

The Oman Botanic Garden – an iconic new garden for the Arabian Peninsula

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Introduction

The Sultanate of Oman has committed to establishing the Oman Botanic Garden to celebrate Oman's rich plant heritage, to ensure that the flora of Oman is valued by all and to promote the conservation and wise management of this diverse and valuable resource. The Sultanate has a remarkable wild flora of over 1200 species of plant, including a significant number that are unique to the Sultanate. In the past, plants have played a major role in the country's economy and have helped to shelter and sustain man.

"Here in Oman we still have, among our people of ancient lineage, a great store of knowledge about medicinal and economic uses for a wide range of our wild plants. For some years now we have wished to record as much as possible of this useful knowledge and to preserve the plants upon which it is based, before either or both disappear. In some parts of the world this has already happened in the wake of uncaring socio-economic advancement and agricultural and industrial development. We, in Oman, are trying to direct the development of our natural resources towards their rational use for the quality of life and education of our people. Thus we hope that the plants and the knowledge about their usefulness will remain with us" From His Majesty, Sultan Qaboos bin Said's forward to Plants of Dhofar (1988).

Following a survey in 2005 to locate a suitable site the Oman Botanic Garden was legally established in January 2006 (Royal Decree 6/06) and is currently in the stage of detailed design.

Oman-The Country

Oman lies on the flank of the great belt of arid deserts that stretches from western Africa to China. However, Oman has a favourable position along the eastern seaboard of the Arabian Peninsula, with its shoreline stretching for over 1,800 kilometres from the Arabian Gulf to the Arabian Sea. In over ten degrees of latitude and mostly within the tropics, it bridges much of the gap between the huge landmasses of Asia and Africa. The geography of Oman is dominated in the north by arid limestone mountains reaching 3000 m asl and in the south by the Dhofar mountain chain that for three months of the year benefit from the moisture-laden mists of the cool south west monsoon. Between these ranges are the hyper-arid gravel deserts and sand seas of interior Oman.

Consequently most of Oman's 1200 plant species and many of its 79 endemics occur the southern region (Patzelt, in prep.). The principal habitats, and those that will form the basis of the botanic garden, are as follows:-

- Northern Mountains, Foothills and Plains
- Desert Plateaux, Escarpments and Plains
- Sand Deserts and Sabkha
- Southern Mountains, Foothills and Plains

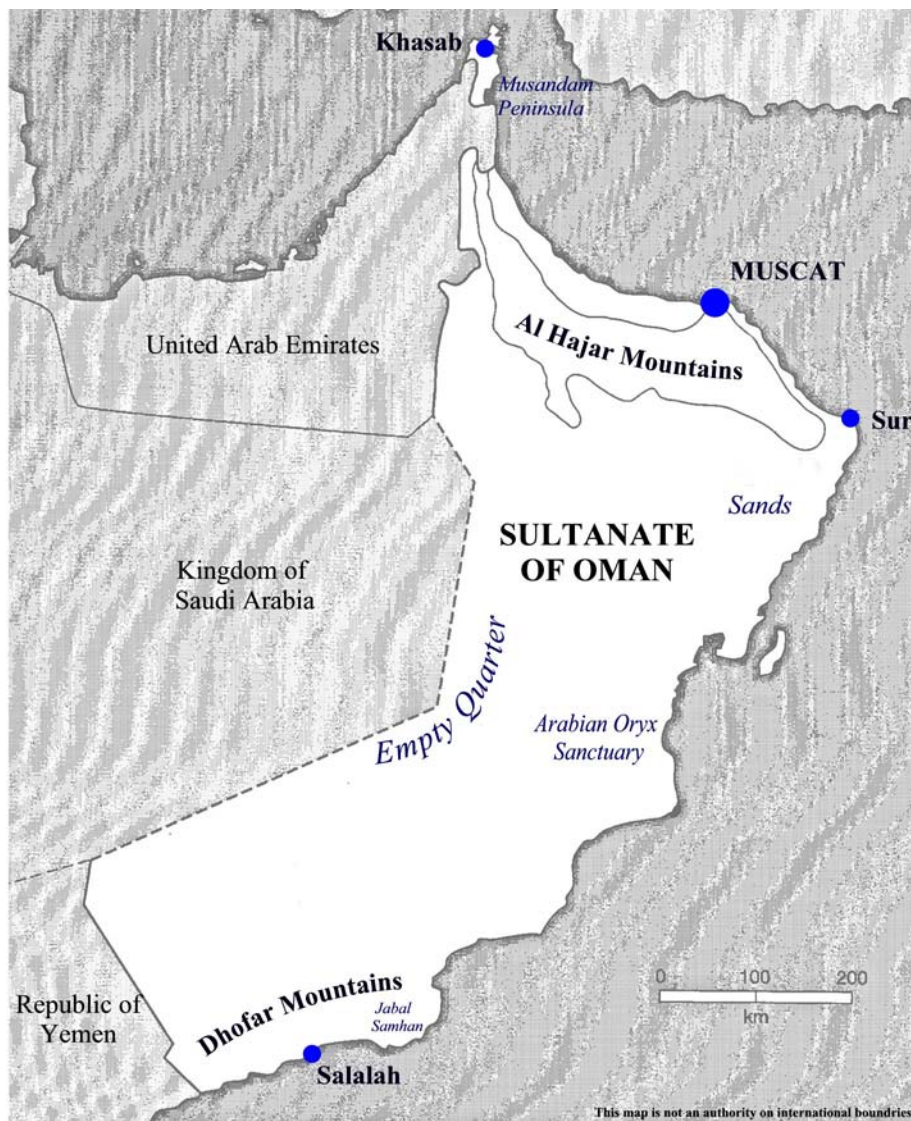


Figure 1 – The Sultanate of Oman

The Aim

The aim of the Garden is to become an ambitious combination of world-class botanic conservation and research facility and major educational and leisure destination.

As such it will:

- Be developed in line with the 1992 Convention of Biological Diversity, with special reference to the Global Strategy for Plant Conservation, as well as the International Agenda for Botanic Gardens in Conservation.
- Establish and maintain a documented living collection of native Omani plants reflecting the different regions and natural habitats
- Provide accompanying strong and unique messages on which to base interpretation.

- Feature the role of plants in agriculture and traditional agricultural systems.
- Become a fully integrated environmental education centre promoting knowledge and awareness of plants.
- Provide an enjoyable experience and opportunities to learn about Oman's natural and cultural botanic heritage.
- Operate as model of sustainability in techniques of construction, maintenance and use of scarce resources.
- Ensure that neighbouring villages and communities benefit from the Garden.

The Site

The site encompasses an area of 423 hectares and is located within greater Muscat. The site is enclosed on three sides by low hills and dissected by shallow dry riverbeds or wadis. The geology of the site is spectacular and is dominated by limestones, conglomerates and ophiolites. The village of Al Khod is just north east of the site.



Figure 2 – The site at Al Khod (Atkins 2006)

The Challenge

To create the conditions in which plants from all corners of Oman will flourish presents a significant challenge. On the one hand, the plants of Oman's sand deserts, plains and low mountains should, with a little irrigation and proper care and attention, grow well within the Garden site. On the other hand, the plants of the high mountains of northern Oman and the Dhofar "khareef" mountains are unlikely to survive if planted in the Garden site. If plants from all of Oman's climatic zones are to grow at the one site, a range of special climatic conditions (light, temperature, humidity, rainfall, fog, wind) will have to be created that allows each plant to thrive.

This Master Plan therefore proposes:

- A number of open-air habitat ‘galleries’ representing the main lowland habitats of Oman. They will be grouped and arranged to illustrate the botany of the geographic regions of Oman and set within the natural landscape to form a route or string of features between the building complexes.
- The construction of two very special “botanical enclosures”, large buildings made of glass and steel within which the climate and vegetation of the highest mountains of northern Oman and the green, “khareef” woodland and grasslands of Dhofar can be re-created.

Major Components

The Masterplan (Atkins 2006) has identified the following components:

- Access, Parking & Orientation. Close to the entrance to the site where visitors can park and prepare for their day.
- Field Study Centre, Research and Nursery. Outside the main garden the Study Centre and Garden shop will provide the ‘front of house’ behind which will be the Research building, main nursery and plant.
- Southern Mountains Foothills and Plains. Enclosed within a large biome provides the visitor with a monsoon experience.
- Desert Plateaux Escarpments and Plains. External exhibit of the flora of the gravel deserts and escarpments of central Oman.
- Sand Deserts and Sabkha. External exhibit with the flora of the sand seas of eastern and western Oman.
- Northern Mountains, Foothills and Plains. Ranging from no climate control for plants of the plains to full climate control within a specialised structure for the flora of more than 2000 m asl.
- Agricultural terraces. Demonstration of traditional agricultural practices and the important role of plants in traditional agriculture and medicine.
- Craft Area. Focusing on cultural botany and heritage it will have workshops, where plant-related handicrafts are made and sold. It will also be a busy, colourful and active area, hosting live displays and events, offering hands-on interactive learning.
- Wilderness Area. Left largely in its natural state but available for recreation, exploration and guided field visits.
- Oasis Village Hotel. Built as an interpretation of the traditional style and materials of Omani buildings and landscaped with indigenous plant material. It will provide high-quality accommodation and restaurant facilities and reinforce the cultural tourism of Oman.

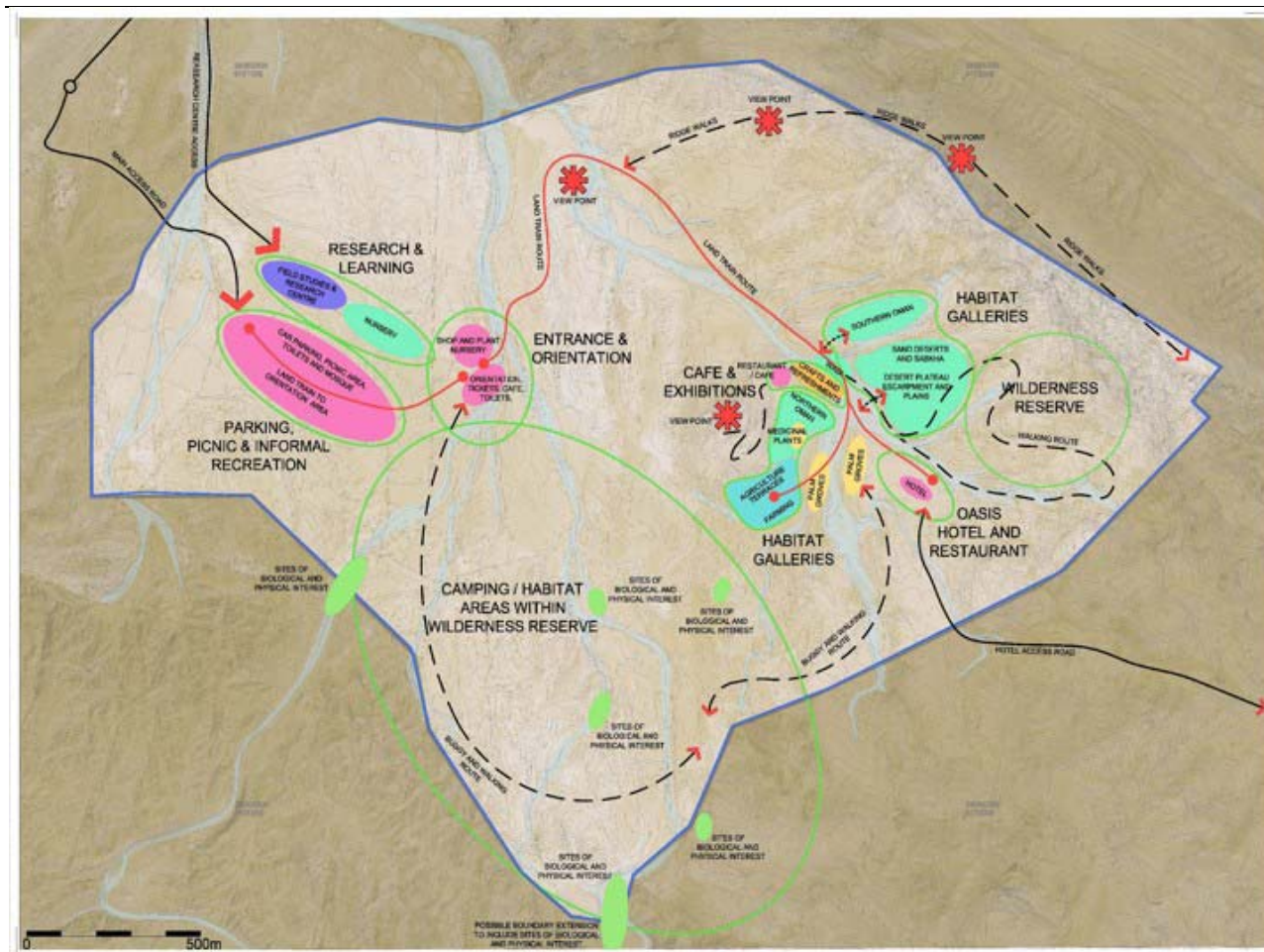


Figure 3 The Masterplan – Zones (Atkins 2006)

The Nursery

In order to have plants at the time of opening a nursery was established off-site at a commercial facility in February 2006. Starting from scratch the team has propagated 20,000 plants from 290 species and 65 families. This represents nearly 25% of Oman's plant species and about 6% of an estimated 300,000 plants required for the Garden. The team currently numbers 16 working as Botanical Experts (1), Botanical Specialists (2), Horticultural Specialist (3) and Assistant Horticulturalists (10).

The propagation of an estimated 300,000 plants requiring very different climatic conditions is a huge challenge. To help achieve this target the design of the Garden nursery has been brought forward and construction is currently out to tender. Thus the on-site nursery will be constructed before the detailed design phase of the Garden is completed.

The Team

- **Alatec SA & OBM International** has assembled a team of engineers, architects and botanists for detailed design. Key partners include Royal Botanic Gardens Edinburgh and the Fairchild Tropical Botanical Garden.
- **Barker, Barton & Lawton** (in association with Currie & Brown) are providing QS and cost management services.

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- **Botanic Gardens Conservation International** has played a key role since the start of the project and has been contracted as a consultant.
 - **Bovis Lend Lease**, one of the world's leading project management companies, was appointed at the start of the project.
 - **Royal Botanic Gardens Edinburgh**, independently of their role in Masterplanning and Design, have undertaken two supporting missions to the Sultanate, one for plant collection and one for training nursery staff.
 - **WS Atkins International** put together an outstanding team including Royal Botanic Gardens Edinburgh to produce the Masterplan and Business Plan.

References

- Atkins 2006, *Oman Botanic Reserve, Masterplan*, Volumes 1-4. Office of Adviser for Conservation of the Environment, Diwan of Royal Court, Sultanate of Oman.
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- Patzelt, (in prep), *Oman Plant Red Data Book*.