

Design Resolution



The girls are playing wedding.

Tuliza got a white sheet from the toy library. It is Maria's veil. Four girls are the bridesmaids. They adorn their hair with sprigs white flowers from the False Olive. It smells like perfume. What can be the church? We use the house that the boys built next to the pergola, using flattened cardboard boxes. The fallen autumn leaves are confetti. The wedding disintegrates into a leaf fight where we throw handfuls of leaves to one

another, falling and rolling in the leaves. Maria hurts her arm while falling. When she has finished crying we decide she is dead and bury her under the leaves. She becomes a ghost and scares us all by suddenly jumping up from the dead and chasing us. We run away and hide. The boys join us for a game of hide-andseek. There are many spaces to hide in the playground. My favourite is in the long thatching grass. When I sit far back the other children cannot see me from the pathway (although Aunty Emma can because she's tall). Sometimes we play we hunt elephants in the grass. Tommy's favourite hiding place is in the puzzle bush under the overhanging branches. Maria usually hides in the space between the three large rocks. When it becomes dinner-time, we all start leaving the playground. Aunty Daphne at the toy library asks us to bring back the white (now slightly dirty) sheet. She's a nice lady. She never screams at us or punish us. She allows us pretty much anything. I've only seen her angry once, when a group of boys bullied a smaller one. Fortunately she could get to them before they hurt the smaller boy. (Author, April 2011, based on real-life play behaviour as documented by Berry, 2001 and Wellhousen, 2002)

8.1 Masterplan

The masterplan is a culmination of all the research and design development. An explanation of each item on the master plan follows: (Refer to Figure 3.12 when reading nrs. 5-8).

- 1. Forest
- 2. Grassland
- Water features
- 4. Mountain and kick about area
- 5. 0-3 year old area
- 6. Toy library and building area
- 7. 3-6 year old area
- 8. 6-12 year old area
- 9. Climbing tower and kiosk
- 10. Tunnel
- 11. Lawned area
- 12. Waiting and gathering areas
- 13. Channel
- 14. Taxi waiting area
- 15. Shade pergolas





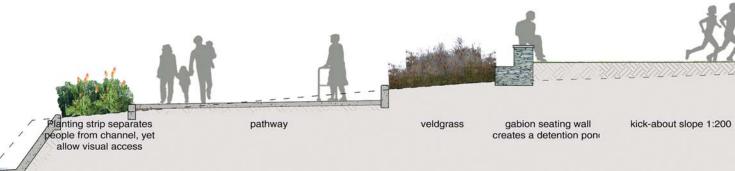
Illus. 8.2: Masterplan (Author, September 2011)





Section A-A 1:50

6-12 year old area



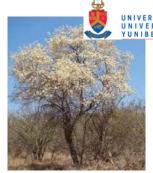




Illus. 8.5: Rhamnus prinoides (Venter, 1996: 77)



Illus. 8.6: Euclea crispa subsp. crispa (Joffe, 2007: 56)



Illus. 8.7: Dombeya rotundifolia (http://inheemsebome.co.za)



Illus. 8.8: Nuxia congesta (www.plantzafrica.com)



Illus. 8.9: Ehretia rigida (Venter, 1996: 173)





8.2 Bushveld Forest (nr. 1 on Illus. 8.2)

Trees were chosen for their upright growth and ability to grow well in dense stands, occurring naturally in the greater Pretoria area (see also page 65). The trees are closely spaced at about 1.2 m apart and the trunks are pruned clean up to a height of 1.5m. This creates an enclosed ambiance. In late winter when all else is dull the forest will be a fragrant cloud of white flowers with both Nuxia congesta and Dombeya rotundifolia in full bloom. Forests are places to hide away, to build dens in, to fight lions in or simply to pick berries.

Two grids placed at different angles were used to determine the placement of the trees. In order to prevent compaction around the tree roots, forest plants such as Cyrtomium falcatum and Protasparagus sp. are planted around the trees. Boulders placed between the trees slow

down the children and protects the groundcovers from being trampled. The river as well as a pathway runs through the forest, creating more complex play opportunities.



Illus. 8.11: Partial plan 1:500 of forest area (Author, September 2011)



Illus. 8.12: Blechnum australe (http:// sophy.u-3mrs.fr/Afrigsud/HI89.HTM)



Illus. 8.13: Asparagus asparagoides (http://luirig.altervista.org)



Illus. 8.14: Pteris vittata (Joffe, 2007: 309)



Illus. 8.15: Asplenium aethiopicum (http://pics.davesgarden.com)

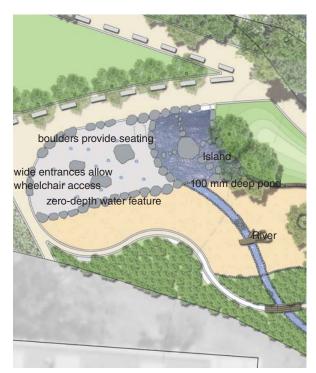
Forest	J	F	М	Α	М	J	J	Α	S	0	Ν	D
Ehretia rigida												
Euclea crispa												
Nuxia congesta												
Rhamnus prinoides												
Dombeya rotundifolia												

J	F	M	Α	M	J	J	Α	S	0	Ν	D

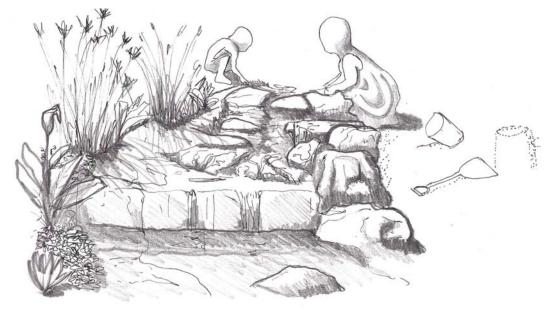
Left: Illus. 8.4: Vision for the bushveld forest area. (Author, July 2011)

Figure 8.1: Left: Flowering times of plants used. Right: Fruiting times of plants used (Author, August 2011, compiled from Joffe, 2007, and www.plantzafrica.com)





Illus. 8.16: River, pond and zero-depth water feature 1:200 (Author, October 2011)



Illus. 8.17: Perspective of children playing in river (Author & Breed, July 2011)

8.3 Water features (3)

8.3.1 Wetland, River and Island

Water is a central feature of the park. After being cleaned in the process described on page 62 (Illus. 7.6), water flows from the wetland by gravity into the site. It emerges in the Fountain and flows in the River (a stone channel) through the 6-12 year area, ending in a 100 mm deep pond with a large boulder inside suggesting an island. This water feature is situated close to the western entrance for extra surveillance. The river has a maximum depth of 50 mm and falls 78

over five cascades.

A zero-depth water feature with spout heads ranging from 0.4 m to 1.5 m provide safe water-play opportunities for toddlers and wheelchair users. The water for this feature is chlorinated and re-used. Some of the water from the River is stored for later irrigation use, with the rest being discharged back into the Spruit.

At the Costando building, the sound of bubbling and falling water create a restful atmosphere (see Illus. 9.17). Children can play in and with the water and are allowed to scoop it out for use elsewhere.

In the planting strip along the channel, typical riverine plants discourage people from accessing the channel yet allow visual contact. Plants used are: Kniphofia spp., Gunnera perpensa, Asparagus suaveolens, Indigofera hilaris and Crotalaria spp. (see page 88). Juncus effusus, Cyperus textilis and C. papyrus will provide whole year round foliage interest. For a detailed discussion on the mosaics in the channel, refer to chapter 6.





Illus. 8.18: Juncus effusus 'Spiralis' (www.honeysomeaquaticnursery.co.uk)



Illus. 8.19: Gomphostigma virgatum (www.plantzafrica.com)



Illus. 8.20: Gunnera perpensa (Joffe, 2007: 326)



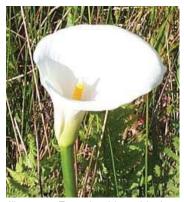
Illus. 8.21: Juncus effusus (www.wikipedia.org)



Illus. 8.22: Kniphofia ensifolia (www.plantzafrica.com)



Illus. 8.23: Kniphofia porphyrantha (Van Wyk & Malan, 1998: 155)



Illus. 8.24: Zantedeschia aethiopica (www.plantzafrica.com)



Illus. 8.25: Cyperus textilis (http://plantthis.com.au)



Illus. 8.26:Typha capensis (Joffe, 2007: 335)



Illus. 8.27: Cyperus papyrus (http://www.ozwatergardens.com.au)

Wetland	J	F	M	Α	M	J	J	Α	S	0	Ν	D
Gomphostigma virgatum												
Gunnera perpensa												
Kniphofia ensifolia												
Kniphofia porphyrantha												
Zantedeschia aethiopica												
Typha capensis												

Figure 8.2: Flowering times of wetland plants used. Note that Cyperus textilis, Cyperus papyrus and Juncus effesus were not included in this table as their flowers are inconspicuous. (Author, August 2011, compiled from Joffe, 2007 and www.plantzafria.com)





Then Kolokolo Bird said, with a mournful cry, 'Go to the banks of the great grey-green, greasy Limpopo River, all set about with fever trees, and find out.' (From the Elephant's Child; Kipling, 1912: 65)

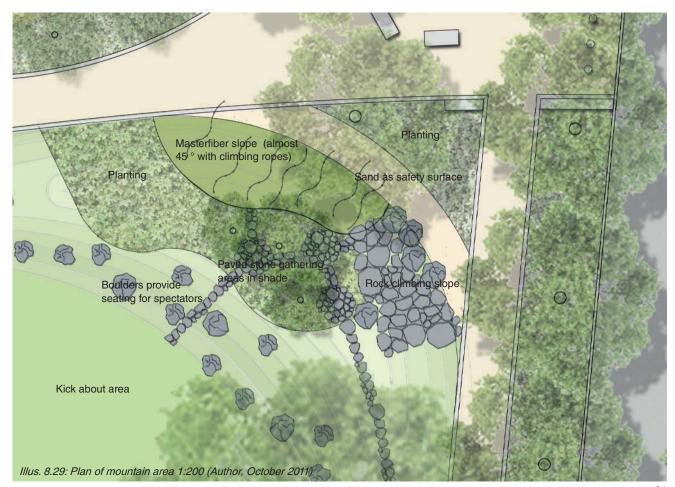
Illus. 8.28: Pond (maximum 100 mm deep) at the end of the river, with large boulders that create an island with pathways leading to it. (Author, October 2011)



8.4 Mountain and kick about (4)

During the course of the research in Sunnyside, it became apparent that there is a great need for children and adults for open space to play soccer. A kick about was therefore incorporated into the park. Due to the small size and irregular shape, adult players are discouraged to use the kick about for more serious matches and are in this way prevented from taking over the park. It has a grass surface and can be used for other purposes such as picnicking or performances.

The large boulders on the Mountain area on the north side of the kick about area, as well as the gabion retaining wall around the south edge provide seating for spectators. The Mountain is 3 m high and has plants typically found on rocky ridges in and around Pretoria. A rock climbing slope and a Masterfiber slope with climbing ropes provide challenging climbing options, with a vantage point over much of the park from the top.







Illus. 8.31: Burkea africana (Author, August 2011)



Illus. 8.32: Helichrysum kraussi (Author, August 2011)



Illus. 8.33: Cussonia spicata (http://www.panoramio.com)



Illus. 8.34: Englerophytum magalismontanum (www.fruitipedia.com)



Illus. 8.35: Fadogia homblei (www. http://www.ais.up.ac.za)



Illus. 8.36: Xerophyta retinervis (Van Wyk & Malan, 1998: 91)



Illus. 8.37: Ancylobotrys capensis (www.plantzafrica.com)



Illus. 8.38: Digitaria eriantha (Van Oudtshoorn, 2002: 226)



Illus. 8.39: Setaria sphacelata var. sphacelata (Van Oudtshoorn, 2002: 90)



Illus. 8.40: Loudetia simplex (Van Oudtshoorn, 2002:133)

Mountain	J	F	М	Α	М	J	J	Α	S	0	N	D	J	F	M	Α	М	J	J	Α	S	0	Ν	D
Ancylobotrys capensis																								
Burkea africana																								
Englerophytum magalismonatum																								
Fadogia homblei																								
Helichrysum kraussi																								
Xerophyta retinervis																								

Figure 8.3: Flowering (left) and fruiting (right) periods of plants used in the mountain area. (Author, August 2011, compiled from Van Wyk & Malan, 1998, and www.plantzafrica.com)



8.5 Age specific areas (5, 6, 7, & 8)

The archetypes are reproduced on a smaller scale in the 0-3 and 3-6 year old areas. All of the following areas except the 6-12 year old area contain plants from the mixed bushveld community. It should be noted that although the park is zoned into different areas, children of any age will be able to use any area. However, due to the design, they will be more inclined to use a certain area appropriate to their age (see pages 23, 24 and 61). The staff at the toy library and the kiosk will also be able to intervene, if, for example, a group of 10 year olds play in a way that the 3-6 year olds find intimidating in their zone.

8.5.1 Zero-to-three year old area

This area focuses especially on using a large variety of natural textures, such as grass, stone, sand, wood, and bark textures. The area also has logs and boulders which can be used for balancing exercises, or for pulling up against. Some very small spaces are created

(e.g. about 1x1x0.5 m) to allow for quieter play. The area is subdivided into a busier and a quieter area.

Access to the 0-3 year old area is only possible from two entrances, one of which is in full visibility from the kiosk at the tower. Both have low gates to prevent children from slipping out, and it also discourages older children from entering the area.

8.5.2 Three-to-six year old area

This area is placed next to the toy library. This age group needs space for running, climbing, jumping and other boisterous bodily movement (see Figure 3.12 on page 24), yet it should still be in a safe area. The area is therefore separated from the main pedestrian pathway with a wide planting strip, and by a ramp on the toy library's side. In this area there is a hard compacted surface for using push-pull toys, an area for building with sand, a great complexity of plants and a large mound which could be used in a variety of pretend play situations.

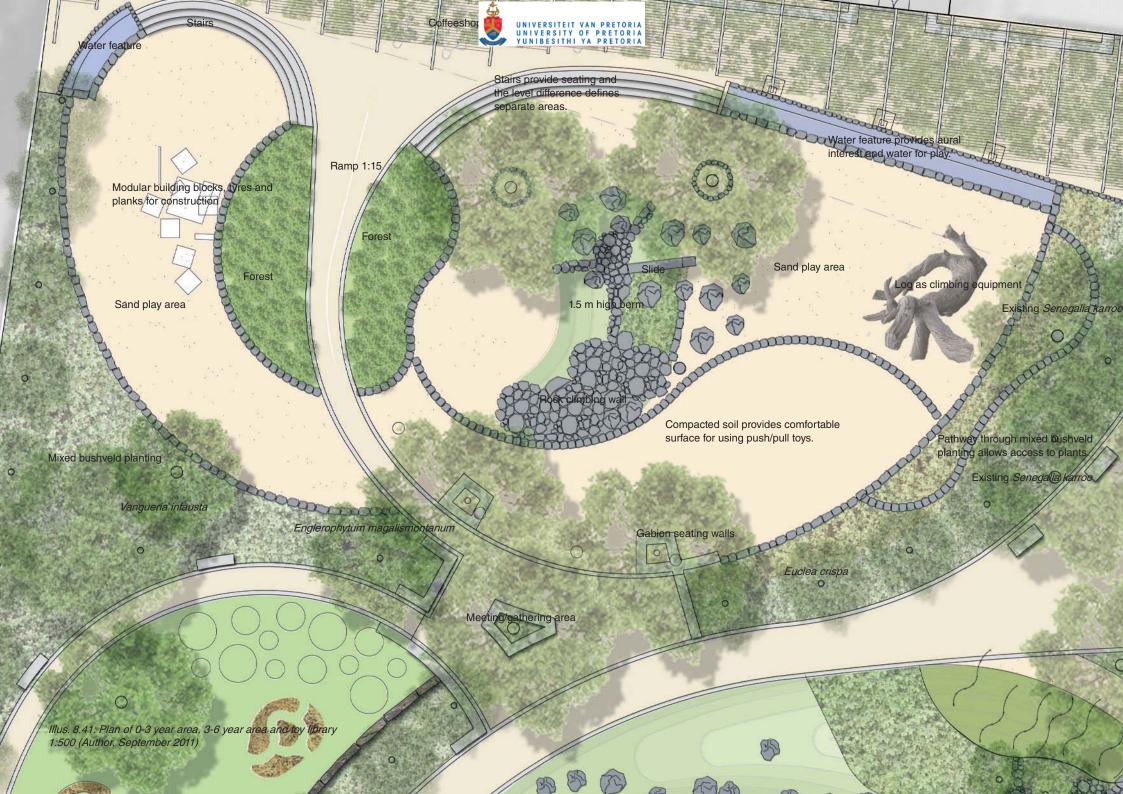
8.5.3 Six-to-twelve year old area

Children of this age are fond of fantasy play. This area contains the forest, river, a berm, large sand play areas as well as the tunnel, creating complex interlinking play opportunities. A large variety of spaces creates different platforms for re-enactment of stories and even films the children might have seen (e.g. being stranded on an island). There are also quiet spaces where they can be alone and watch the other children play from a distance.

All three areas incorporate challenges (within safety parameters) for the children, for example jumping over the 800 mm wide River.

8.5.4 Toy library

The toy library is situated in the north-western corner of the site, in order to activate the currently dead area. Children can register at the toy library with an address and contact number (if available). They will be able to take out toys to play with in the rest of the park or at





home. This will ensure a good supply of loose parts for play, such as push-pull toys, shovels, buckets, dolls and toy cars.

In the toy library area, there are modular units, old tyres and empty crates with which the children can build their own structures. Staff members are constantly present to ensure the safety of the children.

Modular wooden units enable children to construct their own creations. This process specifically requires the development of social and cognitive skills. Children are reliant on each other's input and help to move parts and discuss their ideas.



Toy library area with modular building blocks, tyres, empty crates and planks for building.

Ramp through forest

Smaller space created between berm and forest

Berm maximum 1.2 m high

Greengrocer

Sand play areas

og as climbing equipment

Wide planting strip separates main pedestrian pathway from play area

UNIVERSITEIT VAN PRETORIA UNIVERSITY OF PRETORIA YUNIBESITHI YA PRETORIA Right: Illus. 8.43: Plan of 0-3 year area 1:200 (Author, October 2011) Low gate prevent small children from exiting are Grass berms of maximum 500 high Grass forest of maximum 800 high .7 m pathway wide enough for two pushcarts to/pass each other. Boulders create smaller spaces and routes Mixed bushveld planting strip separates main pedestrian pathway from 0-3 year area. Sand play area Bourke Street Drinking tountain Low gate prevents small children from exiting area.

Kick about area





Illus. 8.44: Crotalaria agatiflora (Van Wyk & Malan, 1998: 137)



Illus. 8.45: Sphenostylis angustifolia (Van Wyk & Malan, 1998: 213)



Illus. 8.46: Vernonia natalensis (Van Wyk & Malan, 1998: 247)



Illus. 8.47: Senecio barbertonicus (www.wikipedia.org)



Illus. 8.48: Hibiscus pusillus (Van Wyk & Malan, 1998: 157)



Illus. 8.49: Lippia javanica (www.aroma-pure.com)



Illus. 8.50: Indigofera hilaris (Van Wyk & Malan, 1998: 211)



Illus. 8.51: Grewia occidentalis (www.seedshelf.com)



Illus. 8.52: Hermannia lancifolia (Van Wyk & Malan, 1998: 179)



Illus. 8.53: Felicia filifolia (www.plantzafrica.com)



Illus. 8.54: Vangueria infausta (Venter, 1996: 267)



Illus. 8.55: Halleria lucida (www.earthlandscapes.blogspot.com)



Illus. 8.56: Buddleja salviifolia (www.flickr.com)



Illus. 8.57: Tarchonanthus camphoratus (www.operationwildflower.org.za)

Note that due to the complexity of a mixed bushveld community and space constraints, only some examples of plants found in this community are shown here. These images do not depict the full palette of plants which could be used.



Mixed bushveld	J	F	М	Α	М	J	J	Α	S	0	Ν	D	1	J	F	М	Α	М	J	J	Α	S	0	Ν	D
Buddleja salviifolia																									
Crotalaria agatiflora																									
Felicia filifolia																									
Grewia occidentalis																									
Halleria lucida																									
Hermannia lancifolia																									
Hibuscus pusillus																									
Indigofera hilaris																									
Lippia javanica																									
Senecio barbertonicus																									
Sphenostylis angustifolia																									
Tarchonanthus camphoratus																									
Vangueria infausta																									
Vernonia natalensis																									

Figure 8.4: Mixed bushveld plants. Left: Flowering times. Right: Fruiting times (Author, August 2011, compiled from Joffe, 2007, Van Wyk & Malan, 1998)



"In this bottle," he said, "there is cordial made of the juice of one of the fireflowers that grow in the mountains of the sun. If you or any of your friends are hurt, a few drops of this restore them."From The Lion, The Witch, and the Wardrobe; Lewis, 1950:47)

Illus. 8.58: Plants such as Ehretia rigida can create child-size spaces in the age specific areas. (Author, July 2011)





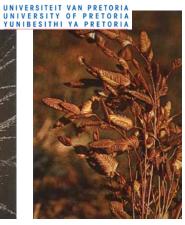
Illus. 8.60: Themeda triandra (http://www.flickr.com/photos/31031835@N08/3215313816/)



Illus. 8.61: Melinis repens (www.fireflyforest.com)



Illus. 8.62: Panicum maximum (Van Wyk & Malan, 1998: 335)



Illus. 8.63: Eragrostis capensis (Van Wyk & Malan, 1998: 333)



Illus. 8.64: Urelytrum agropyroides (Van Wyk & Malan, 1998: 321)



Illus. 8.65: Elionorus muticus (Van Wyk & Malan, 1998: 315)



Illus. 8.66: Senegalia galpinii (http://www.plantzafrica.com)



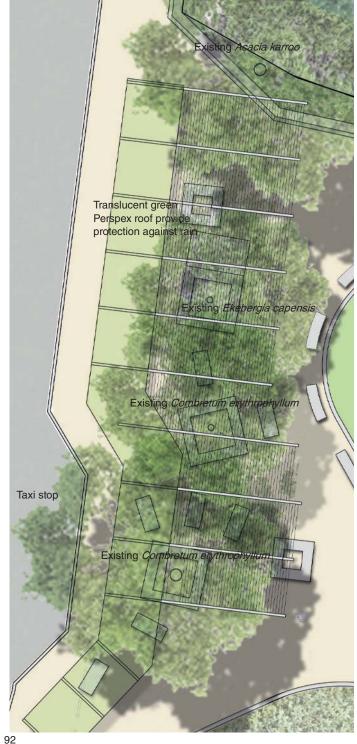
Illus. 8.67: Cymbopogon plurinoides (Van Oudtshoorn, 2002: 53)

8.6 Grassland (2)

This area consists of a veldgrass area with a few *Senegalia galpinii* trees. Grasses were chosen to be either lower than 600mm or to have sparse upper growth so as not to obscure the view. Some have interesting inflorescences (e.g. *Eragrostis capensis* in Illus. 8.63), are colourful, such as *Melinis repens* (Illus. 8.61), or are fragrant, such as *Cymbopogon plurinoides* (Illus. 8.67), which smells like citrus. A maze of pathways runs through the grass, passing through paved stone areas where groups of people or children can gather. Such gathering spaces with pathways linking them facilitate social interaction. After the winter the grasses will be cut down to 300mm with a brushcutter.



Illus. 8.68: Plan of grassland area showing slate stone pathways and gathering areas. Scale 1:500 (Author, October 2011)





Illus. 8.69: Plan of pergola at Costando Building 1:200 (Author, October 2011)

Left: Illus. 8.70: Plan of pergola at taxi waiting area1:200 (Author, October 2011)

Right: Illus. 8.71: Plan of pergola at south-eastern entrance 1:200 (Author, October 2011)







Illus. 8.72: Senecio macroglossus (www.plantzafrica.com)



Illus. 8.73: Thunbergia alata (Joffe, 2007: 361)



Illus. 8.74: Rhynchosia caribaea (Van Wyk & Malan, 1998: 142)



Illus. 8.75: Tylosema esculentum (Van Wyk & Malan, 1998: 125)



Illus. 8.76: Rhoicissus tridentata (www.rareplants.de)



Illus. 8.77: Senecio pleistocephalus (Van Wyk, 2003: 33)



Illus. 8.78: Clematis brachiata (Joffe, 2007: 351)



Illus. 8.79: Pentarrhinum insipidum (www.plantzafrica.com)

Climbers	J	F	M	Α	М	J	J	Α	S	0	N	D	1	J	F	М	Α	М	J	J	Α	S	0	N	D
Clematis brachiata													1												
Pentarrhinum insipidum																									
Rhoicissus tridentata																									
Rhynchosia caribaea																									
Senecio macroglossus																									
Thunbergia alata																									
Tylosema esculentum																									
Senecio pleistocephalus													1												

Figure 8.5: Left: Flowering times of climbing plants used. Right: Fruiting times. (Author, August 2011, compiled from Joffe, 2007; Van Wyk & Malan, 1998; Van Wyk, 2003 and www.plantzafrica.com)

8.7. Shade pergolas (11, 14 & 15)

A steel pergola structure at the western entrance to the site provides shade and seating for people waiting to catch a taxi, as well as community advertising space. The seating is arranged in such a way that people can sit alone or in groups facing one another. A translucent green Perspex roof provides protection from rain. Simple geometric shapes respond to the hard edges of the urban environment found in Sunnyside, while the climbing plants covering the steel cables start the transition to the more natural areas. This transition is repeated at the Costando building north of the site, as well as at the south-eastern entrance. As one moves further into the park, more natural materials are used (for example logs and boulders as edging). The plants depicted in Illus. 8.72 to 8.79 are used at all the shade pergolas, the climbing tower, and the Tunnel.

Next to the waiting area, a spill-over lawn area with benches and shade can be used for community meetings.



Illus. 8.80: Plan of climbing tower 1:200 (Author, October 2011)

8.8 Tower (9)

The climbing tower provides a vantage point from which children can look across the whole park, while being behind a visually semi-permeable screen of plants (*Rhoicissus tridentata* and *Sencio pleistocephalus*). These climbers were chosen as they are able to reach the full height of the tower (9.5 m), and have different dormancy times (pers. comm., Sampson, 26 September 2011). The web of ropes inside the tower provides a challenging yet safe climbing experience. They are spaced closely enough to catch a fall if a child should slip, and also to provide resting places if one tires on the way up. At 2 m from the top of the tower, a wooden viewing platform provides resting space.

On the outside of the tower, criss-crossing steel cables reflect the web of ropes on the inside and provide sufficient hold for the climbing plants (as opposed to vertical cables).

The steel profile structure reflects the materials used in the pergolas and bridge. The kiosk attendant next to the tower is able to monitor the entry of children into the tower, and also provides visual surveillance over the park in that area.





8.9 Tunnel (10)

The tunnel is specifically child-sized at only 1.5 m high, with climbing plants covering thin steel cables between *Eucalyptus* posts. The tunnel is open between some of the posts to provide easy access without forcing children to walk it from one end to the other. A slight curve creates mystery as one cannot immediately see the other end. The climbing plants listed in Illus. 8.72 to 8.79 are used with the exception of *Rhoicissus tridentata* and *Senecio pleistocephalus*, as they are too vigorous and will crowd out the other climbers.

8.10 General waiting areas (12)

These areas contain gabion seating walls and ample shade.





	Refer	Forest	Mountai	YUNIBI	RSITY OF P	PRETORIA	Tower	Kick-about	Grassland	Toy library	0-3 year area	3-6 year area 3
Choice of spaces	3.1 & 3.3.1											
Group settings	3.3.1											
Being alone	3.3.3											
Child scale	3.3.1											
Route(s)	3.3.3											
Natural materials	3.7.1 - 3.4.11											
Complexity	3.4.1 & 3.3.1											
Loose parts	3.4.2 & 2.4											
Scope for alteration	2.4											
Scope for imagination	3.3.4											
Tactile stimulation with textures	2.3.3, 3.3.4 & 3.4											
Olfactory stimulation	2.3.3, 3.3.4 & 3.4											
Gustatory stimulation	2.3.3, 3.3.4 & 3.4											
Shade	3.1 & 3.1.2											
Safety	2.3.1											
Seating	3.1											
Physical challenges	2.3.6 & 2.3.7											

^{1.} The column "river" should be understood as including the sand area around it.

Figure 8.6: Matrix showing how each area satisfies the design criteria as determined in Chapter 2 and 3. (Author, September 2011)

8.11 Conclusion

Figure. 8.6 shows how each area or landscape satisfies the criteria for a stimulating park as determined from the research in Chapter 2 and 3, and the evaluation criteria discussed in Chapter 3.

From the table it can be seen that only areas with water, sand or more supervision such as at the toy library have a large scope for alteration. The other areas have less scope for alteration, yet they provide a wealth of loose parts such as flowers, seeds and pebbles.

The kick about does not fulfil many of the criteria. However, it is valuable for its multi-functionality.

The loose parts such as sand, plant material and objects from the toy library increase the scope for imaginative games, and consequently the practice of social skills (such as conflict-resolution and the communication of ideas). Cognitive stimulation happens when children are able to observe and interact with the basic laws of nature (such as that water flows to a lowest point, the consistency of sand can be changed by the amount of water one adds, and by seeing the development of flowers into fruits).

Through the use of natural materials and by creating complex spaces, children are stimulated on a cognitive, physical and socio-emotional level.

^{2.} The island column denotes the island and the zero-depth water feature around it.

^{3.} The 6-12 year old area is not included in the table as it encompasses the tunnel, river, island and forest areas.