



FIGURE SF3

**SKELMWATER
NATURE RESERVE (SNR)
GROWTH, DIEBACK,
SOIL DEPTH, SLOPE
AND RANKING**

DBH growth 1930-2020
Growth Index (GI) 1930-2020
Height change 2006-2016
Soil depth and slope
Ranking (R)



DEHYDRATION & DIEBACK

Above: Tree 3: A decade after apical branch collapse
Right, Top & Centre: Tree 4: Dehydration in branch undersides
Extreme right: Tree 19: Epicormic shoots on one of 3 baobabs excluded from the 1930 inventory. Similar in size to Tree 13.
Below: Dehydration in Tree 2





18 May 2014

Tree 8 (reduced and skew canopy)

DBH: 1930: 0.17m 2020 0.56m **GI:** 1933-2020: 3.089 (**R=2**)
Height: 2006: 8.3m 2016: 8.7m (**R=9**)
Soil Depth: 330 mm **Slope:** 14.08%

COHORT 1



Tree 9

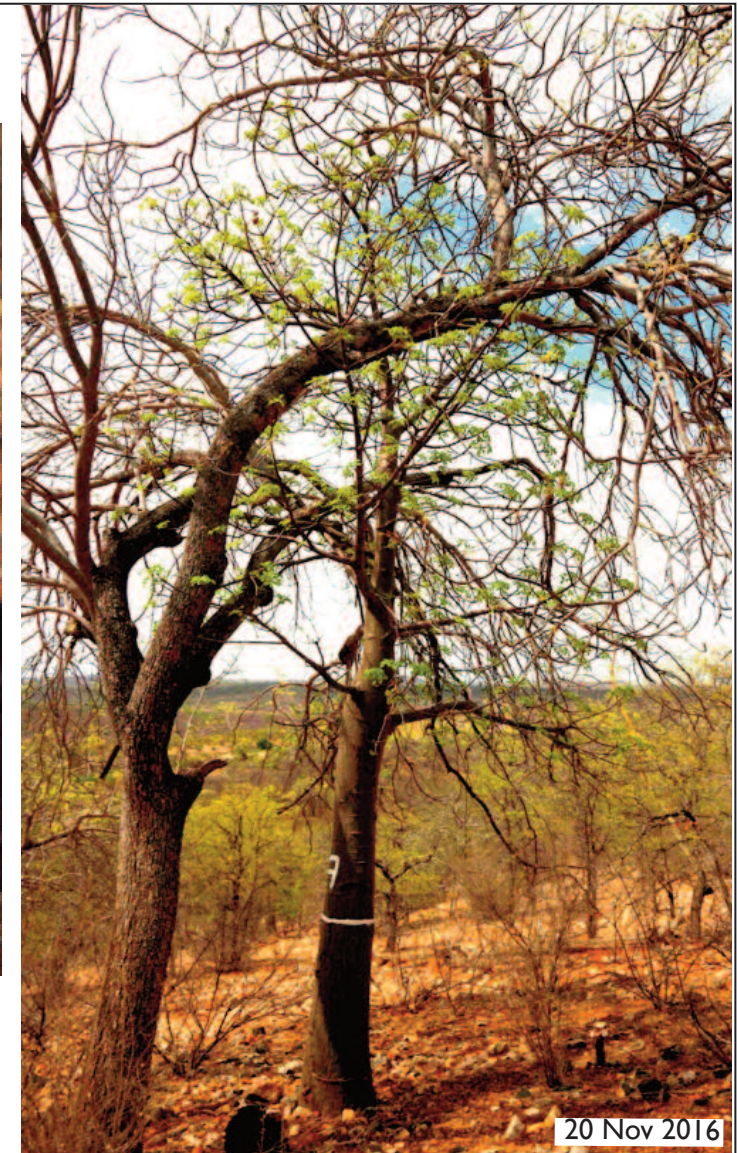
Above: Epicormic buds (stress response)

Right: Intertwined canopy
DBH: 1930: 0.26m 2020 0.40m

GI: 1933-2020: 1.496 (**R=5**)

Height: 2006: 8.3m 2016: 10.2m (**R=2**)

Soil Depth: 700 mm **Slope:** 13.24%



20 Nov 2016

Tree 9 canopy competes for sunlight with the deciduous species, *Kirkia acuminata*. The photo indicates earlier leaf flushing in the baobab.



1 June 2018

Tree 12 (reduced canopy)

DBH: 1930: 0.18m 2020: 0.42m **GI:** 1933-2020: 2.22 (**R=3**)
Height: 2006: 7.5m 2016: 8.1m (**R=6**)
Soil Depth: 500 mm **Slope:** 16.2% (steepest slope at SNR)



20 Nov 2016
Late start to
leaf flushing

Tree 13 (reduced canopy)

DBH: 1930: 0.7m 2020: 0.33m **GI:** 1933-2020: 4.195 (**R=1**)
Height: 2006: 6.5m 2016: 8.5m (**R=1**)
Soil Depth: 330 mm **Slope:** 8.96% **Age: (2020): 118-123 years**



19 Nov 2017
Leaves flushed
after rains



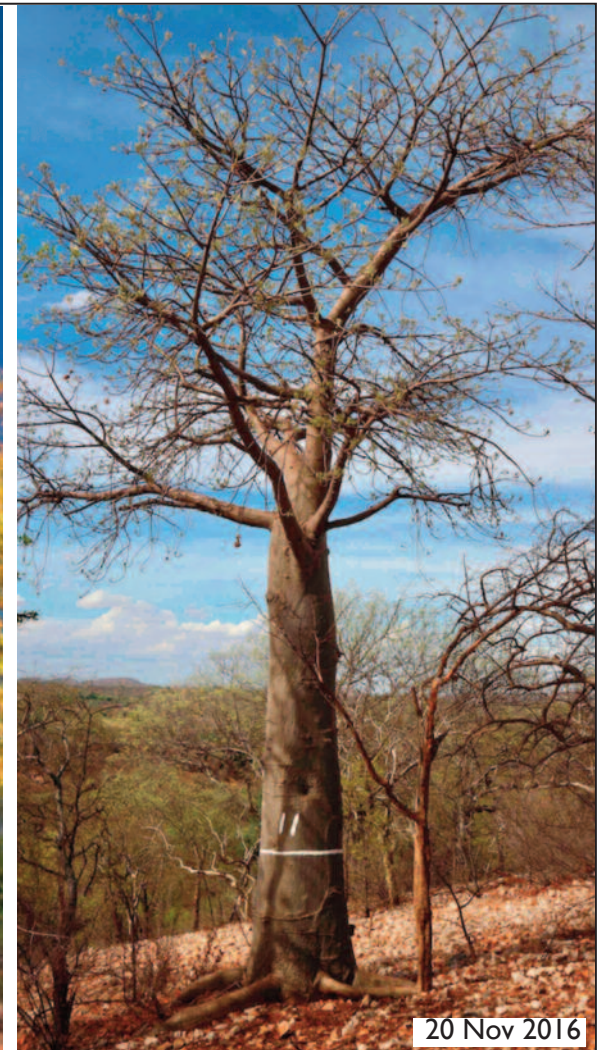
Tree 7 (fuller canopy)

DBH: 1930: 0.90m 2020: 1.48m
GI: 1933-2020: 1.79 (R=4)
Height: 2006: 12m 2016: 13.1m (R=5)
Soil Depth: 330 mm **Slope:** 14.65%



Tree 10 (fuller canopy)

DBH: 1930: 1.06m 2020: 1.33m **GI:** 1933-2020: 1.363 (R=7)
Height: 2006: 13.2m 2016: 15.2m (R=4)
Soil Depth: 400 mm **Slope:** 10.01%
Note: Tree displays uncommon autumnal foliage as a result of delayed abscission following late rains.



Tree 11 (reduced canopy)

DBH: 1930: 0.69m 2020: 0.91m
GI: 1933-2020: 1.488 (R=6)
Height: 2006: 9.9m 2016: 9.9m (R=12)
Soil Depth: 330 mm **Slope:** 15%
Age (2020): ~205 years



9 May 2020

Tree 1 (reduced canopy)

DBH: 1930: 1.72m 2020: 1.70m
GI: 1933-2020: 1.013 (stagnant) **(R=11)**
Height: 2006: 9.3m 2016: 9.9m **(R=7)**
Soil Depth: 700 mm **Slope:** 11.88%



27 May 2003

Tree 2 (reduced canopy)

DBH: 1930: 2.01m 2020: 2.04 m
GI: 1933-2020: 1.042 **(R=9)**
Height: 2006: 10.5m 2016: 11.1m **(R=8)**
Soil Depth: 400 mm **Slope:** 8.68%



**COHORT 3
live**

29 May 2019



Tree 2 Decay 2015-2020

May 2015: Hollows first observed in facing discoloured and dehydrated apical branches - see photo Nov 2016. Rupture developed down lesion of former branch site (1). In November 2016, the two branches bore more flowers than any other baobab on site.

May 2020: Rupture down lesion appears to be healing. Tree flowered annually



27 May 2003

Tree 3 (deformed canopy)

DBH: 1930: 2.81m 2020: 2.82m

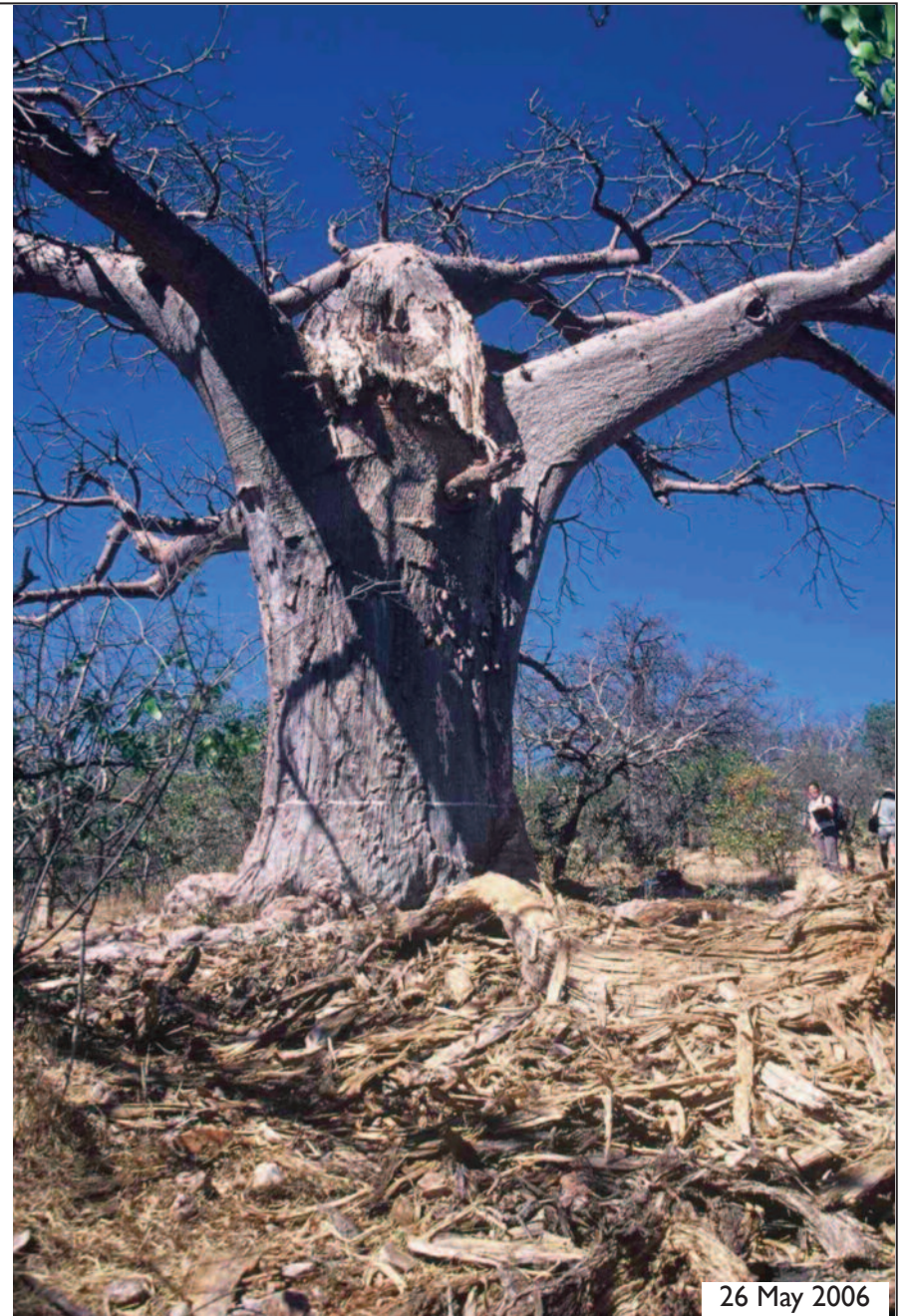
GI: 1933-2020: 1.008 (R=12)

Height: 2006:14.6m after fall
2016: 14.8m (R=11)

Soil Depth: 400 mm

Slope: 11.35%

Resprouting (right)



26 May 2006



**Tree 4 (left)
(reduced canopy)**

DBH: 1930: 2.38m
2020: 2.38m
GI: 1933-2020: 1.028
(R=10)
Height: 2006: 12.8m
2016: 15m **(R=3)**
Note height increase
due to fast growth of
new apical branch
Soil Depth: 560 mm
Slope: 9.57%

**Tree 5 (right)
(reduced 'staghead'
canopy)**

DBH: 1930: 2.41m
2020: 2.55m
GI: 1933-2020: 1.091
(R=8)
Height: 2006: 14.6m
2016: 15m **(R=10)**
Soil Depth: 500 mm
Slope: 13.86%



COHORT 3 (dead)



Tree 15

DBH: 1930: 2.10m 1966: 1.91m
GI: 1933-1966: 0.965 (decline)
Slope: 12.16% **Age (1966):** 485-565 years
Photo: G. L. Guy (1966) taken months before death. Like other Cohort 3 baobabs with photographic evidence, Tree 15 has extensive elephant damage. Shallow crater still evident.



Tree 17 'Staghead' canopy

DBH: 1930: 2.31m 1993: 2.22m
GI: 1933-1993: 0.981 (decline)
Soil Depth: 330 mm **Slope:** 14.22%
 The 'staghead' baobab died c.1998. Pathogen on hot NW side (shown) reported in letter dated 5 July 1991 (Department of Forestry archive). **Photo:** G. von dem Bussche



Sand River Valley - Mortality in hot drought 2001-2007

Rare example of dead but standing baobab without bark suggests water reserves. Located off-site in valley below SNR, the tree belonged in a stand of baobabs which died during the hot 2001-2007 drought - except for the adjacent baobab. Despite severe dieback and observed stress from gum flow during the hot drought, this sole survivor of the stand exemplifies resilience.