

# Floral Diversity in Palestine

By Mutaz Ali AlQutob



Four major features have shaped the floral diversity of Palestine: the country's location and topography, its rock and soil formations, its climate, and the impact of human beings. The human influence has been so powerful that it has actually changed some landscapes: during the countless years that human beings have roamed this area, they have collected and cultivated plants for food, cleared land for agriculture, domesticated grazing animals, selected and deified holy trees, and brought new plants into the country. The Israeli occupation forces have destroyed and uprooted countless Palestinian trees, plants, and farmlands. Israel is destroying Palestinian territories through deforestation and the expropriation and erosion of agricultural lands, as well as by seizing lands, harvests, and livestock. The occupation has separated Palestine into discrete territorial, geographical, and bio-geographical areas, which greatly impedes communication not only for humans but also for biodiversity – vegetal and animal – because the areas are all closed round by various systems of “segregation barriers,” most of which are erected in concrete and similar non-penetrable materials. This situation enormously influences the general state of biodiversity in Palestine due to the fact that biodiversity – to ensure self-preservation – must be diffused on as large a spatial scale as possible, and because biodiversity requires open spaces and large corridors through which to find vital as well permanent ecological and biogeographic favourable habitats. The isolation and fragmentation of the land, due to human careless construction and inconsiderate interventions, are a tremendous threat to the survival of biodiversity in Palestine.



Photo by Emile Ashrawi.



Um Rehan Forest, Jenin.

## Vegetation types in Palestine

According to the phytogeographical or phytoclimatic characteristics of the West Bank, botanists today divide the country's flora into seven distinct groups: 1) Mediterranean vegetation: the western slope and the semi-coastal plane in the West Bank. 2) Irano-Turanian, which is also found on the Asian steppes of the Syrian desert, in Iran, Anatolia, and the Gobi Desert. It is

the steppe vegetation after the western slope to the east. 3) Saharo-Arabian, which is also found in the Sahara, Sinai, and Arabian deserts. This vegetation is found in the southern West Bank and in areas close to the Jordan Valley. 4) Sudano-Zambesian, typical of Africa's subtropical savannas. Vegetation of this type is found in the Jordan Valley. 5) Euro-Siberian, which is found mainly in the wet habitats of Palestine. 6) Plants



Photo by Emile Ashrawi.

that grow in more than one of these regions. 7) Species from the Americas, Australia, and South Africa that have started growing in Palestine without human assistance.

### Forestland in Palestine

The West Bank contains approximately 260,000 dunams (26,000 hectares) of forested area, according to the forestry department of the Ministry of Agriculture. Of this, more than 195,000 dunams are natural forests, and just over 37,100 dunams are man-made forest areas. An additional 28,400 dunams are unplanted areas with forest potential. (Abed Rabboh, 1995).

In the southern-most areas (Hebron, Bethlehem, Jerusalem, Ramallah), the majority of the forested areas (about 20,000 of the 21,300 dunams) are mainly introduced coniferous (made up mostly of pine) and were planted either by the British, Jordanian, or Israeli occupying authorities. While not native, in many cases they often harbour significant wildlife and plant genetic resources. Historical and recent natural data indicate that these areas were probably naturally planted with tree species such as juniper, carob, and oak, as well as cultivated species such as olives and fruit trees. (Robinson,

1838; Guerin, 1852; Tristram, 1892). In many cases, there has now been a mixing of the various species in these areas, so that forested areas are often made up of both introduced coniferous and other species. While most these forested areas are in the district of Hebron, Ramallah also contains several important forested areas, including Im Safa, the oldest planted forest in the West Bank.

Very little forested area exists in Nablus, with most of it apparent on the outskirts of the city of Nablus itself. For the most part this area is introduced, though it is clear that, climatically, potential exists for development of forestry in the sub-district.

The Tulkarem and Jenin sub-districts make up the largest forested areas in the West Bank, making up more than 235,000 of the total 260,000 dunams of forest. Because the sub-districts are relatively less populated than the rest of the West Bank and receive relatively more rainfall, they tend to be more suited for naturally occurring forested areas (and indeed the large majority of forests in the north are natural). The forests tend to be diverse, composed of *Pinus halapensis*, *Pistacea* spp., *Ceratonia siliqua*, *Cupressus sempervirens*, and *Quercus* spp., among others.

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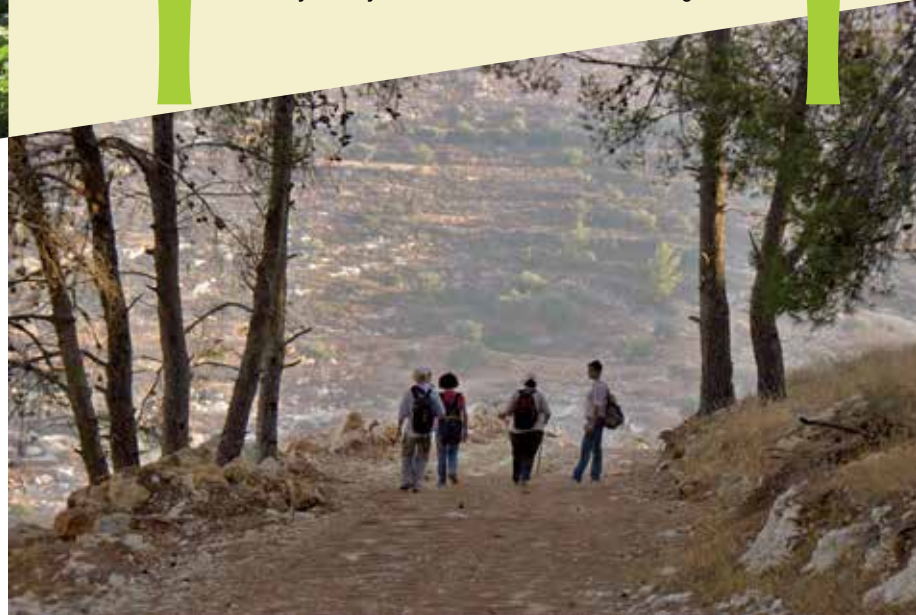


Photo by Emile Ashrawi.

Gaza is renowned for the severity of the population crisis. As a large percentage of Gazans are involved in agriculture for their livelihood, much of the land that is not directly inhabited is under cultivation. However, unoccupied and uncultivated land does exist (113,000 hectares, or 42 percent of the total land area) and is in need of revitalisation, or at least stabilisation. Access to much of this area is, in fact, restricted for security reasons. There is effectively no land that can be considered forest area in Gaza, in large part because of the climate and soil.

A literature search of flora and fauna in Palestine reveals that the study of floristic biodiversity here is least developed in the West Bank and Gaza. While *Flora Palaestina* (Zohary, 1966), indicates that approximately 2,500

species occur in the West Bank and Gaza, representing a high degree of biological diversity, little is known about the documentation of species chorology and distribution pattern. In the last 30 years great economic, industrial, urban, and political changes have taken place in the Palestinian territories. The influence of these on the status of biological diversity is imagined to have been destructive, especially in the sense that their geographical and habitat range have narrowed and in the sense that local populations are small, as many as 40 plant species are reported endangered and about 150 are known to be rare.

Attempts from the Palestinian side to study the plant biodiversity and to evaluate, in particular, species composition and distribution





*Thistle: common plant found in mountainous and semiarid habitats. Considered to be a biblical plant. Photo by Anton Khalilieh.*

in Palestine have been somewhat limited, making the identification of ecologically sensitive areas and the justification of these decisions challenging. Abu-Irmeileh (1988) highlighted the existence of poisonous plants in the region and evaluated important rangeland and garden plant species in the Palestinian-Jordanian environment. However, nothing is found in his account about chorological and distributional patterns. A significant portion of the available literature on plants in the region has been mainly devoted to the medicinal, agricultural, and cultural attributes, rather than viewing them from an ecological or scientific perspective (Najim, 1992; Juneidi, 1973, 1994).

Although some literature exists about the phyto-sociological and ecological importance of these species, little is known about their distribution in the Palestinian habitat (Danin, 1988), and thus the available knowledge on these taxa is still general, and accurate figures and maps are still required. Shmida and Darom (1992) found that the pool of genetic resources and vegetation biomass in Israel and the West Bank is declining. Therefore, it is now of utmost importance to undertake investigations on the ecological status of these species and figure out the appropriate means of conservation and management.

*Dr. Mutaz Ali AlQutob is an environmentalist, bio-geochemist, and poetry writer. He has published many scientific articles in international journals and has established a quality research laboratory at Al-Quds University. He is the author of two poetry books: The Last Picture of Majesty and A Letter from Majesty. He can be reached at [qutob@planet.edu](mailto:qutob@planet.edu).*

#### References

- W. Abed Rabboh, *Forestry and Rangeland Development in the Occupied Territories*, PEC DAR, Ramallah, West Bank, 1995.
- B. Abu-Irmeilah, *Poisonous Plants in the Jordanian Environment*, Jordan University, 1988.
- A. Danin, "Flora and Vegetation of Israel and Adjacent Areas," pp. 129–157, *The Zoogeography of Israel*, Junk, Dordrecht, 1988.
- J. Guerin, *Journee du Palestine*, Vol 1–5, Paris, 1852.
- Juneidi, *Natural Plants of Jordan and Their Ecological Distribution*, Amarzyan Publishing Co., Amman, 1973.
- Juneidi, *Wild Plants of Palestine and Their Medicinal Values*, International Engineering and Printing Company (IEC), Amman, 1994.
- Najim, *A Dictionary of Medicinal Plants*, 1992.
- R. Robinson, *Travel through the Holy Land*, New York, 1838.
- A. Shmida, D. Darom, *Handbook of Trees and Bushes of Israel*, Keter Publishing House Ltd., Jerusalem, 1992.
- J.A. Thomson, *Telopea* 9:755–760, 2002.
- C. Tristman, *The Natural History of Palestine*, Palestine Exploration Fund, 1892.
- M. Zohary, *Flora Palaestina*, Vols. 1 and 2, Israel Academy of Science and Humanities, Jerusalem, 1966.