

The Acacia species with spicate inflorescence in the Transvaal : taxonomy and distribution

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**The Acacia species with spicate inflorescence in the Transvaal.
Taxonomy and Distribution.**

by

R. G. N. YOUNG

Introduction

The work on which this paper is based, was commenced under Professor J. M. Hector at the Landbou Navorsings Instituut (Agricultural Research Institute) of the Department of Agriculture, Pretoria, some ten and more years ago. My thanks are particularly due to the Director of the above Institute for permission given, at a later date, to take the notes made at that time, to complete and extend them at other institutions, and to bring them into a condition suitable for publication elsewhere.

Amongst many helpers in this latter task, my thanks are perhaps most especially due to the director and staff of the Conservatoire Botanique, Geneva, for facilities in the final stages leading up to publication, and particularly to the director himself, Prof. Charles Baehni, who has most kindly undertaken all the final corrections before the publication in this journal.

I have also to thank most sincerely the chiefs and staffs of the following institutions both for facilities for study and in some cases for advice in regard to the work itself:

The Division of Botany and National Herbarium, Pretoria, South Africa ;

The Transvaal Museum, Pretoria, South Africa ;

The Botanical Department, University of the Witwatersrand, Johannesburg, South Africa ;

The Herbarium, Royal Botanical Gardens, Kew, Surrey, England ;

The Department of Botany, British Museum (Natural History), London.

The officials of the South African Topographical Survey (then stationed in the Transvaal Museum) showed me how to consult their maps.

Mr. J. P. M. Brenan, of the staff of Kew Herbarium, has given me invaluable help in regard to some points in the systematics of the group.

Dr. Bonner, of the Conservatoire Botanique, Geneva, helped me in regard to the arrangement of the material.

In fact, I have received help and advice from so many sources, that if any should find they are not included above, it is an inadvertence.

To the original lists of localities and maps of distribution which constituted the main object of the investigation at the Agricultural Research Institute and elsewhere, have now been added a key to, and descriptions of, the species, and some notes on the taxonomy of the more critical species, which it is hoped will be of help to future workers in this group. These latter sections of the paper have been compiled with the aid of material in the larger herbaria, and particularly at Kew.

As regards the species of tropical distribution, it is anticipated that there will soon be a publication from Kew Herbarium, which will clear up the few points that have to be left unsolved in the present paper.

Over the greater part of the Transvaal, *Acacia spp.* are the most abundant and the most conspicuous trees, being dominant in large areas of dry savannah, a major constituent of "bush" or "scrub", a minor constituent of the quasi-forest regions, and lining the banks of the (usually dry) river-beds in the otherwise treeless plains. The different species have in most cases been well known to the farming community, under local names, for very many years. Yet, being difficult to collect and awkward for the systematist to handle, they have been amongst the last of the elements of our Flora to receive a proper classification.

* * *

Note on previous literature, referring to the group with spicate inflorescences dealt with in this paper.

At the time of HARVEY AND SONDER, *Flora Cap.* 2: 282-283. 1861, we find only two of our species recorded from the Transvaal, one of which is a synonym!

Although touched upon by several authors, the first attempt at a complete account of the group was by BURTT DAVY, *A Manual of the flowering Plants and Ferns of the Transvaal*, part II: 333 et seq. 1932. This was indeed a very helpful work, and may be said to have paved the way for any further serious study. So much

material has been accumulated since his time, however, that his conclusions have had to be almost entirely recast.

A very good account of some of the species may be found in a recent regional flora : L. E. W. CODD, *Trees and Shrubs of the Kruger National Park*: 35 et seq. 1951.

Lastly, the ecology of this and many other groups of plants, from an economic point of view, has been most ably dealt with by ACOCKS, *Veld Types of South Africa*, 1953, a most significant work, which the present author would recommend to any of his readers.

A note on the relationship of the present paper to ACOCKS' book should I think be made here. At first sight, the publication of such an extensive and detailed work as that of ACOCKS might make the publication of small papers such as this appear redundant. The present author was at first of this opinion, but decided to give the whole matter rather more detailed study. From this it soon appeared that numbers of specimens had been collected from areas in which the species concerned was regarded by the ecologists as non-existent ! The floristic and ecological distributions of a species are *not* the same. A tree species may (and usually does) occur in the form of isolated specimens or small groups in specially favoured spots, even in otherwise unfavorable regions, provided these in turn lie within the total natural climatic or historical area of distribution of the species. It is the latter area which it is the purpose of such a paper as this to ascertain and to record as accurately as possible.

Method of citation of specimens

The following are the herbaria consulted in the preparation of this paper, and the method of citing specimens examined in them :

- (K) Herbarium, Royal Botanical Gardens, Kew.
- (BM) Herbarium of the British Museum (Natural History), London.
- (G) Herbier Delessert, Conservatoire botanique, Geneva.
- (PRE) National Herbarium, Pretoria, South Africa.
- (TRN/PRE) Herbarium of the Transvaal Museum, Pretoria, now incorporated in the National Herbarium.
- (J) Moss Herbarium, University of the Witwatersrand, Johannesburg, South Africa.
- (Agric. Res. Inst.) A smaller collection in the Landbou Navorsings Instituut (= Agricultural Research Institute), Department of Agriculture, Pretoria.

The *dates of collection* of the specimens have, except for a few very special cases, been reduced to the month throughout.

Method of arrangement of maps

References to the localities are given in the text in bold face and are to be found in the corresponding map of the species.

It may be noted that the divisions used in the maps, for the purpose of facilitating the location of records are, in the southern half, based roughly on the magisterial areas surrounding the towns, and in the northern half ' my own invention ', based on some contours or other convenient natural features, and intended to mark off natural climatic or topographical areas from the collector's point of view.

The citations from ACOCKS, CODD, GALPIN and MILLER (to all of whom acknowledgements are due) make no pretence of being exhaustive, the discoveries of these authors having been incorporated only where they help to define the shape of an area, some other part of which is already indicated by herbarium records. For further details, the reader is once more referred to the study of these authors themselves. The full titles will be found in the course of the text.

Conclusions from the maps of distribution

It may safely be said that these all with the exceptions of that of *A. burkei* appear to indicate species which have invaded the Transvaal area, from some area of distribution outside our borders. This, seeing that *Acacia* is now, over large sections of the country, our dominant tree *genus*, gives rise to interesting speculations as to the nature of our previous flora.

There is, however, a school of thought which regards the areas of distribution of existing species not as areas of invasion, but as relics of a retreating flora.

The present author does not intend to dogmatise on this particular question. He thinks he will serve a more useful purpose by presenting, as clearly as possible, the few facts he has discovered, to be of what help they may be to those engaged on the serious study of plant geography.

Key to Transvaal Species of Acacia with spicate inflorescences

COMMON CHARACTERS :

Leaves normally furnished with a petiolar gland, which is cyathiform, stalked or sessile. Thorns, in species 4-12, in pairs at leaf-bases, hooked-recurved, relatively small from a stout base. Inflorescence spicate. Legumes, in all species, flat or flattened (sometimes with secondary twisting).

Thorns scattered irregularly along internodes ; short, recurved or almost straight.

Stipules not spinescent, relatively large, membranous, early caducous

1. **ataxacantha** var. **australis**

Thorns at leaf-bases, stipular or infra-stipular.

Thorns in pairs at leaf-bases, slightly curved or almost straight ; legumes curved into a sickle-shaped or almost circular form, and becoming bladderly

2. **albida**

Thorns in threes at leaf-bases, the median strongly hook-shaped downwards, the two lateral straight or slightly upcurved ; legume straight 3. **senegal**

Thorns in pairs at leaf-bases, both strongly hook-shaped downwards, in most cases relatively small from a stout base

Leaflets in 10 or more pairs per pinna

Calyx glabrous to pubescent, purple or purplish, legumes very large ($\pm 20 \times 2,7$ cm.), leaflets 15-30-jugate, ± 75 mm. \times 1,75 mm. . . . 4. **galpinii**

Calyx pubescent, puberulous or tomentose, green or yellowish ; legumes either substantially smaller, or substantially narrower, than preceding

Legumes linear or strap-shaped at least 6 times as long as broad (mostly longer), glabrous or minutely pubescent

Pinnae 15-40 pairs ; leaves 12-25 cm. long ; rachis shortly pubescent ; leaflets 30-60 pairs, linear cultriform, 3-3,5 mm. long, 0,5-1 mm. wide, with glabrous surfaces and ciliate margins 5. **campylacantha**

Pinnae 10-30 pairs ; leaves 5-20 cm. long, densely tomentose when young in all parts ; leaflets 10-40 pairs, oblong to linear-oblong, 3 mm. or more long, 1 mm. or more wide ; flowering spike tomentose

6a. **caffra** var. **tomentosa**

Pinnae 5-15 pairs ; leaves 5-20 cm. long ; rachis sparsely puberulous to glabrescent ; leaflets as above but glabrous and ciliolate ; flowering spike puberulous 6. **caffra**

Legumes oblong, linear-oblong or narrowly elliptical, 3 to 8 times as long as broad, tomentose, with strongly thickened margin ; pinnae 5-18 pairs ; leaves 3-8 cm. long ; leaflets 10-35 pairs, ± 3 mm. long, 1 mm. wide, crowded, pubescent 7. **mellei**

Legume oblong or linear-oblong, 3 to 8 times as long as broad, very flat and papery, glabrous, reticulate ; pinnae 3-7 pairs ; leaves 3-8 cm. long ; leaflets 12-25 pairs, ± 5 mm. long, ± 1 mm. wide, glabrous

8. **erubescens**, forma

Leaflets in 3 to 7 pairs per pinna

Calyx, axis of inflorescence and rachis of leaf piloso-pubescent to tomentose ; leaflets 5-20 mm. long, 2,5-10 mm. wide, obovate-long, slightly oblique, pilose 9. **burkei**

Calyx, axis of inflorescence and leaf-rachis glabrous; leaflets 4-9 mm. long, 2-5 mm. wide, nearly symmetrical, glabrous . . . 10. **delagoensis**

Calyx not seen, axis of inflorescence puberulous; leaf-rachis pilose; leaflets 7-12 mm. long, 4-7 mm. wide, obliquely obovate-oblong, glabrous 12. **schlechteri**

Leaflets in a single pair per pinna; calyx glabrous and minutely ciliate; axis of inflorescence and leaf-rachis glabrous; leaflets up to 3 cm. long and up to 2.5 cm. wide, obliquely obovate to rotundate 11. **nigrescens**

1. — **Acacia ataxacantha** DC. var. **australis** Burt Davy in *Kew Bull.* 1922: 324 (almost, but not quite identical with description in *Manual Fl. Pl. Transvaal* 2: 335. 1932) and (doubtfully distinct) as var. ? = *A. eriadenia* Benth. in *Lond. Journ. Bot.* 5: 98. 1846.

BURTT DAVY'S var. *australis* is based on a specimen from Magoebas Kloof which he describes as differing both from the tropical *Acacia ataxacantha* DC. and from *A. eriadenia* Benth. Subsequently, in his *Manual Fl. Pl. Transvaal* he amalgamated it with *Acacia eriadenia* Benth., and sank the latter name under his own variety. The fact remains, however, that there are slight differences between *A. ataxacantha* var. *australis* and *A. eriadenia*, at least in their typical forms, though these differences are at most varietal, and not of specific rank; they are moreover linked by intermediate forms.

The loci typici of the three taxa mentioned above, are:

Acacia ataxacantha DC. var. *ataxacantha*. In Senegal near the River Senegal.

A. ataxacantha var. *australis* Burt Davy. Magoebas Kloof (north-eastern Transvaal).

A. eriadenia Benth. Crocodile River, Magaliesberg (the present Hartebeestepoortdam near Pretoria, from which a large collection of *A. ataxacantha* var. *australis* has since been made).

Var. *australis* differs from typical *Acacia ataxacantha* (from which it is widely separated geographically), in its larger leaves with more numerous pinnae. *Acacia eriadenia* is represented by a few specimens differing from both in having narrower, heavier, and slightly pubescent pods, slightly broader leaflets, and generally greater degree of pubescence throughout, but some specimens of var. *australis* seem to approach it in respect of the shape of the pods.

The following are specimens from the Transvaal, which may be regarded as nearly typical *A. eriadenia* (whatever its rank may be), or as intermediates:

Kew Herbarium :

the type specimen No. and co-type No. and Shiluvane, hills and valleys up to 3,300 ft., *Junod* 791 (acquired 1904) ; Houtbosch, 1875-1880, *Rehmann* 6274 ; M [illegible station], Lydenburg district, Dec. 1893, *Wilms* 447.

National Herbarium, Pretoria :

part of the type and Klerksdorp to Wolmaranstad, Feb. 1904, *Burtt Davy* 1534 ; Woodbush village and hill, Jan. 1906, *Burtt Davy* 5133 ; Subiaco, P. O. Boyne, near Pietersburg, *Gerstner* 5374 et 5379.

In order to avoid any possible confusion, I have excluded them from the general distribution list and the accompanying map.

DIAGNOSTIC DESCRIPTION :

Habit *semi-arborescent*, but small for the genus : branches usually slender, light in colour. *Stipules* not spinescent, relatively large, membranous, early caducous. *Prickles* short, recurved or almost straight, scattered irregularly along internodes. Petiolar gland large and conspicuous. *Leaves* large (usually 10-15 cm. long, 5-8 cm. wide) ; pinnae 7-20 pairs, frequently with a small gland between the uppermost pair ; leaflets up to 45 pairs, 3-5 mm. long, 0.5-1 mm. wide, linear-oblong, pubescent beneath when young, later glabrescent and ciliate. *Flower-spikes* creamy-white : peduncles densely pubescent. *Legumes* linear-oblong, acuminate, chartaceous, glabrous, 6-12 cm. long, 1-2 cm. wide, relatively few-seeded, red.

A thornless (or almost thornless) form occurs, which may be mistaken for *A. caffra*, unless young material can be obtained, when it is readily distinguished by the foliaceous stipules.

REFERENCES (additional to those quoted above) :

HARVEY in *Flora Cap.* 2 : 283. 1862 (*A. eriadenia*), describes the *eriadenia* form, not quite typical of the commoner var. *australis*.

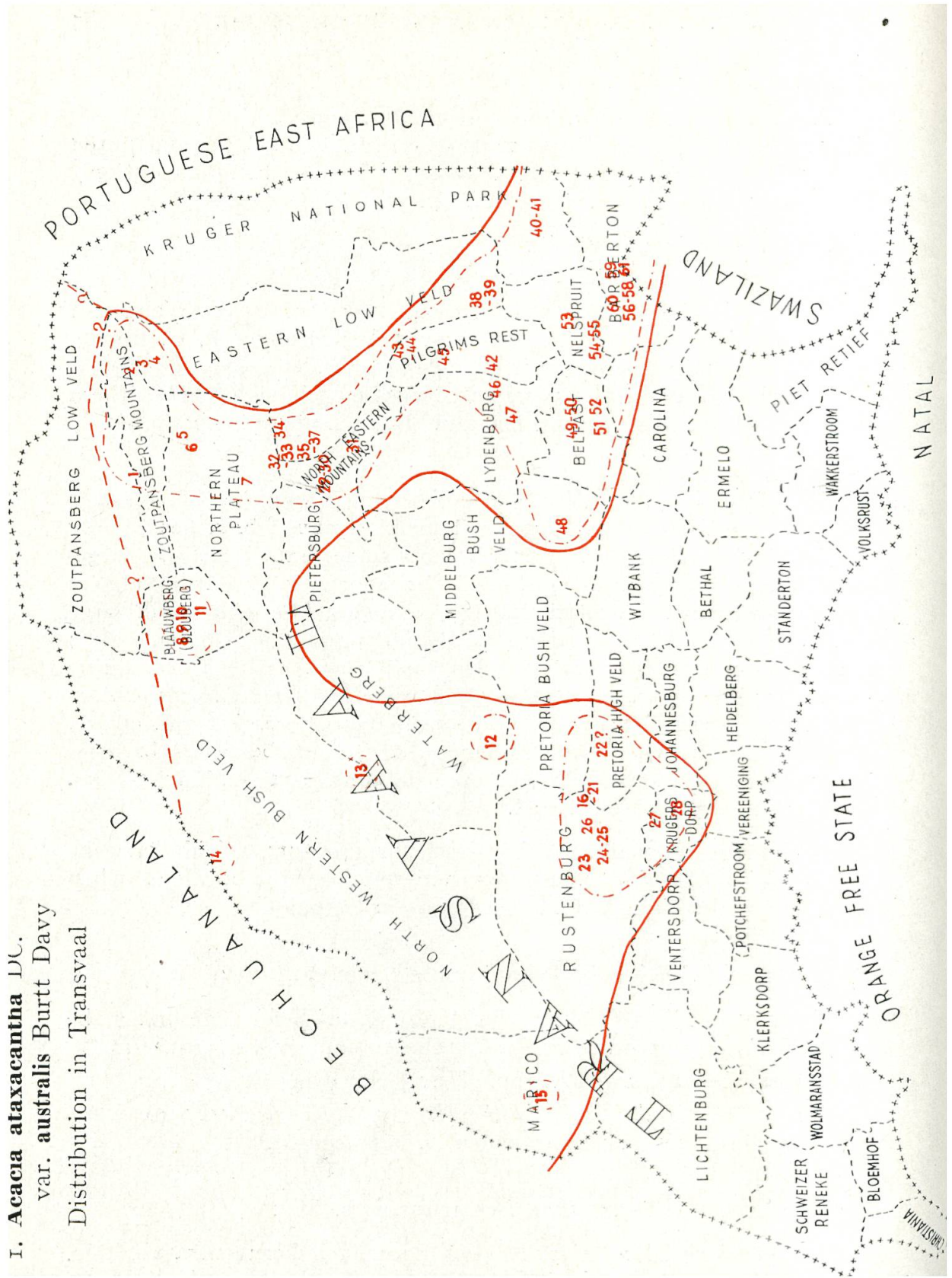
BAKER, *Leguminosae of Trop. Afr.* : 834. 1930.

CODD, *Trees and Shrubs of the Kruger National Park* : 40 & fig. 33, 1951, describes our form under *A. ataxacantha*.

DISTRIBUTION IN TRANSVAAL (see map on p. 86) :

Zoutpansberg Mountains : Wylies Poort, northern entrance, Dec. 1928, *J. Hutchinson* 2062 (PRE, K) ¹. — Foothills south of Pepiti Falls, E. Zoutpansberg, Aug. 1930, *Hutchinson & Gillett* 4377 (K) ².

I. *Acacia ataxacantha* DC.
 var. *australis* Burt Davy
 Distribution in Transvaal



* *Eastern Low Veld at base of Zoutpansberg Mountains*: Sibasa, Jan. 1951, *van Warmelo* 5115/4, May 1951, 5157/18, March 1953, 53312/2³; 2 miles south of Sibasa, Oct. 1948, *Codd & Dyer* 4487 (all in PRE) ⁴.

Northern Plateau at base of Zoutpansberg Mountains: State Saw Mills, beside road, Zoutpansberg district [between Elim and Zpbg. Mts.], June 1947, *Bruce & Kies* 20 (PRE) ⁵.

Northern Plateau: Elim, June 1930, *Obermeyer* 728 (TRN/PRE) ⁶; on hills at Gwent near Munnik, Jan. 1941, *Acocks* 8852 (PRE) ⁷.

Blouberg: Leipsig, Jan. 1931, *Bremerkamp & Schweickerdt* 132 (TRN/PRE) ⁸; March 1931, *Rev. K. Tscheuschner* H29529 (TRN/PRE) ⁹; Eastern Valley, Blauwberg, Dec. 1923, *Smuts & Pole-Evans* 942 (PRE) ¹⁰; Blauwberg, Transvaal, Dec. 1923, *Pole-Evans* 865 (K) ¹¹.

Waterberg: Farm Nooitgedacht [near Warmbaths], Waterberg district, Feb. 1942, *Acocks & Naude* 23 et 30 ¹² (PRE).

North-Western Bushveld: Near Zandrivierpoort (near Vaalwater), Dec. 1934, *J. C. Smuts* 376 (PRE, BM, K) ¹³; banks of Limpopo, Waterberg district, Sept. 1920, *Leipoldt* 22 (PRE) ¹⁴.

Marico: Zeerust, Jan. 1928, *Thode A* 1405 (PRE) ¹⁵;

Borders of Pretoria Bush Veld, Pretoria High Veld, and Rustenburg districts: Hartebeestepoorddam, Nov. 1930, *Bremerkamp* H29055 (TRN/PRE) ¹⁶; Feb. 1941, *Miss Schoeman* (Agric. Res. Inst.) ¹⁷; Dec. 1941, *Connell* (PRE) ¹⁸; April 1927, *McAfee* (Gilmore) (G) ¹⁹; do., Hotel, March 1946, *Story* 954 (PRE) ²⁰; do., below dam wall, Feb. 1946, *Repton* 2843 (PRE) ²¹.

Pretoria town (borders of high veld and bush veld) Grosvenor Square, Pretoria [native or introduced?], Feb. 1945, *Repton* 2119 (K) ²².

Rustenburg district: Rustenburg district, Oct. 1943, *Rose Innes* 143 (PRE) ²³; Magaliesberg near Rustenburg, March 1938, *Verdoorn* (PRE), without thorns, and perhaps rather doubtful ²⁴; Ananda Guest Farm, in Magaliesberg near Rustenburg, observation of author, anno 1946 (but no specimen taken) ²⁵; 3 miles north of Breedtsnek over Magaliesberg, Rustenburg district, March 1946, *Codd* 1110 (PRE) ²⁶.

Borders of Rustenburg and Krugersdorp districts: Hekpoort, Sept. 1936, *J. Phillips* 32, Jan. 1937, 567, Apr. 1938, 1272 (all in PRE) ²⁷.

Krugersdorp district: about 9 miles west of Krugersdorp, on farm Gladysvale, Feb. 1948, *Rodin* 3869 (K, PRE; label incomplete in PRE specimen) ²⁸.

* See below at asterisk

North-eastern Mountains: Near Haenertsburg, Veekskraal, 36 miles east of Pietersburg [actually about 4 miles from Haenertsburg], Dec. 1935, *Mogg 14740* (PRE, K) ²⁹. — Near Zeederberg's farm, close to Haenertsburg, Jan. 1906, *Burt Davy 1268* (PRE) ³⁰. — The Downs, Pietersburg [10 miles S.W. of Shiluvane], Nov. 1918, *Rogers 22014* (TRN/PRE) ³¹.

* *Eastern Low Veld*: Duivelskloof, May 1929, *Galpin 11410* (PRE, K) ³²; Westfalia, Duivelskloof, Jan. 1931, the forester 26 (PRE) ³³. — Modjadji's Reserve near Duivelskloof, Apr. 1937, *Krige 88* (PRE) ³⁴. — New Agatha, Pietersburg district, June 1916, *Rogers 18881* (PRE) ³⁵; Aug. 1917, *Pole-Evans 5231* (*H. 15717*, K) ³⁶; Nov. 1918, *McCallum* (PRE) ³⁷. — Bushbuck Ridge, Nov. 1937, *Pritchard 38* (PRE) ³⁸. — Causeway-Bushbuck Ridge, bank of Sand River, Jan. 1932, *Smuts & Gillett 2354* (PRE) ³⁹.

Kruger National Park: Around Pretorius Kop, CODD, *Trees and Shrubs of the Kruger National Park*: 40. 1951 ⁴⁰. — Shabin Kop, near Pretorius Kop, Feb. 1949, *Codd & de Winter 4885* (PRE, K) ⁴¹.

Pilgrims Rest: Pilgrim's Rest, Nov. 1915, *Rogers 14913* (PRE, K) ⁴². — Marieps Kop, Apr. 1932, *G. van Son H30685* (TRN/PRE) ⁴³; without collector's name, July 1938 (J) ⁴⁴. — Vaalhoek 12 miles north of Pilgrim's Rest town, Dec. 1919, *Rogers 25073* (TRN/PRE) ⁴⁵.

Lydenburg: The Kloof¹, Lydenburg, Mar. 1933, *Galpin 12231* (PRE, K) ⁴⁶. — Sabie Road, 4 miles up Kloof, Lydenburg district, Dec. 1932, *Smuts & Gillett 2485* (PRE) ⁴⁷.

Middeburg Bush Veld: Naby Groblersdaal, without collector's name, anno 1940 (Agric. Res. Inst.) ⁴⁸.

Belfast: Schoemanskloof, June 1932, *J. C. Smuts 271* (PRE), June 1932, 51 (K), June 1939, 51 (PRE) ⁴⁹. — Somerset farm, Schoeman's Kloof, side valley N.-S., Dec. 1932, *Smuts & Gillett 2201* (PRE) ⁵⁰. — Waterval Boven, Dec. 1917, *Pole-Evans H16938* and *H16939* (partim) (K) ⁵¹. — Waterval Onder, Jan. 1909, *Jenkins H6734* (TRN/PRE) ⁵².

Nelspruit: Just behind Nelspruit, Nov. 1930, *Liebenburg 2680* (PRE) ⁵³. — Kaapsche Hoop, Sept. 1918, *Rogers H18754* (TRN/PRE) ⁵⁴, Nov. 1918, 21592 (PRE) ⁵⁵.

Barberton district: Barberton, Dec. 1916, *Pott 5302* (TRN/PRE, K) ⁵⁶; June 1903, *Burt Davy 292* (PRE) ⁵⁷; near do., Dec. 1903, *Legge H1748* (PRE) ⁵⁸. — 6½ miles from Louws Creek, Barberton district, Jan. 1929, *Pole-Evans (4)* (PRE) ⁵⁹. — Kaap River Valley, Barberton district, "anno 1889" *Galpin 564a*, (PRE) ⁶⁰. — "Camp

* See above at asterisk

¹ Is this Kranskloof? R. G. N. Y.

near Maid of the Mist Mountain " (Maid-of-the-Mist Mine), Jan. 1929, *J. Hutchinson* 2439 (K) ⁶¹.

Further localities to be added to the area of distribution, if or when their exact position have been ascertained: Marovani, *Junod* 45 (PRE). — Near Cashel Hotel, Pretoria district, Feb. 1946, *Acocks* 12347 (PRE). — "Houtboschberg, Potatobosch 2013 by streams", Jan. 1906, *Burtt Davy* 5073 (PRE). — Reimers Creek, Barberton district, July 1906, *Burtt Davy* 2770 (K).

Further references as to distribution: ACOCKS, *Veld Types of South Africa*: 46. 1953. "Lowveld Sour Bushveld".

CONCLUSION :

Though nowhere abundant; the distribution of this variety is extremely widespread, occupying roughly the whole of the northern two-thirds of the Transvaal Province with the exception of two important areas: 1. It has not been recorded (and I believe is absent) from by far the greater part of the true Low Veld both in the east and north; 2. It also appears to be absent from the dry plateau extending north-east of Pretoria to the Waterberg and to Lydenburg.

Otherwise, its southern boundary is approximately equivalent to the northern boundary of the High Veld.

It is therefore a tree or shrub of the Bush Veld, middle veld and mountains: but its local distribution is very patchy, and depends on decidedly favorable conditions of water-supply, etc.

2. — **Acacia albida** Delile, *Flor. Aegypt.*: 142, tab. 52, fig. 3. 1812 = *A. saccharata* Benth. in Hook. *Lond. Journ. Bot.* 1: 505. 1842 = *Prosopis Kirkii* Oliver, *Flora Trop. Afr.* 2: 332. 1871. = ? *A. mossambicensis* Bolle in Peters *Reise Mossamb. Bot.*, part I: 5. 1861, not of Baker, *Leguminosae of Trop. Afr.*: 831. 1930*.

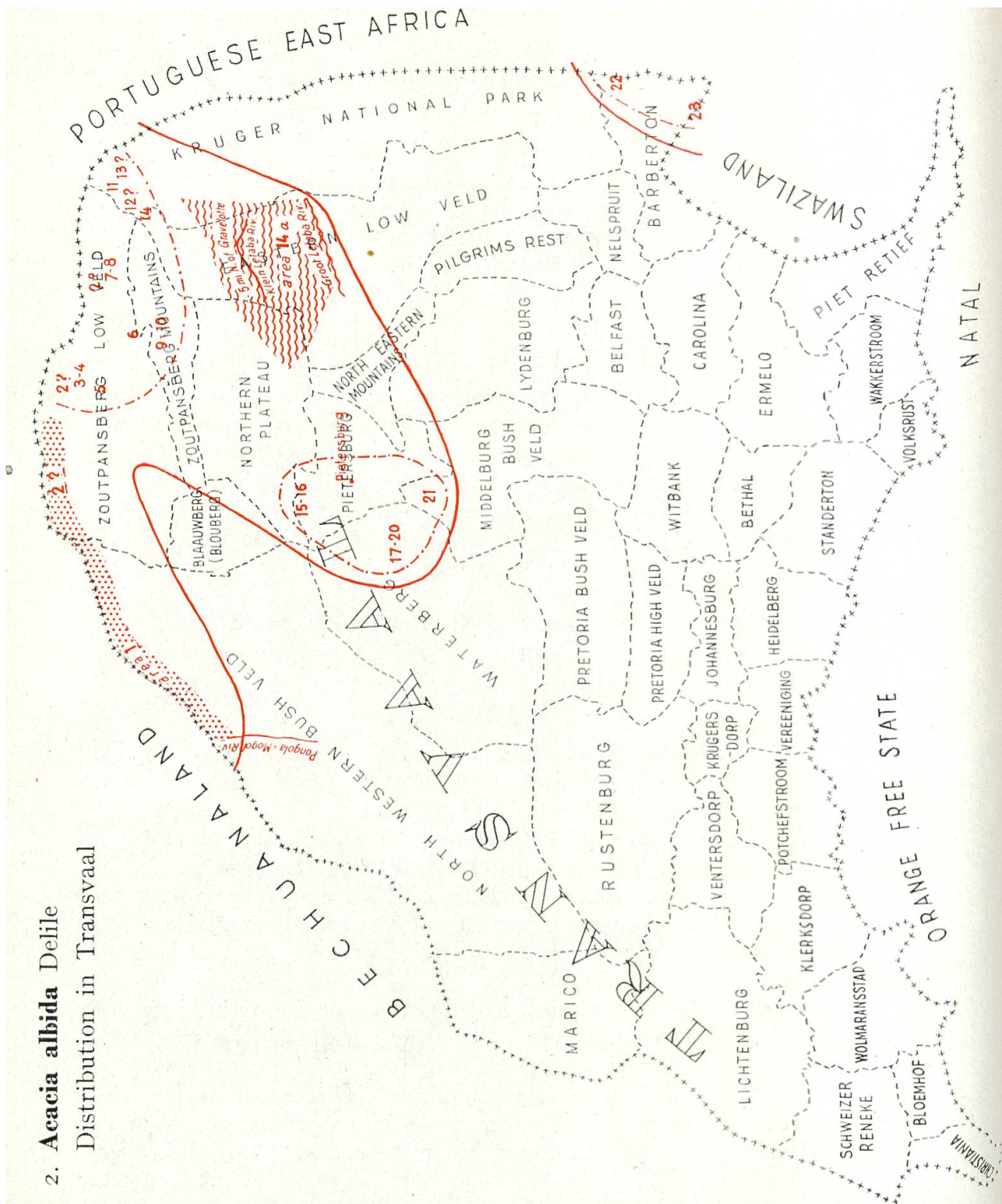
The species as above defined (whether *A. mossambicensis* Bolle be included or not) has an extremely wide range, extending in the north from Senegambia to Egypt and Abyssinia, and in the south from Natal to South-West Africa.

Judging from the many published descriptions from the different parts of its range, it would seem to be very variable in regard to its pubescence; tending in the north-eastern part of the continent (e.g. Egypt and Abyssinia), to be almost completely glabrous and in the southern areas (including the Transvaal) to be covered in its younger parts with a dense, fine, characteristic pubescence. This, however,

* The specimens belonging to, or allied to, this last-named species, form a subject suitable for further research.

2. *Acacia albida* Delile

Distribution in Transvaal



does not seem to me to be a sound enough basis for systematic distinctions ; in the description below, it is ignored.

DIAGNOSTIC DESCRIPTION :

A *tree* up to 22 m. high, one of the biggest of the genus in South Africa. Young branches yellowish-white or light green. *Thorns* slightly curved or straight, light brown or whitish, very variable in length (sometimes absent). *Leaf-rachis* up to 8 cm. long, with a cyathiform gland at its junction with each pair of pinnae ; pinnae in 2-8 (usually 4-6) pairs, commonly patent and about half as long as the rachis ; leaflets in 9-15 pairs, pale green, oblong, very obtuse at both ends, often 8 mm. \times 2,5 mm. but very variable in size. *Flower-spikes* creamy-white, relatively narrow, axillary, exceeding the leaves. Calyx about $\frac{1}{3}$ of the corolla ; corolla-lobes divided nearly to the base. *Legumes* coriaceous to chartaceous, wavy, becoming bladdery ; when flattened out \pm 8-10 \times 2 cm., but normally strongly curved, almost circular.

REFERENCES (additional to those quoted above) :

- DE CANDOLLE, *Prodr.* **2** : 459. 1825.
 A. RICHARD, *Tentamen Flor. Abyss* **1** : 241. 1843, including the alleged synonym "*A. gyrocarpa* Hochst" which is invalid.
 OLIVER, *Flora Trop. Afr.* **2** : 339. 1871.
 BAKER, *Leguminosae of Trop. Afr.* : 825. 1926.
 HUTCHINSON & DALZIEL, *Flora West. Trop. Afr.* **1** : 361. 1928.
 BURTT DAVY, *Manuel Fl. Pl. Transvaal*, part 2 : 335. 1932.
 DALZIEL, *Useful Plants of West. Trop. Afr.* : 202. 1937.
 CODD, *Trees and Shrubs of the Kruger National Park* : 38. 1951.

DISTRIBUTION IN TRANSVAAL (see map on p. 90) :

North-western Bush Veld : "On Limpopo as far south as its junction with the Pongola" (= Mogol River) O. B. MILLER, *Check-List of the Forest Trees and Shrubs of the... Bechuanaland Protectorate.* 1948 **1**.

Zoutpansberg Low Veld : Banks of the Limpopo River, O. B. MILLER (part of the region mentioned above) **1**. — do., Zoutpansberg district, July 1940, *Verdoorn 2088* (PRE) **2**. — Messina, Nov. 1916, *Pole-Evans H13118* **3** ; Aug. 1937, *R. G. Chalmers* (both in PRE) **4**. — Liliput (near where railway to Messina crosses Sand River), June 1923, *Keet 1101* (PRE) **5**. — Chipise Hot Spring on north side of mountains, Dec. 1938, *Smuts & Gillett 2000* (PRE) **6**. — Ngwanedzi R., "N'uanetze River, N.E. Zoutpansberg" July 1921, *Pole-Evans 191*. **7** — "Vanetzi River, northern Transvaal", March 1946, *Gerstner* (both in PRE) **8**.

Border of Zoutpansberg Low Veld and Zoutpansberg Mountains : Mpefu or Mohefu Location, in the valley of the Njelele River, "Upefu

by Hot Spring and Ngililo", Aug. 1937, *Smuts & Gillett* 3608⁹. — "Mpefu Location at Hot Spring (Valley)", June 1938, *Smuts* 2060 (both in PRE and K)¹⁰.

Northern edge of Kruger National Park: The Pafuri (= Levubu) River where it passes through the Parks, Makuleka (on the Pafuri River, in K.N.P.), Oct. 1932, *Lang* H.32262 (TRN/PRE, K)¹¹. — "Along the banks of the Levubu River", CODD, *Trees and Shrubs of the Kruger National Park*. 1951¹². — Pafuri (name given to several localities along river, possibly Makuleka; see above), Aug. 1952, *H. P. van der Schyff* 1425 (PRE, K)¹³. — The Pafuri (= Levubu) River further upstream, where it forms boundary between K.N.P. and Zoutpansberg district "Levabarivier, after Punda Maria", Oct. 1952, *H. P. van der Schyff* 928 (PRE)^{14a}.

Eastern Low Veld: Somewhere imprecisely described, in the northern third of the Eastern Low Veld, "50 miles north of Gravelotte Station, on bank of Great Letaba river, district Pietersburg", Aug. 1934, *Galpin* 13533 (PRE, K). (The Groot Letaba River is about 20 miles north of Gravelotte by road; the Klein Letaba River is 45-50 miles north of Gravelotte by road, and forms the northern boundary of the old Pietersburg district.) **area 14**

Northern Plateau: near Kalkbank (on the Hout Rivier, or one of its tributaries?), "20 miles N. of Pietersburg on Kalkbank road", Dec. 1946, *R. Story* 1557¹⁵; "19 miles do.", Dec. 1946, *Codd* 2274 (both in PRE)¹⁶.

Waterberg area: Valtyn Macapaans Location, and a bridge over the Magalakwin River, both lying about 7-10 miles N.W. of Potgietersrust on road to Villa Nora "Potgietersrust", Oct. 1922, *Galpin* M.9137 (PRE)¹⁷. — "Alluvial flat near Magalakwin Bridge Potgietersrust... Only clump known in district." Oct. 1922, *Galpin* 9137 (K) (quoted by BURTT DAVY)¹⁷. — "Magalakwin Bridge near Potgietersrust", Dewar in herb. Galpin, Feb. 1923, *Galpin* 9137 (PRE)¹⁷. — "9 miles N.W. of P.P. Rust on road to Zaaiplaats", June 1948, *Codd* 4185 (PRE)¹⁸. — "Makapan Location, about 10 mi. W. (sic!) of Potgietersrust, van Riet Louw's photographs (PRE)¹⁹; other photographs (PRE)²⁰. This group of trees has been proclaimed for the nation by the National Monuments Commission.

Middelburg Bush Veld: "Gompies River, just below confluence with Strydpoort River" (in or near Zebediela's Location), GALPIN *The Native Timber Trees of the Springbok Flats*: 7. 1925²¹.

Southern edge of Kruger National Park: near Crocodile Bridge, CODD *Trees and Shrubs of the Kruger National Park*: 38. 1951²².

Barberton district: Lebombo Flats near Swazi border, Aug. 1923, *Keet* 1495 (PRE)²³.

An ambiguous reference: "Junction of Crocodile and Magalakwin rivers, Northern Transvaal", Aug. 1936, *Pole-Evans* 3968 (PRE, K). This might be taken to mean the junction of the Limpopo R. (formerly, sometimes called the Crocodile) and the Magalakwin R., on the north-western border of the country. As, however, the Magalakwin R. and (a different) Crocodile R. both flow through the Waterberg area (though they do not meet), I felt that it is very nearly as likely to be a reference to some locality in the latter area.

CONCLUSION :

It is a tree of very wide distribution outside the Union of South Africa. It occurs, with us, in a relatively small area of the northern and north-eastern Transvaal : Zoutpansberg Low Veld ; tropical Bush Veld ; bases of mountains ; edges of true Low Veld ; and probably only in the neighbourhood of river or stream-beds. It also occurs in a second, even smaller, area in a roughly similar topographical situation in the extreme south-eastern Transvaal.

Are these two areas connected in the Transvaal? There is no positive evidence that they are. But the former area most probably links up through northern Bechuanaland with the areas of distribution in southern Angola and South-West Africa : and the latter with the area of distribution in Zululand.

USES :

The pods and foliage are eaten by animals and it is considered, in most parts of its range, a useful forage plant. For this reason it has received many native names ; and it is in some places deliberately preserved. Its common name in South Africa is the Ana tree.

3. — **Acacia senegal** Willd. *Sp. Pl.* 4 (II) : 1077. 1806.

South African forms : J. P. M. BRENNAN in *Kew Bull.* 1953 : 98 & 99. BRENNAN has described two varieties of this species, both of which occur in the Transvaal :

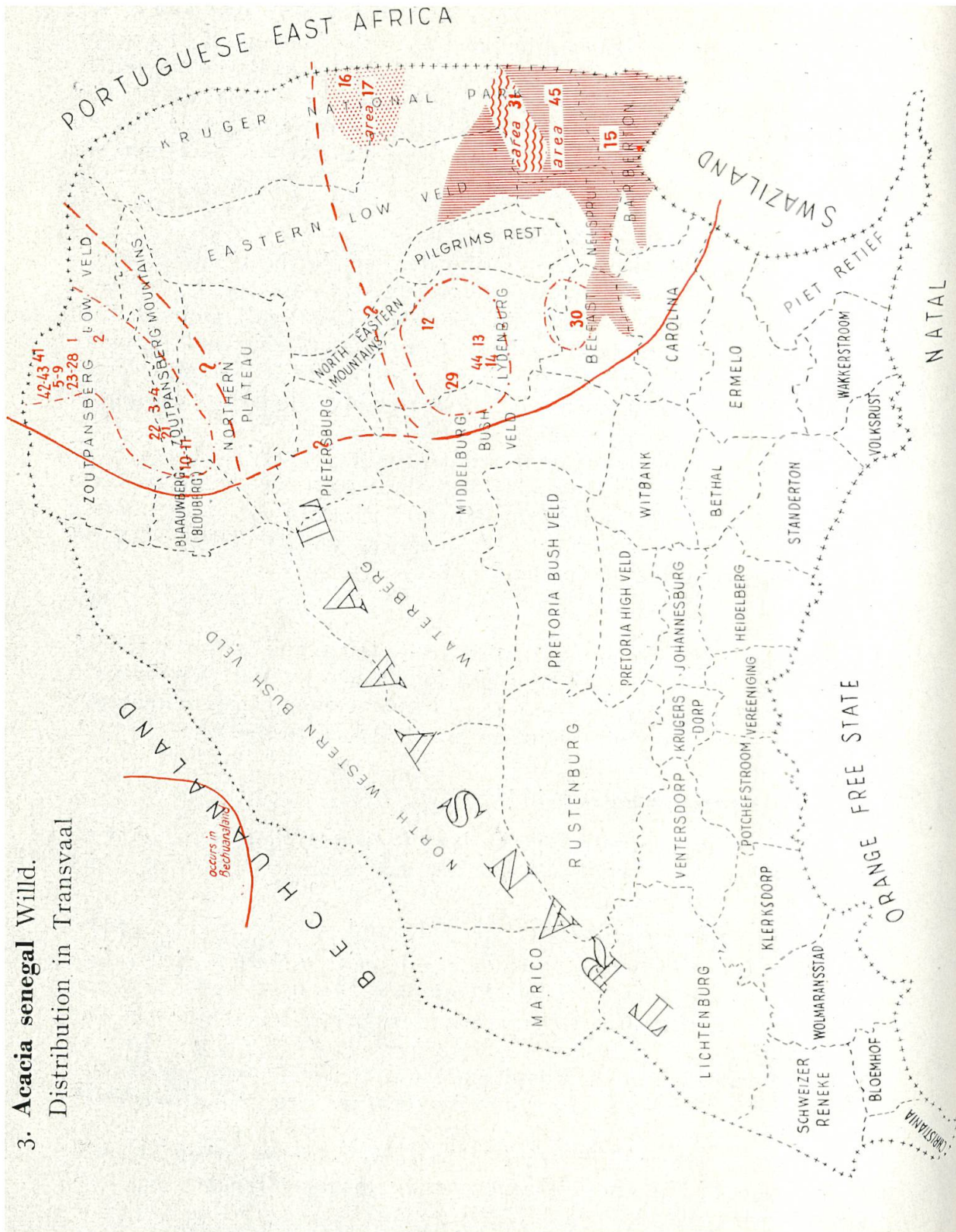
(α) var. *leiorhachis* Brenan, loc. cit., and

(β) var. *rostrata* Brenan, loc. cit. = *A. spinosa* Marl. in *Bot. Jahrb.*, 10 : 20 ; non E. Mey. *Comm. Plant. Afr. Austr.* 1 : 170 = *A. tri-spinosa* Schinz in *Mém. Herb. Boiss.* 1 : 115 ; non Stokes in *Bot. Mat. Med.* 3 : 168 = *A. rostrata* Sim. *Forest Flora Port. East. Afr.* : 55, tab. 37A ; non Humb. & Bonpl. ex Willd. *Sp. Pl.* 4 : 1060 ; cf. *A. senegal* Willd. var., in CODD, *Trees and Shrubs of the Kruger National Park* : 51. 1951.

It will be easier to distinguish these two varieties, when a general description of the species, as occurring in these regions, has been considered.

3. *Acacia senegal* Willd.

Distribution in Transvaal



DIAGNOSTIC DESCRIPTION OF *ACACIA SENEGAL* WILLD., SENS. LAT.,
IN THE TRANSVAAL :

A large *shrub* or small *tree*. Bark of older branches \pm flaking in yellowish strips or patches. *Spines* in threes, at leaf-bases; the median strongly hook-shaped downwards, the two lateral straight or slightly upcurved. *Leaves* 3.5-10 cm. \times 2-5 cm.; rachis slender, often aculeate; pinnae in 3-6 (usually 5) pairs; leaflets in about 10 pairs, 3-6 mm. \times 0.5-2.5 mm., shortly petiolulate, obtuse to subacute. *Flower-spikes* creamy-white, shortish, axillary, usually gathered into an interrupted raceme; flowers very crowded, sessile; calyx almost equalling the corolla. *Legume* chartaceous to subcoriaceous, straight, light in colour, 3-10 cm. \times 1-2.5 cm., with few (usually 3) large flat seeds.

(See map on p. 94) :

3 a. — *Acacia senegal* Willd., var. *leiorhachis* Brenan, in the Transvaal.

DESCRIPTION :

Shrub or small *tree* up to 6.5 m. high, with sparse, erect branches, forming an open straggly crown. *Pods* (in all specimens seen) oblong, nearly straight-sided, obtuse or acute but never rostrate. *Rachis* of the inflorescence glabrous or practically so.

DISTRIBUTION IN TRANSVAAL (see map on p. 94) :

Zoutpansberg Low Veld: Messina, Sept. 1908, *Legat 4910* (K) ¹. — Between "Ngellele" (Njelele River) and Blauwkop (Bloukop, near Liliput), Aug. 1916, *Breyer H16063* (TRN/PRE) ². — Waterpoort, Sept. 1918, *Rogers H.18758* (TRN/PRE) ³; Oct. 1918, *Rogers 21856* (G) ⁴. — Dongola Reserve, Farm Hartjiesveld 706, near homestead, Aug. 1948, *Codd 4325* "(= *Verdoorn 2293*)" (K) ⁵; Saker's homestead, Hartjiesfontein, March 1948, *Verdoorn 2293* (PRE, K) ⁶; March 1948, *Verdoorn 2294* (K) ⁷; Oct. 1948, *Verdoorn 2326* (PRE, K) ⁸; farm Reidel, March 1948, *Verdoorn 2266* (PRE, K) ⁹.

Between Zoutpansberg Mts. and Blouberg Mts.: 3½ mi. S.E. of P.O. Vivo, Apr. 1948, *Codd 4049* (PRE); Aug. 1948, *Codd 4320* (K), in flower ¹⁰; Oct. 1948, *Codd 4440* (K), in fruit ¹¹.

Lydenburg district: 3 miles S. of Burgersfort, Nov. 1951, *Codd 6679* (PRE) ¹². — Dwars River, Apr. 1942, *Hector & Schoeman* (Agric. Res. Inst.) ¹³. — Bridge over Steelpoort River, farm Steelpoortdrif, Sept. 1943, *Hector & Schoeman* (Agric. Res. Inst.) ¹⁴.

Barberton district: Malelane, Aug. 1917, *Pole-Evans H15768* (K. — formerly in PRE) ¹⁵.

Kruger National Park: near the Gorge Camp (on Olifants River), Oct. 1950, *Codd 6190* (PRE, K) ¹⁶; "in the Park on stony slopes a few miles south of the Olifants River and near the Gorge", *CODD Trees and Shrubs of the Kruger National Park*. 1951. area ¹⁷

3 b. — **Acacia senegal** Willd., var. **rostrata** Brenan, in the Transvaal.

DESCRIPTION :

Shrub or small *tree* with a broad, dense, flat-topped or umbrella-shaped crown. *Pods* oval or oblong with sides more rounded than in the preceding, frequently narrowed between the seeds, acuminate or rostrate at apex. *Rachis* of the inflorescence densely covered with a fine pubescence.

DISTRIBUTION IN TRANSVAAL (see map. on p 94) :

Zoutpansberg Low Veld: Zoutpan, "Zoutpan, west side", Jan. 1931, *Bremekamp & Schweickerdt* 239 (TRN/PRE) ²¹; Farm Zoutpan 193 (north side of pan), Nov. 1932, *Obermeyer, Schweickerdt & Verdoorn* 300 (TRN/PRE) ²². — Dongola Reserve, Farm Skutwater 709, April 1948, *Codd* 4087 ²³; Schroda, March 1948, *Verdoorn* 2272 ²⁴; Weipe, Dec. 1945, *Pole-Evans* 4491 ²⁵; March 1948, *Verdoorn* 2264 = Type ²⁶; June 1948, *Verdoorn* 2262 ²⁷; March 1948, *Verdoorn* 2263 ²⁸ (all in PRE, K).

Lydenburg district: Sekukuniland, Nov. 1935, *Barnard* 435 (PRE) ²⁹.

Belfast district: Schoemanskloof, 5.8.1933, *Pole-Evans* (K, formerly in PRE) ³⁰.

Kruger National Park: "Common in the southern part of the Park, being particularly prevalent on brackish, sandy flats near Skukuza", *CODD, Trees and Shrubs of the Kruger National Park*. 1951 ³¹.

RECORDS OF ACACIA SENEGAL NOT CLASSIFIED AS TO VARIETY ;

Zoutpansberg Low Veld: Near Limpopo River, Zoutpansberg district, July 1940, *Verdoorn* 2081 (PRE) ⁴¹. — Dongola, Limpopo, Dec. 1928, *Hutchinson* 2141 (K) ⁴². — Dongola Botanical Reserve, July 1940, *Verdoorn* 2070 (PRE) ⁴³. *Lydenburg district*: Schoonoord, Sekukuniland, Nov. 1941, *van Warmelo* 195 (TRN/PRE) ⁴⁴.

Eastern Low Veld, Kruger National Park, Nelspruit districts: Veld Type 10 (true Low Veld), *ACOCKS, Veld Types of South Africa*: 47. 1953. ^{area} ⁴⁵

CONCLUSION :

Acacia senegal occurs in an apparently discontinuous (or in reality continuous?) chain of areas stretching across the eastern Transvaal, from the Rhodesian border in the north, to Swaziland and the Portuguese border in the south-east. The trees occur both in the Low Veld, and at the medium altitudes.

The areas occupied by the two varieties coincide over the greater part of their range.

USES :

It should be made clear that both our forms of *Acacia senegal* are at least varietally distinct from *A. senegal*, sensu stricto, which is the source of the true gum arabic of commerce. It does not necessarily appear, therefore, that either of our varieties would be a good source of marketable gum. But in any event, so far as I am aware, the attempt to exploit it has never been made in the Union.

A good account of the uses of the true gum arabic tree will be found in DALZIEL *Useful Plants of West. Trop. Afr.* : 207.

4. — ***Acacia galpinii*** Burt Davy *Kew Bull.* 1922 : 326.

DIAGNOSTIC DESCRIPTION :

Large tree, 40 ft. high. Leaves nearly glabrous, and glaucous; rachis with petiole 9-14 cm. long; pinnae in 10-12 pairs, 3.5-5 cm. long, 8-10 mm. apart; leaflets in 15-30 pairs, 7-8 mm. \times 1.5-2 mm., obtuse, \pm 2 mm. apart. Flower-spikes 4-6 cm. long, racemosely fascicled on short pubescent axillary branches; flowers light yellow; calyx-tube shallow, purplish, subglabrous; corolla puberulent. Legume \pm 20 \times 2.7 cm., subcoriaceous, subfalcate, with a conspicuous margin, "densely glandular when young" — sec. BURTT DAVY.

DISTRIBUTION IN TRANSVAAL (see map on p. 98) :

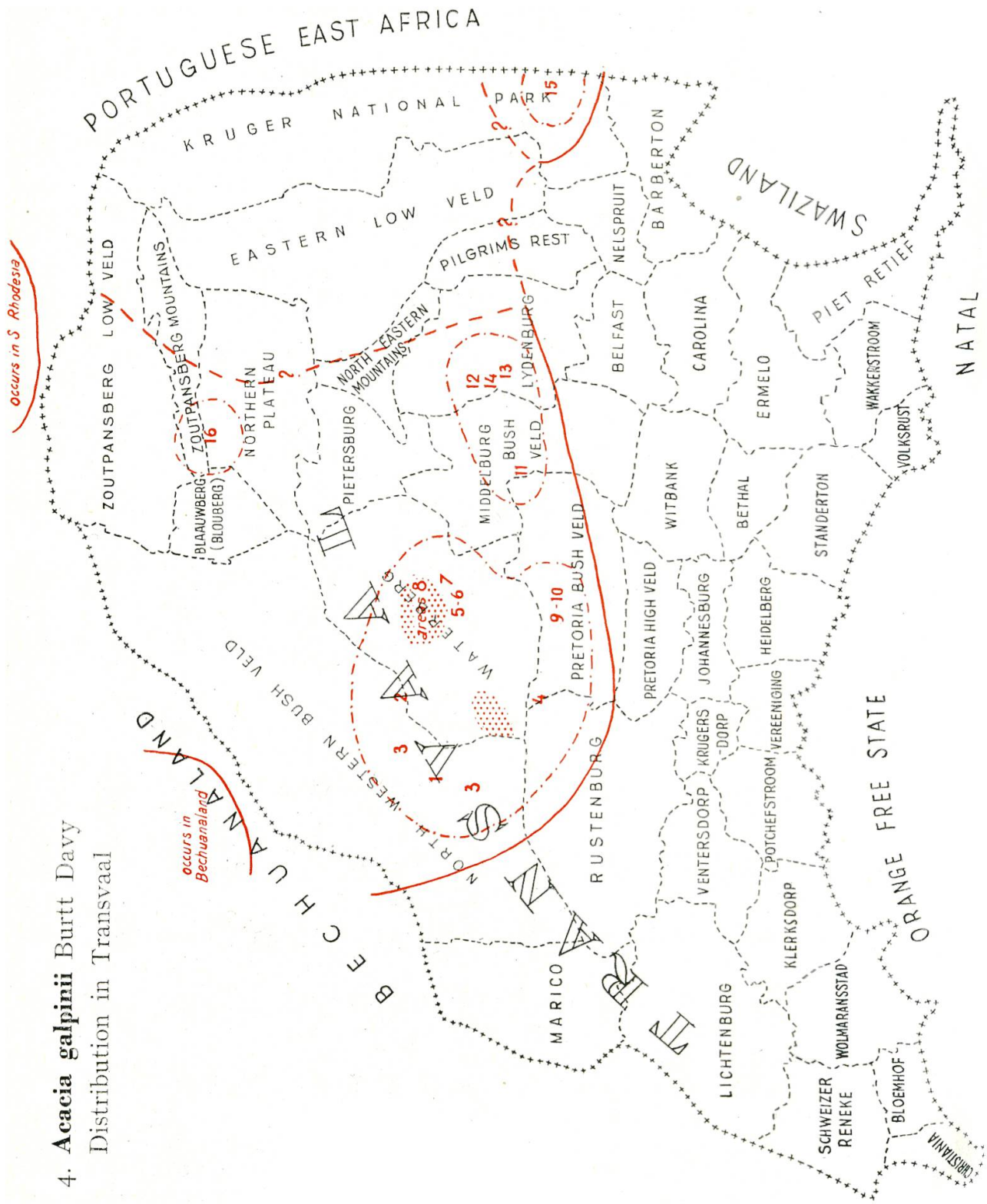
North-Western Bush Veld: Thabazimbi, Jan. 1942, Dyer & Verdoorn 4218 (PRE, K) ¹.

Borders of Waterberg, Rustenburg and North-Western Bush Veld: GALPIN in his *Timber Trees of the Springbok Flats* records it "along the Sand River ² and other rivers on the south-western border of the Waterberg and adjoining portion of the Rustenburg district" ³.

Borders of Pretoria, Waterberg and Rustenburg districts: "near junction of Aapjes and Crocodile Rivers" — subsequently amended by the collector to "near junction of Aapjes and Pienaars Rivers", June 1905, L. Reck H1084 (PRE), quoted by BURTT DAVY. (The confluences of the Aapjes and Pienaar, and of the Pienaar and Crocodile, are only about 10 miles apart) ⁴.

Waterberg: On banks of Bad-zyn-loop River (farms Veltevreden, Nooitgedacht and Vischgat) near Naboomspruit, Sept. 1920, Galpin M 483 (PRE, K) = type ⁵ (This would be about 7 miles S.S.W. of Naboomspruit); banks Badzynloop river near Naboomspruit, Apr. 1928, Galpin 14009 (marked as matched with type) (K) ⁶. — At Mosdene, Naboomspruit, Oct. 1923, Galpin M104 (K) ⁷; whole

4. *Acacia galpinii* Burt Davy
Distribution in Transvaal



Naboomspruit area: "... meeting of the Naboom Farmers' Association... a number of farmers well acquainted with *Acacia galpinii* having it growing upon their farms" **area 8** (letter from GALPIN to Chief of Division of Botany, 12.9.1923).

Pretoria Bush Veld: Rust-der-Winter, Elands River, July 1935, *Pole-Evans* 3815 (PRE, K) (quoted by GALPIN) **9**; July 1949, *Codd* 5598 (K, PRE, also good photograph in latter) **10**.

Middelburg Bush Veld: 4 mi. east of Groblersdaal, March 1947, *Codd* 2702 (PRE) **11**.

Lydenburg district: Sekukuniland, Oct. 1936, *Barnard* 576 (PRE) **12**; on banks of Steelpoort River, Sekukuniland, Dec. 1931, *V. Wager* (PRE) **13**. — Bridge over Steelpoort River, on farm Steelpoortdurf, Sept. 1943, *Hector & Schoeman* (Agric. Res. Inst.) **14**.

Kruger National Park: Lower Sabie, Kruger National Park (a Rest-Camp), Sept. 1952, *v. d. Schijff* 806 (PRE, K) **15**.

Northern Plateau: 31 miles W. of Louis Trichard... on S. side of Zoutpansberg range, Oct. 1948, *Codd* 4441 (PRE, K) **16**.

CONCLUSION :

The recorded area is discontinuous (though whether this is to be attributed to nature, or to the collectors concerned, it would be difficult to say). But the species seems certainly to be confined to the northern three-fifths of the province, occurring within this area in a broad belt of warm to warm-temperate bushveld stretching right across the country, and linking up in the north-west with Bechuanaland and Southern Rhodesia. About two-thirds of the records have been obtained from the banks of rivers.

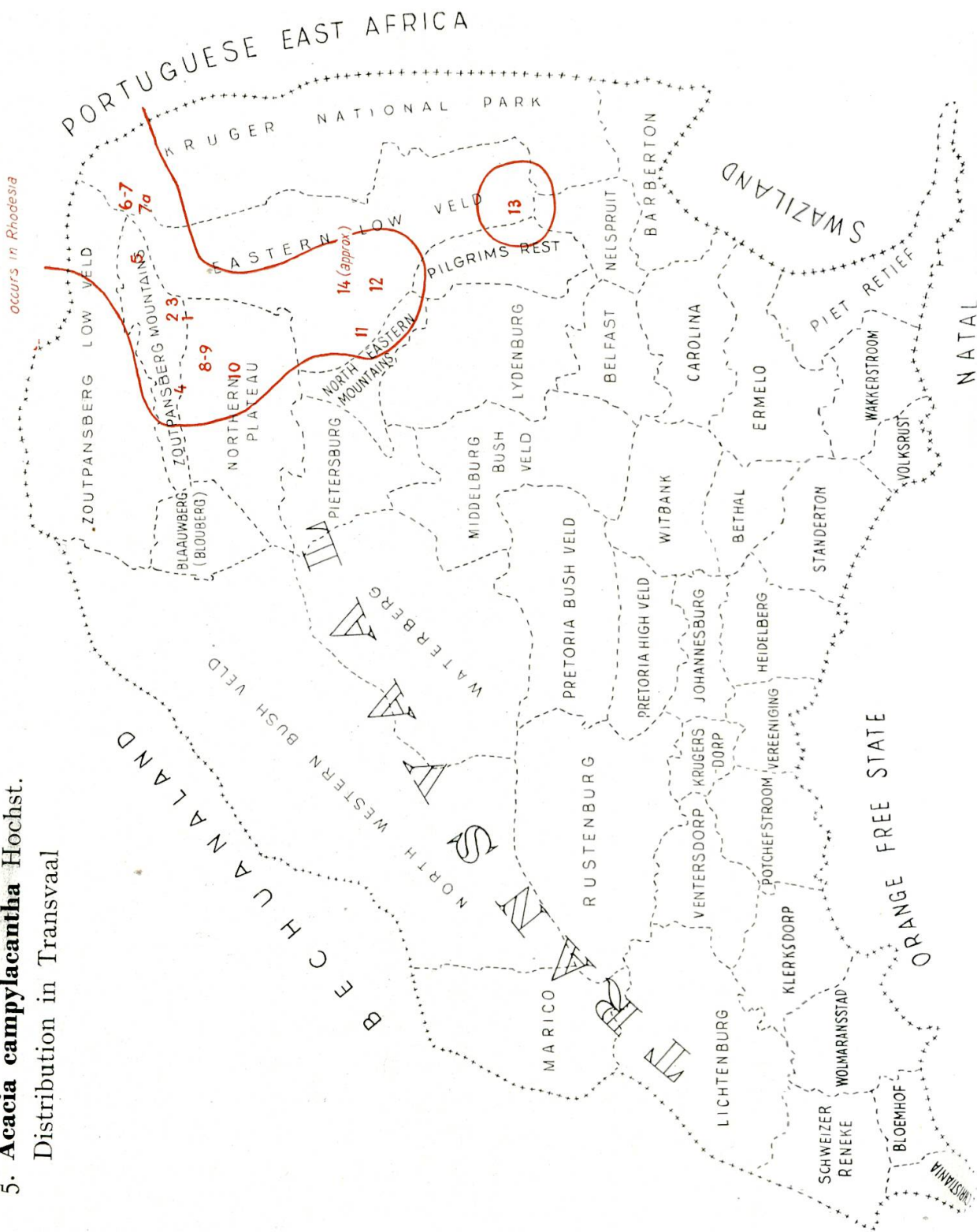
5. — ***Acacia campylacantha*** Hochst. ex A. Rich. *Tent. Flor. Abyss.* **1**: 242. 1843 = *A. catechu* Oliver, *Flora Trop. Afr.* **2**: 344. 1871; non Willd. = *A. campylacantha* (partim) Burtt Davy, *Manual Fl. Pl. Transvaal* **2**: 337. 1932.

BURTT DAVY seems to have included a few specimens of *A. caffra* var. *tomentosa* Glover, amongst those he has quoted under this species. There are, however, a number of authentic descriptions of the species in other works, some of which are quoted below.

DIAGNOSTIC DESCRIPTION :

A medium-sized to large *tree* (for the genus); bark of trunk yellowish, peeling. *Thorns* variable in size, from very small up to 1 cm. long (occasionally absent). *Leaves* very large (for the genus), about twice as long as broad (12-25 cm. × 5-10 cm.); rachis puberulous, with a basal pulvinus, and usually with several cyathiform glands towards

5. *Acacia campylacantha* Hochst.
Distribution in Transvaal



occurs in Rhodesia

base and apex ; pinnae in 15-40 pairs ; leaflets in 30-55 pairs, $\pm 3.5 \times 0.5-1$ mm., linear-cultriform, ciliolate. *Flower-spikes* narrow, pale, 2-to-several per leaf-axil ; axis pubescent, usually with a gland below lowest flowers : flowers shortly pedicelled, slightly separated ; calyx very pubescent, somewhat inflated. *Legumes* straight, usually 10-15 cm. $\times \pm 1.5$ cm., relatively thin in texture and light brown in colour.

REFERENCES (additional to those quoted above) :

ENGLER, *Die Vegetation der Erde* 9 : 385 et seq. (with good plate). 1915.

BAKER, *Leguminosae of Trop. Afr.* : 831 (who notes : " growing by rivers "). 1926.

HUTCHINSON & DALZIEL, *Flora West Trop. Afr.*, 1 : 361 : 1928.

DALZIEL, *Useful Plants of West Trop.* : 205. 1937.

DISTRIBUTION IN TRANSVAAL (see map on p. 100) :

Zoutpansberg Mountains (or very close to them) : Near Madrid Forest Station, Zoutpansberg, June 1926, *C. C. Robertson* (in Forestry Dept. Herb. No. 6489 ; PRE) ¹. — Tshakoma, Nov. 1931, *Obermeyer H.30368* (TRN/PRE) ² ; March 1953, *van Warmelo 53310/1* (PRE, K) ³. — 1 mile east of Louis Trichardt, Sept. 1947, *Codd 3024* (PRE, K) ⁴. — Makonde (or Makonda), district Sibasa, Jan. 1951, *van Warmelo 5115/9* ⁶ (PRE) ⁵.

(*Northern*) *Kruger National Park* : Punda Maria, May 1953, *v.d. Schijff 2977* (PRE, K) ⁶ ; do. Camp, June 1948, *Codd 4221* (photo and specimen ; PRE ⁷ ; cf. CODD, *Trees and Shrubs of the Kruger National Park* : 42. 1951. — M'basu, " Mabasa, Kruger National Park, Zoutpansberg east ", Nov. 1932, *Lang H32219* (TRN/PRE, K) ^{7a}.

Northern Plateau : Elim, Zoutpansberg, June 1930, *Obermeyer 581* and Dec. 1930 *H29295* (both in TRN/PRE, K) ⁸ ; Dec. 1945, *Gerstner 5791* (B M) ⁹. — Setali Mission, P. O. Daviesville, N. Transvaal, May 1945, *Gerstner 5469* (PRE) ¹⁰.

North-eastern Mountains to Eastern Low Veld : Thabina River, 1906-1907, *Burt Davy 5211* (K) ¹¹.

Eastern Low Veld : On way to Tzaneen from Leydsdorp, Oct. 1941, *Hector, Schoeman & Young* (Agric. Res. Inst.) ¹². — Hilltop ridge between Kouwyns Pass and Sabie Bridge, Dec. 1935, *Gillett 1024* (PRE) ¹³. — A locality whose exact position I have been unable to define, although its approximate position is obvious, is : " between Thabina & Sutherland, near Leydsdorp " : June 1906, *Burt Davy 5234* (PRE) (If " Sutherland " is the Sutherland Range, it lies far to the

north of both Thabina and Leydsdorp, which are comparatively close together) ¹⁴.

Locality so far untraceable: Sweetwaters, Zoutpansberg district, Nov. 1928, Keet (in Forestry Dept. Herb. No. 7166) (PRE).

CONCLUSION :

This species occurs, fairly abundantly, over a vast area of tropical Africa : (at least) from Nigeria in the west to Abyssinia in the east, and down to Southern Rhodesia in the south : but it only enters the Union in the north-eastern corner. Furthermore, it has obviously not been by any means completely collected. However, it probably occurs in a continuous belt along the eastern side of the Eastern Escarpment, broadening into a wider area to the south and east of the Zoutpansberg mountains. Its habitat is the relatively moister parts of tropical bush-veld or the edges of the low-veld, especially at the base of mountain ranges.

6. — **Acacia caffra** Willd. *Sp. Pl.* 4 : 1078. 1806 = *Mimosa caffra* Thunb. *Prodr. Plant. Cap.* : 92. 1800 ; Thunb. *Flora Cap.* ed. Schultes : 433. 1823.

DIAGNOSTIC DESCRIPTION :

Tree 20-30 ft. (can occur as a shrub in unfavorable localities), bark dark-coloured. *Thorns* usually small (up to $\pm 0,5$ cm.), not so stout as in preceding. *Leaves* true-green, variable in size (5-20 cm. long) ; rachis and rachillae sparsely puberulous to glabrescent, with or without cyathiform or stipitate glands near the base ; pinnae 3-6 cm. long, in 5-15 pairs, 0,5-1 cm. apart ; leaflets in 10-40 (usually ± 20) pairs, oblong, ciliolate to glabrescent, 3-9 mm. \times 1-2 mm. *Flower-spikes* solitary or fascicled, 5 cm. or longer, pale yellow, axis puberulous ; flowers crowded, sessile, with \pm puberulous calyx. *Legumes* straight, brown, chartaceous to coriaceous, 5-15 cm. \times 0,5-1,7 cm. ; firmer, narrower and darker-coloured than in preceding species.

A common and variable but, on the whole, readily-distinguished species. I am convinced that the thornless condition of specimens in herbaria is—in the great majority of cases—due to damage. In the field, thornless specimens exist, but they are rare.

Further references can be found in most works on South African systematic botany.

GLOVER (in *Annals of the Bolus Herbarium* 1 : 146. 1915) divided this species into the typical form and three varieties, but subsequent systematic work has resulted in only one of these varieties being generally accepted, viz. var. *tomentosa* (q.v.).

DISTRIBUTION (IN TRANSVAAL OF ACACIA CAFFRA WILLD., EXCLUDING VAR. TOMENTOSA) (see map on p. 104) :

(In this list, the dates have been omitted, in view of the large number of records, and to save space.)

Zoutpansberg Mountains: Pepiti Falls, *Curson & Irvine* 100 (PRE) ¹. — Veld Type 19 (Sourish Mixed Bushveld), ACOCKS, *Veld Types of South Africa*: 71, variety not specified. **area 2**

Northern Plateau: Setali Mission (near Daviesville), *Gerstner* 5504 (K) ³.

Blouberg: Blaauwberg, *Houseman* H5299 (PRE) ⁴. — Veld Type 19 (Sourish Mixed Bushveld): ACOCKS, *l. c.*, variety not specified. **area 2**

Pietersburg District, at base of North-Eastern Mountains: Houtbosch, *Rehmann* 6274, ann. 1875-1880 (B M) (presumed locality) ⁵. — Chuniespoort, *Obermeyer & von Wolff* H34663 (TRN/PRE) ⁶; *Pole-Evans* H19447 (PRE) ⁷.

Lydenburg: Schoonoord, *Barnard* 34 (PRE) ⁸. — Dwars River, 6.4.42, *Hector & Schoeman* (Agric. Res. Inst.) ⁹.

Middelburg Bush Veld: Broeder Stroem, between Stoffberg and Roos Senekal, *Prosser* 1028 (J, K). ¹⁰

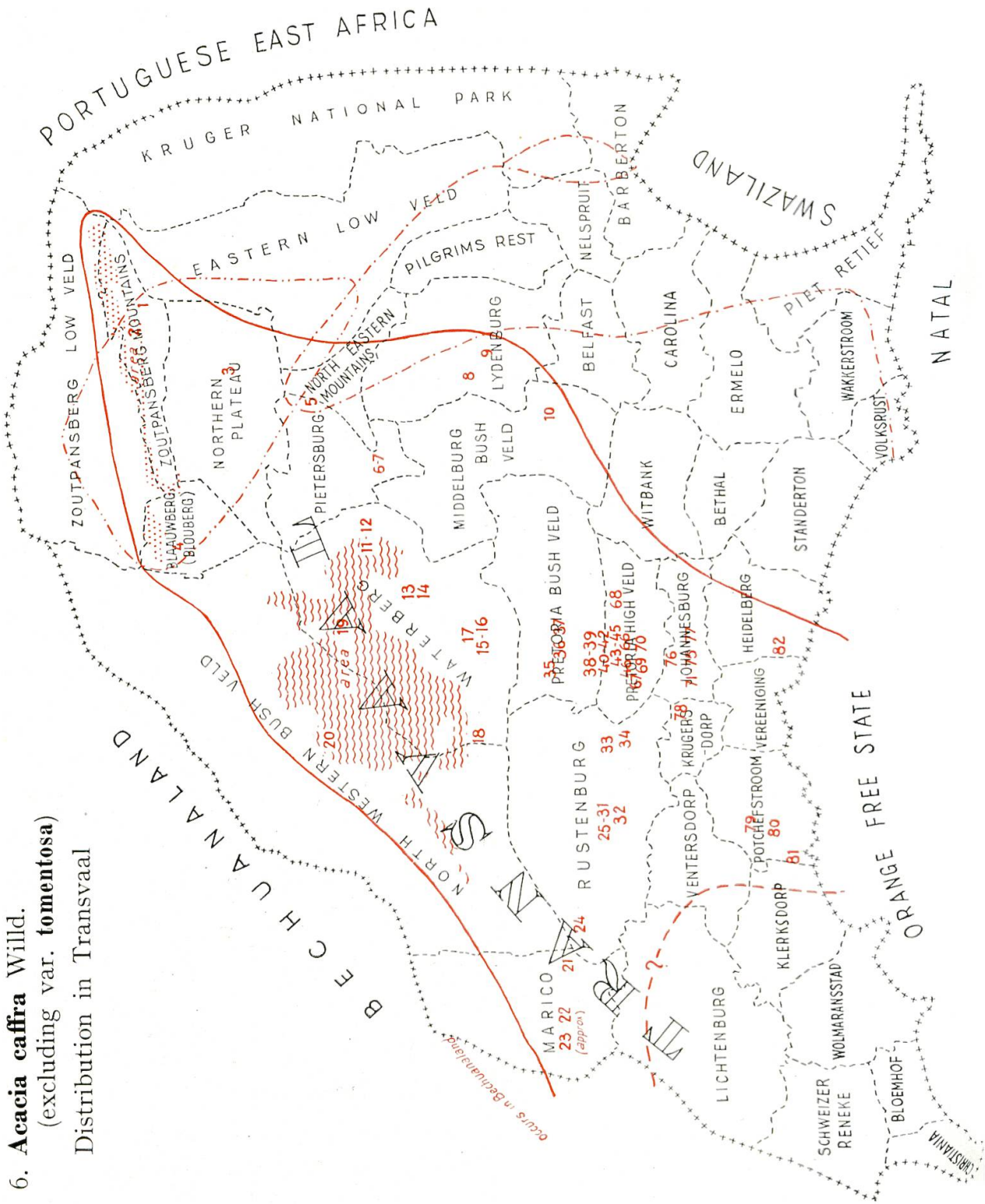
Waterberg: Potgietersrust, *Leendertz* 1138 (TRN/PRE) ¹¹; *Burtt Davy* 18126 (J) ¹². — Naboomspruit, *Stent* H10481 (PRE) ¹³; Mosdene, near do., *Galpin M.III* (PRE) ¹⁴. — Warmbaths, *Burtt Davy* 5235 (PRE) ¹⁵; near do., *Burtt Davy* 4075 (PRE) ¹⁶; Toowoomba Research Station, near do., *Collett* 493 (PRE) ¹⁷. — Leeuwpoot Tin Mine, Waterberg, *Rogers* 19079 (K) ¹⁸. — Veld Type 20 (Sour Bushveld), ACOCKS, *Veld Types of South Africa*: 72-74; variety not specified **area 19**.

North Western Bush Veld: "9 m. W. of Hermannsdoorns (Hermannsdoorns) on road to Matlabas", *Codd* 4004 (K) ²⁰. — Veld Type 20 (Sour Bushveld), ACOCKS, *l. c.* **area 20**.

Marico: Between Marico and Vaalkop (both of them are sidings on the railway line to Zeerust), *Pole-Evans* 2210 (PRE) ²¹. — Zeerust, *Burtt Davy* 106 (PRE); *Thode A* 1405 (K) ²². — "District Marico", *J. van der Merwe* 23 (PRE) ²³. Rustenburg district: Sterkstroom, between Zeerust and Rustenburg, *Burtt Davy* 129 (PRE) ²⁴. — Rustenburg, *Sutton* 893 (PRE) ²⁵, *Leendertz* 3483 (TRN/PRE) ²⁶; *M. Heatley* 2645 (J) ²⁷; *P. Bell-John* H, 11297 (J) ²⁸; *Galpin* 11643 (PRE, B M) ²⁹; *Lanham* 95 (TRN/PRE) ³⁰; *Olive Nation* 339 (K) ³¹; Kroondal, near do., *von Wolff* H, 34687 (TRN/PRE) ³². — De Kroon near Brits, *Jonnes* 6270 (PRE) ³³. — Hekpoort, *J. Phillips* 391 (J) ³⁴.

Pretoria Bush Veld: Pretoria Saltpan, *Leeman* H27315 (TRN/PRE) ³⁵. — Hamanskraal, *Obermeyer* H34643 (TRN/PRE) ³⁶; Stink-

6. *Acacia caffra* Willd.
(excluding var. *tomentosa*)
Distribution in Transvaal



water farm, near do., *Davidson* and class *H25107* (J) ³⁷. — Onderstepoort, *Pole-Evans 414* ³⁸; *Mogg H15673* (both in PRE) ³⁹. — Bon Accord Dam, *J. Phillips* (Botanical Survey Collection 1754; J) ⁴⁰; do. kopjes, *R. G. N. Young* (Agric. Res. Inst.) ⁴¹; "Bon Accord Kopjes, between Pretoria and Pienaars River", *Hutchinson & Mogg 2907* (K) ⁴². — Wonderboompoort, *Rehmann 4603* (PRE) ⁴³. — Kloof of Magaliesberg, *Jonnes H 6140* (PRE) ⁴⁴. — Macalisberg, *Burke* (Herb. Hook. anno 1867; K) ⁴⁵.

Pretoria High Veld: Pretoria, Oct. 1924, *Labuschagne* (PRE) ⁴⁶; *Leendertz 53* ⁴⁷ et *302* ⁴⁸ (TRN/PRE); *Moss 16862* (BM) ⁴⁹; *Burt Davy 3784* ⁵⁰ (PRE); *Keet 1279* (PRE) ⁵¹; Time Ball Hill, *Pole-Evans 10* (PRE) ⁵²; Commonage near Louis Botha Home, *C. A. Smith 3288* (PRE) ⁵³; Fountains Valley, *Repton 22* (PRE) ⁵⁴; Meintjes Kop, *Mogg H14777* ⁵⁵ and *15317* (PRE) ⁵⁶; *Dyer 2522* (PRE, K) ⁵⁷; *Schweickerdt 1200* (PRE) ⁵⁸; Zoo kopje, *Schweickerdt 989* (PRE) ⁵⁹; Groenkloof, *Burt Davy 5236* ⁶⁰ and *10955* ⁶¹ (PRE); Grounds round Laboratory, *Pole-Evans 487* (PRE) ⁶²; Arcadia, *Burt Davy 1013* (PRE, K) ⁶³; *Burt Davy 5236* (PRE) ⁶⁴; *Claud Fuller H.10614* (PRE) ⁶⁵; near the Country Club, *Moss 4478* (J) ⁶⁶. — Hennops River, *Bradfield T.198* (PRE) ⁶⁷. — Premier Mine, *Moss 4478* (J) ⁶⁸. — Prope Sixmiles Spruit, *Schlechter 3573* (K, B M, G) ⁶⁹. — Irene, *Rogers 11411* (B M) ⁷⁰.

Johannesburg district: Johannesburg, Zoo kopjes, *M. Moss H10566* ⁷¹; Thorntree Kloof, *Moss 6771* ⁷² and *10541* ⁷³; Bedford Farm, *Moss 4480* ⁷⁴; Strubens Valley, *Moss 7992* ⁷⁵ (all in J). — "Johannesburg, Foot of Northern Escarpment of Witwatersrand series", *R. F. Rand 681* (B M) ⁷⁶. — Near Wattles (about 3 miles south of Germiston), *Moss 19093* ⁷⁷.

Krugersdorp: Witpoortje, *F. Frootko H.19967* (J) ⁷⁸.

Potchefstroom: Boskop (north of Potchefstroom) [*illegible*] *425* (PRE) ⁷⁹. — Potchefstroom, *Goossens 1689* (PRE) ⁸⁰. — On Potchefstroom-Klerksdorp road, *Pole-Evans 3119* (PRE, K) ⁸¹.

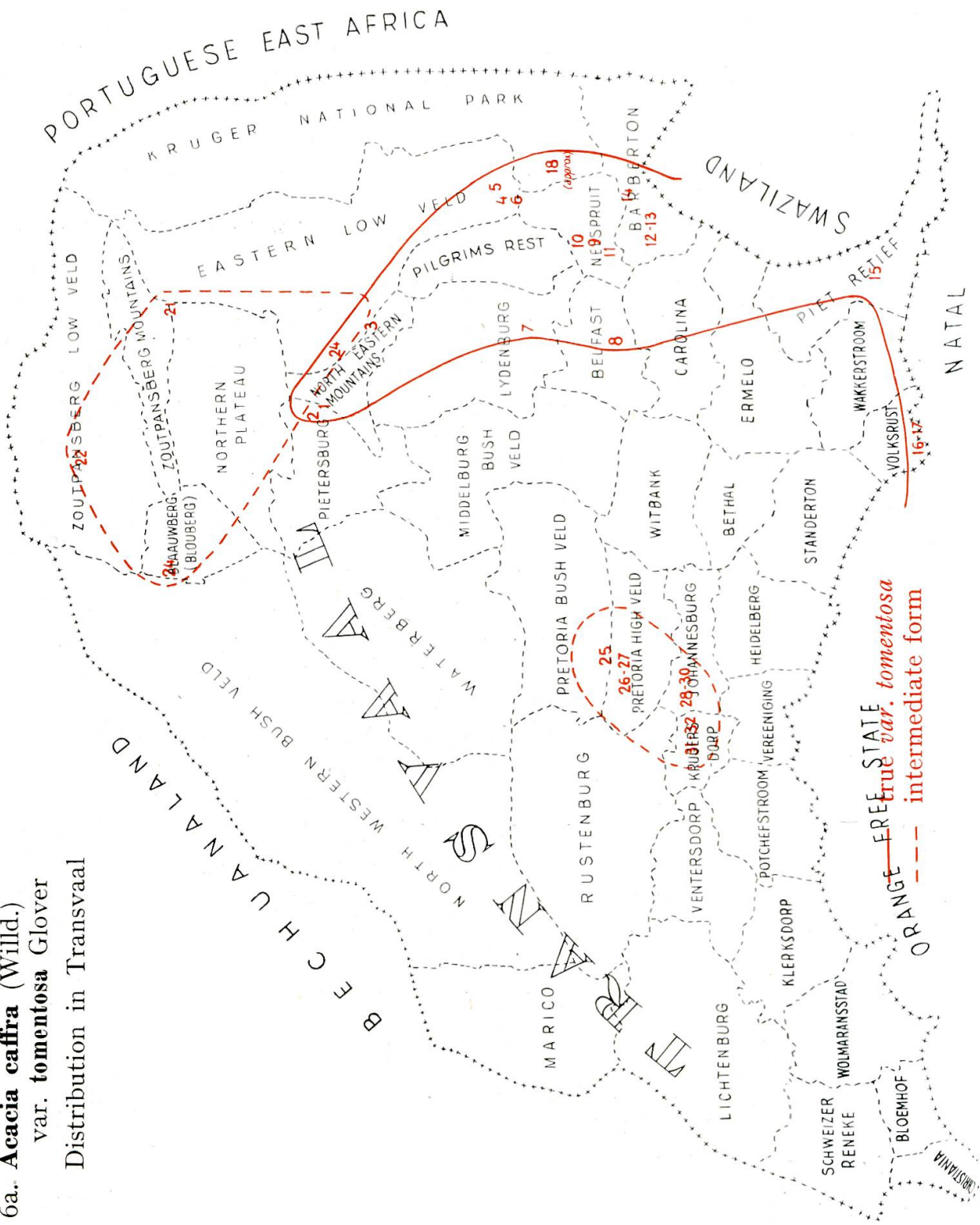
Heidelberg district: Farm Kaffirskraal on Suikerbosrand, Heidelberg district, legit *H.B.G.* (Moss Herb. No. 24648, J) ⁸².

CONCLUSION :

Acacia caffra Willd. and its (I think) only valid variety, var. *tomentosa* Glover, occupy between them an area of three-quarters of the Transvaal, that is, the whole country except :

- (a) the north-western border (which however has been sparingly collected over);
- (b) the northern part of the Zoutpansberg Low-veld;

6a. *Acacia caffra* (Willd.)
 var. *tomentosa* Glover
 Distribution in Transvaal



- (c) the eastern part of the Eastern Low-Veld, and the Kruger National Park ;
- (d) the True High Veld (Bethal, Standerton, etc.), where very little bush of any sort occurs.

The south-eastern areas of the country, between the true High Veld and the Low Veld, are occupied exclusively by var. *tomentosa*. Elsewhere, *A. caffra* occurs in a number of minutely-differing forms, whose systematic significance is, I think, negligible.

However, a fairly definite form, representing an intermediate between the normal *Acacia caffra*, and var. *tomentosa*, occurs in two well-defined, and widely separated, areas, viz. (a) the Pretoria-Johannesburg area, and (b) an area on both sides of the Zoutpansberg, in the northern Transvaal. In both cases it co-exists with the typical *A. caffra*. The species, in its fairly typical forms, is perhaps most abundant of all in the eastern and central Cape Province.

6 a. — **Acacia caffra** Willd. var. **tomentosa** Glover *Annals Bolus Herbarium* 1 (IV) : 146. 1915.

DIAGNOSTIC DESCRIPTION (mainly after Glover) :

Pinnæ in 10-30 pairs (leaves usually longer and narrower than in typical *A. caffra*). Young stems, leaflets, peduncles and calyces thickly tomentose to sparsely villous. *Flower-spikes* slightly shorter and more crowded (than in typical *A. caffra*), sometimes forming a terminal panicle.

DISTRIBUTION IN TRANSVAAL * (see map on p. 106) :

Border of North Eastern Mountains and Pietersburg districts : Kratzenstein, Woodbush, Nov. 1930, *Hoffman* 1 (TRN/PRE) ¹. — Houtbosch, *Rehmann* 6273 (anno 1875-1880) (K) ².

Border of North Eastern Mountains and Eastern Low Veld : Shiluvane (or Shilobane) (prior to 1904), *Junod* 653 (K) ³.

Eastern Low Veld : Bushbuck Ridge, Feb. 1938, *Pritchard* 46 (PRE) ⁴. — Forest Lothian, Bushbuck Ridge, Nov. 1937, Forest Officer 32 (PRE) ⁵. — Sabie River Bungalows, 4.10.41, *Hector, Schoeman & Young* (Agric. Res. Inst.) ⁶.

* Two records of *Burtt Davy*'s :

(1) Woodbush Village and hill, 10th Feb. 1904, *Burtt Davy* 1534 and
 (2) Klerksdorp to Wolmaramstad, 10th Feb. 1904, *Burtt Davy* 1534
 (the latter quoted by GLOVER, *l. c.*, supra) bear the same number and date, but widely separated localities (so widely separated that it would have been impossible, at that time, to have visited them both on the same day). Therefore both are provisionally excluded. That quoted by GLOVER would, if accepted, very greatly extend the area occupied by this variety,

Lydenburg district: Lydenburg, 3.10.41, *Hector, Schoeman & Young* (Agric. Res. Inst.) ⁷.

Belfast: Waterval Boven, July 1917, *Mogg H15103* (PRE) ⁸.

Nelspruit district: Nelspruit, Sept. 1932, *van Elder 6* (PRE) ⁹. — Boschrand Citrus Estates near Nelspruit, Aug. 1924, *Edwards H10170* (J) (approaching intermediate form) ¹⁰. — Kaapsche Hoop, Sept. 1918, *Rogers 21592* (G, K) ¹¹.

Barberton district: Barberton, Oct. 1907, *Thorncroft H3936* (TRN/PRE) ¹²; Sept. 1921, *Rogers 24281* (J, BM, K) ¹³. — Kaap River Valley, anno 1889, *Galpin 564* (PRE) ¹⁴.

Piet Retief: Ridge above Assegai River bridge, Moolman Road (near Piet Retief town), Oct. 1929, *Galpin 9621* (PRE) ¹⁵.

Volksrust: Glen Athol, Volksrust ¹⁶; and do., "from the kloof" ¹⁷; Feb. 1937, *Hector* (Agric. Res. Inst.).

Variety not specified, but presumed to be var. tomentosa: Kruger National Park (southern area): "on the Jock-of-the-Bushveld road, near Ship Mountain": *CODD Trees and Shrubs of the Kruger National Park*: 42. 1951 ¹⁸.

CONCLUSION :

The variety occurs in parts of the eastern Cape Province, and in Natal. From this area it spreads northward into the eastern Transvaal, on both sides of the Eastern Escarpment, about as far as Woodbush. Compare also the remarks under *Acacia caffra* (above).

I have noticed an intermediate form between *Acacia caffra* Willd. and its var. *tomentosa* Glover. It may not represent the only intermediate between the variety and its species and occurs in two apparently disconnected areas :

- (1) in the northern Transvaal, on both sides of the Zoutpansberg ;
- (2) in the central Transvaal, from the Witwatersrand to the Magaliesberg.

DISTRIBUTION IN TRANSVAAL :

Zoutpansberg Mountains: Tshakoma, Nov. 1931, *Obermeyer H30367* (TRN/PRE) ²¹.

Zoutpansberg Low Veld: "Rietfontein (Z.)", Sept. 1905 ²², *Leendertz 844* (TRN/PRE).

Blouberg: Eastern valley, Blaauwberg, Nov. 1923, *Smuts & Pole-Evans 942* (PRE) ²³.

Eastern Low Veld: 4 miles from Leydsdorp in direction of Tzaneen, 9.10.41, *Hector, Schoeman & Young* (Agric. Res. Inst.) ²⁴.

Pretoria Bush Veld: Baviaanspoort, Sept. 1930, *Goossens* 29 (PRE) ²⁵.

Pretoria High Veld: Pretoria, Oct. 1917, *Moss* 4479 (J) ²⁶. — Fairy Glen, Pretoria, Sept. 1908, *Leendertz* 1207 (TRN/PRE) ²⁷.

Johannesburg: Kopje near Zoo, Jo'burg, Oct. 1924, *Moss* 10499 (J) ²⁸. — Morningside, Jo'burg, Oct. 1936, *Moss* H20851 (J) ²⁹. — Melville kopje, Jo'burg, Sept. 1922, *Moss* 7099 (J) ³⁰.

Krugersdorp: Witpoortje Kloof, Sept. 1918, *Moss* 2154 ³¹; Oct. 1917, *Moss* 4481 ³² (both in J).

7. — **Acacia mellei** Verdoorn *Flowering Plants of South Africa*: 22: t. 860. 1942, ab *A. cinerea* Schinz in *Verh. bot. Ver. Brand.* **30**: 240. 1889, *distincta*?

It has recently been suggested that *Acacia mellei* Verdoorn may be the same as *A. cinerea* Schinz (from Amboland, South West Africa), in which case the latter name would have priority. It is evident that the two species (if they are distinct) are fairly closely allied; and further, that both are related, somewhat less closely, with the following (*A. erubescens*) group. But as SCHINZ'S description is considerably less detailed than that of Miss VERDOORN and as I have not seen any authentic specimen of *A. cinerea*, I hesitate to pronounce on a question which has unfortunately arisen too late for full study before the publication of this paper.

DIAGNOSTIC DESCRIPTION:

A medium-sized to small *tree*; twigs thickly greyish-pubescent. *Leaves* relatively small (up to 8 cm. long and up to 5 cm. wide), pubescent in all parts; rachis often glandular above, and occasionally spiny; pinnae in 6-16 pairs; leaflets in 10-35 (usually about 25) pairs, \pm 3 mm. \times 1 mm., crowded, oblong, obtuse. *Flower-spikes* about 5 cm. long, fairly broad, buff-yellow; axis densely pubescent and glandular; flowers sessile, crowded; calices slightly inflated, densely pubescent. *Pods* 5-10 cm. long, \pm 1.4 cm. broad, light-brown, chartaceous, pubescent, acute or acuminate, with a thickened margin.

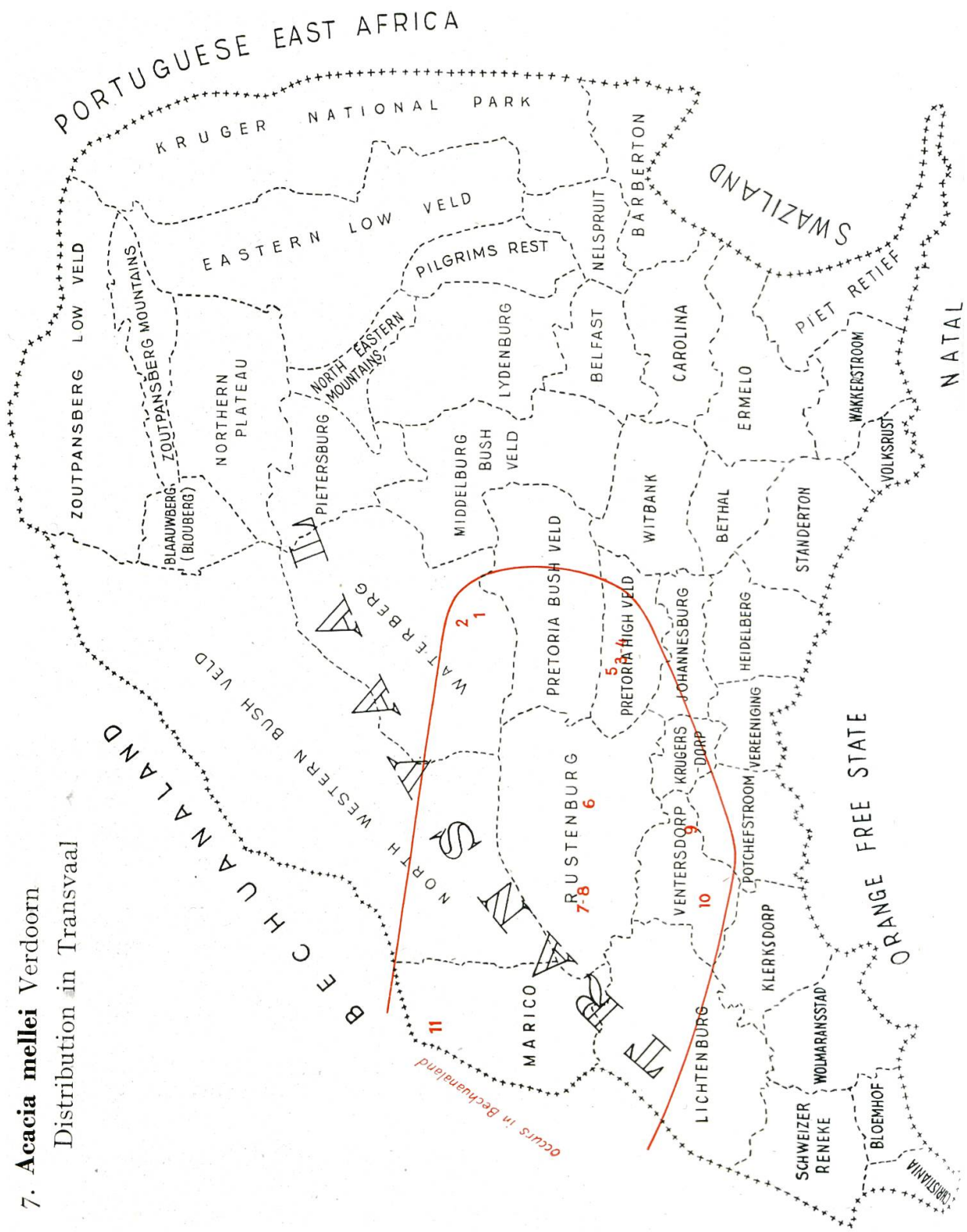
DISTRIBUTION IN TRANSVAAL (see map on p. 110):

Waterberg: 15 miles south-east of Warmbaths: anno 1941, *Schoeman* (Agric. Res. Inst.) ¹. — 13 miles east of Warmbaths 17.4.41 *Hector* (Agric. Res. Inst.) ².

Pretoria High Veld: Zwartkop, 6 miles south of Pretoria: *Melle* H26514 (PRE, K) = Type ³. Farm of H. Melle, west of 6-miles Spruit, 8.11.41, *Verdoorn* (PRE) ⁴. — West End, Pretoria, Nov. 1945, *Repton* 2743 (K) ⁵.

7. *Acacia mellei* Verdoorn

Distribution in Transvaal



Rustenburg: Welgevonden, Brits district, April 1935, *Phillips & Mogg 14647* (PRE) ⁶. — Zwarttruggens, Feb. 1935, *Sutton 908* and *908A* ⁷; Aug. 1936, *1133* and *1133A* ⁸ (all in PRE).

Ventersdorp: Goedgedacht, Jan. 1932, *Sutton 635* (PRE) ⁹. — Ratzegaai (?) (nearly illegible), March 1931, *Pole-Evans 3127* (PRE) ¹⁰.

Marico: Lekkerlach, Dec. 1939, *Louw 604* (PRE) (forma) ¹¹.

Locality not precisely identified: 2 miles north of Oubosdaal, Marico, May 1928, *Pole-Evans 2211* (PRE).

CONCLUSION :

Although first discovered by Miss VERDOORN, not far from Pretoria, *A. mellei* is probably much commoner in Bechuanaland. In the Transvaal, it extends from the Bechuanaland border, eastwards as far as Pretoria and Warmbaths. It is at present recorded from the districts of Marico, Waterberg, Rustenburg, Pretoria and Ventersdorp. They are all between latitudes 24° 30' and 26° 30' and, though they include both High Veld and Bush Veld, they are all in areas with a dry climate.

8. — ***Acacia erubescens*** Welw. ex Oliver, *Flora Trop. Afr.* **2**: 343. 1871.

Forma α = *Acacia kwebensis* N.E. Brown in *Kew Bull.* 1909: 1084 = *A. dulcis* Burt Davy, *Manual Fl. Pl. Transvaal* **2**: 337. 1932; CODD, *Trees and Shrubs of the Kruger National Park*: 42. 1951; ACOCKS, *Veld Types of South Africa*: 1953, et auct. cet. Transvaal, Bechuanaland, South West Africa.

Forma β (affinis sed distincta) = *Acacia dulcis* Marl. et Engl. in *Engl. bot. Jahrb.* **10**: 24. 1888 = ? *A. longipetiolata* Schinz in *Mém. Herb. Boiss.* **1**: 114. 1900. South West Africa.

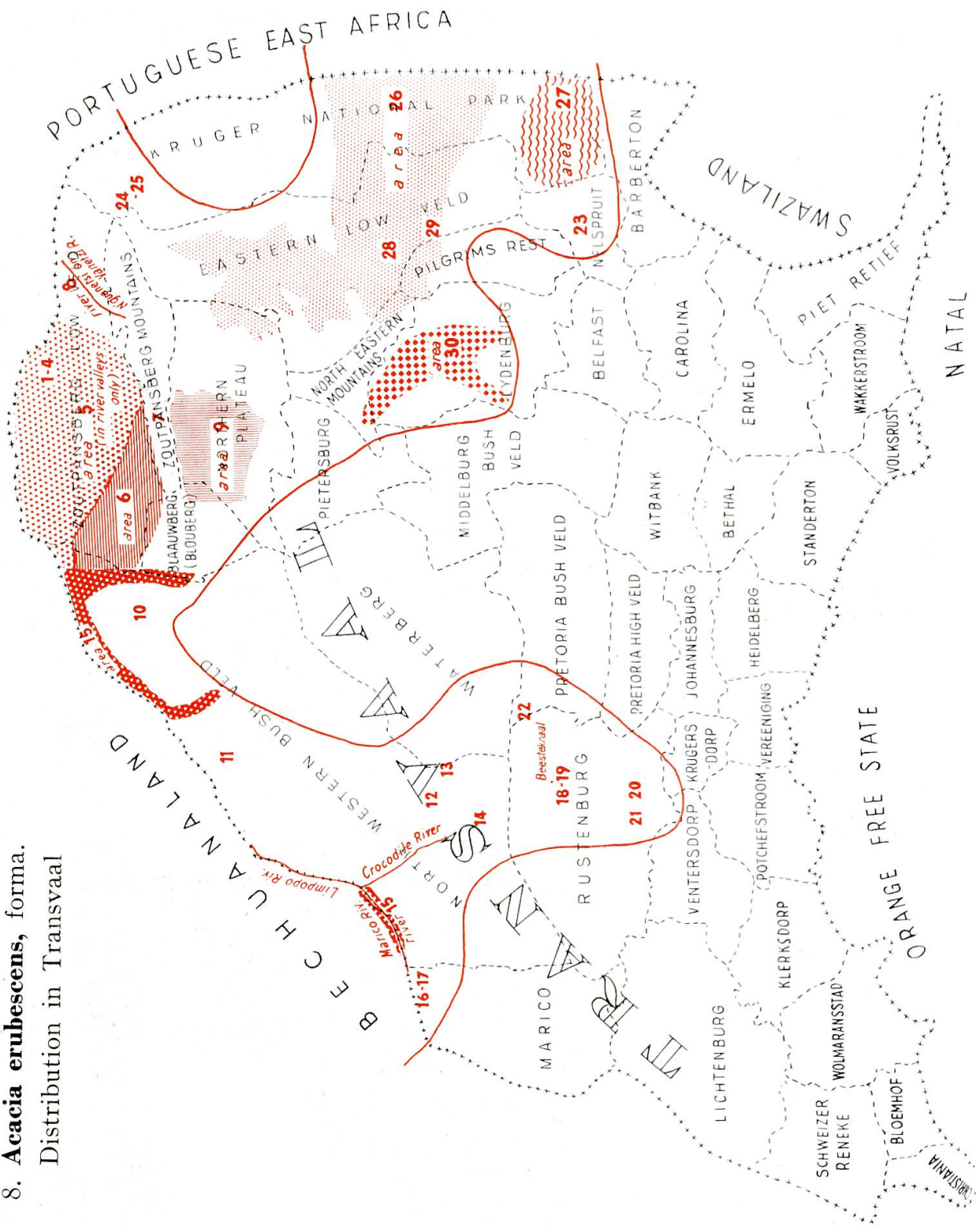
Forma α — The form to which all the Transvaal trees of this species belong, is well described by N. E. BROWN under *A. kwebensis* (l. c.), the type locality of which is in Bechuanaland. Despite its author's subsequent disclaimer, it is not identical with *A. dulcis* Marl. et Engl. (the type locality of which is in South West Africa), from which it differs in

- (a) the smaller leaflets,
- (b) the pubescent (and not angular) leaf-rachis,
- (c) the somewhat longer leaves, and somewhat smaller pods.

The differences are, without doubt, varietal and not specific: but it seems a pity that N. E. BROWN should have sunk his species in *A. dulcis* without qualification.

However, it now seems that the status of both these "species", as well as of two or three other published "species" of the same

8. *Acacia erubescens*, forma.
Distribution in Transvaal



group and geographical region, is open to considerable doubt. I understand that in a forthcoming work, the classification of the whole group will be reviewed and this question may be settled finally. Meanwhile, though with some diffidence, I consider that on the evidence at present available, both may be referred to *A. erubescens*, the earliest published species of the group, whose type locality is in Angola.

Forma β , as defined above, does not occur in the Transvaal so far as I know.

DIAGNOSTIC DESCRIPTION :

A *shrub* or small *tree*, with light-coloured, more-or-less peeling, bark ; twigs darker and very young twigs fulvo-tomentose. *Thorns* widely divaricate or opposite, very sharp, up to 0,5 cm. long. *Leaves* small for the genus, 3-9 cm. long including a relatively long petiole ; rachis cano- or fulvo-pubescent or -hispid ; pinnae in 3-7 (usually 4-6) pairs, thickened into a pulvinus at their junction with the main rachis ; leaflets in 12-25 pairs, 3-7 mm. (mostly 5 mm.) long, 0,75-1,5 mm. broad, shortly petiolulate, obtuse at both ends but mucronulate at tip, grey-green, ciliate when young, later glabrous or sometimes pubescent. *Flower-spikes* shortish (2,5-6 cm. long including bare peduncle of \pm 1 cm.) ; axis densely pubescent ; flowers sessile, crowded ; calyx subinflated, densely pubescent ; petals pubescent at tip. Pods brown, chartaceous, 5-12 cm. long, \pm 1,5 cm. broad, with thickened margins.

DISTRIBUTION IN TRANSVAAL (see map on p. 112) :

Zoutpansberg Low Veld: Messina, Rogers 19385 (PRE) ¹; Dec. 1918, Rogers H21543 (TRN/PRE) ²; Sept. 1908, Legat 4907 (K) ³; Dec. 1945, Gerstner 5711 (BM) (leaflets long-ciliate) ⁴. — Veld Type 15 (Mopani Veld), in river valleys only, ACOCKS, *Veld Types of South Africa* : 57-58. 1953 ^{area 5}. — Veld Type 14 (Arid Sweet Bushveld), section b (*Grewia flava* Veld), ACOCKS, *op. cit.* : 54-55 ^{area 6}.

Zoutpansberg area (both of them are somewhat vague localities, which might be in mountains or on plain) : Along road to Waterpoort, Zoutpansberg, Nov. 1938, Lam en Meuse 4896 (PRE) ⁷. — Vanetzi (= Ngwanedzi = Nuanetsi) River, N. Transvaal, March 1946, Gerstner 6031 (K) ^{river 8}.

Northern Plateau: Veld Type 14, section e (*Adansonia*-Mixed Thornveld), ACOCKS, *l. c.* : 55 ^{area 9}. — Veld Type 11 (Arid Lowveld), ACOCKS, *op. cit.* : 49 ^{area 26}.

North Western Bush Veld: On farm (name illegible), 80 miles N.N.W. of Potgietersrust, June 1927, Galpin 9218 (PRE) ¹⁰. — Rietspruit, 40 miles N.N.W. of Vaalwater (on or near banks of Sand R., about 27 miles south of Transvaal-Bechuanaland border), Dec. 1934,

J. C. Smuts 358 (PRE, K) ¹¹. — Thabazimbi, Transvaal, Jan. 1942, *Dyer & Verdoorn* 4219 (PRE, K) ¹². Between Thabazimbi and Rooiberg, northern Rustenburg, *Mooss* (?) *s.n.* (J) ¹³. — Near Northam, Rustenburg district (Northam is the railway junction between the line to Middelwit and that to Thabazimbi), Feb. 1933, *van Nouhys* 80 (TRN/PRE) ¹⁴. — Marico River below Derdepoort, Acocks, Veld Type 14, section g (Dichrostachys-Acacia Veld), Acocks, *op. cit.*: 56 ^{river} ¹⁵. Marico: Vleeschfontein, Zeerust (near boundary of Transvaal, south of Mochudi), May 1938, *Gerstner* 3354 ¹⁶; March 1930, *Sister Michaelina* (in Herb. Gerstner 3217 ¹⁷; both in PRE).

Rustenburg district: Farm Welgevonden (near Beestekraal), Brits district, Dec. 1934, *Mogg* 14635 (K) ¹⁸; Oct. 1935, *Obermeyer* H34732 (TRN/PRE) ¹⁹. — Entrance to Conradie's farm near Kroondal, 5.5.44, *R. G. N. Young* (Agric. Res. Inst.) ²⁰. — Bergheim guest-farm near Kroondal, *R. G. N. Young*, obs. (no specimen) ²¹. *Pretoria Bush Veld*: Near Flink's Drift on Pienaars River Flats, Pretoria district, Dec. 1934, *Smuts* 358 (K) (incorrectly labelled "Standerton district" in PRE) ²².

Nelspruit district: White River, April 1919, *Rogers* 20133 (PRE) ²³.

Kruger National Park: Near Punda Maria, Oct. 1948, *Codd & Dyer* 4528 (K) ²⁴; CODD, *Trees and Shrubs of the Kruger National Park*: 44. 1951 ²⁵. — Veld Type II (Arid Lowveld), ACOCKS, *op. cit.* ^{area 26} — "Found south of the Sabi River", CODD, *op. cit.* ^{area 27}.

Eastern Low Veld: Between Acornhoek and Gravelotte, 7.10.41 *Hector, Schoeman & Young* (Agric. Res. Inst.) ²⁸. — Farm Oxford near Klaserie, 9.9.43, *Hector & Schoeman* (Agric. Res. Inst.) ²⁹. — Veld Type II (Arid Lowveld), ACOCKS, *op. cit.* ^{area 26}.

Pilgrims Rest: Veld Type II (Arid Low Veld), ACOCKS, *op. cit.*: 49 ^{area 26}.

North Eastern Mountains: Veld Type II (Arid Low Veld), ACOCKS, *op. cit.*: 49 ^{area 26}; Veld Type 18 (Mixed Bush Veld), section 2g, ACOCKS, *op. cit.*: 68-69 ^{area 30}.

Lydenburg: Veld Type 18 (Mixed Bushveld), section 2g, ACOCKS, *op. cit.*: 68-69 ^{area 30}.

CONCLUSION :

The species occurs, with us, in a broad arc in the north-western, northern and north-eastern Transvaal: from Rustenburg, which is the south-western tip of its range, through the North Western Bush Veld, the Zoutpansberg area, and the Eastern Low Veld, to (a) Lydenburg (sec. Acocks), and (b) Nelspruit and the adjoining regions of the Kruger National Park in the south-east.

It and its variants or forms (which some might regard as distinct species) occupy a considerable area of southern tropical Africa outside our borders.

9. — *Acacia burkei* Benth., in *Hook. Lond. Journ. Bot.* 5: 98. 1846.

DIAGNOSTIC DESCRIPTION :

A medium-sized to small *tree* with yellow scaly bark on trunk, dark-coloured smaller branches, and very young twigs villous-pubescent. *Leaves* relatively small ($\pm 6,5$ cm. \times $\pm 4,5$ cm.) ; rachis hispid ; pinnae in about 5 pairs ; leaflets in about 5 pairs, somewhat lax and relatively broad (5-20 mm. \times 3-10 mm.), obovate to oblong, obtuse but mucronulate, strigose to sparsely hispid or glabrous, long-ciliate when young. *Flower-spikes* sub-paniculate, cream or whitish, 6-7 cm. long ; rachis and calyces hispid-pubescent. Pods 5-8 cm. \times 1,5-2,5 cm., dark-coloured, broadish, attenuated at both ends, with smooth sides and slightly thickened margins.

REFERENCES :

- HARVEY in *Flora Cap.* 2: 282. 1862 ;
 GLOVER in *Ann. Bolus Herb.* 1: 146. 1915 ;
 BURTT DAVY in *Kew Bull.* 1922: 325 ;
 CODD, *Trees and Shrubs of the Kruger National Park*: 41. 1951.

DISTRIBUTION IN TRANSVAAL (see map on p. 116) :

Marico: Vleeschfontein, Zeerust, May 1938, *Gerstner* 3377 (PRE) ¹.

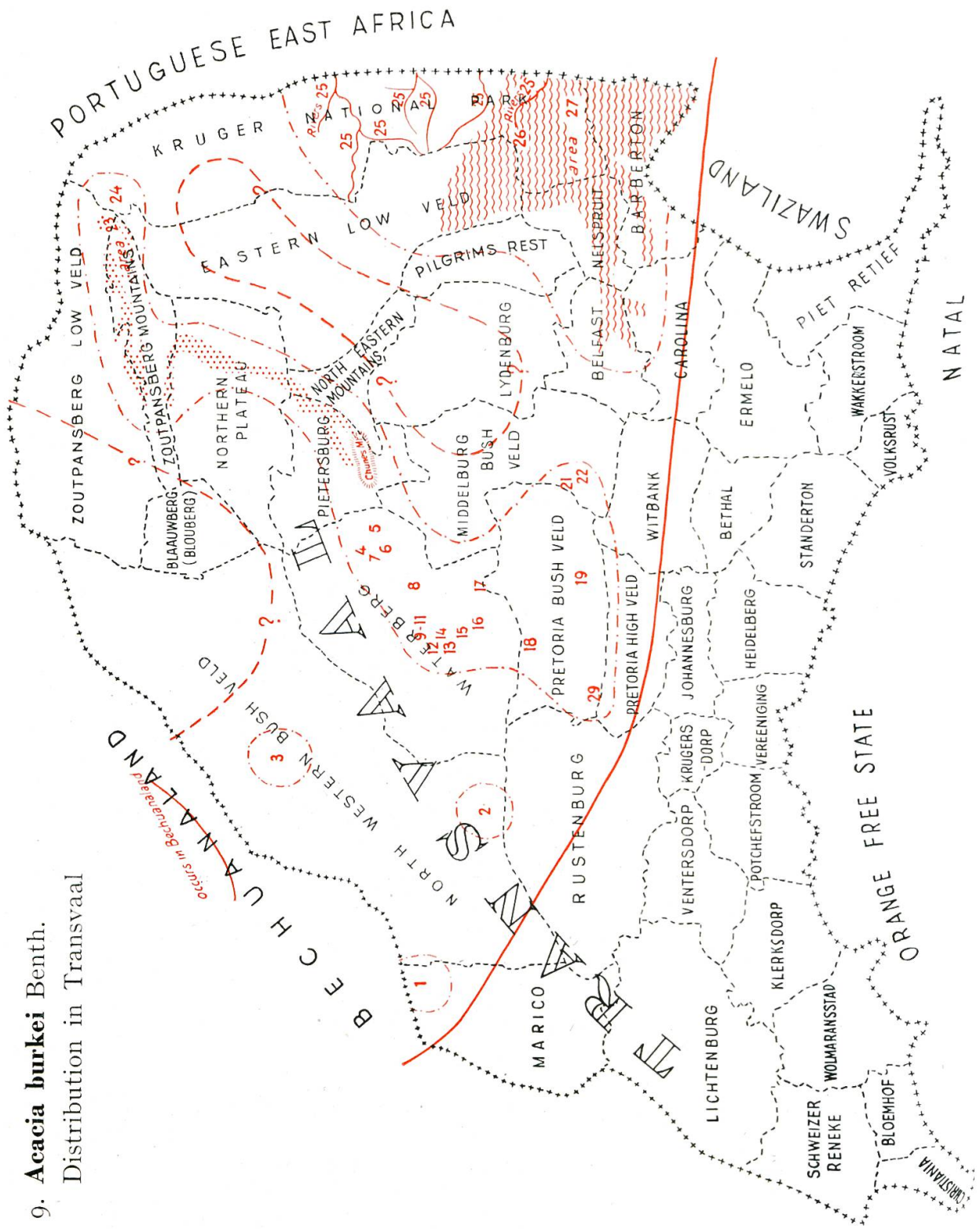
North Western Bush Veld: De Put (near Northam), Rustenburg district, Feb. 1933, *van Nouhys* 34 (TRN/PRE) ². — $\frac{1}{2}$ mi. S. of P. O. Hope (near the Mogol-Pongola-Sandriver, 40 miles from its junction with the Limpopo, and 46 miles from the frontier on exact east-west line), April 1948, *Codd* 4021 (PRE) ³.

Waterberg: Potgietersrust, Bush-veld, Potgietersrust, July 1912, *Marloth* 5211 (PRE) ⁴ ; Pruizen (or Pruisen), April 1906, *Burt Davy* 5239 (PRE) ⁵. — Moorddrift, Rondebosch farm, Jan. 1906, *Burt Davy* 2165 (quoted by BURTT DAVY in *Flora*) ⁶ ; T. C. L. Moorddrift, 1932-33, *Rowland* 51 (Agric. Res. Inst.) ⁷. — Naboomspruit, May 1940, *Stent* H10487 (PRE) ⁸ ; Mosdene, Naboomspruit, 6.10.23, *Galpin* M106 ⁹ ; *Galpin* 106, 6.10.25 ¹⁰ (both in G) ; Mosdene Estate on farm Zyferkraal, 10.10.19, *Galpin* M106 (PRE) ¹¹. — Nylstroom, anno 1906, *Rogers* H2983 (TRN/PRE) ¹² ; "Nylstroom, ± 5 miles S. of it", March 1948, *Verdoorn* 2305 (K) ¹³ ; Summit of nek between Nylstroom and Springbok Flats, anno 1904, *Burt Davy* 1731 (PRE, K) ¹⁴. — Warmbaths, a few miles north of Warmbaths ¹⁵ ; Warmbaths-Settlers road ¹⁶ ; and near Tuinplaats ¹⁷ (all collected by) 30.5.42, *Hector, Irvine & Young* (all in Agric. Res. Inst.).

Pretoria Bush Veld: Pienaarsrivier, Pretoria, Jan. 1931, *Bremekamp* H29161 (TRN/PRE) ¹⁸. — Rhenosterkop, June 1939, *Hector*

9. *Acacia burkei* Benth.

Distribution in Transvaal



(Agric. Res. Inst.) 19. — “ Macalisberg, *Burke* ”; anno 1843, *Burke & Zeyher* = type (PRE, BM, K) 20.

Borders of Pretoria Bush Veld and Middelburg Bush Veld: Loskop, May 1940, Miss Schoeman (Agric. Res. Inst., PRE) 21.

Middelburg Bush Veld: Loskop Irrigation Dam, ... Hills on the E. side of the Dam, April 1944, *Mogg* 17307 (K) 22.

Pietersburg district, North Eastern Mountains, Northern Plateau, Zoutpansberg Mountains, Zoutpansberg Low Veld: Veld Type 19 (Sourish Mixed Bushveld), ACOCKS, *Veld Types of South Africa*: 71-72. 1953 area 23.

Kruger National Park: 5 mi. N.E. of Punda Maria, Oct. 1948, *Codd & Dyer* 4572 (K) 24. — “ Scattered along rivers, chiefly south of the Olifants River ”, CODD, *Trees and Shrubs of the Kruger National Park*: 41-42. 1951 rivers 25. — 1 mi. E. of Skukuza, May 1949, *Codd & Verdoorn* 5486 (K) 26. — Veld Type 10 (Low veld), ACOCKS, *op. cit.* 47 area 27.

Nelspruit, Belfast and Barberton districts: Veld Type 10 (Low Veld), ACOCKS, *op. cit.*: 47 area 27.

CONCLUSION :

Unlike the other spicate *Acacia*'s in the Transvaal, this species appears, on present evidence, to occur in three separate, and fairly extensive areas :

(1) Bechuanaland and the north-western Transvaal for some distance on both sides of the border ;

(2) From north of Pretoria and Middelburg to the Waterberg, and thence north-eastwards along a strip of country passing through the Pietersburg and Zoutpansberg districts and ending up at Punda Maria in the north-eastern corner of the Union ;

(3) In the southern half of the Kruger National Park and neighbouring districts from (roughly) the Olifants River in the north, to the Nelspruit-Belfast-Barberton area in the south.

This is an unusual type of distribution for this genus, and almost suggests that for once we are in the presence of an element of a “ relict flora.

10. — ***Acacia delagoensis*** Harms in *Engl. Jahrb.* 51 : 367. 1914. = *A. welwitschii* Sim, *Forest Flora and Forest Resources of Portuguese East Africa*: 55 et tab. 37. 1909, non OLIVER, *Flor. Trop. Afr.* 2 : 341. 1871.

The sinking of *A. welwitschii* Sim under *A. delagoensis* Harms, is justified and generally accepted.

BAKER, in *Leguminosae of Tropical Africa*: 829. 1930, sinks *A. delagoensis* under *A. welwitschii* Oliv. (the true *welwitschii*); but after examining the specimens (in Kew, Oct. 1954) I personally do not agree with him. The two species may be allied, but they are distinct.

The species was mentioned by BURTT DAVY (*Manual of the Flowering Plants of the Transvaal*, part 2: 337. 1932), who said that it "Probably ranges into Barberton Dist. and Swaziland"; but it was many years before it was definitely recorded from the Union, in fact not much before the publication of CODD'S *Trees and Shrubs of the Kruger National Park*: 42. 1951.

Incidentally, the remark in BURTT DAVY'S key "spines rather slender" is misleading, and probably a misprint.

DIAGNOSTIC DESCRIPTION:

Tree up to about 10 m. high. Twigs generally dark-coloured, with light brown lenticels. *Leaves* medium to small (for the genus) (3-9 cm. × 2-6 cm.), glabrous in all parts; pinnae in 2-4 pairs, with a pulvinus at junction with main rachis; leaflets in 3-8 (usually 6) pairs, somewhat lax, petiolulate, elliptic to ovate or obovate, rounded at the base, obtuse but mucronulate at the apex, 3-9 mm. long, 2-5 mm. wide. *Flower-spikes* (often paniced) about 5 cm. long, deep yellow (?), glabrous in all parts but the axis somewhat scurfy; flowers somewhat lax, sessile, small; corolla much exceeding the calyx. *Pods* dark-coloured, coriaceous, 6-12 cm. long, 1-2 cm. broad.

DISTRIBUTION IN TRANSVAAL:

Kruger National Park: 20 mi. N.E. of Skukuza near Tshokwane, May 1949, *Codd & Verdoorn 5480* (K); 19 miles from Skukuza on the road to Tshokwane, CODD, *Trees and Shrubs of the Kruger National Park*: 42. 1952. — Between Lower Sabie and Crocodile Bridge, CODD, *op. cit.*

CONCLUSION:

This species definitely occurs in the south-eastern region of the Kruger National Park, but whether it extends somewhat beyond this region, or not, it is impossible to say. The allied *A. schlechteri* Harms is recorded from Barberton.

11. — **Acacia nigrescens** Oliver, *Flora Trop. Afr.* 2: 340. 1871: BENTHAM in *Journ. linn. Soc.* 30: 517. 1875; MILNE-REDHEAD in *Kew Bull.* 1937: 417 = *A. nigrescens* var. *pallens* Bentham in *Journ. Linn. Soc.* 30: 517. 1875 = *A. pallens* Rolfe in *Kew Bull.* 1907: 361; BURTT DAVY in *Kew Bull.* 1908: 159 = *Albizzia lugardii* N.E. Brown in *Kew Bull.* 1909: 109.

The confusion in regard to the naming of this species arises from the fact that BURTT DAVY (following ROLFE), arrived at the conclusions (a) that there were two distinct species (*nigrescens* and *pallens*), and (b) that all of our Transvaal material belonged to the latter species (or form)¹. But whatever may be said of the first of his conclusions, there is now no possible doubt that he was in error in regard to the second, since more extensive collecting and travelling has now shown conclusively that both "forms"—whatever their taxonomic value—occur throughout the range of the species in the north-eastern Transvaal. It is therefore unfortunate that he should have decided to place all of our Transvaal material under *A. pallens* Rolfe (the name which does not have priority), and incorporate this without further explanation in his *Flora*².

Subsequently, MILNE-REDHEAD in *Kew Bull.* 1937: 417, on the basis of more abundant material, definitely sank *pallens* (both as species and variety) under *A. nigrescens* Rolfe (but unfortunately without mentioning BURTT DAVY's paper of 1908).

The present author is in general agreement with MILNE-REDHEAD: the two forms, though distinct enough in extreme cases, seem to be linked by intermediates, and in any case the map of their distributions (see below) lends no support to their distinctness. But for the sake of convenience, a brief diagnosis of each of the two forms is given herewith.

*Scheme for division of the species into two varieties,
following some previous authorities, should this be necessary:*

A. nigrescens Oliv., *l. c.* var. **nigrescens**, with small leaflets (less than $\frac{1}{2}$ inch long), which are (allegedly) dark-coloured when dry and with small, rather delicate thorns. — BENTHAM in *Journ. Linn. Soc.* 30: 517. 1875; BAKER, *Leguminosae of Trop. Afr.*: 829. 1930.

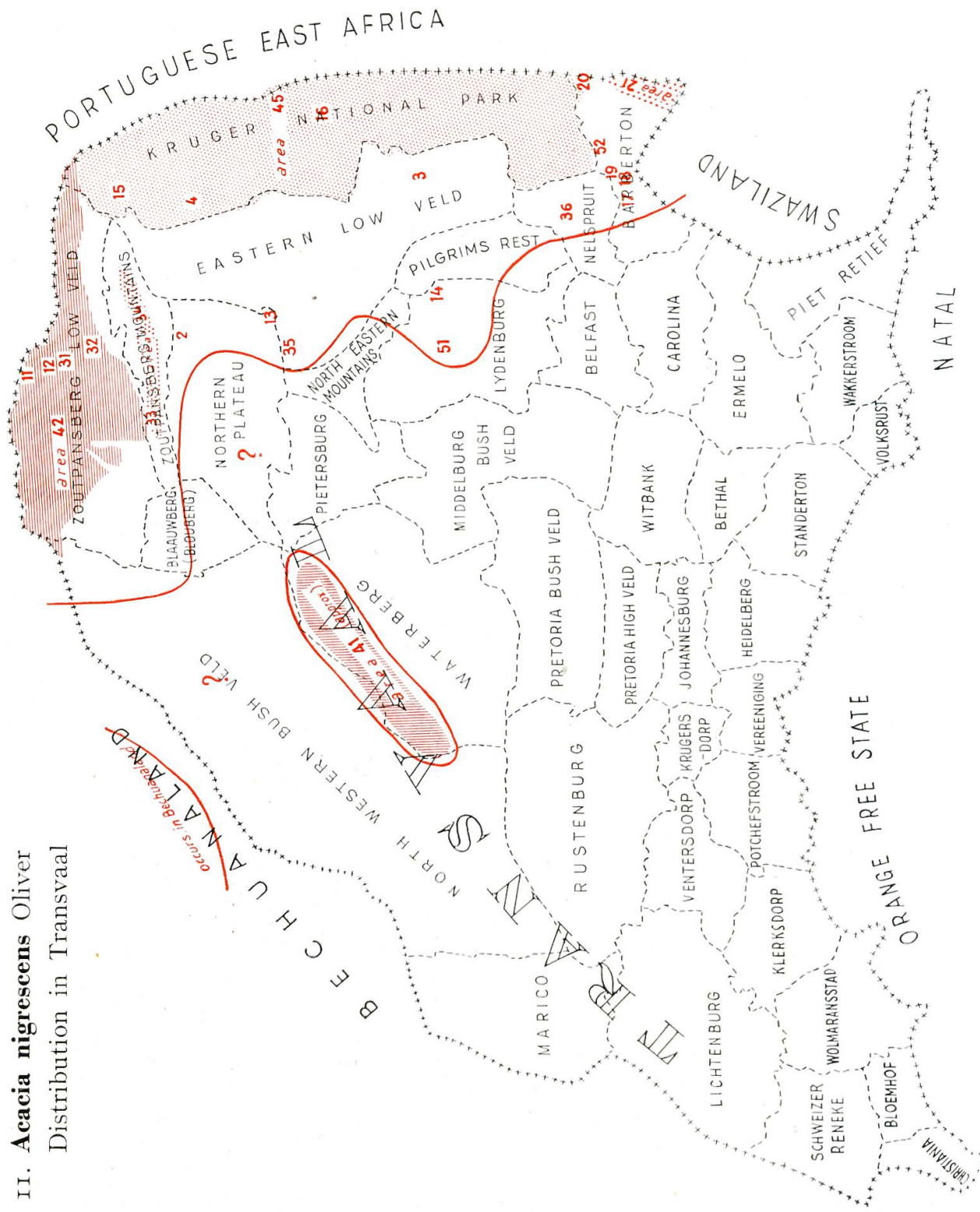
A. nigrescens Oliv. var. **pallens** Benth., *l. c.*, with larger leaflets (usually $\frac{3}{4}$ to 1 inch long), which are (allegedly) pale in colour when dry and with thorns becoming strongly thickened when mature; or, to quote BENTHAM's diagnosis: "foliolis $\frac{1}{2}$ -1 pollicaribus pallidis. Aculei demum valde incrassati tuberculiformes" = *A. pallens* Rolfe in *Kew Bull.* 1907: 361; BAKER, *l. c.*; BURTT DAVY, *Manual flowering Plants Transvaal* 2: 339, fig. 57 (non descr.). 1932 = *Albizzia lugardii* N. E. Brown in *Kew Bull.* 1909: 109.

A further proposed distinction between the two, namely the aculeate leaf-rachis occurring in some specimens, and attributed by

¹ BURTT DAVY in *Kew Bull.* 1908: 159.

² BURTT DAVY, *Manual of the Flowering Plants... of the Transvaal*, part 2: 339. 1932

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various authors to the *pallens* form, has proved so unreliable that it may simply be ignored.

Further reference: SIM, *Forest Flora and Forest Resources of Portuguese East Africa*: 54 et tab. 33. 1909.

DIAGNOSTIC DESCRIPTION OF ACACIA NIGRESCENS, SENS. LAT., IN TRANSVAAL :

A medium-sized *tree*, frequently armed with knobs formed by the accrescent bases of thorns. *Thorns* (as seen on younger shoots) in pairs at leaf-bases, hooked-recurved, dark-coloured, averaging 6 mm. long. *Leaves* glabrous in all parts (except in a rare form, in which they are uniformly pubescent). very variable in size, up to 12 cm. long; pinnae in 2-4 pairs; leaflets unijugate, the largest of the genus (in Transvaal), varying greatly in size up to 3 cm. long, and about $\frac{3}{4}$ as broad as long, obliquely obovate or rotundate (or occasionally ovate), entire or retuse, with nerves visible on lower surface. *Flower-spikes* abundant, creamy-white to pale yellow; axis glabrous; flowers somewhat lax, glabrous or minutely ciliate. *Pods* very variable in relative breadth, 5-12 cm. \times 1.25-3 cm., acuminate at both ends, few- and large-seeded.

DISTRIBUTION IN TRANSVAAL (see map on p. 120) :

Waterberg: Veld Type 13, section d "to the west and north of the Waterberg... Knoppiesdoring Veld... occurs only as small patches and narrow strips along dykes of basic volcanic rock, sometimes scarcely more than a single row of tall Knoppiesdoring trees (*Acacia nigrescens*)" (not marked on his map), ACOCKS *Veld Types of South Africa*: 53. 1953; variety not stated **area 41**.

Borders of North Western Bush Veld and Blouberg district: "Magalakwin", J. C. Smuts 1974 (PRE) = var. *nigrescens* **1**.

Zoutpansberg Low Veld: Limpopo valley, Zoutpansberg, Pole-Evans 189 (PRE) = var. *pallens* **11**. — Messina, Rogers 21842 (PRE, TRN/PRE) = var. *pallens* **12**; Foye H17681 (PRE) = intermediate **31**. — Chipise, Verdoorn 2026 (PRE) = intermediate **32**. — Veld Type 15 (Mopani Veld) section (1), ACOCKS, *op cit.*: 57: variety not stated **area 42**.

Zoutpansberg Mountains: Waterpoort, Rogers H18755 (TRN/PRE), Sept. 1918, Rogers, *s.n.* (same gathering? K) = intermediate **33**. — "Isweni, north-eastern Transvaal" (= Iswini), (without collector's name) H21079 (J) = variety not noted **43**. — "Zoutpansberg", Curson & Irwine 15 (PRE): intermediate **area 34**.

Northern Plateau: Spelonken, Jenkins H8150 (TRN/PRE) = var. *nigrescens* **2**. — Modjadji's Reserve near Duivelskloof, J. D. Krige 103 (PRE) = var. *pallens* **13**.

Eastern Low Veld: Tzaneen, 30.10.13, *Mogg* (PRE) = intermediate ³⁵. — Acornhoek to Game Reserve, 6.10.41, *Hector, Schoeman & Young*; do., 7.10.41; (both in Agric. Res. Inst.) = var. *nigrescens* ³.

Lydenburg district: Steelpoort, 6.4.42, *Hector & Schoeman* (Agric. Res. Inst.) = both *nigrescens* and *pallens* var. together ⁵¹. — Long-sight Kloof, 7.4.42, *Hector & Schoeman* (Agric. Res. Inst.) = var. *pallens* ¹⁴.

Kruger National Park: 5 mi. E. of Punda Maria, March 1949, *Codd* 5385 (K) = var. *pallens* ¹⁵. — 30 mi. S. of Punda Maria, *Obermeyer* 631 (TRN/PRE) = var. *nigrescens* ⁴. — Letaba Rest Camp, *Lang* H30939 (TRN/PRE) = var. *pallens* ¹⁶. — “One of the commonest” (thorn trees) “in the Kruger National Park”, *CODD, Trees and Shrubs of the Kruger National Park*: 47. 1951 = variety not stated ^{area 45}.

Nelspruit: M'zimbi, White River, March 1934, *Cholmondeley* (PRE) = intermediate ³⁶.

Barberton district: Barberton, Aug. 1905, *Grenfell* 1022 (K); quoted by *ROLFE* as part of type of *A. pallens* ¹⁷; *C. A. Smith* 7028 (PRE) = var. *pallens* ¹⁸. — Kaap River Valley, Barberton, *Galpin* 542 (PRE) = var. *pallens* ¹⁹. — Malelane, *E. P. Phillips* (PRE) = both var. *nigrescens* and rare form with pubescent leaves ⁵². — Near Komatipoort, Aug. 1904, *Burtt Davy* 2452 (K); quoted by *ROLFE* as part of type of *A. pallens* ²⁰. — Lebombo district, between Komatipoort and the Swaziland border: “Le Bombo, Barberton district” (PRE), “Le Bombo Flats, Zoutpansberg” (K), “Bombo flats, near Barberton” (sec. *ROLFE, in descr.*) (all one gathering) April 1905 *Burtt Davy* 608 (PRE, K): quoted by *ROLFE* as part of type of *A. pallens* ^{area 21}.

Localities not as yet identified: “Giesendam Pump Camp. Sandy Spruit. Transvaal”, July 1924, *Pole-Evans* 1458 (K) = var. *nigrescens*. — Avoca: *Thorncroft* 3003 (PRE) = var. *pallens*, may refer to Oavoco near Barberton, or to Aroca near Durban in Natal.

CONCLUSIONS :

This species occurs throughout the eastern Transvaal, east of about longitude 30°, and the north-eastern Transvaal as far south as latitude 23°. It has also been reported from the north-west. It is confined to tropical and subtropical bush-veld and low-veld, and (sec. *CODD*) to dry situations, and it is certainly abundant within its area.

12. — **Acacia schlechteri** Harms in *Engl. bot. Jahrb.* **51** : 367. 1914.

DIAGNOSTIC DESCRIPTION (based on Harms, except for fruit characters) :

Tree? Twigs dull blackish-brown, glabrous ; new growth sparsely patentipilose. *Thorns* : short. *Leaves* main and subsidiary raches all more or less patenti-pilose ; length of main rachis plus petiole, 4-6 cm. ; pinnae in 3-5 pairs, the rachis 1-4 cm. long ; leaflets in 3-6 pairs, 7-12 mm. long, 4-7 mm. wide, subpetiolulate, oblong to obovate-oblong, obtuse, glabrous. *Flower-spikes* subpaniculate, relatively long (5-9 cm.), minutely puberulous. *Legume* (one specimen) membranous, oblong, pale brown, 5 cm. long \times 2 cm. wide. (Allied to *A. delagoensis* Harms, *A. burkei* Benth., and *A. nigrescens* Oliv.)

DISTRIBUTION IN TRANSVAAL :

Barberton district : Barberton, Nov. 1915, *Rogers 18537* (PRE).

CONCLUSION :

Rare and very little known.

Note on *Lindernia minima* R. Young

by

R. G. N. YOUNG

Lindernia fugax R. G. N. Young, nom. nov. = *Lindernia minima* R. G. N. Young in *Candollea* **14**: 9. 1952 non Mukkerjee in *Journ. Ind. bot. Soc.* **24**: 132. 1945.

When I described *Lindernia minima*, based on my specimen 3091 collected at Tygerpoort near Pretoria, South Africa, in *Candollea* **14**: 9: I was unaware that the epithet had already been used by MUKKERJEE in *Journ. Ind. bot. Soc.* **24**: 132, for an Asiatic species *Ilysanthes minima* Benth. (in *DC. Prod.* **10**: 420. 1846), which MUKKERJEE had transferred to *Lindernia* in his revision of the genus.

Lindernia minima R. G. N. Young is therefore a homonym and has to be renamed. I am calling it *Lindernia fugax* on account of the very ephemeral nature of the flowers, the corolla's of which frequently fall at the first touch, or before they can be put in the press.

It remains to be said that should the genera at some future date be once more separated, *Lindernia fugax* R. G. N. Young (= *Lindernia minima* R. G. N. Young) would in any case, according to its characters, remain in the genus *Lindernia* sensu stricto.

