NATURAL VEGETATION OF ABU DHABI EMIRATE

M. Ihsanur Rahman Khan

Introduction. Abu Dhabi Emirate with the rest of the United Arab Emirates being situated in the dry warm sub-tropical latitudes of the northern hemisphere is not bestowed naturally with the lush green vegetation common to the wetter and more moist regions of the world. Inspite of the natural extreme aridity and desert conditions prevailing in Abu Dhabi, the Emirate is not completely devoid of natural plant life. Certain areas like the 'Sabkha' (salty flats) or extremely arid and moving sand dunes may have no worthwhile plant life but varied and specialized type of plant life does exist in some cases in small patches and in other cases in fairly extensive areas of the Emirate. In fact in the pre-oil period natural vegetation was a major source of livelihood of the nomadic tribal people who lead a pastoral life and their chief occupation then was rearing of livestock. It also provided fuelwood, charcoal and some timber.

As in the rest of the world the natural tree growth and vegetation has been over exploited and over-used in the Emirate because of the growing pressure of population in the past few centuries. This pressure is mounting gradually at a much faster rate now. Before considering the need of conservation, development and rational utilization of the natural vegetation resources of Abu Dhabi, we might at this stage review the state and extent of the existing natural vegetation. An account of the major natural vegetation types of Abu Dhabi as seen today is briefly stated in the following paragraphs.

Mangrove Vegetation. Starting from the gulf and going into the interior of the desert we first come across the mangrove vegetation which occurs along sheltered localities of the coastline and around some coastal islands. A very rough estimate of the area under the mangrove vegetation in Abu Dhabi Emirate made during 1978 by a United Nations Development Programme Mission was 2500 hectares. The dominant species of this type is 'Ghuram' *(Avicennia marina).* Because of the very high salt content of the gulf waters which has around 50,000 parts per million of total dissolved salts and extremely arid sub-tropical environment, 'Ghuram' is the only mangrove species found in this type. It is perhaps the toughest of the known about fifty mangrove species in the world and is best adapted to the gulf waters. On higher ground which is just outside the reach of the high tide and wave action, are found salt bushes like *Salicornia, Suaeda* and *Halopeplis.* Along with the 'Ghuram' they provide browse to the camels. 'Ghuram' also provides leaf fodder, fuelwood and small timber for fishing net posts.

The author is Forestry expert in Abu Dhabi, UAE.

All mangrove forests of Abu Dhabi and especially the more accessible ones have been over exploited and some have even disappeared because of the past excessive exploitation. It would be advisable to make an inventory of all the mangrove forests of the Emirate and prepare suitable management plans for their conservation, development and proper utilization. It is an important natural resource and must not be allowed to further degrade, disappear and become extinct ultimately.

'Haad' Range Lands. Moving from the coast to the interior after leaving the barren salty plains ('Sabkha'), one comes across sporadic patches of salt loving and salt tolerant species such as *Suaeda*, *Salsola*, and *Halopeplis*. Beyond this *Halophytic* formations, one comes across fairly vast undulating low sandy plains occupied by 'Haad' *(Cornulaca spp.)* intermixed with 'Harm' *(Zygophyllum spp.)*, *Sueeda*, and grasses like 'Thamam' *(Panicum turgidum)* which can be seen along Abu Dhabi road and Abu Dhabi-Sila road. They are natural grazing grounds which have been over-used and not properly managed. Their survey, demarcation and development and preparation of suitable management plans are necessary for their conservation and perpetual management. They are an important renewable natural resource of Abu Dhabi and should be given due attention.

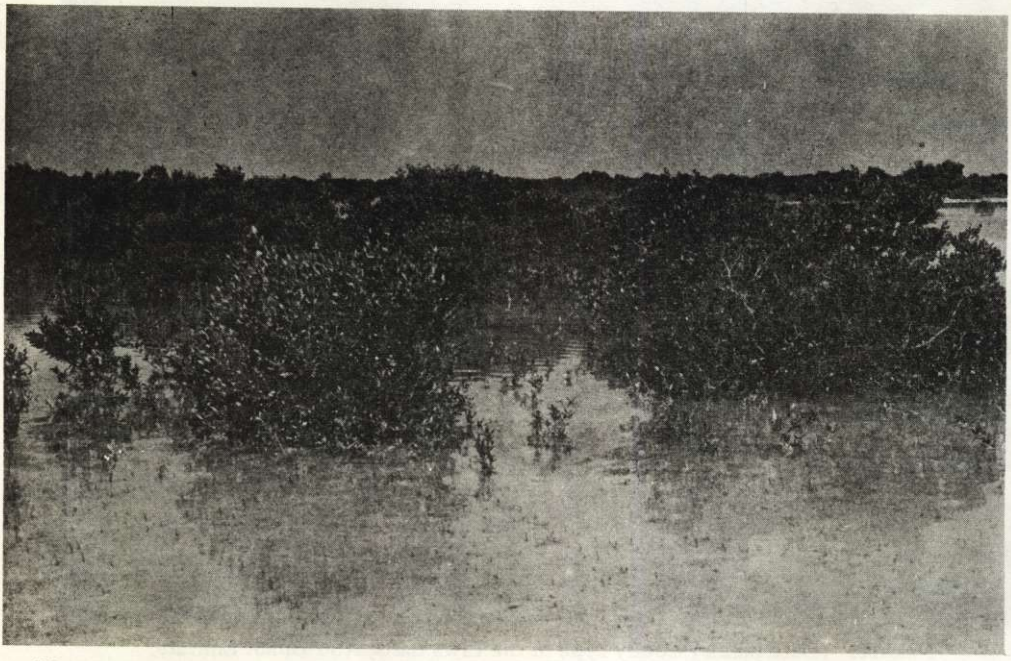
'Ghada' Woody Areas. Next to the 'Haad' ranges, sizeable areas of fairly high grey sand dune country have a dominant population of 'Ghada' *(Haloxylon persicum)*. 'Ghada' is a tall woody bush which provides browse to animals and small wood to the local inhabitants. The species is, however, an indicator of highly brackish underground water. There is an intermixture of salt bushes like *Suaeda*, *Salsola*, *Zygophyllum* to be found with 'Ghada' in many places. Towards the southern boundary of the 'Ghada' areas, an admixture of 'Rims' *(Hammada elegans-Haloxylon salicornicum)* starts appearing till it changes completely into undulating 'Rims' range lands where the most dominant and common species is 'Rims'. They are the premier range lands of Abu Dhabi.

'Rims' Range Lands. Areas of considerable size and extent in the interior of Abu Dhabi can be classified as 'Rims' *(Hammada elegans)* range lands. They have been grazed from times immemorial by the nomadic tribes who led a pastoral life during historical times. Chunks of these lands have also been afforested with arid zone species irrigated by drip irrigation system by utilizing the underground water. These enclosed plantations of tree species have shown remarkable recovery of natural vegetation species such as 'Rims', *Cyperus*, *Panicum* and other bushes and grasses. They have also been interplanted in between the tree species with *Aitriplex*, *'Arta' (Calligonum comosum)*, *'Markh' (Laptadenia pyrotechnica) etc.* These plantations have also provided feed and refuge to the indigenous wildlife which have reappeared and are increasing in numbers.

The ground water in the 'Rims' range areas is of relatively good quality and tree plantations raised in these areas have done fairly well. Range development works have also since been started in these ranges in the Bainunah area of

"Nakheel" (Date palms) woody type in the Liwa oasis, Abu Dhabi Emirate.
Photo: Author

"Ghada" *(Haloxylon persicum)* woody area along Dhafra road, Abu Dhabi Emirate.
Photo: Author



Mangrove forest of "Guram" *(Avicennia marina)* near the Sadiyat island, east of Abu Dhabi.
Photo: Author

The coastal mangrove forest near Abu Dhabi, Salt bushes are prominent on high land in the foreground.
Photo: Author

Abu Dhabi. About 25000 hectares of range lands have been enclosed in blocks and range conservation and development operations have been started in them recently. More of range development and management projects may be taken up in the vast 'Rims' range lands in the future.

'Arta' Woody Areas. It is another natural vegetation type of considerable importance in fairly high sand dune country where the dominant species is 'Arta' *Calligonum comosum).* It is intermixed with other browse species like 'Rims', *Cyperus, Tribulus, Panicum, Pennisetum* and other grasses. This vegetational type provides good browsing and grazing and also produces some fuelwood yielded by older 'Arta' bushes. 'Arta' is also an indicator of fairly good quality underground water. Some plantations with arid zone species on drip irrigation system fed by ground water have also been raised in 'Arta' areas which are fairly successful. In the enclosed plantation areas there is a remarkable recovery of the local plant and animal life

It would be desirable to enclose some of the 'Arta' areas and develop them into good quality range lands. They seem to have considerable scope for range improvement and development. There is a good deal of ephemeral growth of annual plant species after occasional rainy showers which occur in these areas.

Natural 'Ghaf' and 'Samar' Woody Type. This woody type consisting of 'Ghaf' *(Prosopis spicigera)* and 'Samar' *(Acacia tortilis)* tree species is confined to relatively more favourable localities especially in the Eastern region of Abu Dhabi where both soil and climatic conditions are better than in the other parts of the Emirate. Unfortunately, this type has been over cut and over exploited in the past. Only a few remnants of this type are now surviving. It has been noticed that 'Samar' is generally confined to heavy soils in valley flats and 'Ghaf' is known to grow even on low sand dunes.

It is necessary to protect these areas and let them develop into good stands. They are naturally suitable for growing these species. Some artificial plantations of these species have also been raised recently in the vicinity of these areas. The well grown tree stands in these areas would be a good source of good quality seed for afforestation purposes.

'Nakheel' (Date palms). The date palm was grown and cultivated mostly in the cases at Al Ain and Liwa in the past. It is now a naturalized plant species in Abu Dhabi and can be grown all over the Emirate if arrangements can be made to irrigate it or if it can tap the underground water after establishing itself. The date palm can tolerate brackish water with high salinity with TDS upto 10,000 PPM. Its requirements of water are, however at least double if not more than those of the arid zone tree species.

The cultivation of date palm besides the above mentioned cases has been now extended to many other places through out the Emirate. Ground water of

adequate quality is obtained by making shallow or deep wells to irrigate the date plantations. A good many date plantations and date gardens have been raised both in the private and the public sector in the last few years. Economically date palm is the most valuable plant and deserves greater attention for its future propagation. Numerous varieties of date palms both imported and local need to be studied and compared. Varietal trials with dates may be carried out. Experiments to study the water requirements, keeping the water quality in view, and trials regarding manurial and cultural practices may also be laid out. Suitable control methods to deal with diseases and pests of the date palm also need to be studied. A liaison should be established with the FAO Palm & Dates Research Centre Alwiyah, Baghdad.

Conclusion. To conclude it may be stated that well considered and adequate steps should be taken to conserve and develop the existing limited natural vegetation resources of the Emirate. This would supplement the great deal of effort being made to re-afforest artificially large chunks of land in Abu Dhabi. The conservation and management of the mangrove forest should be given high priority.

There are vast, historical areas of range lands in the Bainunah, Al Dhafra and Al Khatum tracts of the Emirate. Work for range development has been started in the Bainunah area recently and may be extended to other range areas in Al Dhafra and Al Khatum regions.

All vegetational resources are renewable and if properly worked and managed would last for all times to come. Therefore suitable management plans for utilizing them on a perpetual basis may be developed and executed by a technical service and suitably trained manpower.