

Flora Biodiversity in Hermon Mountain: Substantial Endemism

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ABSTRACT

This work is a continuation of our investigation on the flora biodiversity of the Lebanese side of Hermon Mountain. It presents a second inventory list of species and a first assessment of the narrow endemism rate. Major factors threatening the mountain flora was also evaluated. To date, the plants identified reached a total of 228 species distributed over 49 plant families. *Compositae* (28 sp.), *Labiatae* (26 sp.) and *Rosaceae* (13 sp.) formed the major shares. The rate of narrow endemism was around 11.4% confirming the importance of the mountain in terms of flora biodiversity richness. Clearing vegetation and woodlands for agriculture, urbanization and overgrazing caused by human expanding footprint were recorded as the main threats of the Mount flora. These data represent a baseline for more detailed studies of conservation status of identified endemics according to IUCN guidelines.



Figure 1. Study site, Mount Hermon-Lebanon

INTRODUCTION

As one of the key biodiversity areas in the Mediterranean basin, Lebanon is globally recognized to host high endemism rate among its rich terrestrial plant species. This high floristic diversity is threatened by accelerating economic development, mainly based on urbanization, overgrazing, and agricultural activities (1). Establishment of conservation priorities requires sound knowledge on the distribution of plant biodiversity, particularly in the Important Plant Areas of the country such as Mount Hermon (2) (Fig. 1). Forming a cluster of three spectacular summits of Anti-Lebanon range and spanning across the border between Syria and Lebanon reaching a height of 2840 meters above the Mediterranean Sea, Mount Hermon stands out as a rich source for floristic richness and valuable traditional practices (3). A recent first checklist of Mount Hermon flora has revealed the importance of the Mount as a rich source of flora and relevant traditional knowledge (4). This study presents the results of our continuing efforts to develop a deep understanding of the Mount flora biodiversity and threats as important tool for conservation planning, management and decision making.

MATERIALS AND METHODS

A field survey of all flora along the elevational gradients between 1100 m and 2420 m of Mount Hermon started during spring 2014. Plant specimens were collected during flowering or fructification stages and were identified using the determination keys of Mouterde (1966, 1970, 1983) (5). Nomenclature and plant family delimitation follows Euro+Med (2006-) (6) and Greuter et al. (1984, 1986, 1989, 2008) (7, 8), with family classification of APG III (Angiosperm Phylogeny Group 2009) given if deviating (9).

RESULTS AND DISCUSSION

This study, to date, identifies a total of 228 species of Hermon Flora distributed into 49 families. The families of *Compositae* (28 sp.), *Labiatae* (26 sp.) and *Rosaceae* (13 sp.) formed the major shares of identified species. In total, 26 species were classified as narrow endemics (Lebanon +Syria), (5,6). This indicates a high localized endemism among the Mount Hermon flora suggesting that a high proportion of the flora may have an inherent vulnerability to environmental perturbations due to having extremely restricted distribution and hence being susceptible to single catastrophic events triggering extinction (Fig. 2). Clearing vegetation and woodlands for agriculture, urbanization and overgrazing were recorded as the main threats of the Mount flora.



Acantholimon antilibanoticum Mouterde



Anthemis rascheyana Boiss.



Astragalus coluteoides Willd



Cirsium leucocephalum ssp. *hermonis* (Boiss.) Greuter



***Crepis robertioides* Boiss.**



***Ferula hermonis* Boiss.**



***Ferulago frigida* Boiss.**



***Galium incanum* ssp. *antilibanoticum* Ehrend.**



***Hypericum libanoticum* N. Robson**



***Minuartia labillardieri* Briquet**



***Papaver libanoticum* Boiss.**



***Phlomis brevilabris* Boiss.**



***Potentilla geranioides* Willd. ssp. *syriaca* (Boiss.) Soják**



***Rhamnus libanotica* Boiss.**



***Salvia rubifolia* Boiss.**



***Scorzonera libanotica* Boiss.**

Figure 2. Some Endemic plant species of Lebanon and Syria, Mount Hermon-Lebanon

CONCLUSION

This study provides an assessment of the context of narrow endemism in Hermon Mount flora and identifies a set of species of conservation potential. These data represent a baseline for more detailed studies of conservation status according to IUCN guidelines.

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