

Two Australian Propagators on Assignment in Oman

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Abstract

The authors report on two trips to the Sultanate of Oman to assist with horticultural projects. The first trip (November 2015) focused on assisting the management and staff of the Oman Botanic Garden on issues

of seed propagation, propagation mixes, and nursery practice. The second trip (May 2018) focused on advising on requirements for propagation of wetland species at the Bauer Nimr nursery.

PROJECT 1: OMAN BOTANIC GARDEN NURSERY

The Sultanate of Oman has commenced a long-term project to develop a world class facility to display the plants of Oman and the Arabian Peninsula and to document, conserve, and research the ethnobotany of the region. It is proposed that the garden area cover 420 hectares and showcase the plants in their climatic settings via large temperature- and humidity-controlled biome domes, as well as display traditional Omani horticulture, such as date groves and Aflaj irrigation systems.

Through an IPPS Melbourne, Australia conference, the authors met two visiting propagators from the Oman Botanic Garden

(OBG) nursery, which is situated approximately 20 km from Muscat. After the Melbourne conference, the Oman team travelled to Perth and visited Natural Area Nursery and other venues.

The authors then travelled to Oman in November 2015 to assist OBG management and staff with issues regarding seed management, germination, propagation mixes, and nursery processes. Also, a trip to the mountains and the OBG satellite altitude nursery (Jebel Al Akhdhar) was undertaken and seed and propagation material was collected.

The OBG nursery has produced over 100,000 plants and 350 varieties. Many of large plants (in containers of sizes up to 3,000 litres) have been prepared for installation in the OBG complex when established. The nursery covers 30,000 square metres and has large, air-conditioned propagation houses and a herbarium that holds the largest documented collection of Arabian plants in the world.

Hancock & Molloy have maintained regular contact with the team at OBG and made a short, follow-up visit in May 2018.

PROJECT 2: BAUER NUMR, OMAN NURSERY PROJECT

In May 2018, Bauer Nimr LLC, a subsidiary of the German engineering and environmental consultancy Bauer Resources, appointed Perth Plant Propagation Pty. Ltd. (via its Director and consultant David Hancock and sub-consultant Dermot Molloy) to provide advice on the strategy and operational requirements for propagation of up to 800,000 wetland plants at the Nimr nursery in the Sultanate of Oman for supply by April 2019. The Nimr oilfield in Oman produces 9 litres of water for every litre of oil extracted. Following extraction of the oil from the oil water mix, past practice was for the oily water to be returned to a deep aquifer by pressure pumping to as deep as 1.5 km. This process incurred substantial energy use. Bauer Resources entered into arrangements with Petroleum Development Oman to treat and purify the oil-laden water via a constructed wetland. Bauer subsequently

established the largest constructed wetland in the world and daily treats 110,000 cubic metres of oil-contaminated water per day and thereafter passes the water into evaporation ponds.

The success of the wetland purification system has led to a new project for an additional 250 hectares of wetland to absorb additional water and oil from expansion of the Nimr oilfield. The plan for the new wetland involves plant species not previously propagated before in Oman, and the Nimr nursery was not equipped to grow the necessary species from seed.

The requirements of the plant production, being on a large scale and a short timeframe with no nursery to speak of at commencement, was a significant challenge. Given that this plant supply was critical to the additional stage of the Nimr constructed wetland, the authors provided advice on plant propagation and on the planning and completion of upgrades to the existing nursery.

Critical success factors for the project were identified in a report and included:

1. Adequate seed and seed viability.
2. Early provision of necessary equipment & infrastructure.
3. Diligence in seeding and maintenance of seed trays.
4. Reliable power and water systems.
5. Experienced and capable nursery management.
6. Early detection and treatment of plant pathogens.