

1.1 AT3 Groot Thicket

This vegetation typically occurs on moderate to steep slopes on the ridges of the mountain ranges and is dominated by a low succulent thicket, usually fairly dense and closed (Mucina & Rutherford 2006). Under favourable conditions spekboom (*Portulacaria afra*) is abundant amongst dense stands of other low woody shrubs. The grass component is usually poorly developed. About 11% statutorily conserved mainly in the Addo Elephant National Park (AENP), Guerna Wilderness Area and Baviaanskloof Conservation Area. 3.5% conserved in addition in other reserves. Many parts have been opened up by overgrazing and poor management practices and fence-line contrasts along mountain slopes are fairly common, with thicket present on the one side and absent on the other (Mucina & Rutherford 2006). Major correspondence between vegetation units (Mucina & Rutherford 2006) and Subtropical Thicket Ecosystem planning (STEP)'s vegetation types are also described below. The STEP units described are those that have at least 80% of their area within the vegetation units described by Mucina & Rutherford (2006) and do not necessarily constitute a high proportion of the vegetation unit. Vlok & Euston-Brown (2002) identify the following vegetation types under Groot Thicket (AT3):

STEP (Vlok & Euston-Brown 2002):

a). Baviaans Spekboom Thicket

Portulacaria afra is one of the most abundant species in the Baviaans Spekboom Thicket, where it often co-occurs with *Aloe speciosa*. The woody trees are less abundant than in the rest of the Valley Thicket of this area, with only *Boscia oleoides*, *Euclea undulata*, *Pappea capensis* and *Schotia afra* being abundant. The woody shrubs amongst the Spekboom are mostly only the more drought resilient species, such as *Cadaba aphylla*, *Carissa haematocarpa*, *Pegolettia baccharidifolia* and *Rhigozum obovatum*. When disturbed, *Cenchrus ciliaris*, *Cynodon dactylon*, *Pentzia incana* and occasionally *Melinis repens* become abundant, often in association with *Aloe ferox*, or *Aloe striata* in the more arid sites.

b). Baviaans Valley Thicket

In all probability, at least following the hypothetical scheme that has been developed to identify the Thicket units in STEP, this unit should have been a Savanna Thicket unit, but it is not. The potential areas in the landscape that may have supported a local Savanna Thicket, lack adequate summer rain (approximately 300 mm required) and has nutrient poor underlying geology (mostly quartzitic sandstone). The typical woody component of the Savanna Thicket (*Olea europaea*, *Scutia myrtina*, etc.) is thus rare here, as well as an abundance of C4 grasses. The drought resilient *Euphorbia grandidens* reaches its southernmost distribution here. It is never abundant and is at present restricted to small populations that only occur on south facing slopes and in ravines. Amongst the fragmented Thicket vegetation occur pockets of Fynbos shrubs (e.g. *Agathosma puberula*, *Aspalathus setacea*, *Polygala myrtifolia*, etc.), often intermixed with typical Thicket shrubs and succulents (e.g. *Azima tetracantha*, *Carissa haematocarpa*, *Cotyledon orbiculata*, *Cotyledon velutina*, *Ehretia rigida*, *Euphorbia atrispina*, *Putterlickia pyracantha*, *Sarcostemma viminale*, etc.). In rocky, open sites amongst the Thicket, occur some rare and endemic succulents such as *Gasteria vlokii*, *Haworthia zatneriana*, etc. The true forest elements (e.g. *Afrocarpus falcatus*, *Ficus sur*, *Celtis africana*, etc.) could easily be defined as a minor unit amidst this Thicket vegetation, but these forest clumps are small and not easily mapped. Woody shrubs and climbers are common, with *Capparis sepriaria*, *Carissa bispinosa*, *Carissa haematocarpa*, *Diospyros scabrida*, *Ehretia rigida*, *Grewia robusta*, *Hippobromus pauciflorus*, *Maerua cafra*, *Nymania capensis* and *Putterlickia pyracantha* prominent. Graminoids are not prevalent, with those present also consisting of a combination of species more typical of the eastern Thicket units (Savanna related) and the western Thicket units (Fynbos related).

c). Bethelsdorp Bontveld

In all respects one of the most remarkable Thicket Units, not only because it is located outside its 'normal' region, but also because of the rich combination of plant species present in this unique unit. It is not comparable to any of the other local Groot -Gamtoos- or Sundays River Thicket types. The dominant Thicket species present (e.g. *Smellophyllum capense*) clearly indicate that this is a Groot River Thicket unit, although it is distantly located in the Zwartkops River basin. The most plausible explanation for its existence is that it is a relic of a vegetation type (in which woody species such as *Atalaya capensis*, *Smellophyllum capense*, *Sterculia alexandri*, etc. were once abundant) that once extended from the present Baviaanskloof Mountain down towards the mouth of the Zwartkops River. This unit is particularly rich in succulents with e.g. *Aloe ferox*, *Ceropegia ampliata*, *Crassula perfoliata*, *Euphorbia polygona*, *Euphorbia pubiglans*, *Euphorbia stellata*, *Gasteria nitida*, *Haworthia fasciata*, etc. abundant and many geophyte species (e.g. *Eulophia parviflora*) present. Many of these succulent and geophyte species are very rare and threatened species, such as *Brachystelma schizoglossoides*, *Cyrtanthus spiralis*, *Delosperma hollandii*, *Urginea ciliata*, etc. It may have contained endemic species, but has been transformed and usurped by urban development to such an extent that it is difficult to determine and even visualize its original condition.

d). Groot Arid Spekboomveld

The Groot Arid Spekboomveld differs mostly from the affiliated Baviaans Spekboom Thicket in having the *Pappea capensis* less abundant, while *Euclea undulata* is more common. Drought resilient species such as *Cadaba aphylla*, *Gymnosporia polyacantha*, *Gymnosporia szyszyłowiczii*, etc. are more prominent here. In some valleys *Euphorbia coerulescens* may also be present, which indicate that this unit is somewhat similar to both the Sundays Spekboomveld and the Gamka Spekboomveld. It can be differentiated from the Sundays Spekboomveld in having *Crassula rupestris* and, when disturbed, *Galenia africana* present. The presence of *Crassula ovata*, rather than *Crassula arborescens*, distinguishes it from the Gamka Spekboomveld. When the dominant Spekboom (*Portulacaria afra*) is removed from this unit, the alien shrublet, *Atriplex lindleyi* subsp. *inflata*, along with *Rhigozum obovatum* and *Pentzia africana* are locally abundant. When pristine, a rich assemblage of karroid shrubs such as *Felicia muricata*, *Pentzia incana*, and *Selago geniculata* are present, especially where *Euphorbia coerulescens* is also abundant. After good rain, perennial grasses such as *Cenchrus ciliaris*, *Digitaria argyrograpta*, *Eragrostis lehmanniana*, *Fingerhuthia africana* and *Tragus koelerioides* are abundant, but this condition is now rare and only the less palatable annual grass species (e.g. *Aristida congesta* and *Enneapogon desvauxii*) are at present abundant. *Stipagrostis ciliaris* and *Stipagrostis obtusa* are abundant in sites where deep sandy soils occur, especially where severe overgrazing by domestic stock devoured even the shrubs and trees from the local environment.

e). Kleinpoort Karroid Thicket

This unit is largely restricted to gravelley-clayey soils derived from the predominantly underlying Dwyka Tillite formation. Here the Thicket clumps are largely restricted to valleys and ravines where the soils are deeper and where they are possibly protected against periodic fires. The open slopes are covered with karroid vegetation in which *Bechium burchellianum* is prominent, especially on south facing slopes. This unit is closely related to the Albany Karroid Bontveld, but differs in lacking *Cussonia spicata* and *Sideroxylon inerme* prominent in the Thicket clumps. The matrix of karroid vegetation is, however, very similar with a well-developed grass component where *Aristida diffusa*, *Digitaria argyrograpta*, *Digitaria eriantha*, *Eragrostis chloromelas*, *Eustachys paspaloides*, *Panicum maximum* and *Themeda triandra* are abundant when the veld is pristine and after summer rain has fallen. The matrix karroid

vegetation similarly contains shrub and herbaceous species that occur more typical either in the western or the eastern areas. The more western elements, such as *Aloe humilis*, *Dicoma spinosa*, *Elytropappus rhinocerotis*, *Rosenia humilis* and *Tylecodon paniculatus*, are here largely restricted to steep south facing slopes, while the eastern elements, such as *Aloe tenuior*, *Cyrthanthus smithiae*, *Euphorbia stellata*, *Faucaria felina*, etc., tend to grow on the more exposed slopes and ridge crests. Several succulent species, such as *Euphorbia jansenvillensis*, *Haworthia glauca* var. *herrei*, *Haworthia sordida* var. *lavranii*, etc., are endemic or near-endemics to specific microhabitat conditions in this unit.