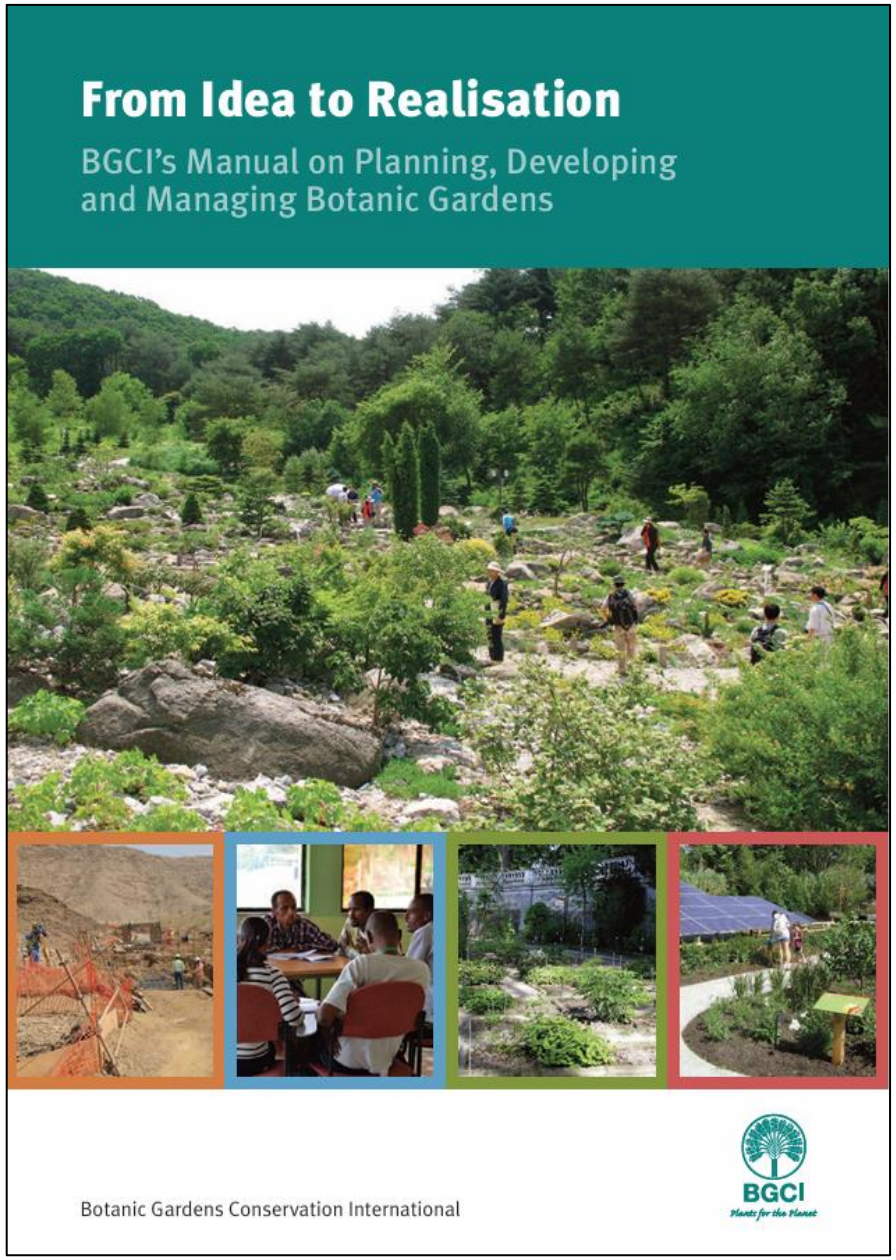
OVERSEAS TERRITORIES CONSERVATION.UK CHWG

Top Tips for Nursery Design

Leigh Morris, Chair, UKOTCF CHWG (20 May 2026)



6.5 PLANT PROPAGATION AND PRODUCTION – THE NURSERY

KEY MESSAGE

All botanic gardens will need plant production facilities. These do not have to be large, complex or expensive but should be compatible with the collection policy, budget and staff resources. Planning prior to construction and regular review once established will assist in the creation of effective facilities. Equally important is to have a functional plant records management system in place at propagation and production stages.

Nursery facilities at the Oman Botanic Garden (shade house) (top) and Pha Tad Ke Botanic Garden respectively. (Images: Leigh Morris)

CASE STUDY 6.3

A comparison of nursery requirements for two different botanic gardens

Leigh Morris, Edinburgh, United Kingdom

This case study compares and illustrates the nursery requirements and facilities at two distinctly different, new botanic gardens, in terms of their scale, ambition and finances. The Oman Botanic Garden, in the Sultanate of Oman, involves major government funding and a large team of Omanis and international experts, consultants and contractors. It aspires to provide world-class facilities, collections and other visitor attractions with high impact on native plant and biodiversity conservation at large. Pha Tad Ke, conversely, is a small, privately owned botanic garden situated on the bank of the Mekong River near Luang Prabang in northern Laos. Both botanic gardens require nursery and propagation facilities, however, their needs, specifications, resources and budgets are very different.

The Oman Botanic Garden aims to represent all of the diverse habitats of Oman and grow the majority of the approximately 1,407 Omani flowering plant species based on wild-sourced material. The target production of some 250,000 plants (excluding plant material directly sown in the botanic garden's ground) required a large, state-of-the-art nursery, with the capability of producing plants from different habitats, ranging from high mountains to sand deserts in climate-controlled environments (Patzelt *et al.*, 2008 and 2009; Morris, 2011). The nursery contains environmentally controlled and zoned areas including a propagation and two large production glasshouses, a number of large polythene greenhouses, a large expanse of shade houses and an outdoor growing space as well as a nursery building with offices, potting, propagation, seed bank and storage facilities. The nursery was built by an international firm and the majority of the materials, tools and equipment were imported from overseas.

Far smaller in size, Pha Tad Ke Botanic Garden aims to grow and showcase only plants from similar climatic regions in Laos and southeast Asia. Plant propagation and production is carried out at a small scale and nursery facilities consist of benches and shade-houses constructed with local bamboo. Equally, the tools, equipment and materials are locally sourced, including the potting medium which is made from Mekong River sand, elephant dung, coconut bark and rice husk.

In conclusion, the propagation and production facilities of both botanic gardens are very different. The Oman Botanic Garden has an expansive and appropriately 'hi-tech' nursery capable of efficiently growing very large numbers of plants. It is working towards a clearly defined production list and targets and is comparable with a large scale commercial grower. Pha Tad Ke Botanic Garden, on the other hand, has a suitably 'low-tech', small scale nursery, using locally sourced materials and built to support the horticulture operations of the botanic garden, without fully prescriptive production targets. Importantly however, the respective facilities fulfil their functions very well whilst their differences highlight the diversity of nurseries based on the mission and objectives of the botanic garden.

www.bgci.org/resources/bgci-tools-and-resources/bgcis-manual-on-planning-developing-and-managing-botanic-gardens/

Production Plan – what do you need?

- Is a nursery actually required? Can production be carried out elsewhere?
- What plants will you grow? What types of propagation methods will be used?
- What equipment and growing facilities are required?
- How many and what sizes of plants will be grown? How much space do you need?
- What scale of production is needed in the short-term for growing the initial plantings?
- Long-term for maintaining the collections, sale or planting off-site?
- Will production be in containers (pots) or field-grown (soil)?

Nursery Design: *Weeding, Watering and Moving Stuff!*

OVERSEAS TERRITORIES
CONSERVATION.UK
CHWG

Potting and Propagation Shed:

Can be separate facilities, but same building will serve both functions.

The central work area:

- Benches to work on - easily kept clean.
- Equipment and materials storage
- Staff comfort: Ventilation, heater, shading, water, electricity etc.
- Growing media (i.e. compost) mixing and storage area.....

Composting:

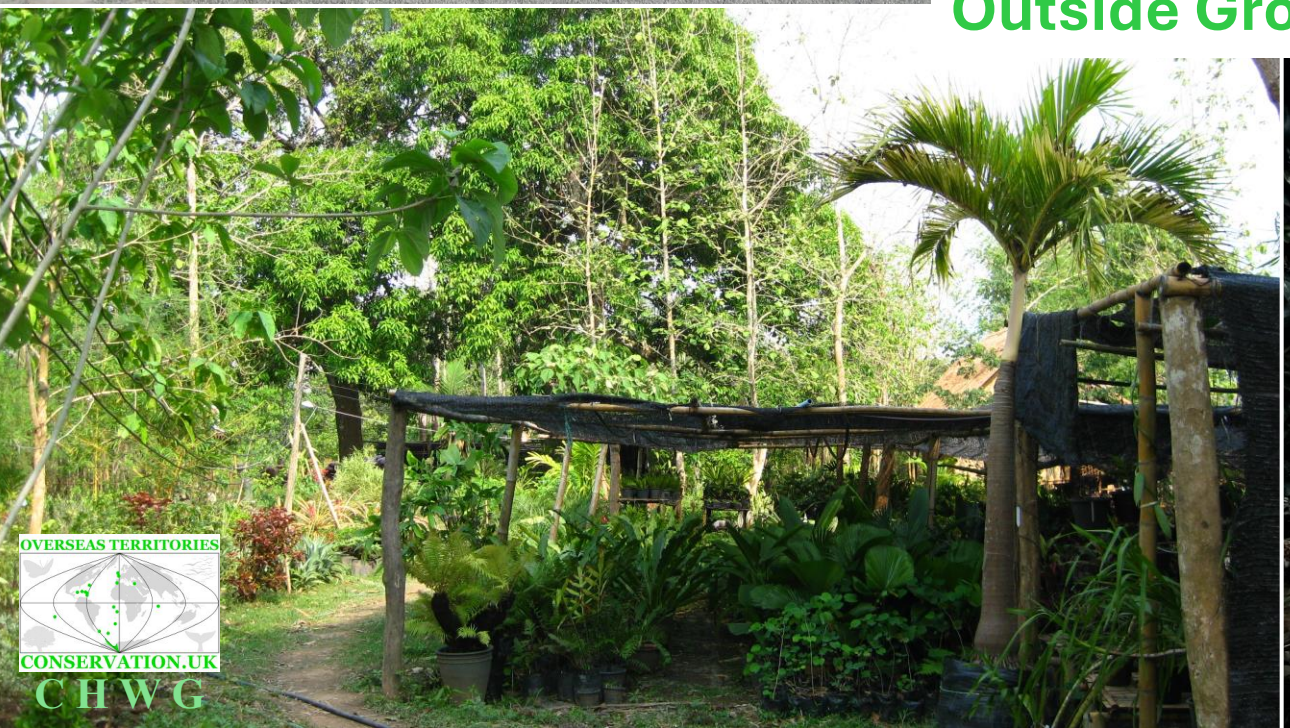

Compost
New-Zealand Flax and other Invasive plants are being used to make growing media for the native plants in this nursery
Rare native species are planted back in the open spaces where flax were removed. This process effectively convert invasive vegetation into native habitat.
The natives are excellent at creating top quality soil and capturing moisture from the mist. The peaty soils act as a sponge capable of storing vast quantities of water, providing a steady stream of clear water seeping from springs around the island.
This essential conservation restoration work helps us to secure a sustainable future.
Batch no.....
Start Date.....


VOLVO
VOLVO


OVERSEAS TERRITORIES
CONSERVATION.UK
CHWG

Propagation Facilities

Outside Growing Areas



OVERSEAS TERRITORIES
CONSERVATION.UK
CHWG

Greenhouses and Growing Rooms

OVERSEAS TERRITORIES
CONSERVATION.UK
CHWG

Public Engagement and Education:

- Will you have groups visiting and/or deliver training?

- A practical classroom and other areas kept for educational purposes could be useful within the nursery.

OMAN BOTANIC GARDEN
حديقة النباتات والأشجار العُمانية

ພ່າ ຕັ໋ ແກ້

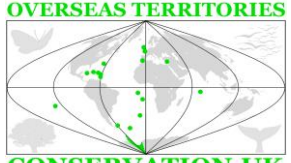
Pha Tad Kê Botanical Garden, Laos

OVERSEAS TERRITORIES CONSERVATION.UK C H W G

Remember; Plan what do you need!

- Is a nursery actually required?
- If so, what type and size?
- What plants will you grow?
- What types of propagation?
- What equipment/facilities are required?
- How many plants? How much space?

OVERSEAS TERRITORIES



CONSERVATION.UK

C H W G

Thank You