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Article

A survey of bees (Hymenoptera: Apoidea) from Fars Province, Iran

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Abstract

We report 177 bee species from the Fars Province, Iran, of which 91 are new records for Iran, including seven undescribed species. Among the material examined are 56 species of Apidae, 49 of Halictidae, 39 of Megachilidae, 31 of Andrenidae, 1 of Melittidae and 1 of Colletidae. All specimens are deposited in the Museum of Iranian Pollinating Insects of Yasouj University, Yasouj, Iran.

Key words: Apidae, Andrenidae, Colletidae, Halictidae, Megachilidae and Melittidae

Introduction

The superfamily Apoidea, bees, is well known mostly for their relationships with flowering plants (according to current usage Apoidea is a monophyletic group composed of both the sphecid wasps and the true bees called Apiformes or Anthophila, see Michener, 2007). Unlike other hymenopterans, bees specialize exclusively on vegetarian diets. Both immature bees and adults eat plant-derived pollen for protein and nectar for energy (Delapane & Mayer, 2000). Probably the most important activity of bees, in terms of human benefit, is their pollination of natural flowering vegetation, something that is rarely observed or appreciated by non-specialists (Michener, 2007). These pollinators provide an essential ecosystem service for the out-crossing and sexual reproduction of many plants. They benefit people by increasing food security, improving livelihoods, and by the role they play in conserving biological diversity in agricultural and natural ecosystems (Eardley *et al.* 2006).

Desertic and xeric scrub areas are rich in bee-pollinated plants. Preservation of this vegetation may be essential in preventing erosion and other problems, and in providing food and cover for wildlife (Pimentel, 2006, Michener, 2007, Zurbuchen *et al.* 2010). Conservation of many habitats therefore depends on the preservation of bee populations, for if the bees disappear, reproduction of major elements of the flora may be severely limited (Michener, 2007). Bees are the most important pollinators because particular bee species often specialize on particular plant species (Eardley *et al.* 2010). Even among the more generalist bee species, there are often strong feeding preferences.

Understanding the importance of wild bees as pollinators depends on knowledge of the diversity of bees (Michener, 2007). Among the different groups of bees there are a variety of different behaviors. Most species are solitary, although many are semi-social and some are eusocial. Whereas most collect pollen, some are social parasites (they replace the queen and use the host workers to raise their progeny), cleptoparasites (cuckoo bees, who lay their eggs on the host species larval provisions) or robbers (who steal pollen and honey from other bee's nests) (Eardley *et al*. 2010). Generally, understanding the taxonomy enables one to predict the behavior of the bee species (Eardley *et al*. 2010). Izadi (1996) collected bees from the northern part of Fars Province and recorded 6 families and 19 genera with 35 species. For our survey, we collected specimens from various parts of cities (counties, mountainous and plain area) across the entire region of Fars in order to document more of the bee fauna of the province. We have followed the classification of Michener (2007) here, except for those cases where new phylogenetic analyses were available (e.g., Praz *et al.* 2008).

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