

# *shifting sands*

A MOBILE  
INTERACTIVE  
BIOPHILIC  
LANDSCAPE



THE UNIVERSITY OF  
WESTERN  
AUSTRALIA

School of Design





**This brochure outlines the main goals, symbolism, process of installation, material, plant species and maintenance operations of the *Shifting Sands* project on the ground of the University of Western Australia (UWA) Nedlands Campus.**

*Shifting Sands* is a 'Living Lab' aimed at encouraging communal and educational activities and experiences concerning both sustainable design and Perth's unique landscape. At the same time, *Shifting Sands* is a piece of art. It is a symbolic representation of geomorphology, soil and flora and their dynamic character. It is a full-of-life hub for students, staff and visitors who are interested in design, art, ecology and culture.

*Shifting Sands* is a tangible outcome of the project "Perth as a biophilic resilient city model in the time of climate change" granted by the UWA Faculty of Arts, Business, Law and Education Research Collaboration Award (2019–2020, grant recipient: Professor Maria Ignatieva). This landscape design and art installation is a miniature symbol of a biophilic city where we make visible the considerate integration of design principles with natural and ecological processes. A passerby will observe the daily, seasonal and annual changes of these dynamic landscapes. *Shifting Sands'* three 'pillars' are experimental design, sustainable management, and a future interactive art display. We hope that students sitting on the turf, observing the flora and smelling its aroma, will engage with this installation as a sanctuary for creative thinking.

### **Design principles**

The design principles include: sustainability (using recycled material and low water species), biodiversity (using native Western Australian plant species), aesthetics (nature/culture coexistence) and education (interactive living lab for students, staff and visitors).

During the initial discussions regarding the design of the symbolic biophilic art installation, Denis Wittwer came up with an idea of Pipescape - using recycled PVC pipes as the 'backbones' for the future composition. Each clustered formation represents a different landscape: (1) coastal sand dunes (2) sandy limestone and (3) the Darling Scarp ecosystems. Using recycled synthetic plastic polymer tubes is a reference to the urban landscape's dependence on underground pipes conveying

flows of water and energy. Used pipes were sourced to show their recyclable potential to become an interactive piece of art and a powerful educational tool – showing the complexities of nature/culture relations. The 'pipe beds' host different species of native vegetation complexes, presenting the beauty of native plants and their adaptation to local climate (low water species). Each landscape has a visual anchor – a large native tree.

Dr. Maria Ignatieva suggested the idea of using turf benches (made from three of the most representative turf species used in Perth) for sitting and resting, as she researches global lawns as a cultural and ecological phenomenon. Turf seats have been used since Medieval times and in our here case, they demonstrate the recreational importance of lawns in urban landscapes.



### Installation process

Pipes donated by BALDIVIS WATER Pumps• Irrigation• Pool were cut according to the design plan and joined to clusters with screws.



### Installation on the ground

Geotextile fabric was used on-site to protect against weeds. Pipe clusters were installed on geotextile, then filled with sand and growing soil mixture provided by The Green Life Soil Co. For the sitting lawn areas, sand with Lawn Starter Pack (slow-release soil fertiliser) was used.



### Planting

Native plants were provided by Benara Nurseries and Plantrite Wholesale Native Nursery. The big trees were donated by Ellenby Tree Farm. Greenacres Turf Group supplied three types of turf.





# Plant List

## COASTAL SAND DUNES

### Tree: *Melaleuca lanceolata*

*Scaevola* spp.  
*Leucophyta brownii*  
*Carpobrotus virescens*  
*Spinifex longifolius*  
*Westringia damperi*  
*Adenanthos cuneatus*  
*Dianella revoluta*  
*Eremophila glabra* compact  
*Callitris pressii*  
*Calothamnus quadrifidus* 'Pencil PBR'

### Interdunal

*Anigozanthos viridis* 'Green Machine'  
*Ficinia nodosa*  
*Lepidosperma longitudinale*  
*Lepidosperma gladiatum*



*Scaevola* spp.

## DARLING SCARP

### Tree: *Eucalyptus wandoo*

*Calothamnus hirsutus*  
*Verticordia chrysanthella*  
*Macrozamia riedlei*  
*Lechenaultia biloba* 'Dark Blue'  
*Isopogon* 'Candy Cones PBR'  
*Chorizema cordatum*  
*Alyogyne huegelii* 'West Coast Gem'  
*Calothamnus quadrifidus* 'Pencil PBR'  
*Ricinocarpos tuberculatus* 'Pencil PBR'  
*Boronia crenulata* 'Pink Passion'  
*Lechenaultia biloba* 'Dark Blue'  
*Verticordia chrysanthella*

### Turf seats:

*Cyonodon dactylon* 'Wintergreen'  
*Stenotaphrum secundatum* 'Palmetto'  
*Pennisetum clandestinum* 'Village Green'



*Lechenaultia biloba* 'Dark Blue'

## SANDY LIMESTONES

### Tree: *Banksia attenuata*

*Melaleuca incana nana*  
*Banksia blechnifolia*  
*Pimelea ferruginea* 'Magenta Mist'  
*Kennedia prostrata*  
*Kunzea baxteri* dwarf 'Mandy's Surprise' PBR  
*Banksia menziesii* dwarf  
*Patersonia occidentalis*  
*Ptilotus manglesii* 'Rosie'  
*Macropidia fuliginosa* 'Black Velvet PBR'  
*Acacia saligna* prostrate 'Green Mulch'



*Pimelea ferruginea* 'Magenta Mist'



The geomorphological character of three landscapes was reinforced by adding white sand, crushed limestones and red pea gravel to some pipes.

### Maintenance

All plants were watered quite extensively immediately after planting. However, future maintenance will require occasional watering of plants during the first summer period (December 2020-March 2021). Lawn pieces will need occasional trimming, fertilising and watering.

The experimental character of *Shifting Sands* will allow for monitoring the development of different species following the growth success and adjusting the appropriate and most sustainable maintenance operations.

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## **Plant material:**

Benara Nurseries  
Plantrite Wholesale Native Nursery  
Ellenby Tree Farm

**Turf:** Greenacres Turf Group

**Soil supply:** The Green Life Soil Co.

**Pipe supply:** BALDIVIS WATER.  
Pumps. Irrigation. Pool



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