THE FLORA OF ḤESBÂN

A Preliminary Report

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Environmental inquiries constitute an important activity in the cultural ecological analysis of the interrelationship of productive technology and the local environment at Ḥesbân (LaBianca 1976). Cumulative and systematic study of the flora at Ḥesbân can ultimately reveal information about (1) the prevailing soil and climatic conditions; (2) the nature of the local botanical association and the floral climax; and (3) the kinds of stress that the local human and animal population place on the natural environment—such as that produced by overgrazing, soil depletion, and deforestation. An understanding of the present environment is also crucial for reconstructing the history of the natural environment at Ḥesbân as well as for assessing its future potential (see for example Zohary 1962:iii). This report of the procedures employed in studying plant specimens, and on the identification and uses of the 34 specimens studied, illustrates the kinds of information yielded by flora studies to date and suggests directions for future research.

Phytogeography

The nature of the plant community in an area is closely related to its soil types and conditions. Around Ḥesbân the soils consist of terra rossa and light colored rendzina (Zohary 1962:8-9; Feinbrun and Zohary 1955:7-9). The terra rossa soil, which is the most characteristic soil of Mediterranean Palestine, is a fertile calcareous soil. Having been produced by the weathering of limestones and dolomites formed in early geological periods, terra rossa soil has a 15-30% calcium carbonate content and a high silt and clay content (Zohary 1962:11). The rendzina soils, also

derived from the weathering of calcareous formations, are gray to grayish white. Since these rendzina soils are even better for agriculture than the terra rossa soils they have been used more; thus they show the effects of man and erosion more and their characteristic vegetation has been destroyed to a greater extent (Zohary 1962:11).

The climate around Ḥesbân is generally classified as Mediterranean, with mild, rainy winters and hot, dry summers. However, since the precipitation is from 300 to 400 mm. annually from November to March, the area has the characteristics of both Mediterranean (750 to 350 mm.) and Irano-Turanian (350 to 150 mm.) climatic variations (Feinbrun and Zohary 1955:12).

The phytogeographical areas (areas which are defined by the distribution of species of flora over the landscape, and by their relationships to each other and their physical environment) follow the soil and rainfall patterns of the region (Feinbrun and Zohary 1955; Zohary 1962; Eig 1933:472). Since the rainfall pattern in the Ḥesbân area is not singularly representative of either the Mediterranean or Irano-Turanian climates, the vegetation of Ḥesbân should not be exclusively representative of either region.

It has the Mediterranean batha and garigue characteristics (of low and dwarf evergreen shrubs) combined with the typical dense coverage of Irano-Turanian dwarf shrubs and herbs. There is no forest climax (Feinbrun and Zohary 1955:14).

The Origin and Nature of the Materials

The specimens described in this report were collected in an attempt to study the present-day flora of the Ḥesbân region. They were gathered during the first week of August 1974 from within the area of the village of Ḥesbân, Tell Ḥesbân, and the donkey trail which runs parallel to Wadi Ḥesbân beginning at Ḥesbân and ending at ʿAin Ḥesbân (about five miles).

Since the specimens were gathered by persons untrained in field botany, they had to be studied independent of the standard scientific apparatus of the field botanist. For example, no records

were kept of which plants were found in association with each other; what soil conditions and exposure to heat and sunlight were present; or which specimens were gathered in areas near dwellings, cultivated fields, ditches, roadsides, pasturage, etc. It is also impossible to tell how complete or representative the samples are. The roots were not included in any samples, nor were the plants properly mounted or preserved. It is possible that some flower parts were separated from their diagnostic leaves, and some species were probably past their flowering stage, in which case the fruits would have been needed to expedite identification.

Yet, despite the unsatisfactory samples and sampling process, the specimens collected have resulted in initiating an inquiry into the botanical environs of the Ḥesbân region. In this respect, they have served a useful purpose.

Methodology

Most of the specimens had been stored in plastic bags for almost one year. However, a few of the samples had been pressed between paper in the field to preserve their form. In order to facilitate identification, each specimen was drawn on a file card with as much attention to detail as possible. This was sometimes difficult, since the leaves and flowers in some cases were badly desiccated and curled, making them very fragile and difficult to handle.

All samples were taken to the Gray Herbarium at Harvard University where they were fumigated and identified (as accurately as the remains allowed) by Dr. Peter Stevens, who enlisted the advice of Dr. Uzi Plitmann, a more experienced authority on the flora of the Palestinian region. Without this initial identification, the remainder of the work would have been impossible.

Once the samples were identified, general and specific literature was consulted to determine the common English and Arabic names, as well as general and local uses that might be known

for each specimen. Identification was assisted by the basic sources on Palestinian flora by Boissier (1867-1888), Feinbrun and Zohary (1955), Löw (1926), Post (1932), and Zohary (1972). Common English names were derived from Polunin (1969), Feinbrun-Dothan (1960), and Post (1932). Arabic names were supplied by Boulos (1966) and Post (1932) as well as by local informants. Some uses were gotten from *Sturtevant's Edible Plants of the World* and Zohary (1962).

The Flora of Ḥesbân (see Table 4)

Although ethnographic inquiries in the village of Ḥesbân are needed to establish the exact uses of these specimens in that village, some preliminary information about the common uses of many of them will help raise questions for specific inquiry.

Many of the 34 species listed are useful to man. Wheat, chick-pea, lentil, and in some cases fig, are cultivated as food for man and animals. Lady's thistle, blue eryngo, and centaury are found in the wild, and their leaves and shoots are consumed raw in salads or cooked as greens. Blackberries are also collected and eaten. The leaves of the aromatic, herbaceous mint are boiled to make a fragrant tea. Honey is produced mainly from the species included in the daisy family (Compositae)—especially centaury—as well as the blossoms of plants in the rose family, such as the blackberry and burnet (Zohary 1962:216).

Many of these wild flora also have medicinal uses (Zohary 1962: 216). Extracts from the leaves and fruits of lady's thistle, turnsole, peganum, horsetail knotweed, oleander, and eryngo may be employed medicinally. The fruits of the fig are used as a laxative, and when roasted may be applied as poultices for wounds.

Other uses are found for some of the grasses and reeds. Wheat may be used as a basis for starch making and distillation, as well as for straw for mats, wrappers, and thatching (Polunin 1969: 530). The flat leaves of the reedmace and common reed may also be used in making mats. A woody specimen, thorny burnet, is used as fuel in lime kilns. The white milky juice of the oleander,

which is poisonous to man, may be used as an insecticide or rat poison.

Conclusions

1. The flora collected at Ḥesbân indicate the regional soil and climatic conditions. The thorny burnet (*Poterium spinosum* L.), which is the most characteristic plant of the calcareous terra rossa soils, is found in conjunction with species which exist in conditions of temperature and rainfall diagnostic of both the Eastern Mediterranean and Irano-Turanian regions.

2. The nature of the local botanical association and floral climax is deduced from inspection of the species list. Thorny burnet and common ballota along with their associated species (alkanet, blue eryngo, and centaury) are the principal elements of batha and garigue, an Eastern Mediterranean botanical association. Species of tamarisk, thistle, and centaury represent the Irano-Turanian element. Pigweed, horsetail knotweed, and lady's thistle are bi- or pluri-regional species (i.e. characteristic of more than one phytogeographical region). Instances where regional associations of plants overlap indicate an encroachment by the Irano-Turanian species into the Eastern Mediterranean landscape (Zohary 1962:50).

3. The presence of the Mediterranean batha and garigue is an indication of environmental stress. Its range was at one time more limited than it is now. Since we can assume that the gross climatic conditions of the area have not changed appreciably in the last 10,000 years, we must look to other elements such as man to account for the present distributions of flora. The batha and garigue plant communities are considered either stages in the progression toward more wooded elements or retrogression toward complete bareness. In the case of retrogression, this community of plants is especially important in preventing soil erosion in the hilly areas. The wanton destruction of woody plants (e.g. thorny burnet which is used for fuel) and overgrazing by animals has caused serious erosion problems and resulted in man-made deserts in Jordan today (Mountfort 1964). This has been the

case in much of the Mediterranean area in the past as well (Hughes 1975) and perhaps may be considered a problem of both the past and the present in the vicinity of Ḥesbân.

Table 4. List of Ḥesbân Flora
(17 Families, 34 Species)

LATIN NAME	ENGLISH NAME	ARABIC NAME
Amaranthaceae		
Amaranthus graecizans L.	Tumbleweed	
Amaranthus retroflexus L.	Pigweed, green amaranth	
Apocynaceae		
Nerium oleander L.	Oleander	*dilfah*
Boraginaceae		
Anchusa strigosa Labill.	Prickly anchusa, alkanet	*hamham*
Echium sp.	Bugloss	
Compositae		
Genus unknown		*alk khel*
Centaurea iberica Trev. ex Spreng or *C. hyaloplepis* Boiss.	Centaury, star thistle	*shawk ud dardar*
Cirsium acarna (L.) Moench	Thistle	*shawk ul far*
Echinops sp.	Thistle	
Silybum marianum (L.) Gaertn.	Lady's thistle, holy thistle, milk thistle	*khurfaysh ul jimal*
Cyperaceae		
Cyperus longus L.	Sweet cypress, galingale	*se"ed*
Euphorbiaceae		
Chrozophora plicata (Vahl) A. Juss.	Plaited leaved croton	
Chrozophora tinctoria (L.) Juss.	Turnsole	*fakkus ul hamar, ghubayrah*
Euphorbia sp.	Spurge	*halablub, halib ul bum*
Gramineae		
Phragmites communis (L.) Trin.	Common reed	*ghab, bus*
Stipa capensis Thunb.	Twisted needle grass	
Triticum aestivum L.	Wheat, bread wheat	*hintal, kamh*
Labiatae		
Ballota undulata (Fresen) Bth.	Horehound, common ballota	
Mentha microphylla C. Koch/*M. incana* Willd.	Mint	*nah nah moye*

Leguminosae		
Cicer arietinum L.	Chick pea, Egyptian pea	*hummus*
Lens culinaris Medik.	Lentil	*'adas*
Melilotus dentata L.	Melilot	*handakuk*
Melilotus sp.	Melilot	
Moraceae		
Ficus carica L.	Fig	*tīn*
Polygonaceae		
Polygonum equisetiforme Sib. + Sm.	Horsetail knotweed	*kuddab*
Rosaceae		
(Sarco) Poterium spinosum (L.) sp.	Thorny burnet	*billan*
Rubus sp.	Bramble	
Rubus sanguineus Frivaldsk	Holy bramble, blackberry	*al lig*
Solanaceae		
Capsicum sp.	Pepper	*fel fel*
Solanum sp.	Cherry (?) tomato	*bandura haye*
Tamaricaceae		
Tamarix sp.	Tamarisk	*tarfah*
Typhaceae		
Typha angustifolia L.	Lesser reedmace, narrow leaved cattail	*halfa*
Umbelliferae		
Eryngium creticum Lam.	Syrian eryngium, blue eryngo	*shawk ul 'arkabani, kurs 'anni*
Zygophyllaceae		
Peganum harmala (L.)	Common peganum	*harmal, ghalkat ud dib*

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