

A Variant of *Acacia karroo* from Sekukuniland

by

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ABSTRACT

The relationship of some densely pubescent specimens from Sekukuniland in the eastern Transvaal to *Acacia gerrardii* Benth. and to *A. karroo* Hayne is discussed. The specimens were found to represent part of the range of variation of *A. karroo*. A map showing the known distribution of the densely pubescent plants is provided.

Nearly twenty years ago specimens of a most interesting *Acacia* were collected by Dr. L. E. Codd near Steelpoort in the Lydenburg district of the Transvaal. A few specimens have been collected subsequently and these have all lain unnamed in the National Herbarium, Pretoria.

Initially these specimens were thought to represent a new species somewhat intermediate in position between *A. karroo* Hayne and *A. gerrardii* Benth. The densely pubescent young branchlets, leaves, leaflets and pods are similar to those of *A. gerrardii* whilst the bright yellow flowers with reflexed corolla lobes resemble those of *A. karroo*. However, a closer examination of the specimens suggested that the relationship to *A. gerrardii* is superficial and that the true relationship is with *A. karroo*. This suggestion was subsequently strengthened by field observations.

A. karroo, which is an extremely widespread and variable species, typically has glabrous young branchlets, leaf petioles, rachides, rachillae, leaflets, peduncles and pods. However, specimens are found with sparingly pubescent young branchlets, petioles, rachides, rachillae, leaflets and peduncles. These specimens from Steelpoort differ from "typical" *A. karroo* in the dense development of the indumentum on these organs, particularly the conspicuous spreading marginal cilia on the leaflets and the densely pubescent, glandular pods.

Although superficially resembling *A. gerrardii*, the specimens have bright yellow flowers in contrast to the white flowers in *A. gerrardii*. In *A. gerrardii* the flowers are in fascicles on axillary peduncles along the branchlets, often on the previous season's growth whereas in these specimens the fascicled axillary peduncles tend to form a terminal raceme or sometimes the flowers occur on lateral axillary branchlets, the entire inflorescence forming an irregular terminal panicle. The specimens differ vegetatively from *A. gerrardii* in that they lack the large cushion-like abbreviated shoots between each pair of spines from which the leaves arise. These "cushions" persist on older branches of *A. gerrardii* and provide a very useful means of identification. Although the pods of these specimens resemble those of *A. gerrardii* the seeds are elliptic and not \pm quadrate as in *A. gerrardii*. Similarly areole shape also differs. These specimens differ therefore quite significantly from *A. gerrardii* and are readily distinguished from that species. Specimens of this *Acacia* and *A. gerrardii* were observed growing together near the Mapochs River in Sekukuniland and both were readily distinguishable.

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Last year Mr. J. W. Morris, to whom I am very grateful, collected an excellent set of specimens in the vicinity of Roossenekal (see Fig. 1). Although these specimens had densely pubescent young branchlets, leaves and pods they nevertheless differed somewhat from the Steelpoort specimens and had a distinct "*A. karroo* look" about them. The Roossenekal specimens had larger leaves, more pinna pairs and, in some instances, a much sparser development of the indumentum than the Steelpoort specimens.

In the field in Sekukuniland from a distance of a few metres the densely pubescent plants of this *Acacia* (hereafter referred to as *Acacia*) are indistinguishable from plants of *A. karroo*. It is only on approaching the plants and on seeing the indumentum on the young branchlets, leaves and pods that it is possible to establish with certainty that the plants differ from "typical" *A. karroo*.

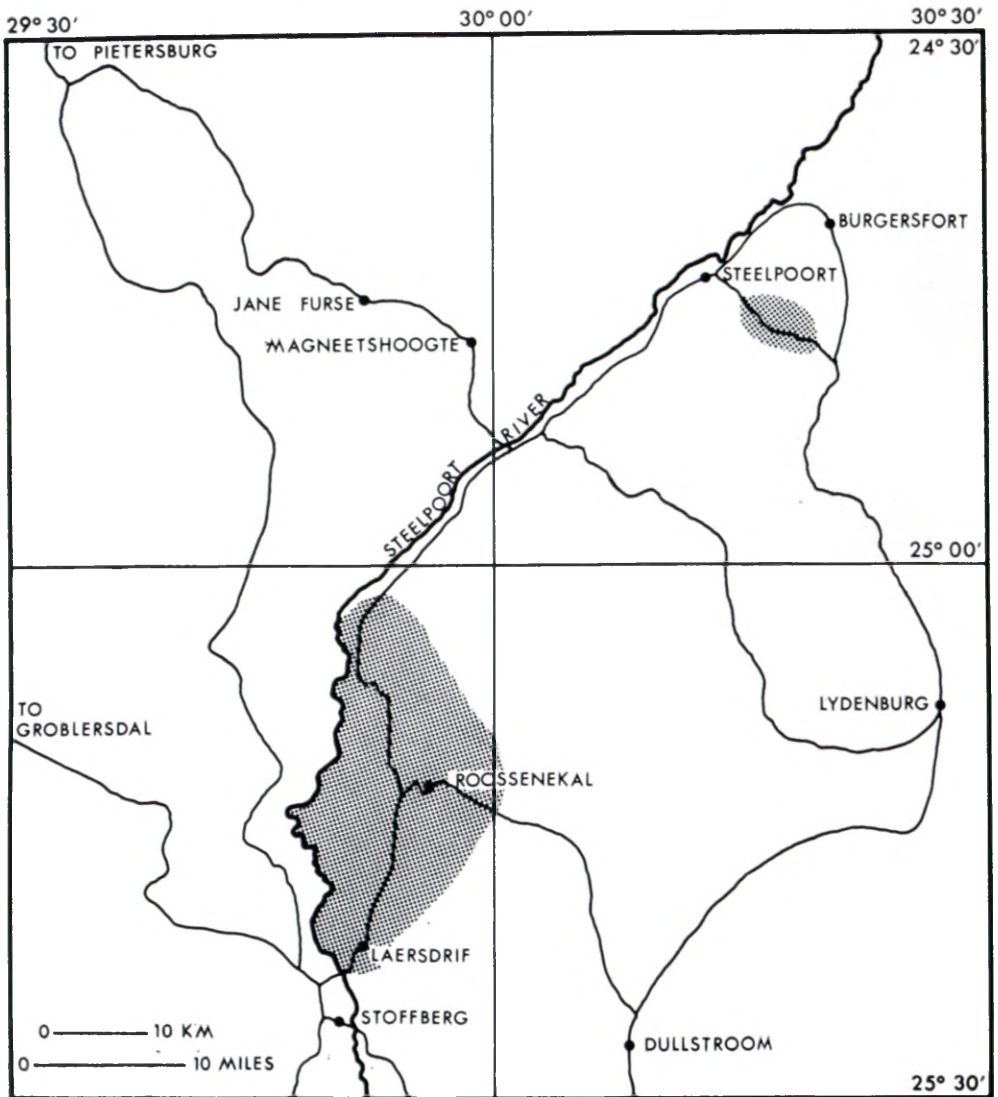


FIG. 1. — Map showing portion of Sekukuniland in the eastern Transvaal. The shaded areas indicate the known distribution of the densely pubescent *Acacia* specimens.

Growth form as in *A. karroo* is either a small spreading shrub, a tree with a somewhat rounded crown, or a sparingly branched, spindle-like tree. *Acacia* is often dominant and forms dense stands.

Now to consider a few further specimens of *Acacia* from Sekukuniland. *Ross* 2089 and 2090 were growing next to each other at Laersdrif. *Ross* 2089 has the typical dense indumentum on the pods, young branchlets, leaf petioles, rachides and rachillae and the leaflets have very dense, spreading marginal cilia. *Ross* 2090, which was initially mistaken in the field for a specimen of "typical" *A. karroo*, has very sparingly pubescent leaf petioles, rachides and rachillae and only some leaflets have few marginal cilia. The pods are sparingly, but nevertheless quite distinctly, pubescent. *Ross* 2095, which was growing close to 2089 and 2090, resembles 2090 in having pods with a sparse, but nevertheless distinct, indumentum. *Ross* 2094 is from Steelpoort. Here on what is apparently an old abandoned field the plants exhibit a spindle-like growth form and it is here that the greatest development of indumentum is evident. *Ross* 2094 together with *Codd* 6702, *Codd & Dyer* 7713, 7716 from the same locality differ from the remaining specimens in having smaller leaves and fewer pinna pairs. However, these Steelpoort specimens agree well with the other pubescent specimens from Laersdrif and Roossenekal in all other characters and no grounds can be found for separating them.

Field observations and an examination of specimens indicated that specimens of *Acacia* could not be differentiated from *A. karroo* at specific level. Nevertheless, because of the dense indumentum on the young branchlets and especially on the pods of some specimens of *Acacia*, I initially felt somewhat hesitant to include *Acacia* in the already very variable *A. karroo*. In a previous paper dealing with the variation within *A. karroo* [*Ross* in *Bothalia* 10(2): 385-401, 1971] where a sparse indumentum on the young branchlets and leaves of some specimens in other areas of distribution in southern Africa was reported, in no instance were densely pubescent pods recorded. However, the very sparingly pubescent pods in *Ross* 2090, 2095 bridge the apparent discontinuity between the glabrous podded "typical" *A. karroo* and the specimens of *Acacia* with densely pubescent pods from Steelpoort. Sparingly pubescent pods do occur quite frequently in specimens from the Transvaal highveld.

It is interesting to recall that *Burt Davy* in *Kew Bull* 1908: 158 (1908) recognized var. *transvaalensis* within *A. horrida* Willd., the variety being created to accommodate "the form met with in moist soils at the foot of kopjes, or near fontains and streams, around Pretoria and on the high veld which is pubescent on the younger parts . . .". Subsequently in *Kew Bull*. 1922: 328 (1922) after learning that the correct name for the South African plants previously referred to *A. horrida* was *A. karroo*, *Burt Davy* transferred his var. *transvaalensis* to *A. karroo*. *Burt Davy's* statement on p. 328 that var. *transvaalensis* "approaches *A. natalitia* E. Mey. but the rachis and rachillae are less densely pubescent . . ." is difficult to comprehend as many specimens named *A. natalitia* by *Burt Davy* himself are essentially glabrous. *Burt Davy* maintained his var. *transvaalensis* in *Fl. Transv.* 2: 347 (1932) and it is here that he mentioned the syntypes *Burt Davy* 2468, 2807 for the first time. *Burt Davy* 2807 is a flowering specimen and 2468 is sterile. The syntypes have only very sparingly pubescent branchlets and leaves. *Burt Davy* never cited any other specimens of var. *transvaalensis* and never mentioned whether plants referred to his variety had pubescent pods or not. The degree of pubescence of the branchlets, leaves and pods exhibited by *Ross* 2090 from Laersdrif is similar to the degree of pubescence exhibited by other specimens of *A. karroo* in the vicinity of Pretoria and, with the exception of the pods, to the syntypes of var. *transvaalensis*.

Field observations and an examination of herbarium specimens indicate that there is continuous variation in the degree of pubescence from the glabrous and very sparingly pubescent plants in the vicinity of Pretoria and on the Transvaal highveld to the more densely pubescent plants in Sekukuniland. Variety *transvaalensis* was distinguished from typical *A. karroo* solely on the presence of pubescence and there does not appear to be any other distinguishing character. Pubescent specimens are found in many parts of the species range so that a rather heterogeneous assemblage of plants from all areas of distribution could be referred to var. *transvaalensis*. For example, *A. hirtella* (a synonym of *A. karroo*), which was described by E. Meyer (Comm. Pl. Afr. Austr. 1: 167, 1835) from the south coast of Natal, was distinguished from *A. natalitia* and from *A. karroo* in having pubescent leaflets and branchlets and yet specimens differ in many respects from those of var. *transvaalensis*. It is felt that var. *transvaalensis* would make a rather poor variety and consequently it is not intended to uphold the variety. The densely pubescent specimens from Sekukuniland which cannot be satisfactorily differentiated from var. *transvaalensis*, and which represent an extreme form of it, will therefore receive no formal taxonomic recognition.

It appears that on the Transvaal highveld there is a local tendency to the production of a sparse pubescence on the young branchlets, leaves and pods. However, occasionally this tendency is so extreme, for example at Steelpoort, as to alter the general appearance of the plants completely. The area between the two apparently distinct populations in Sekukuniland (see Fig. 1) is rather mountainous and consequently has not been thoroughly investigated. It is quite likely that the range of distribution is greater than reflected and that the two populations may in fact be one continuous population. The soils in this area are derived from magnetite, a fact which may be of great significance. The possibility exists that this edaphic factor plus perhaps some other environmental influences have resulted in the development of the dense indumentum. The growth of seedlings under experimental conditions may shed light on this matter.

This decision not to uphold var. *transvaalensis* was taken after consideration of the range of variation within *A. karroo* throughout its distributional range. As discussed previously (Ross, *l.c.*) *A. karroo* is an extremely variable species in which numerous variants are recognized. The extremes of each variant, for example the densely pubescent plants from Steelpoort, are usually quite distinctive and naturally it is these extremes that attract attention. However, the extremes of each variant are linked to the "central *A. karroo* gene-pool" by numerous varied and intermediate stages that become progressively less and less distinct until a stage is reached where it is difficult to assign a specimen to a particular entity with any degree of certainty. It becomes extremely difficult to identify each entity clearly and thereby facilitate identification by other workers. It seems preferable therefore to regard *A. karroo* as an inherently variable species in which no infraspecific categories are recognized rather than to fragment the species into a number of somewhat arbitrary infraspecific entities.

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