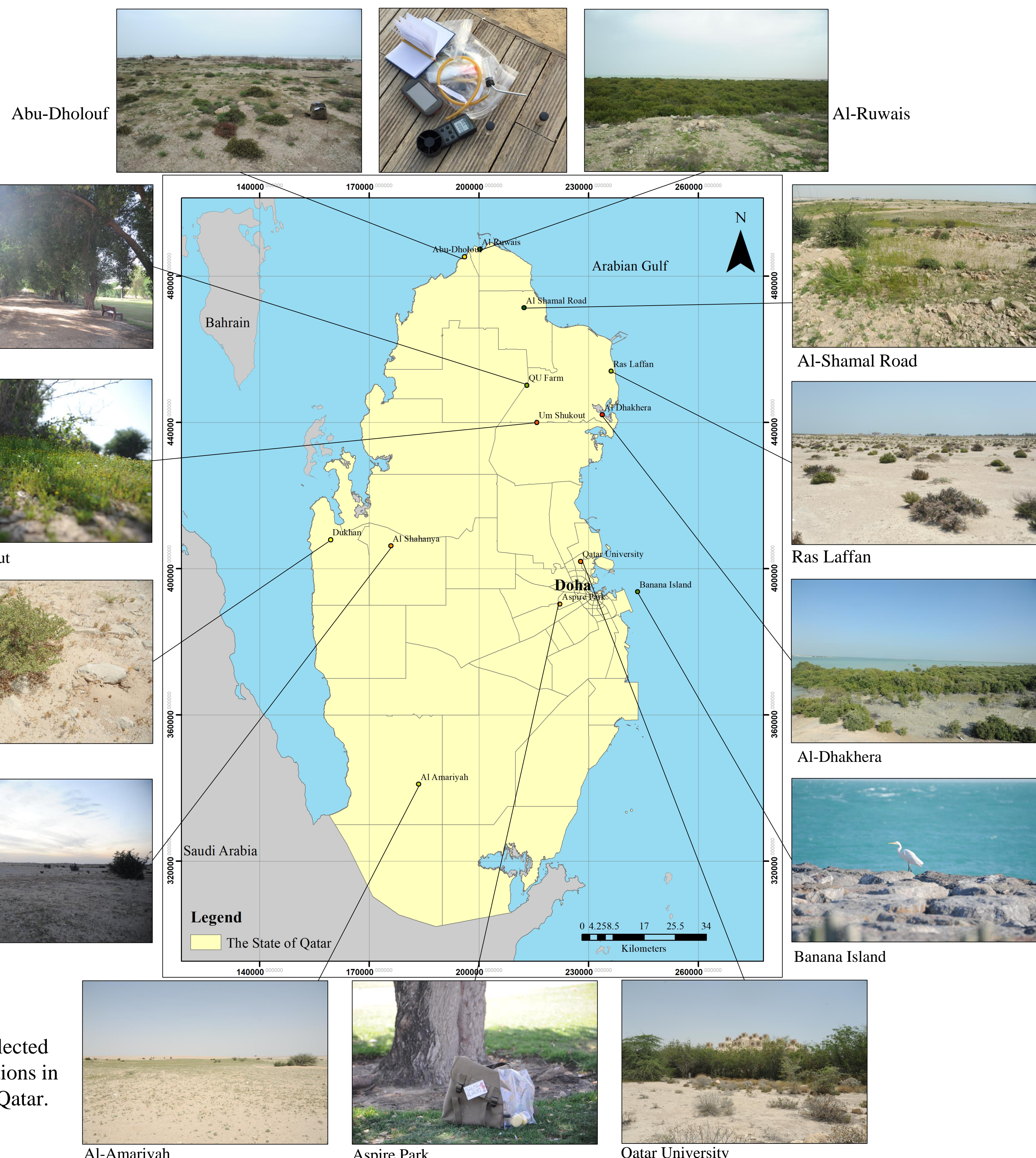


Figure 1. Selected sample locations in the State of Qatar.