

Bumblebee diversity and abundance in the Iranian Alborz Mountains

(Hymenoptera: Apidae)

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Abstract. In this survey, which extended from February to September of 2005 to 2007, bumblebee queens, workers and males were collected from five provinces in the north and northwest of Iran in the Central Alborz and Sabalan. In total, 26 species of bumblebees were collected and identified. Overall, 21 species were collected from the Sabalan while 16 species were collected from the Central Alborz Mountains. A list of species assemblages and abundance is provided for the various provinces in each of the mountain ranges. Although the number of specimens collected from the Central Alborz (867 specimens) was about three times higher than the Sabalan region (264 specimens), Sabalan had 80.7% and Alborz 61.5% of all species. Results from rarefaction analysis (species accumulation curves) indicated that the Sabalan and the Central Alborz Mountains do not differ in bumblebee diversity. Moreover, the two sample sites within the Sabalan Mountains do not differ in species diversity while in the Central Alborz Mountains samples sites indicate significant differences in species diversity. In this region, the Qazvin region had higher species diversity than the other regions. Most species of bumblebee were collected in altitudinal ranges of 1500-2500m.

Key words. Bumblebees, species assemblages, diversity, Sabalan, Central Alborz, Iran, Middle East.

Introduction

The species diversity and population densities of bumblebees have declined markedly in recent decades in European and American countries such as Belgium and France (RASMONT 1988), Germany (DONATH 1985), United Kingdom (WILLIAMS 1982, 1986, 1988, GOULSON 2003) and North America (THORP & SHEPHERD 2005, WINTER et al. 2006). Iran is a vast country with different climate regions. Forests and woodlands as well as mountainous regions along the Caspian Sea in the north, mountainous regions with gardens and farmlands in the west, a warm and wet climate in the south towards the Oman Sea and the Persian Gulf, and a band of desert and dry area that runs through central Iran all contain a very diverse flora and fauna. The few studies on the bumblebees of Iran show that at least 34 species are found in the Alborz, Sabalan and Zagros Mountains, which are the most important mountains in the north and northwest of Iran (MONFARED et al. 2007). We are interested in identifying declining bumblebee species in Iran. Moreover, there have been many changes in land use in recent decades, especially in the north and northwest of Iran where most of the bumblebee species live. A recent faunistic survey on bumblebees indicated that many bumblebee habitats within Iran have been modified by human impact or have even been replaced by land use types that are unfavorable to bumblebees (MONFARED et al. 2007).