Risk management – Part 13

Eastern Cape Veld and Game

Game farmers need to know more about veld in this area before they farm here.

Deon Furstenburg – Specialist wildlife biologist and risk manager

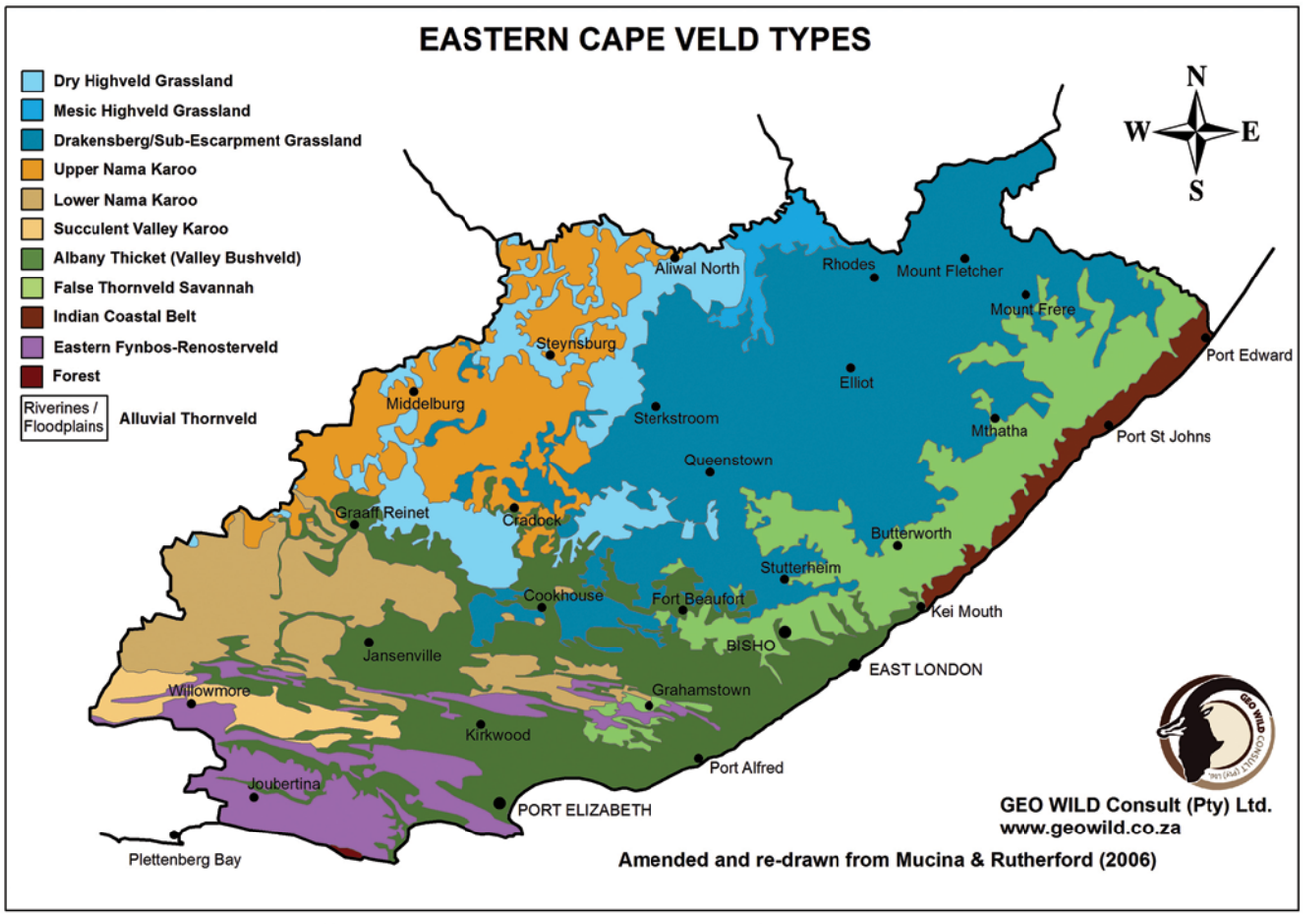
The Eastern Cape is an area of extremes and great diversity, situated at the convergence of the summer and all-year rainfall regions. The habitats range in accordance with a rainfall gradient from arid karroid desert with 180 mm rain per annum in the western region, through thickets, rainforest and savanna, to montane Drakensberg Escarpment grassland with 1 750 mm rain in the north-eastern region. Besides the huge rainfall range, the area has a very large variety of geologic formations and topographic aspects, resulting in major variations and subdivision of the natural veld types and potential carrying capacities of the veld. Following from coastal sand dunes, across the quartzitic sandstone of the Cape Fold Mountains, the Sundays River graben, across the sedimentary Karoo basin of mudstone, limestone, diamictite, shale and silt, intertwined with intrusions of dolerite faults and dykes, it stretches to the great Drakensberg Escarpment of basaltic lavas. The climate ranges from moderate coastal, to arid desert, to temperate highland, to cold snowline mountain summit.

The Cape Fold Belt starts just east of Grahamstown, from where it extends westwards past Addo, through the Baviaanskloof and across the western boundary of the Eastern Cape. It consists mainly of metamorphic **white quartzitic sandstone** at the summit and bigger heights, giving rise to Fynbos and Renosterveld of little to no grazing value. The middle to lower slopes consist of metamorphic **red quartzitic sandstone**, giving rise to Albany Thicket (Valley Bushveld) of poor browsing quality and mixed grasses of poor grazing quality. The joint between white and red quartzitic sandstone can be seen from a distance as a cutline between upper Fynbos and lower Valley Bushveld.

The warm, northern middle slopes have Albany Thicket dominated predominantly by Cape plum *Pappea capensis* and shrublike sweet spekboom *Portulacaria afra*, with good browsing capacity and sweet grasses of low vigour but moderate nutrition. The southern middle slopes bear Albany Thicket dominated by sneezewood *Ptaeroxylon obliquum*, noors *Euphorbia caerulescens*, boerboon *Schotia afra*, kiepersol *Cussonia spicata*, spiked thorn *Maytenus* and sour spekboom with very poor browsing capacity and mixed grasses of high vigour and poor nutrition. High tick infestations are well known in the valleys and on the southern mountain slopes.

Most of the foothills of the Cape Fold Mountains and the valleys between the mountains contain mineral-rich

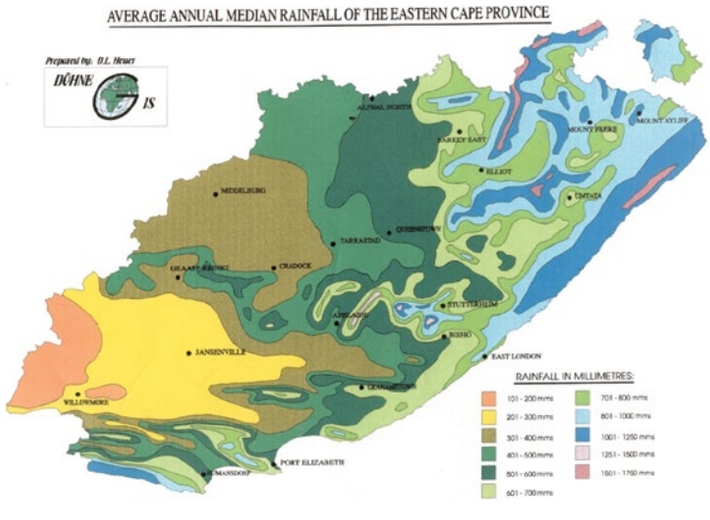
Good quality Albany Thicket on mudstone



Most important veld types affecting game ranching in the Eastern Cape

sedimentary Enon conglomerates and mudstone, deposited by large prehistoric rivers draining the Karoo wetland basin, and with alternating localised shales. These are mostly covered by different structures of Albany Thicket, depending on the depth of the soil substrate. The Albany Thickets are relatively young in earth age and originated only after the peak of the previous ice age between 12 000 and 18 000 years ago. Between Port Elizabeth and Addo, the Sundays River graben (previously under ocean) consists of a thick layer of terrace gravel (today used for the production of cement) with a broken variation of Albany Thicket, also known as Bontveld. Bontveld has very little grazing and browsing value.

In some areas the conglomerates are overlaid by a rich silt layer of diamictite where a highly nutritional variation of Albany Thicket is found with sweet grasses of high value and relatively greater vigour. These areas are the cherries of the Valley Bushveld for animal production. Immediately north of the western section of the Cape Fold Mountains follows a rain shadow of extremely dry climate, giving rise to the Sundays Noorsveld at natural grazing capacities of 20–30 ha per Large Stock Unit. After the Noorsveld, one finds the flats of the Nama Karoo on sedimentary mudstone, limestone and altering shales of the Ecca formation. Prehistorically, these areas were marches and wetlands of the second dinosaur era, which became extinct 60 million years ago. In more recent times these areas were rich grasslands, but continued global climate change and heavy livestock stocking with sheep have turned this land into dwarf karroid Karoo veld.



Average annual rainfall precipitation of the Eastern Cape, affecting vegetation, veld types and animal performance (DL Heuter, GIS, Döhne Agriculture Institute)

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Good-quality Albany Thicket on conglomerate

Albany Thicket (Valley Bushveld) is extremely difficult to demarcate, as structure and species composition of the vegetation changes constantly according to geological substrate, soil depth, altitude, aspect of the slope and grazing-pressure history. In many areas and on many farms it is virtually impossible to map the variations of Albany Thicket and its carrying capacity. The author found 17 variations on a single 3 800 ha ranch in the Kirkwood area. Each variation has a measured different natural carrying capacity for animal production. The only option is to overlay a 1 km^2 grid over the entire area and to assess each square separately through the use of a scientifically precalculated carrying capacity index. The frequency of the index scores on the ranch or per game camp should then be added accumulatively in order to establish the forage and carrying capacity of the land. Besides the difficulty of demarcation, Mucina & Rutherford (2006) have identified and described 14 national variations, namely: 1) Southern Cape Valley Thicket, 2) Gamka Thicket, 3) Groot Thicket, 4) Gamtoos Thicket, 5) Sundays Noorsveld, 7) Coega Bontveld, 8) Kowie Thicket, 9) Albany Coastal Belt, 10) Great Fish Noorsveld, 11) Great Fish Thicket, 12) Buffels Thicket, 13) Eastern Cape Escarpment Thicket and 14) Camdeboo Escarpment Thicket.

In the eastern part of the province you will find False Thornveld Savanna on undulating loamy soils at a high rainfall (500–900 mm) and cool temperature, with mixed grassland of moderate vigour and moderate nutrition as well as sparse shrubs and trees dominated by *Acacia natalitia* and *Acacia karroo.*

In the north-eastern parts of the province lie the undulating hills extending into the escarpment of the Drakensberg, generally at higher altitudes, starting from the Tarkastad Montane Shrubland and Bedford Dry Grassland to the Queenstown Thornveld and the Sterkstroom Grasslands, up to the Drakensberg, with a rainfall ranging from 450 to 1 700 mm. Predominantly sour grassveld with localised patches of closed and open woodland are found here. The

Albany Thicket Bontveld on terrace gravel

temperature varies from temperate moderate, to cool, to cold. The area is characterised by forage of high vigour but low nutritional value. It is marginal to less suitable habitat for the majority of game species, with game performing poorly on especially the southern slopes and open plains. Northern-facing slopes generally provide better forage and better animal performance. Grass species composition differs significantly between southern- and northern-facing slopes, being sourer on the southern slopes. The higher the altitude, the poorer the nutritional grazing value but the greater the vigour value.

The central region between Cradock, Graaff-Reinet, Middelburg and Steynsburg is known as the Cape Midlands. It used to consist of vast mixed grasslands and a marshland measuring 144 000 ha. Early small-stock farmers entered the Midlands in 1828 with the most northern *Acacia* trees found 7 miles south of Cradock. They built a canal along the Bamboo Mountains, stretching from Cradock to Steynsburg, which eventually contributed to the drying up of the marshland and major donga erosions across the mudstone soils of the region. In 1942 most farms in this area were expropriated by the state and huge soil reclamation works were established by the national department of agricultural engineering. In 2001 the author assessed the remaining 23 000 ha of expropriated land and the carrying capacity varied from 65 to 115 ha per Large Stock Unit.

Most important is the rapidly evolving new veld type called Alluvial Thornveld along all the drainage lines and floodplains across most of all of the veld types of the Eastern Cape. This new habitat started developing 50 to 60 years ago and was officially recognised by botanists only in 2006. It plays a major role in the rapid spread of the distribution range of the kudu and made large areas of the Eastern Cape suitable for many subtropic game species. Development of the Alluvial Thornveld is a direct effect of the current process of global warming.

The production criteria of Albany Thicket and the variations thereof will be discussed in the next issue.

Deon Furstenburg
Cell: 072 575 3289
E-mail: *deon@geowild.co.za*
Web: *www.geowild.co.za*

Renosterveld on white quartzitic sandstone