

74. *Ledebouria concolor*



FIGURE 74a. *Ledebouria concolor* in flower in its sandstone cliff-face habitat at the Witterivier in the Suurberg in the Eastern Cape.



FIGURE 74b. *Ledebouria concolor* (*Litanthus pusillus*) on cliffs at the Witterivier in the Suurberg in the Eastern Cape.



FIGURE 74c. *Ledebouria concolor* in cultivation and flowering at Kirstenbosch.

75. *Ledebouria cremnophila*



FIGURE 75a. *Ledebouria cremnophila* in flower in its sandstone cliff-face habitat at Kaaprivierspoort in Mpumalanga.



FIGURE 75b. *Ledebouria cremnophila* in flower at Kirstenbosch.



FIGURE 75c. *Ledebouria cremnophila* on a sandstone cliff face at Kaap-rivierspoort, Mpumalanga, sharing the habitat with *Aloe spicata* and *Cyanotis speciosa*.

76. *Ledebouria venterii*



FIGURE 76a. *Ledebouria venterii* in cultivation, flowering at Kirstenbosch.

77. *Ornithogalum juncifolium* var. *emsii*



FIGURE 77a. *Ornithogalum juncifolium* var. *emsii* on shale cliffs along the Fish River north of Grahamstown, here sharing its habitat with *Crassula socialis*, another cremnophyte.



FIGURE 77b. *Ornithogalum juncifolium* var. *emsii* at in cultivation at Kirstenbosch (material from the Fish River north of Grahamstown). Note the darker bulbs in the foreground, *Drimia uniflora*.

**78. *Ornithogalum longibracteatum***



FIGURE 78a. *Ornithogalum longibracteatum* on a cliff at Tsolorha on the Bashee River in the Transkei region of the Eastern Cape.



FIGURE 78b. *Ornithogalum longibracteatum* bulbils (cloning). Bulbils spill over, often becoming wedged in crevices and then forming new colonies.



FIGURE 78c. *Ornithogalum longibracteatum* on a cliff at the Gourits River in the Western Cape.

79. *Ornithogalum pendens*



FIGURE 79a. *Ornithogalum pendens* on a sandstone cliff at Skaaprivierspoort in Namaqualand in the Northern Cape.



FIGURE 79b. *Ornithogalum pendens* removed from a sandstone cliff at Skaaprivierspoort in Namaqualand in the Northern Cape. Note the proliferation of bulbils (backup cloning).

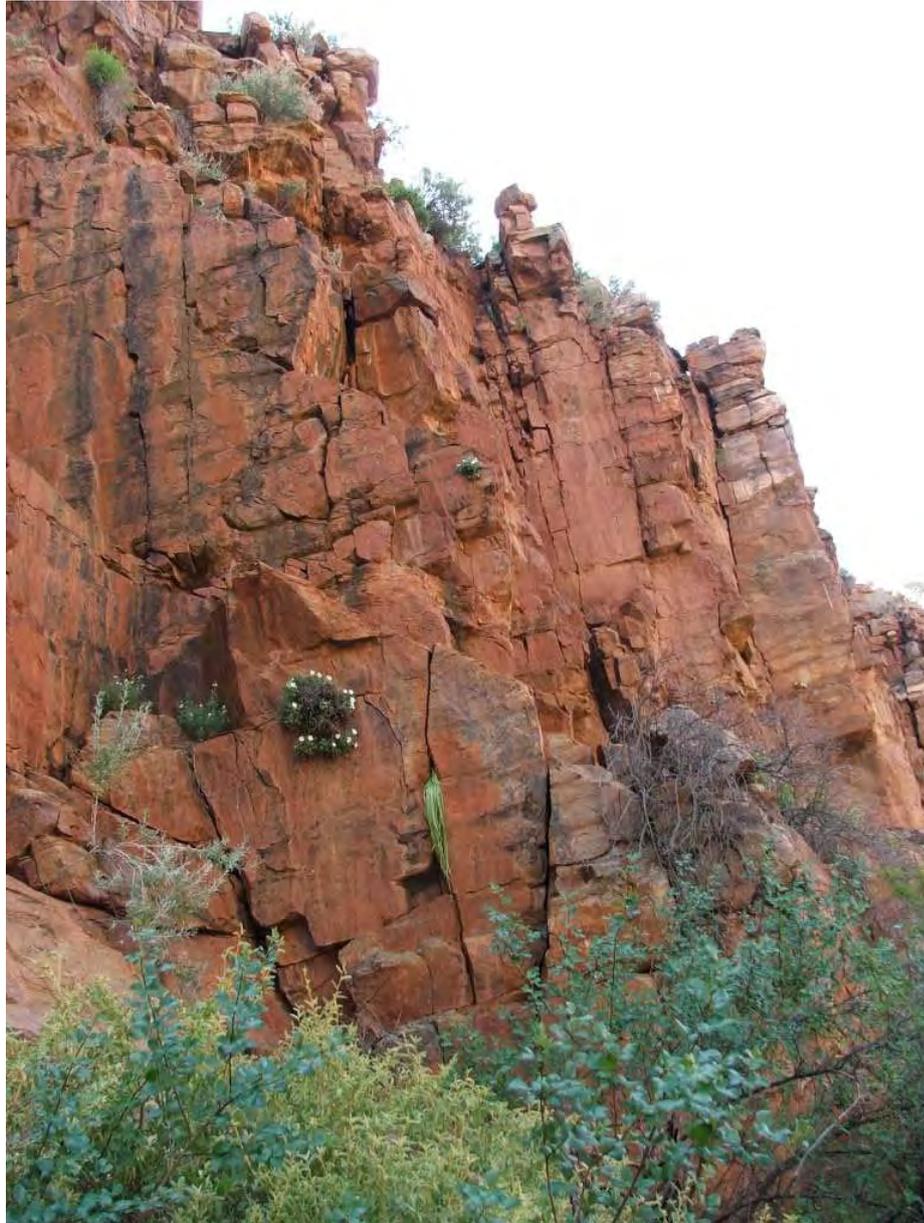


FIGURE 79c. The red sandstone cliffs at Skaaprivierspoort, the habitat of *Ornithogalum pendens*.

80. *Schizobasis intricata*

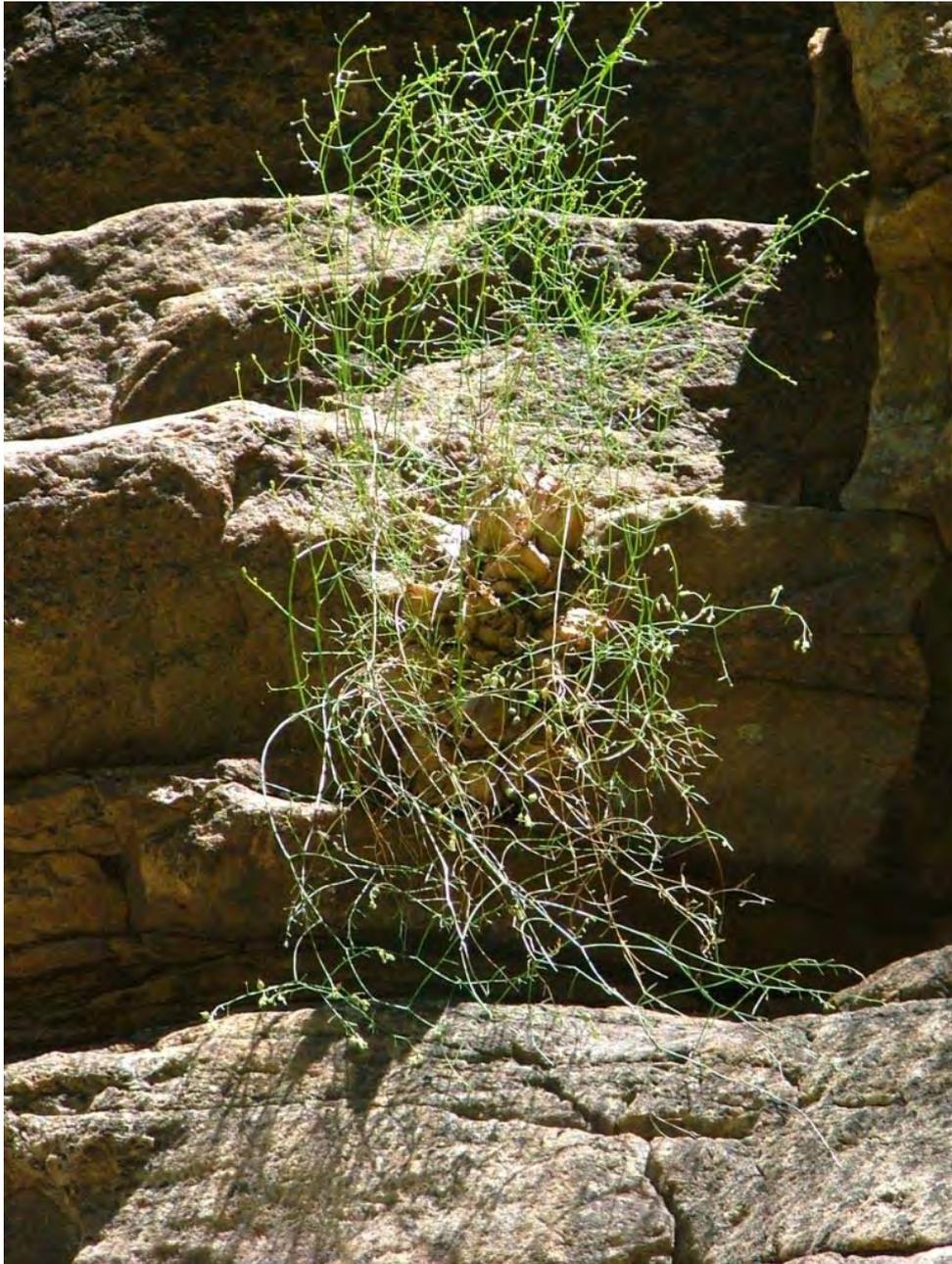


FIGURE 80a. *Schizobasis intricata* where it grows on a sandstone cliff along the Mzimnyati River in KwaZulu-Natal.



FIGURE 80b. *Schizobasis intricata* sharing its habitat on a cliff face at the Kouga Dam in the Eastern Cape with *Adromischus cristatus* var. *schonlandii* and *Crassula perforata* subsp. *kougaensis*.



FIGURE 80c. *Schizobasis intricata* growing on a sandstone cliff along the Pongola River at Klipwal Gold Mine in KwaZulu-Natal.

81. *Huernia pendula*

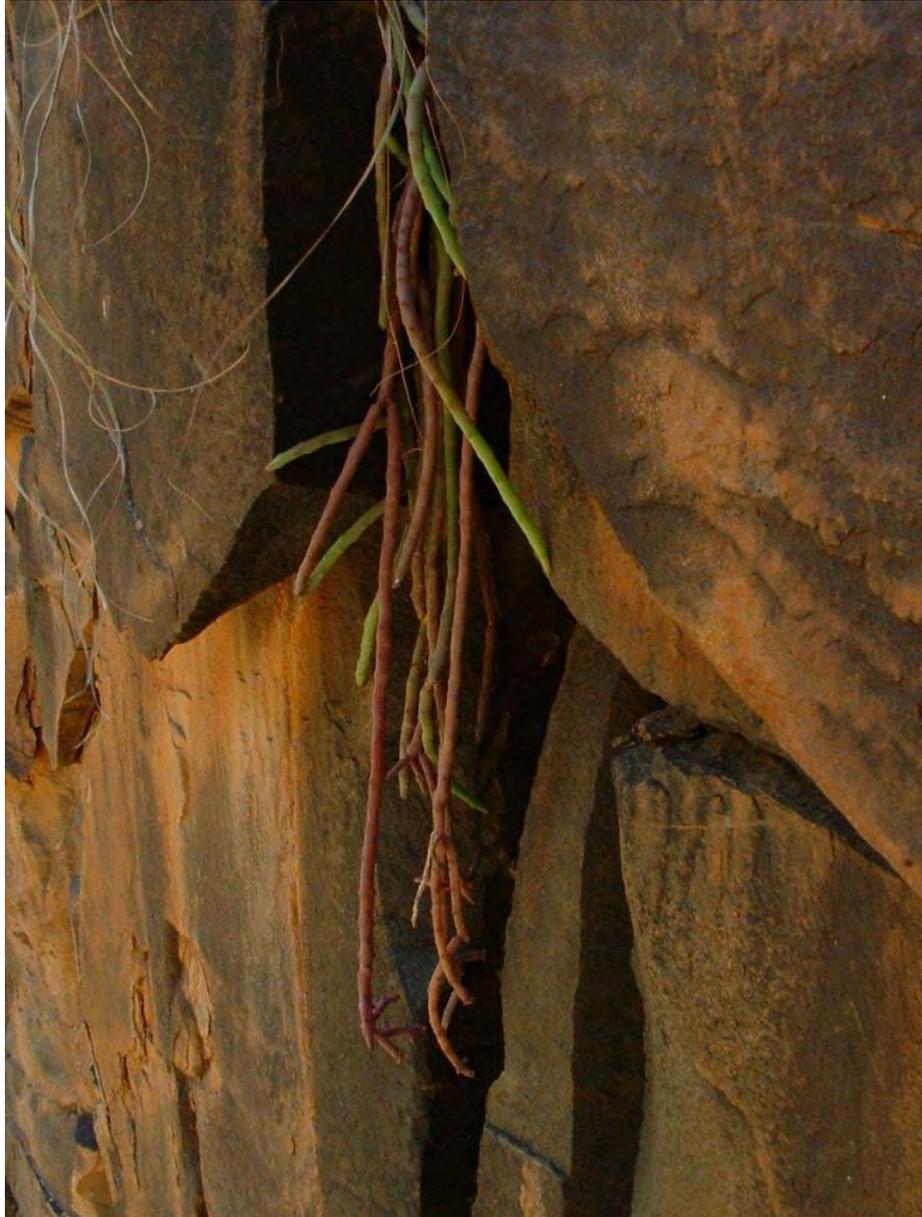


FIGURE 81a. *Huernia pendula* on a shale cliff face along the Kei River near Bolo Head in the Eastern Cape. Plants proliferate from stems that grow and occupy new crevices (vegetative proliferation backup).



FIGURE 81b. *Huernia pendula* in habitat on a shale cliff face along the Kei River near Bolo Head in the Eastern Cape.



FIGURE 81c. Cliffs along the Kei River near Bolo Head, habitat of *Huernia pendula*.



FIGURE 81d. *Huernia pendula* in flower.



FIGURE 81e. *Huernia pendula* in flower at Kirstenbosch.

82. *Lavrania haagnerae*



FIGURE 82a. *Lavrania haagnerae* on a dolomite cliff face east of Sesfontein in Damaraland, Namibia. Plants proliferate, forming dense clusters and occupying new crevices (vegetative proliferation backup).

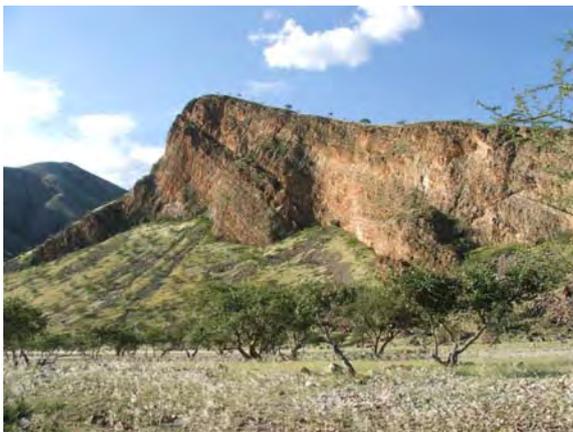


FIGURE 82b. Dolomite cliff-face habitat of *Lavrania haagnerae* east of Sesfontein in Damaraland, Namibia.



FIGURE 82c. *Lavrania haagnerae* in flower at Kirstenbosch in October 2007.

83. *Tromotriche baylissii*



FIGURE 83a. *Tromotriche baylissii* in flower at Kirstenbosch in April 2007.



FIGURE 83b. Cliffs above the Kouga Dam in the Eastern Cape where *Tromotriche baylissii* grows.



FIGURE 83c. Plant of *Tromotriche baylissii* on a cliff together with *Crassula cordata*.



FIGURE 83d. *Tromotriche baylissii* in habitat at the Kouga Dam in the Eastern Cape.



FIGURE 83e. *Tromotriche baylissii* in habitat at Geelhoutboskloof in the Eastern Cape.

84. *Tromotriche choanantha*



FIGURE 84a. *Tromotriche choanantha* in habitat on a sandstone cliff at Badspoort near Calitzdorp in the Western Cape in August 2009.



FIGURE 84b. Cliffs at Badspoort, habitat of *Tromotriche choanantha*.



FIGURE 84c & 84d. *Tromotriche choanantha* in flower (material from Badspoort, Calitzdorp, Western Cape). Flowers are produced at the base of the stems.

85. *Kleinia galpinii*



FIGURE 85a. *Kleinia galpinii* on cliffs near Barberton in Mpumalanga. Plants stoloniferous, forming clusters. Here it shares the habitat with *Aloe spicata*.



FIGURE 85b. Cliffs near Barberton in Mpumalanga where *Kleinia galpinii* grows



FIGURE 85c. A dense cluster of *Kleinia galpinii* plants sharing the habitat with *Crassula sarcocaulis*.



FIGURE 85d. Flowers of *Kleinia galpinii* at Kirstenbosch.

86. *Othonna armiana*



FIGURE 86a. *Othonna armiana* flowering in cultivation at Kirstenbosch.



FIGURE 86b. *Othonna armiana* on Rooiberg near Eksteenfontein in the Richtersveld.

87. *Othonna capensis*



FIGURE 87a. Cliff hanger *Othonna capensis* on Tandjiesberg, near Graaff-Reinet in the Eastern Cape.



FIGURE 87b. Tandjiesberg near Graaff-Reinet, the habitat of *Othonna capensis*.



FIGURE 87c. *Othonna capensis* hanging from cliffs in its native habitat at Horee at the Kouga River in the Eastern Cape.



FIGURE 87d. *Othonna capensis* flowers at Kirstenbosch.

88. *Othonna cremnophila*



FIGURE 88a. Cliff squatter *Othonna cremnophila* confined to quartz crevices on south-facing slopes on the Rosyntjieberg.



FIGURE 88b. *Othonna cremnophila* growing on a cliff on the Rosyntjieberg in the Richtersveld in the Northern Cape.



FIGURE 88c. The Rosyntjieberg in the Richtersveld where south-facing cliffs are the habitat of *Othonna cremnophila*.

89. *Othonna triplinervia*



FIGURE 89a. *Othonna triplinervia* on a quartz cliff along the Grootrivierspoort in the Eastern Cape.



FIGURE 89b. Sandstone cliffs of Grootrivierspoort, habitat of *Othonna triplinervia*.



FIGURE 89c. The flowers of *Othonna triplinervia*.



FIGURE 89d. Young plant of *Othonna triplinervia* in a quartz cliff at the Kouga Dam in the Eastern Cape.



FIGURE 89e. *Othonna triplinervia* at the Kouga Dam.

90. *Senecio medley-woodii*



FIGURE 90a. *Senecio medley-woodii* in habitat on a shale cliff along the Mzimvubu River in the Transkei region of the Eastern Cape.



FIGURE 90b. Shale-cliff habitat of *Senecio medley-woodii* along the Mzimvubu River in the Transkei region of the Eastern Cape. Associated plants include *Crassula foveata*, *Euphorbia triangularis* and *Portulacaria afra*.



FIGURE 90c. *Senecio medley-woodii* in habitat on a sandstone cliff along the Mgeni River in KwaZulu-Natal. Associated plants include *Gasteria croucheri* subsp. *pendulifolia*, *Portulacaria afra* and *Rhipsalis baccifera*.

91. *Senecio muiirii*



FIGURE 91a. *Senecio muiirii* in its habitat on a cliff face above Calitzdorp in the mountains of the Huis River Pass.



FIGURE 91b. *Senecio muiirii* in flower at Kirstenbosch.

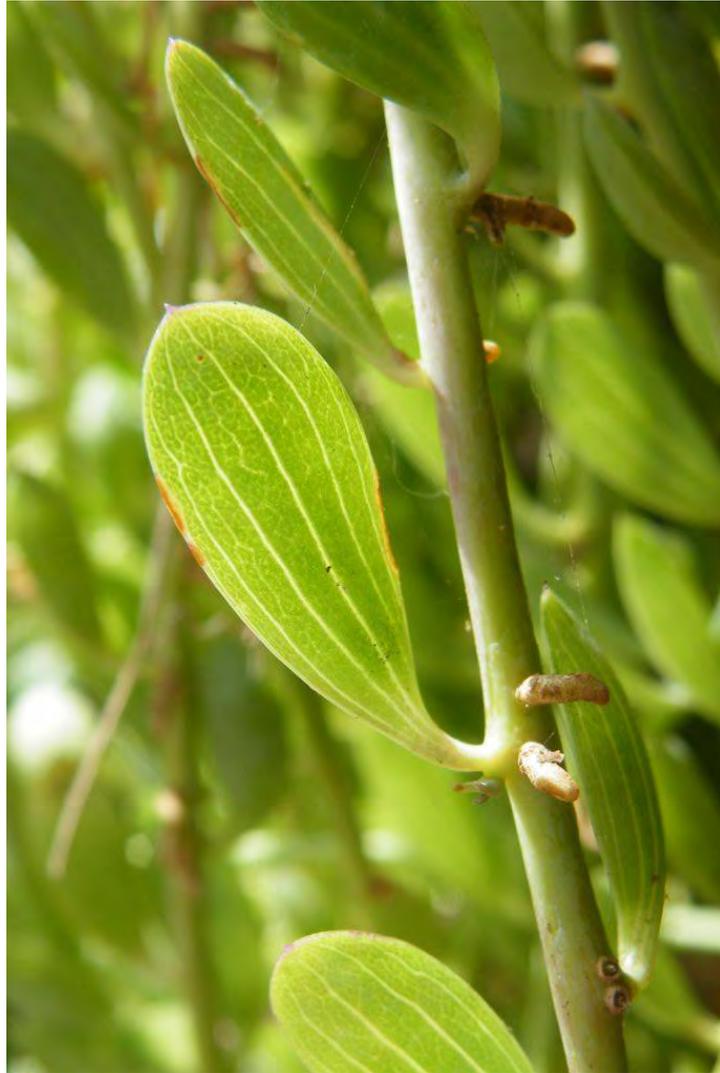


FIGURE 91c. *Senecio muiirii* in cultivation at Kirstenbosch. Note the translucent veins allowing efficient penetration of light. The adventitious roots forming on the stem enable the plant to occupy new crevices (cloning).



FIGURE 91d. *Senecio muirii* growing on a shale cliff face at Valsriviermond farm along the Gourits River near Calitzdorp in the Western Cape.



FIGURE 91e. *Senecio muirii* growing on a sandstone cliff face at Badspoort near Calitzdorp in the Western Cape.

92. *Senecio pondoensis*



FIGURE 92a. *Senecio pondoensis* in cultivation at Kirstenbosch. The broad translucent central part on the adaxial side for the leaf ensures efficient penetration of light on the shady south-facing cliffs. Stems form adventitious roots, enabling the plants to occupy new crevices (cloning).



FIGURE 92b. South-facing cliffs in Pondoland in the Eastern Cape where *Senecio pondoensis* grows.



FIGURE 92c. *Senecio pondoensis* in flower at Kirstenbosch.

93. *Senecio serpens*



FIGURE 93a. *Senecio serpens* in habitat at Cape Point Nature Reserve, growing on an east-facing cliff of quartzitic sandstone rock.



FIGURE 93b. Getting closer to *Senecio serpens* at Cape Point Nature Reserve.



FIGURE 93c. Cliffs at Cape Point Nature Reserve in December 2007, habitat of *Senecio serpens*.



FIGURE 93d. *Senecio serpens* on a cliff face at Cape Point Nature Reserve in the Western Cape.

94. *Senecio talinoides* subsp. *talinoides*



FIGURE 94a. *Senecio talinoides* cultivated at Kirstenbosch (material from Collywobbles, Bashee River, Eastern Cape).



FIGURE 94b. *Senecio talinoides* in flower, grown at Kirstenbosch (material from Collywobbles, Bashee River, Eastern Cape).



FIGURE 94c. *Senecio talinoides* flowering at Kirstenbosch (material from Collywobbles, Bashee River, Eastern Cape).

95. *Rhipsalis baccifera*



FIGURE 95a. *Rhipsalis baccifera* on a cliff face at Molweni in KwaZulu-Natal. It is a typical cliff hanger, with terete stems becoming pendent on the cliff face.



FIGURE 95b. *Rhipsalis baccifera* on a cliff face at Oribi Gorge in KwaZulu-Natal.

96. *Adromischus cristatus* var. *mzimvubuensis*



FIGURE 96a. *Adromischus cristatus* var. *mzimvubuensis* where it grows on a shale cliff along the Mzimvubu River in the Transkei region of the Eastern Cape.



FIGURE 96b. Cliff hugger *Adromischus cristatus* var. *mzimvubuensis* growing on a shale cliff along the Mzimvubu River in the Eastern Cape. Note the detached leaves spilling over the cliffs, rooting and filling new crevices. Here it grows together with *Crassula foveata* subsp. *foveata* and *C. perforata* subsp. *perforata*.



FIGURE 96c. Kudikela, cliff habitat of *Adromischus cristatus* subsp. *mzimvubuensis* along the Mzimvubu River in the Transkei region of the Eastern Cape.



FIGURE 96d. *Adromischus cristatus* var. *mzimvubuensis* in flower at Kirstenbosch.

97. *Adromischus cristatus* var. *schonlandii*



FIGURE 97a. Cliff hugger *Adromischus cristatus* var. *schonlandii* growing on a sheer sandstone cliff face at the Kouga Dam in the Eastern Cape.



FIGURE 97b. Cliff hugger *Adromischus cristatus* var. *schonlandii* on a sheer sandstone cliff face at the Kouga Dam, sharing the habitat with *Aloe pictifolia* and *Crassula perforata* subsp. *kougaensis*.



FIGURE 97c. *Adromischus cristatus* var. *schonlandii* in flower at Kirstenbosch.



FIGURE 97d. *Adromischus cristatus* var. *schonlandii* on a sheer sandstone cliff face at the Kouga Dam.

98. *Adromischus cristatus* var. *zeyheri*



FIGURE 98a. *Adromischus cristatus* var. *schonlandii* on a sheer sandstone cliff face at the Kouga Dam.



FIGURE 98b. Sheer sandstone cliffs above the Kouga Dam in the Eastern Cape where *Adromischus cristatus* var. *schonlandii* grows.



FIGURE 98c. *Adromischus cristatus* var. *zeyheri* growing on sheer cliffs at the Kouga Dam in the Eastern Cape. The leaves are brittle and when they become detached, they will root in new crevices (cloning backup).

99. *Adromischus diabolicus*

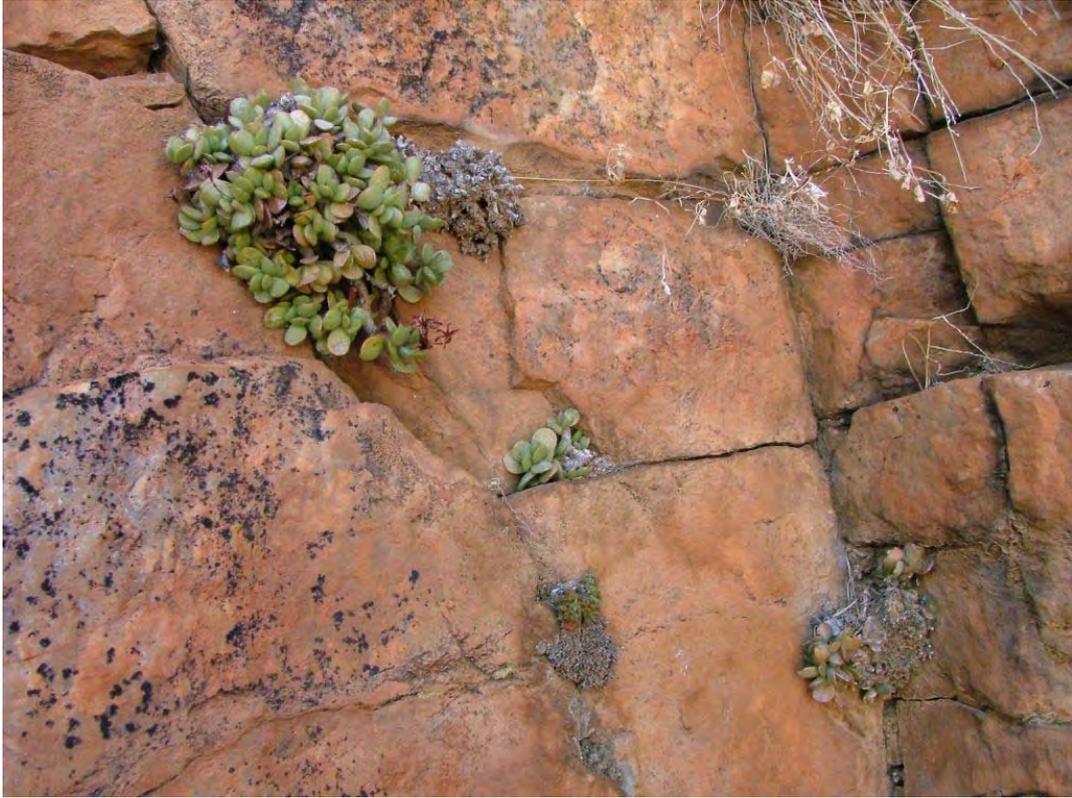


FIGURE 99a. *Adromischus diabolicus* on a sheer south-facing quartzitic sandstone cliff face on Dabenorisberg in the Northern Cape.



FIGURE 99b. Dabenorisberg in the Northern Cape, the habitat of *Adromischus diabolicus*.



FIGURE 99c. *Adromischus diabolicus* on a sheer south-facing quartzitic sandstone cliff face near Aggeneys in the Northern Cape.

100. *Adromischus fallax*



FIGURE 100a. *Adromischus fallax*, a cliff hugger on the Tandjiesberg near Graaff-Reinet.



FIGURE 100b. Tandjiesberg near Graaff-Reinet, habitat of *Adromischus fallax*.



FIGURE 100c. A close look at *Adromischus fallax* on a cliff on the Tandjiesberg.

101. *Adromischus leucophyllus*



FIGURE 101a. *Adromischus leucophyllus* growing in Buffelspoort west of Ladismith in the Western Cape.



FIGURE 101b. Buffelspoort, the habitat of *Adromischus leucophyllus*.



FIGURE 101c. *Adromischus leucophyllus*, a cliff hugger at Buffelspoort. When the brittle leaves become detached, they will start to grow and occupy new crevices.



FIGURE 101d. *Adromischus leucophyllus* hugging the cliffs at Waterkloof in the Hex River Valley in the Western Cape, the brittle leaves forming new plants if they should break off and land in a new crevice (cloning backup).

102. *Adromischus liebenbergii* subsp. *orientalis*



FIGURE 102a. Cliff hugger *Adromischus liebenbergii* subsp. *orientalis* growing on shale cliffs at Tsolorha at the Bashee River in the Transkei region of the Eastern Cape.

103. *Adromischus schuldianus* subsp. *brandbergensis*



FIGURE 103a. Orabeswand (cliff in background), Brandberg in northern Namibia, habitat of *Adromischus schuldianus* subsp. *brandbergensis*.



FIGURE 103b. *Adromischus schuldianus* subsp. *brandbergensis* growing on cliffs of Orabeswand in northern Namibia. Leaves are brittle and grooved, with an adaxial translucent window. Detached leaves will root and grow in new crevices (cloning backup).



FIGURE 103c. *Adromischus schuldianus* subsp. *brandbergensis* growing at Kirstenbosch. Leaves are grooved, with an adaxial translucent window.

104. *Adromischus subdistichus*

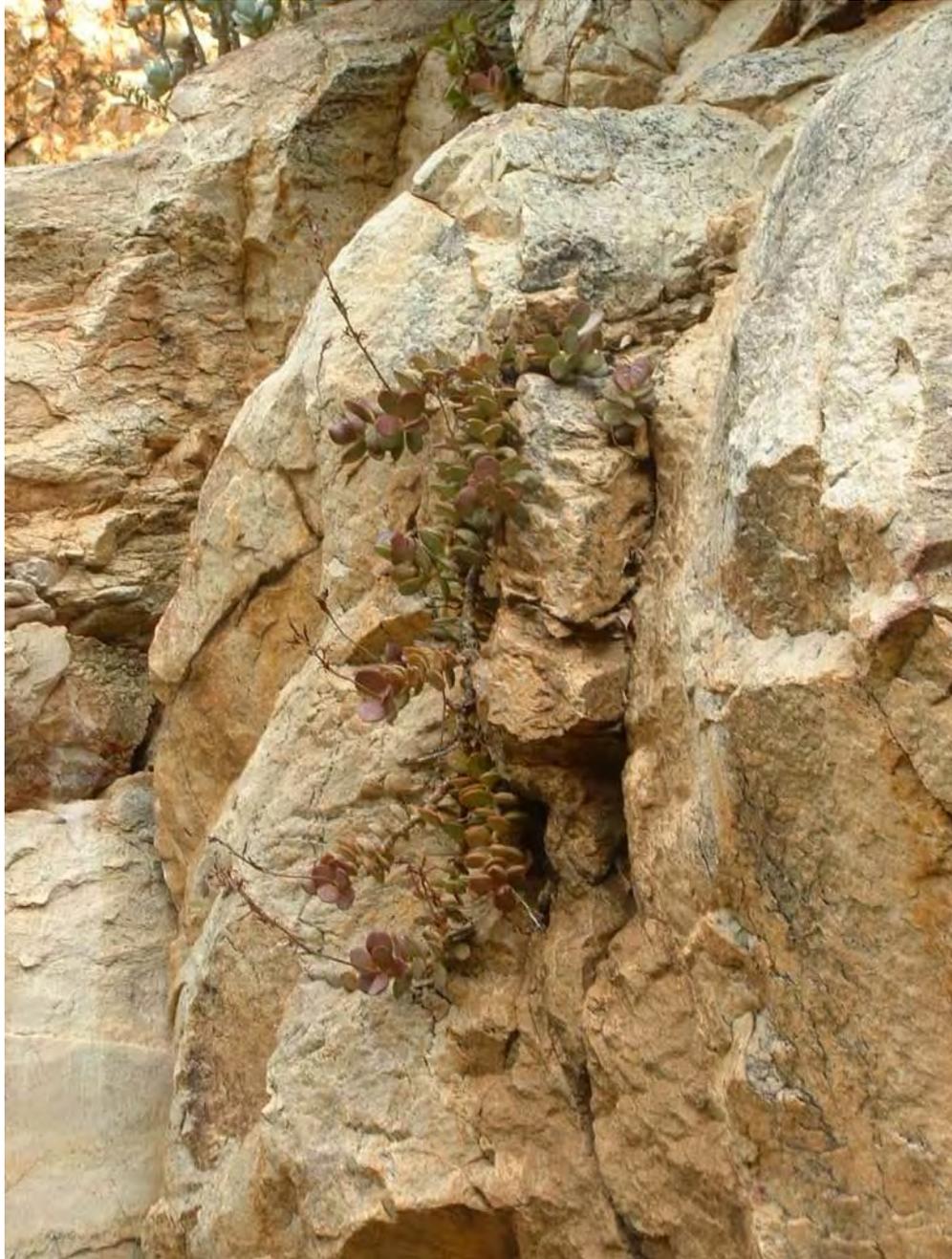


FIGURE 104a. *Adromischus subdistichus* at Toorwaterspoort in the Groot Swartberge, west of Willowmore. Leaves are brittle and when they become detached, they will root in new crevices (cloning backup).

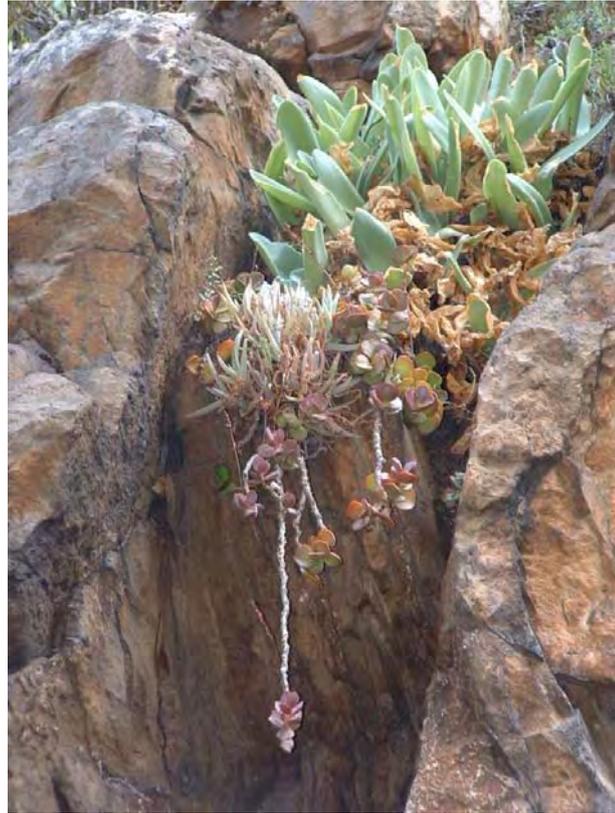


FIGURE 104b. *Adromischus subdistichus* at Toorwaterspoort in the Groot Swartberge west of Willowmore. Here growing with *Bulbine frutescens* and *Haemanthus albiflos*.



FIGURE 104c. Toorwaterspoort in the eastern Swartberg in the Western Cape, habitat of *Adromischus subdistichus* and many other succulent cremnophytes.



FIGURE 104d. *Adromischus subdistichus* growing on and in cliffs at Aasvoëlberg near Willowmore.

105. *Adromischus umbraticola* subsp. *ramosus*



FIGURE 105a. *Adromischus umbraticola* subsp. *ramosus* growing at Chuniespoort in Limpopo Province. The brittle leaves will root in new crevices if they become detached (cloning backup).

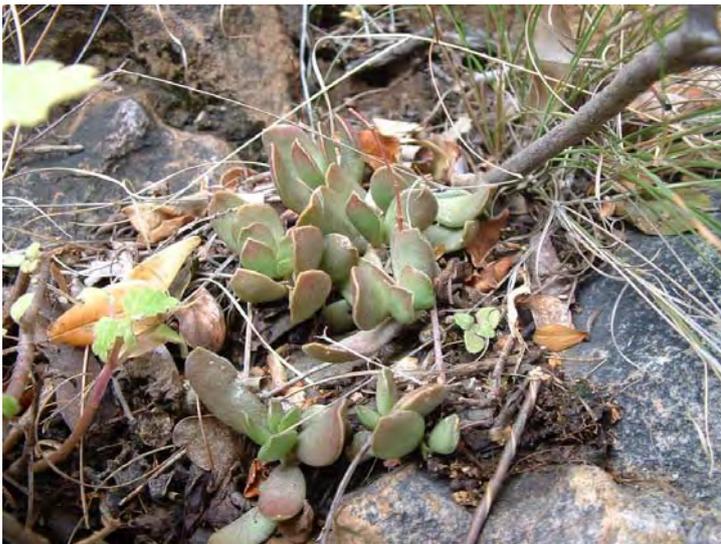


FIGURE 105b. Getting close to *Adromischus umbraticola* subsp. *ramosus* at Chuniespoort in Limpopo Province.



FIGURE 105c. Chuniespoort habitat of *Adromischus umbraticola* subsp. *ramosus* in Limpopo Province. Note the conspicuous *Aloe mutabilis* and *Sarcostemma viminale* drooping from the cliff face.

106. *Cotyledon barbeyi* var. A



FIGURE 106a. *Cotyledon barbeyi* var. A flowering at Kirstenbosch (material from Wyllies Poort, Limpopo Province).



FIGURE 106b. The leaves of *Cotyledon barbeyi* var. A in cultivation at Kirstenbosch (material from Wyllies Poort, Limpopo Province).

107. *Cotyledon elisae*



FIGURE 107a. *Cotyledon elisae* growing on a sandstone cliff in the Gourits River in the Western Cape.

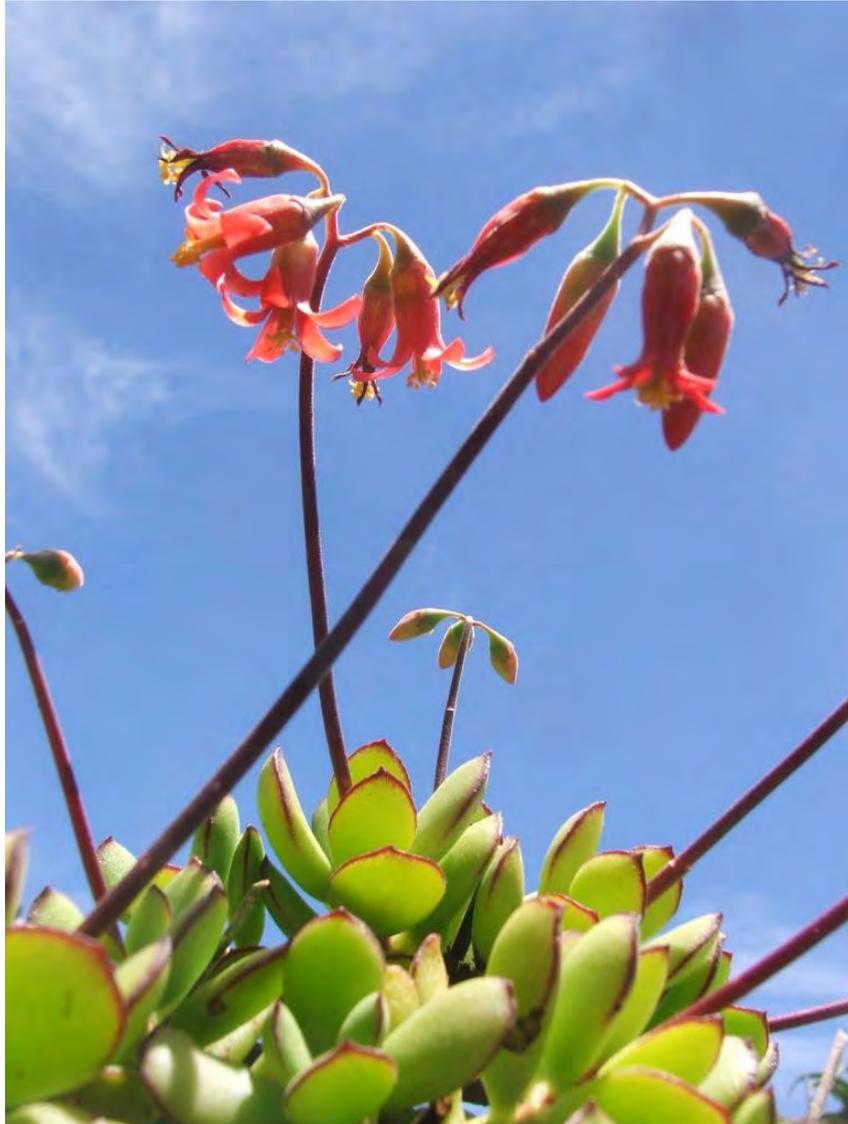


FIGURE 107b. *Cotyledon elisae* in cultivation at Kirstenbosch.

108. *Cotyledon pendens*



FIGURE 108a. *Cotyledon pendens* growing at Kirstenbosch. Branches will root if they find new crevices. Detached leaves will also root, forming new plantlets, a distinct and unique clonal backup.



FIGURE 108b. The inflorescence of *Cotyledon pendens*.

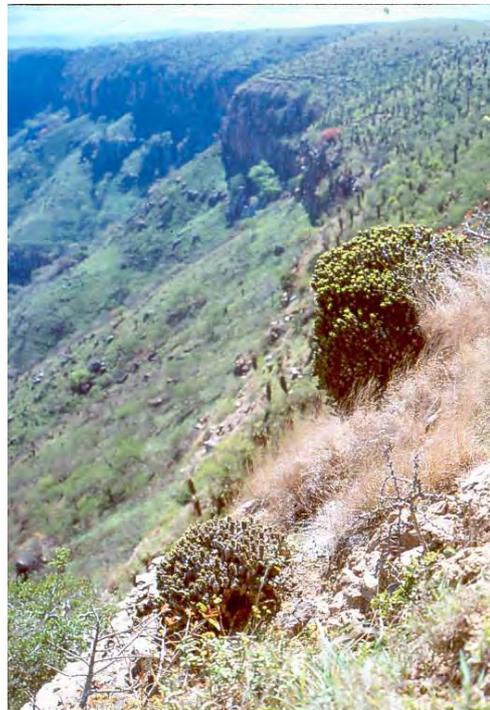


FIGURE 108c. Shale cliffs along the Bashee River in the Eastern Cape where *Cotyledon pendens* grows.

109. *Cotyledon tomentosa* subsp. *tomentosa*



FIGURE 109a. *Cotyledon tomentosa* subsp. *tomentosa* on a sandstone cliff face in the Huis River Pass.



FIGURE 109b. *Cotyledon tomentosa* subsp. *tomentosa* in flower at Kirstenbosch.



FIGURE 109c. *Cotyledon tomentosa* subsp. *tomentosa* on a cliff face at the Kouga Dam in the Eastern Cape.

110. *Crassula alba* var. *pallida*



FIGURE 110a. *Crassula alba* var. *pallida* growing on a dolomite cliff face at the Abel Erasmus Pass in Mpumalanga.

111. *Crassula atropurpurea* var. *anomala*



FIGURE 111a. *Crassula atropurpurea* subsp. *anomala* growing on a sandstone cliff face in Du Toitskloof in the Witteberg in the Western Cape.



FIGURE 111b. Witteberg, habitat of *Crassula atropurpurea* var. *anomala*.



FIGURE 111c. *Crassula atropurpurea* subsp. *anomala* on a sandstone cliff face in Du Toitskloof. The seeds germinate on lichen- and moss-covered cliffs.



FIGURE 111d. *Crassula atropurpurea* subsp. *anomala* on a sandstone cliff face at Dwarsrivierspoort in the Western Cape.

113. *Crassula badspoortense*



FIGURE 113a. *Crassula badspoortense* growing at Badspoort south of Calitzdorp in the Western Cape.



FIGURE 113b. *Crassula badspoortense* in flower at Kirstenbosch.

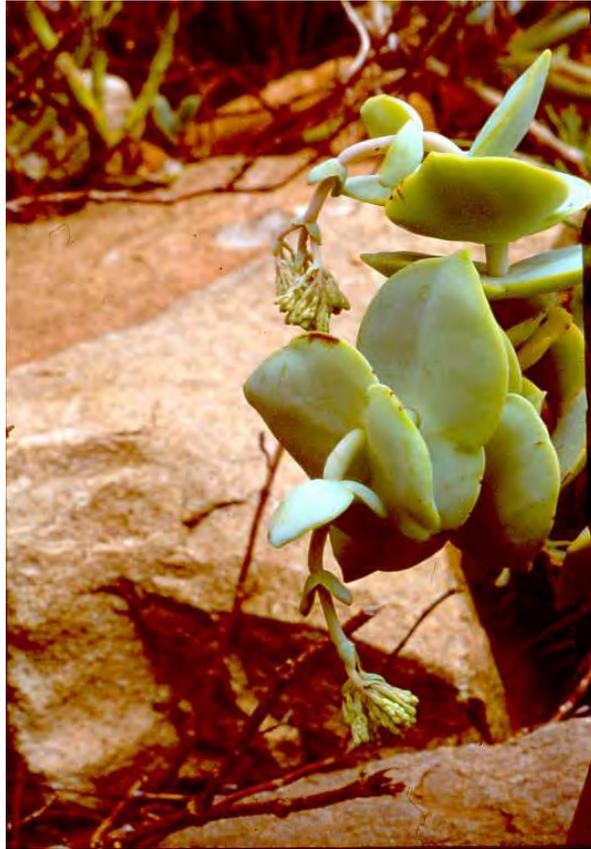


FIGURE 113c. *Crassula badspoortense* in habitat. The inflorescence initially curves down, a distinct character.

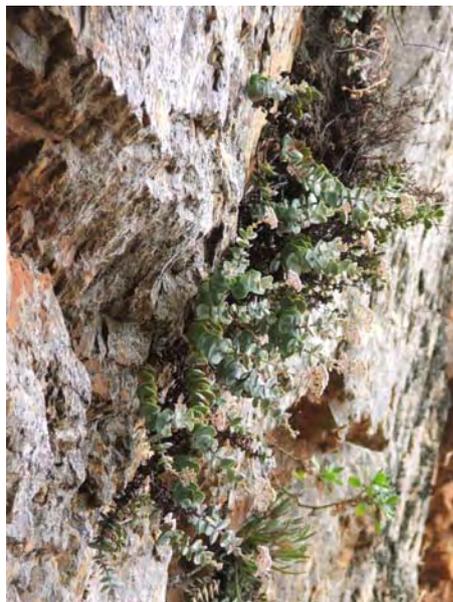


FIGURE 113d. *Crassula badspoortense* drooping from a cliff face at Waterkloof in the Hex River Valley.

114. *Crassula brachystachya*



FIGURE 114a. *Crassula brachystachya* on a cliff near Touws River.



FIGURE 114b. *Crassula brachystachya* growing on cliffs near Touws River.



FIGURE 114c. *Crassula brachystachya* at Bosluiskloof near Die Hel in the Western Cape.



FIGURE 114d. *Crassula brachystachya* growing below an overhang at Bosluiskloof.

115. *Crassula capitella* subsp. *thyrsoflora*



FIGURE 115a & 115b. Cliff-face form of *Crassula capitella* subsp. *thyrsoflora* at Gertsmitkloof. The plants form dense clusters and branches falling into new crevices will soon root.



FIGURE 115c. Cliff-face form of *Crassula capitella* subsp. *thyrsiflora* grown at Kirstenbosch (material from Gertsmitzkloof).



FIGURE 115d. Cliff-face form of *Crassula capitella* subsp. *thyrsiflora* from Mistkraal, here in cultivation at Kirstenbosch.



FIGURE 115e. Cliff-face form of *Crassula capitella* subsp. *thyrsiflora* at the Kouga Dam, growing in dense clusters. Branches that fall into crevices will soon root there.



FIGURE 115f. *Crassula capitella* subsp. *thyrsiflora*, the cliff-face form on the farm Valsriviermond at the Gourits River in the Western Cape. Plants here grow on shale.



FIGURE 115g. *Crassula capitella* subsp. *thyrsoflora* at Grootrivierspoort in the Eastern Cape on quartz cliffs. The Grootrivier is a tributary of the Gamtoos River.



FIGURE 115h. The common non-cliff form of *Crassula capitella* subsp. *thyrsoflora* at the Grootrivierspoort in the Eastern Cape. The two forms grow sympatrically. The non-cliff-face form above is not as compact and this growth is retained in cultivation.

116. *Crassula cremnophila*



FIGURE 116a. *Crassula cremnophila* at the Kouga River on the farm Keurkloof where it grows on sandstone rock among lichens and moss. Plants are found on south-facing cliffs, the clusters solitary or dividing. Note the old infructescence.



FIGURE 116b. *Crassula cremnophila* on the farm Keurkloof, growing among moss on sandstone rock. Note the old infructescence.



FIGURE 116c. *Crassula cremnophila* flowering in cultivation at Kirstenbosch (material from Keurkloof).



FIGURE 116d. The cliffs at Keurkloof, Kouga, habitat of *Crassula cremnophila*.

117. *Crassula cymbiformis*



FIGURE 117a. *Crassula cymbiformis* growing on cliffs of the Kransberg in the Marakele National Park in Limpopo Province. The plants grow among lichens on south-facing cliffs.



FIGURE 117b. *Crassula cymbiformis* in flower on a sandstone cliff on the Kransberg.



FIGURE 117c. The habitat of *Crassula cymbiformis* on the Kransberg in the Marakele National Park in Limpopo Province where the plants grow on cliffs higher than 1000 m above sea level.

118. *Crassula exilis* subsp. *cooperi*



FIGURE 118a. *Crassula exilis* subsp. *cooperi* on a sandstone cliff north of Graaff-Reinet and near the Kompasberg in the Northern Cape. Plants form dense clusters on shady cliffs.



FIGURE 118b. *Crassula exilis* subsp. *cooperi* in flower at Kirstenbosch.

119. *Crassula exilis* subsp. *exilis*



FIGURE 119a. *Crassula exilis* subsp. *exilis* growing on quartz rocks at Ratelpoort in Namaqualand in the Northern Cape. The plants form dense clusters on shady cliffs.



FIGURE 119b. A dense cluster of *Crassula exilis* subsp. *exilis* on shady quartz rocks at Ratelpoort.



FIGURE 119c. *Crassula exilis* subsp. *exilis* in full sun on quartz rocks of a cliff at Ratelpoort in the Northern Cape. The reddish colour of the leaves is due to the production of anthocyanins.



FIGURE 119d. Quartz cliff at Ratelpoort in the Northern Cape, habitat of *Crassula exilis* subsp. *exilis*.

120. *Crassula exilis* subsp. *sedifolia*



FIGURE 120a. *Crassula exilis* subsp. *sedifolia* (plant below the *Adromischus diabolicus*) growing on a shady south-facing cliff at Dabenorisberg in the Northern Cape.



FIGURE 120b. Dabenorisberg in the Northern Cape, habitat of *Crassula exilis* subsp. *sedifolia*. Plants grow on shady south-facing slopes. The Orange River is in the background.

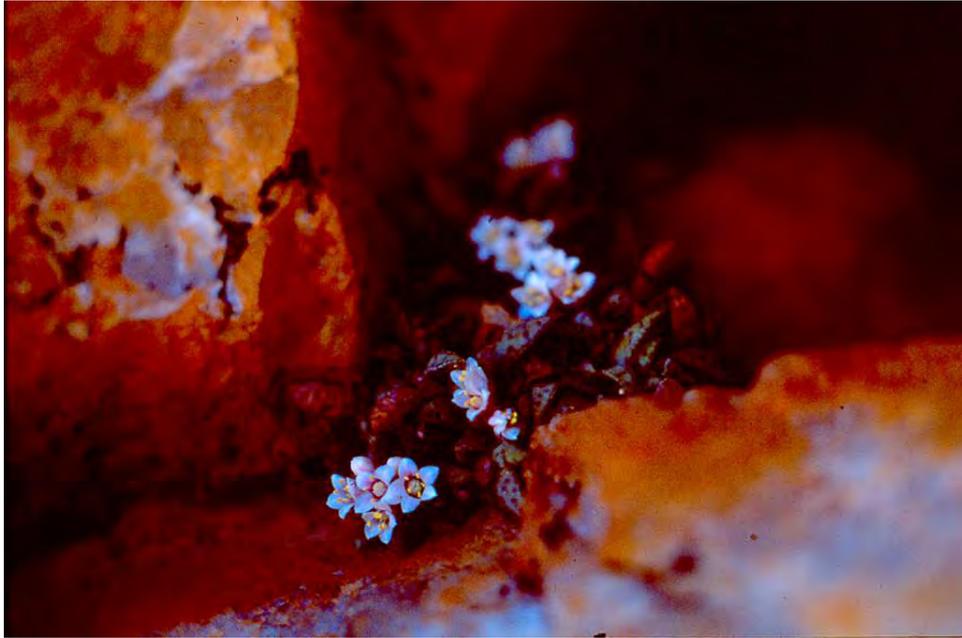


FIGURE 120c. *Crassula exilis* subsp. *sedifolia* flowering in a quartz crevice on Pellaberg.



FIGURE 120d. *Crassula exilis* subsp. *sedifolia* growing on Pellaberg.

121. *Crassula expansa* subsp. *fragilis*



FIGURE 121a. *Crassula expansa* subsp. *fragilis* growing on a dolomite cliff behind Pilgrim's Rest in Mpumalanga.



FIGURE 121b. *Crassula expansa* subsp. *fragilis* on cliffs at the White Mfolozi River in KwaZulu-Natal.

122. *Crassula foveata*



FIGURE 122a. *Crassula foveata* of Collywobbles in the Transkei region of the Eastern Cape. Propagules on the stem will root when becoming detached, forming new colonies (cloning).



FIGURE 122b. *Crassula foveata* from Collywobbles in flower at Kirstenbosch.

123. *Crassula intermedia*



FIGURE 123a. *Crassula intermedia* (Van Jaarsveld 16830) on a sandstone cliff at Wooldridge in the Eastern Cape), with *Haworthia cymbiformis* var. *ramosa* in the background.



FIGURE 123b. Cliff hugger *Crassula intermedia* growing on a shady south-facing sandstone cliff near Kirkwood in the Eastern Cape.



FIGURE 123c. *Crassula intermedia* on a sandstone cliff near Kirkwood, here sharing its habitat with *C. orbicularis* (on the left).

124. *Crassula lanuginosa* var. *lanuginosa*



FIGURE 124a. *Crassula lanuginosa* var. *lanuginosa* on a cliff at Leeukloofberg east of Graaff-Reinet in the Eastern Cape. A cliff hugger, here growing and acting as a hanger.



FIGURE 124b. *Crassula lanuginosa* var. *lanuginosa* in cultivation at Kirstenbosch.



FIGURE 124c. *Crassula lanuginosa* var. *lanuginosa* hugging a cliff at Leeukloofberg, east of Graaff-Reinet in the Eastern Cape.



FIGURE 124d. A close look at *Crassula lanuginosa* var. *lanuginosa* in cultivation at Kirstenbosch.

125. *Crassula montana* subsp. *montana*



FIGURE 125a. *Crassula montana* subsp. *montana* growing on a sandstone cliff above Skitterykloof in the Western Cape.



FIGURE 125b. *Crassula montana* subsp. *montana* on a sandstone cliff in the Doorn River Valley in the Western Cape.



FIGURE 125c. *Crassula montana* subsp. *montana* growing on a sandstone cliff on the Wolfberg in the Cedarberg in the Western Cape.



FIGURE 125d. The Doorn River Valley in the Western Cape, habitat of *Crassula montana* subsp. *montana*.



FIGURE 125e. *Crassula montana* subsp. *montana* at Blinkberg in the Western Cape.

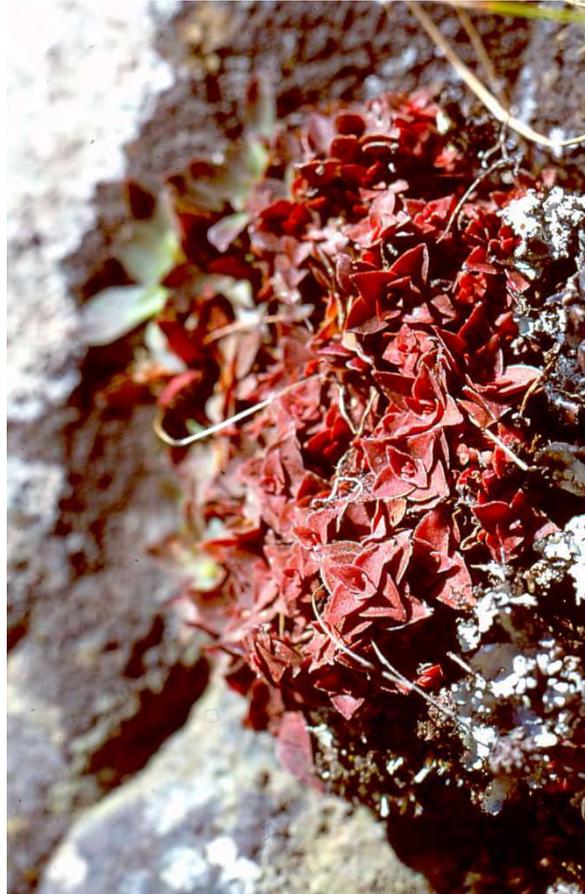


FIGURE 125f. *Crassula montana* subsp. *montana* on a sandstone cliff on the Wolfberg of the Cedarberg in the Western Cape.



FIGURE 125g. *Crassula montana* subsp. *montana* on a sandstone cliff on the Wolfberg.

126. *Crassula montana* subsp. *quadrangularis*



FIGURE 126a. *Crassula montana* subsp. *quadrangularis* growing on a shale cliff in the Karoo in the vicinity of Koup Station near Laingsburg in the Western Cape.



FIGURE 126b. *Crassula montana* subsp. *quadrangularis* on a shale cliff near Koup Station close to Laingsburg in the Karoo.



FIGURE 126c. *Crassula montana* subsp. *quadrangularis* on a shale cliff near Koup Station near Laingsburg in the Karoo.

127. *Crassula nemorosa*



FIGURE 127a. *Crassula nemorosa* growing at Kirstenbosch (material from the vicinity of Kirkwood, Eastern Cape).



FIGURE 127b. *Crassula nemorosa* growing on shady south-facing dolomite cliffs above Konsertinakrans on the Hunsberg in southern Namibia. Plants are summer-deciduous from small tubers in the crevices.

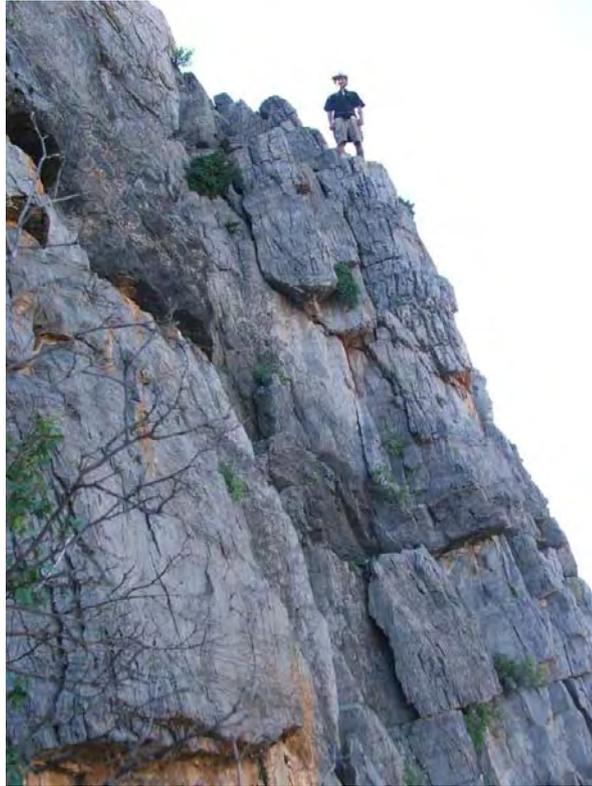


FIGURE 127c. The habitat of *Crassula nemorosa* above Konsertinakrans on the Hunsberg in southern Namibia, Gregory Nicolson in the background.



FIGURE 127d. *Crassula nemorosa* growing on a cliff face in the Eastern Cape.

128. *Crassula orbicularis* (Luputana form)



FIGURE 128a. *Crassula orbicularis* (Luputana form) growing at Waterfall Bluff on the Eastern Cape coast just south of Luputana Gorge.



FIGURE 128b. Luputana form of *Crassula orbicularis* at Waterfall Bluff on the Eastern Cape coast just south of Luputana Gorge.



FIGURE 128c. Waterfall Bluff in the Eastern Cape, the habitat of *Crassula orbicularis*. The Lupatana form of the species is restricted to sheer cliff faces.

129. *Crassula peculiaris*



FIGURE 129a. *Crassula peculiaris* on a sandstone cliff at the top of the Groot Swartberg, Swartberg Pass in the Western Cape.



FIGURE 129b. Sandstone cliffs of the Groot Swartberg, the habitat of *Crassula peculiaris*.

130. *Crassula pellucida* subsp. *spongiosa*



FIGURE 130a. *Crassula pellucida* subsp. *spongiosa* among moss on a south-facing slope on Witteberg sandstone cliffs at Du Toitskloof in the Western Cape.



FIGURE 130b. Sheer south-facing cliffs of Witteberg, habitat of *Crassula pellucida* subsp. *spongiosa* at Du Toitskloof in the Western Cape.

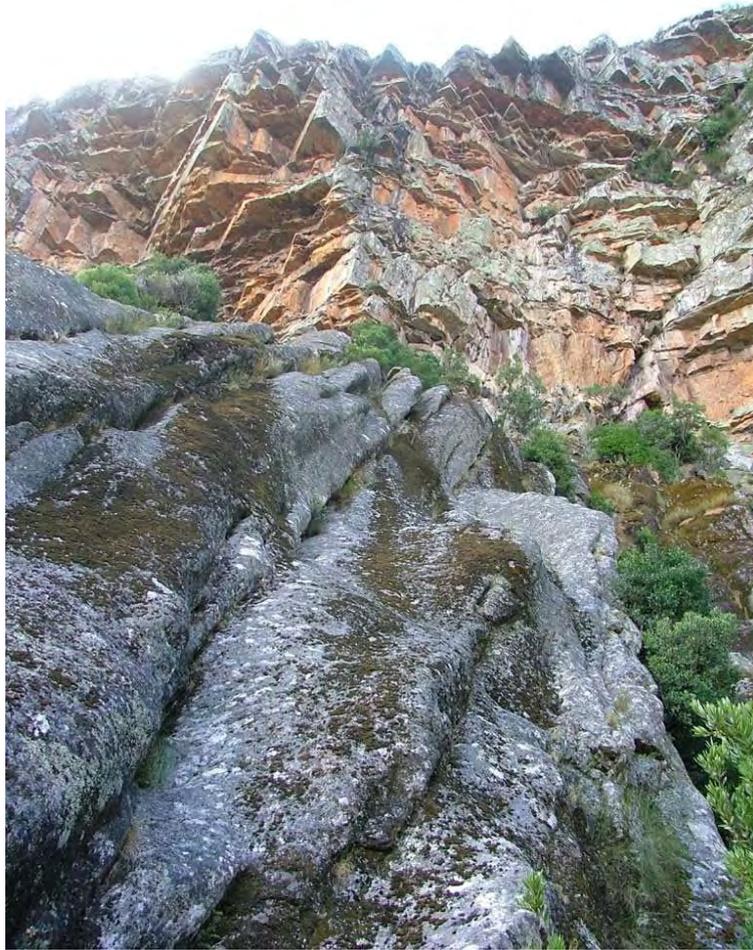


FIGURE 130c. Witteberg, Du Toitskloof in the Western Cape, the habitat of *Crassula pellucida* subsp. *spongiosa*.

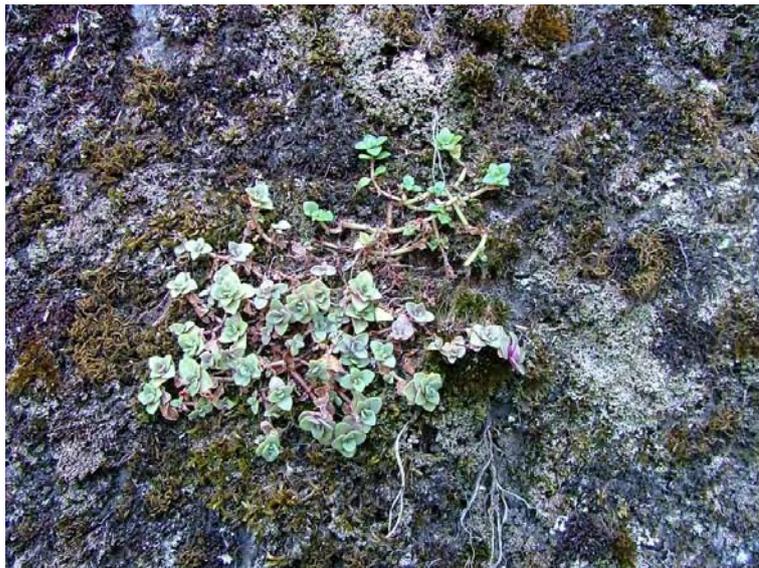


FIGURE 130d. *Crassula pellucida* subsp. *spongiosa* growing among moss on a south-facing sandstone slope of the Witteberg.

131. *Crassula perforata* subsp. *kougaensis*



FIGURE 131a. *Crassula perforata* subsp. *kougaensis* in habitat at the Kouga Dam in the Eastern Cape.



FIGURE 131b. *Crassula perforata* subsp. *kougaensis* in cultivation at Kirstenbosch (material from Kouga Dam, Eastern Cape).



FIGURE 131c. *Crassula perforata* subsp. *kougaensis* in cultivation at Kirstenbosch (material from Kouga Dam, Eastern Cape). Note the compact leaves.



FIGURE 131d. *Crassula perforata* subsp. *kougaensis* in its habitat at the Kouga Dam.

132. *Crassula perforata* subsp. *perforata*



FIGURE 132a. *Crassula perforata* subsp. *perforata* in cultivation at Kirstenbosch.



FIGURE 132b. Cliff-face form of *Crassula perforata* at the Mzimvubu River in the Transkei region, Eastern Cape.



FIGURE 132c. Shale cliffs along the Mzimvubu River in the Eastern Cape, the habitat of *Crassula perforata* subsp. *perforata*.

133. *Crassula pseudohemisphaerica*



FIGURE 133a. *Crassula pseudohemisphaerica* on a south-facing quartzitic sandstone cliff at Skouerfontein. Other plants include *Tylecodon paniculatus* (right), *T. viridiflorus* (back).



FIGURE 133b. *Crassula pseudohemisphaerica* growing on quartz cliffs at Gemsbokvlei, Vyftienmyl se Berge near Port Nolloth in the Richtersveld in the Northern Cape.



FIGURE 133c. The cliff-face habitat at Skouerfontein at Eksteenfontein in the Richtersveld, habitat of *Crassula pseudohemisphaerica*.



FIGURE 133d. *Crassula pseudohemisphaerica* growing on sandstone cliffs on Kuamsibberg at Hunsberg in southern Namibia.

134. *Crassula pubescens* subsp. *rattrayi*



FIGURE 134a. *Crassula pubescens* subsp. *rattrayi* growing at Kirstenbosch (material from Olievenhoutberg, Graaff-Reinet).



FIGURE 134b. *Crassula pubescens* subsp. *rattrayi* growing on Olievenhoutsberg near Graaff-Reinet.

135. *Crassula rupestris* subsp. *marnieriana*



FIGURE 135a. *Crassula rupestris* subsp. *marnieriana* growing on south-facing cliffs at Buffelspoort west of Ladismith in the Western Cape.



FIGURE 135b. Buffelspoort west of Ladismith in the Western Cape, habitat of *Crassula rupestris* subsp. *marnieriana*.



FIGURE 135c. *Crassula rupestris* subsp. *marnieriana* growing on the lower slopes of Touwsberg in the Western Cape.



FIGURE 135d. *Crassula rupestris* subsp. *marnieriana* here growing sympatrically with *C. rupestris* subsp. *rupestris* on cliffs above the Huis River Pass in the Western Cape.

136. *Crassula rupestris* subsp. *rupestris* (cliff-face form)



FIGURE 136a. Cliff-face form of *Crassula rupestris* subsp. *rupestris* growing on the northern cliff face of Table Mountain at Cape Town in the Western Cape.



FIGURE 136b. North-facing sandstone cliff face of Table Mountain in the Western Cape, the habitat of the cliff-face form of *Crassula rupestris* subsp. *rupestris*.

137. *Crassula sediflora* var. *sediflora*



FIGURE 137a. *Crassula sediflora* var. *sediflora* where it grows on a steep granite slope near Cliffendale, Durban in KwaZulu-Natal.



FIGURE 137b. *Crassula sediflora* var. *sediflora* on a granite cliff near Cliffendale, Durban in KwaZulu-Natal.

138. *Crassula sericea* var. *sericea*



FIGURE 138a. *Crassula sericea* var. *sericea* on sandstone cliffs in the Gannakouriep in the Richtersveld in the Northern Cape. The leaves are brittle and will root when they become detached.



FIGURE 138b. *Crassula sericea* var. *sericea* growing on cliffs at Jenkinskop in the Richtersveld in the Northern Cape.



FIGURE 138c. Cliffs at Vandersterberg in the Richtersveld in the Northern Cape, the habitat of *Crassula sericea* var. *sericea*.

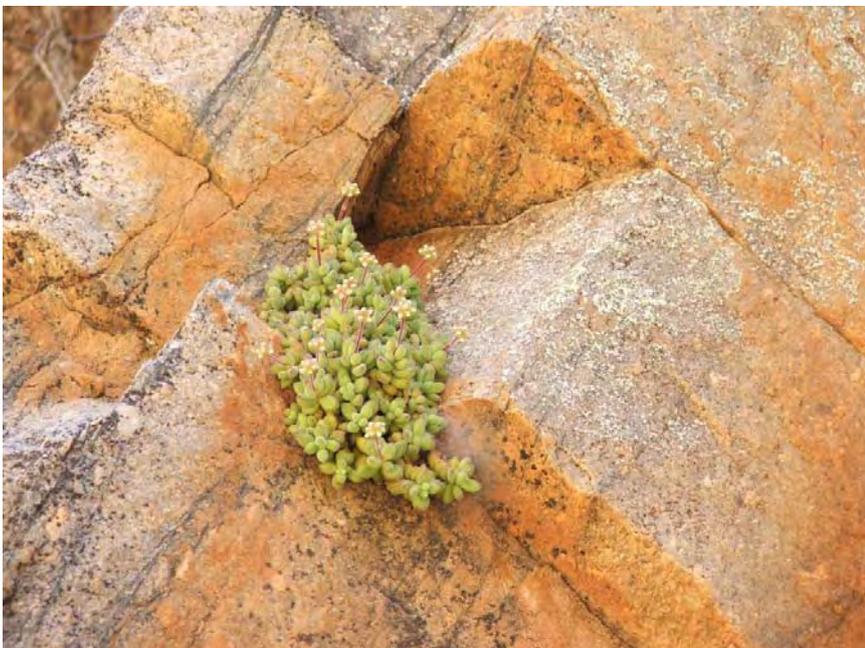


FIGURE 138d. *Crassula sericea* var. *sericea* growing on sheer sandstone cliffs at Vandersterberg in the Richtersveld in the Northern Cape.



139. *Crassula setulosa* var. *jenkinsii*



FIGURE 139a. *Crassula setulosa* var. *jenkinsii* growing on cliffs at Fairlands near Roodepoort in Gauteng.



FIGURE 139b. Cliffs at Chuniespoort, habitat of *Crassula setulosa* var. *jenkinsii*.



FIGURE 139c & 139d. *Crassula setulosa* var. *jenkinsii* growing on cliffs at the Hartbeespoort Dam (139c) and at Fairlands (139d) near Roodepoort in Gauteng. The propagules on the inflorescence (139d) will root if they become detached and will then form new plants (backup cloning).

140. *Crassula setulosa* var. *longiciliata*



FIGURE 140a. Sentinel cliffs of the Drakensberg, habitat of *Crassula setulosa* var. *longiciliata*.



FIGURE 140b. *Crassula setulosa* var. *longiciliata* on a south-facing sandstone cliff at Steenkampsberg.

141. *Crassula setulosa* var. *setulosa*



FIGURE 141a. *Crassula setulosa* var. *setulosa* growing on cliffs along the Blyderivierspoort in Mpumalanga.



FIGURE 141b. *Crassula setulosa* var. *setulosa* growing on cliffs along the Blyderivierspoort in Mpumalanga.



FIGURE 141c. Escarpment cliffs of Steenkampberg, habitat of *Crassula setulosa* var. *setulosa*.

142. *Crassula sladenii*



FIGURE 142a. *Crassula sladenii* growing on dolomite cliffs on Sonberg, Orange River Valley in southern Namibia.



FIGURE 142b. Getting close to a young plant of *Crassula sladenii* growing on the dolomite cliffs of Sonberg, Orange River Valley in southern Namibia.



FIGURE 142c. *Crassula sladenii* on dolomite cliffs on Sonberg at the Orange River Valley in southern Namibia.