

A synopsis of the tribe Desmodieae (Fabaceae) in southern Africa

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ABSTRACT

The tribe Desmodieae has a pantropical distribution and is one of the most advanced tribes in the subfamily Papilionoideae. Its greatest centres of development are in tropical Asia and America. Africa is relatively poorly endowed and only four genera comprising 16 species occur in the flora of southern Africa. Many of these species are widespread in the Old World tropics and the few African endemics appear to be closely related to them. A synopsis of the genera *Desmodium*, *Pseudarthria*, *Alysicarpus* and *Lespedeza* is given for southern Africa.

UITTREKSEL

Die tribus Desmodieae het 'n pantropiese verspreiding en is een van die mees gevorderde tribusse in die subfamilie Papilionoideae. Die grootste sentrums van ontwikkeling is in tropiese Asië en Amerika. Die groep is swak verteenwoordig in Afrika en slegs vier genusse wat 16 spesies insluit, kom in die flora van suidelike Afrika voor. Baie van hierdie spesies is wydverspreid in die Ou Wêreldse trope en dit lyk asof die paar wat endemies in Afrika is, naverwant aan hulle is. 'n Samevatting van die genusse *Desmodium*, *Pseudarthria*, *Alysicarpus* en *Lespedeza* word vir suidelike Afrika gegee.

INTRODUCTION

The tribe Desmodieae comprises 27 genera with a mainly tropical distribution and is distinguished from the other tribes with jointed indehiscent fruits by the presence of (1-) 3-foliolate leaves with stipels (Ohashi 1971a).

Three subtribes have been recognized in the latest treatment of Ohashi, Polhill & Schubert (1981). The largest and most polymorphic of these is the subtribe Desmodiinae which is represented in southern Africa by three genera, *Desmodium*, *Pseudarthria* and *Alysicarpus*. The much smaller subtribe Lespedezinae is only represented in the flora by the naturalized bush-clover genus, *Lespedeza*. The type genus, *Desmodium*, is the most widespread genus in the tribe and with about 300 species (Ohashi *et al.* 1981) is also the most numerous. It occurs widely in the tropical and subtropical regions of America, Asia, Australia and Africa with two major centres of diversification: firstly, in Mexico and Brazil, where there is perhaps the largest number of species with the most diverse development of plant parts (Schubert 1963); and then in Asia (the Sino-Indian region down through Malesia to Australia) where there are large numbers of species in many subgeneric groups. In addition the least specialized subgenera and the most archaic genera in the tribe are found in the Asian region, indicating a possible centre of origin for the genus (Ohashi *et al.* 1981).

Of the ten species of *Desmodium* found in southern Africa most have an Asian origin, although there are a few that are endemic in Africa. Some too, are naturalized introductions from the New World. *Pseudarthria* with 4 to 6 species and *Alysicarpus* with 25 to 30 species are in the main, tropical Old World genera. These are

represented in the flora of southern Africa by one and four species respectively. Southern Africa contains the tail-end of the tribe's tropical African distribution as well as a number of naturalized introductions. All specimens examined are listed alphabetically according to the name of the collector after the references at the end of the article.

The Desmodieae is a tribe of annual herbs or, more commonly, perennial suffrutices occupying, in southern Africa, the southerly extension of the large Sudano-Zambezian region of savanna and woodland areas of tropical Africa, and to a lesser extent the Afromontane and Indian Ocean coastal belt vegetation types of Werger (1978). In general the tribe occurs in the warmer and wetter parts of the Flora area.

TAXONOMIC BACKGROUND

In 1753 *Hedysarum* L. was published in *Species plantarum* along with two species occurring in the Flora area, *H. gangeticum* and *H. vaginale*. In 1759 *H. barbatum* was published by Linnaeus in *Systema naturae*. From then until the early 1800's various authors described other species in *Hedysarum*: Aublet (1775), *H. racemosum* (= *H. incanum*); Swartz (1788), *H. adscendens* and *H. tortuosum*; Vahl (1791), *H. repandum* and *H. glumaceum*; Willdenow (1802), *H. velutinum* and *H. rugosum* and Poiret (1805), *H. salicifolium*.

It was recognized that several different genera existed in *Hedysarum* and in 1803 Michaux described the genus *Lespedeza*. Don transferred *Anthyllus cuneata* Du Mont. to this genus in 1832. In 1813 Desvaux described *Desmodium* and *Alysicarpus* and in 1825, A. P. de Candolle placed all the above-mentioned species, with the exception of *H. barbatum*, into one or other of these genera.

A. P. de Candolle also described the genus *Nicolsonia* into which Meyer (1836) placed two new species occurring in the Flora area, *N. caffra* and *N. setigera*. The genus *Pseudarthria* was published at the same time as

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KEY TO SUBTRIBES

- Plants with characteristic uncinata hairs; tertiary venation \pm scalariform; stipels present; flowers chasmogamous, with an explosively dehiscent pollination mechanism; standard with hardly or slightly inflexed auricles; ovary(1) to many-ovulate subtribe Desmodiinae
- Plants without uncinata hairs; tertiary venation reticulate; stipels absent; flowers chasmogamous, not explosively dehiscent, often mixed with cleistogamous flowers; standard with inflexed auricles more persistent than most Desmodiinae; ovary 1-ovulate subtribe Lespedezinae

the species *P. hookeri* by Wight & Arnott in 1834. Benth., in his review of the Leguminosae in 1852, placed *Hedysarum barbatum* and *Nicolsonia caffra* under *Desmodium*, calling the latter *Desmodium dregeanum*. Harvey (1862), in revising the South African representatives of the tribe for *Flora capensis*, placed *Nicolsonia setigera* under *Desmodium* and described a new species, *Alysicarpus zeyheri*. The genus *Nicolsonia* was later put into synonymy with *Desmodium*.

Other major contributors to the literature on the tribe include Baker (1871), Schindler (1928), Baker, E. G. (1929), Schubert & Verdcourt (1971), Ohashi (1971b, 1973), Verdcourt (1974), Ohashi, Polhill & Schubert (1981) and Schrire (1984).

The subgeneric treatment of *Desmodium* is as yet unsatisfactory but for the purposes of this synopsis the treatment of Ohashi (1973) is followed, i.e. *D. repandum* is placed in subgenus *Podocarpium*; *D. setigerum*, *D. adscendens*, *D. barbatum* and *D. dregeanum* in subgenus *Nicolsonia* and the rest in subgenus *Heteroloma*.

deza); *stipules* mostly striate. *Pseudoracemes* variously contracted, terminal, axillary or occasionally leaf-opposed, sometimes paniculately branched. *Flowers* pedicellate, fasciculate, mostly paired, rarely solitary on the rachis, usually subtended by 2 series of bracts and occasionally bracteoles. *Calyx* 2-lobed, the upper with 2 connate sepals often slightly bifid at the apex, the lower 3-toothed with the central tooth longer than the laterals, or the calyx almost equally 5-lobed. *Corolla* papilionoid. *Stamens* mostly diadelphous with the vexillary stamen free, rarely pseudo-monadelphous; filaments equal or alternating in length; anthers uniform. *Pollen* tricolporate with a generally thickened endexine and thin or no foot layer. *Fruits* transversely jointed into a number of articles or reduced to one article, or less often 2-valved, opening along one suture (valves not twisting). *Seeds* with a well developed radicular lobe, longer than the cotyledonary lobe, mostly with a rim aril. *Seedlings* generally epigeous with the first two eophylls opposite and unifoliolate.

TRIBE DESMODIEAE

Desmodieae (Benth.) Hutch., The genera of flowering plants 1: 477 (1964), pro parte; Schubert & Verdc.: 450 (1971); Verdc.: 505 (1974); Ohashi *et al.*: 292 (1981). Type genus: *Desmodium* Desv.

Coronilleae Adans.: 327 (1763), pro parte.

Hedysareae DC.: 307 (1825), pro parte.

Hedysareae subtribe *Desmodiinae* (as *Desmodieae*) Benth.: 449 (1865), pro parte; Taub.: 325 (1894), pro parte.

Coronilleae subtribe *Desmodiinae* (Benth.) Schulz-Menz: 237 (1964), pro parte; Ohashi: 52 (1971a).

Herbs or suffrutices, sometimes shrubs or rarely trees. *Roots* woody, often dichotomously branched, cord-like and producing rhizomes, or more rarely taproots. *Leaves* pinnately 3-(9)- or 1-foliolate, petioles sulcate, foliar and foliolar pulvini present, stipellate (except *Lespe-*

Subtribe Desmodiinae

Desmodiinae *sensu* Ohashi *et al.* in Advances in legume systematics 1: 296 (1981).

Pseudarthriae Hutch.: 398 (1964), pro parte.

DESMODIUM

Desmodium Desv., Journal de botanique 1: 122, t.5 (1813) nom. conserv.; DC.: 325 (1825); Benth.: 220 (1852); Harv.: 227 (1862); Benth.: 519 (1865); Harv.: 82 (1868); Bak.: 159 (1871); Bak.: 161 (1876); Taub.: 327 (1894); Schindl.: 263 (1928); Hutch. & Dalz.: 417 (1928); Bak.f.: 324 (1929); Phill.: 332 (1951); Schubert: 287 (1952); Schubert: 180 (1954); Hepper: 582 (1958); Knaap-van Meeuwén: 240 (1962); Hutch.: 481 (1964); Torre: 217 (1966); Schreiber: 30 (1970); Schubert: 451 (1971); Ohashi: 87 (1973); Verdc.: 506 (1974); Dyer: 263 (1975); Compton: 272 (1976); Schubert: 622 (1980). Type species: *D. scorpiurus* (Swartz) Desv. (*Hedysarum scorpiurus* Swartz).

KEY TO GENERA

- 1a Calyx often membranous, never glumaceous or striate, shallowly divided, usually inconspicuous in fruit; fruit mostly held away from erect; leaves (1)- 3- (5)- foliolate:
- 2a Stipules stramineous, striate, erect or spreading but never sharply recurved and velutinous; fruit distinctly jointed, breaking up into individual articles *Desmodium*
- 2b Stipules mostly sharply recurved, dark brown adaxially, silver-velutinous abaxially; fruit splitting into 2 valves *Pseudarthria*
- 1b Calyx glumaceous, striate, deeply divided, persistent and often partially enclosing the fruit; fruit held erect, usually consisting of a number of 'stacked' terete or subterete articles; leaves 1-foliolate *Alysicarpus*

Hedysarum L.: 745 (1753), pro parte (name still correct for other plants).

Meibomia Heist. ex Fabricius: 168 (1759), nom. rejic.; Adans.: 509 (1763); Kuntze: 195 (1891).

Nicolsonia DC.: 325 (1825).

The name *Desmodium* was conserved over the name *Meibomia* by the International Botanical Congress of Vienna in 1905 (Schubert 1950). *Desmodium* is derived from the Greek 'desmos' meaning a band or chain, and 'hode' meaning like, in reference to the jointed pod's resemblance to the links of a chain.

SYNOPSIS OF SPECIES

1. *Desmodium repandum* (Vahl) DC., Prodr. systematis naturalis regni vegetabilis 2: 334 (1825);

Schindl.: 295 (1928); Schubert: 293 (1952); Schubert: 193, t.14 (1954); Hepper: 584 (1958); White: 150 (1962); Laundon: 221 (1966); Schubert: 465, t. 65/11 (1971); Verdc.: 517 (1974); Compton: 272 (1976). Type: Yemen, *Forsskål* (C, holo., fide Schindl. -GH, photo.!).

Hedysarum repandum Vahl: 32 (1791); Poir.: 408 (1805).

Desmodium scalpe DC.: 334 (1825); Bak.: 164 (1871); Hutch. & Dalz.: 418 (1928); Bak. f.: 328 (1929); Robyns: 327, t.30 (1948); Brenan: 420 (1949). Type: Mauritius (Isle de Bourbon), *Commerçon* (P-LA, holo.: GH, photo.!).

Desmodium strangulatum Wight & Arn.: 228 (1834); Harv.: 228 (1862). Type: E Peninsular India, *Walker in Wight cat. no. 774* (K, holo.: GH).

Desmodium caffrum Eckl. & Zeyh.: 251 (1836) non (E.Mey.) Druce: 619 (1917), which is a later illegitimate name for *D. dregeanum* Benth. Type: E Cape, Mankazana R., *Eckl. & Zeyh. in Enum. 1662* (K, iso.!).

KEY TO SPECIES

- 1a Inflorescences of variously lax to dense, elongated, axillary and terminal pseudoracemes, the terminal ones often paniculately branched; calyx teeth short, triangular or lanceolate, the adaxial two usually markedly connate forming a lip:
- 2a Flowers 8,0–14,0 mm long, brick red; herbs or subshrubs, climbing or scrambling and forming a dense undergrowth in forest; leaflets rhomboid, deep green venation craspedodromous; inflorescences very lax; stamens partially monadelphous 1. *D. repandum*
- 2b Flowers 4,5–8,0 mm long, variously pink, mauve or purple but never red; plants not as above, stamens always diadelphous:
- 3a Plants becoming erect to semi-erect suffrutices or subshrubs if not burned; leaflets never obovate, lateral veins not obviously looping in the distal half of the leaves; floral bracts present; inflorescences variously contracted:
- 4a Flowers uniformly deep mauve; pseudoracemes terminal only, and never paniculately branched; leaflets glossy dark green with characteristic light discolouration along the midrib above; widespread weeds of disturbed areas in coastal Zululand, Natal, Transkei and eastern Cape to 1 000 m 2. *D. incanum*
- 4b Flowers light pink or purple, dark purple only at the tip of the keel; pseudoracemes terminal and often axillary, the terminal ones often paniculately branched; leaflets various, not as above:
- 5a Leaves trifoliolate:
- 6a Venation mixed craspedodromous with principal lateral veins prominent and parallel; leaflets distinctly saliciform; stipules not as below; articles of the fruit rectangular or oblong, not or slightly constricted at the isthmi; shrub growing in or near water 4. *D. salicifolium*
- 6b Venation eucamptodromous, lateral veins neither prominent nor regular; stipules markedly auriculate at the base on the leaf-opposed margin, fused into a collar around the stem when young; articles of the fruit orbicular to elliptic, strongly constricted at the isthmi; introduced weed with a restricted distribution 3. *D. tortuosum*
- 5b Leaves unifoliolate:
- 7a Leaflets chartaceous, ovate or cordiform with entire margins, venation eucamptodromous; stipules gradually narrowing from the base to a slender apex 6. *D. gangeticum*
- 7b Leaflets crassate, velutinous, suborbicular, often with sinuate margins; venation craspedodromous; stipules abruptly narrowing from an auriculate base to a long slender apex 5. *D. velutinum*
- 3b Plants procumbent, or stoloniferous creepers; leaflets obovate, lateral veins obviously looping in the distal half of the leaves; floral bracts usually absent; inflorescences lax:
- 8a Procumbent herbs rooting from the lower nodes, in open grassland to forest fringes, often drying brown or grey-green in herbarium specimens; articles of the fruit U-shaped, 1,5–2,0 mm wide 7. *D. setigerum*
- 8b Stoloniferous herbs of moist forest and forest margin undergrowth, often drying deep green in herbarium specimens; articles approximately obtriangular, 2,5–3,0 mm wide 8. *D. adscendens*
- 1b Inflorescences congested into dense spicate or capitate pseudoracemes, never paniculately branched but often with the upper axillary and terminal inflorescences crowded together; calyx teeth long-acuminate, the adaxial two not markedly connate:
- 9a Leaves variously 3 or 1-foliolate; inflorescences spicate; pedicels often dark-coloured, visibly deflexed distally; bracteoles absent; woody herbs in mixed open woodland; northern and eastern Transvaal 10. *D. barbatum*
- 9b Leaves 3-foliolate, conduplicate; inflorescences densely capitate; pedicels not obvious; bracteoles 2, clasping the calyx; woody herbs mostly of moist grassland 9. *D. dregeanum*

Distribution: 1, Transvaal—a, in Mixed and Sourish Mixed Bushveld, Acocks Veld Types 18 & 19, from Zeerust in the west to near Witbank in the east; b, in similar bushveld or in other types of Sourveld and Sour Bushveld, Acocks Veld Types 8 & 9, from Louis Trichardt, Pietersburg and Tzaneen in the north, between Lydenburg and Graskop, Belfast and Barberton, to western Swaziland in the south. It does not occur in the Lowveld. 2, Natal—where suitable forest patches occur from the Drakensberg to almost sea level except in coastal Dune forest. 3, Transkei and eastern Cape to the coastal southern Cape at Knysna.

This species is widespread in tropical and subtropical Africa, Madagascar, the Mascarene Islands, India and south-east Asia to Malesia.

Vouchers: *Compton 27287* (PRE, SAM); *Flanagan 515* (BOL, GRA, NBG, NU, PRE, SAM); *B. & C. Howlett 16* (NH, NU, PRE); *Kluge 467* (PRE, PRU); *Wells 2880* (GRA, NH, PRE).

Notes

(1) *Desmodium repandum* is found in shaded areas in moist to dry evergreen mountain, riverine or other gallery forest often near paths or along streams, from \pm 3 000 m to near sea level. It occurs as a forest floor herb or scrambling subshrub. Flowering is from August to June although most commonly from January to May.

(2) In the latest Asian revision of *Desmodium* by Ohashi (1973), *D. repandum* is placed in the most advanced subgenus *Podocarpium*, because it is characterized by a monadelphous androecium and long-stipitate pods consisting of indehiscent, approximately obtriangular articles. However, the androecium cannot be considered to be truly monadelphous, the vexillary stamen being coherent (not fused) for part of its length only. The pollen grains are also quite distinct from those of all other species of the subgenus *Podocarpium*, especially in the shape of the grains, the colpi and thickness of the exine (Ohashi 1973). *D. repandum* is also noted (Ohashi 1973) for having several characters in common with some members of the less derived subgenus *Dollinera*.

From observations on the degree of contraction of the pseudoraceme in *D. repandum* it appears that this also shows a less derived situation. Occasionally one pedicel may be seen to branch off another, above the fascicle, indicating incomplete reduction of the botrys. A number of pedicels also occur in the fascicle, three or four of which may flower with one or two reduced buds in between. The fascicle in all the other species in the Flora area has been reduced to two pedicels with or without one enclosed median bud.

2. ***Desmodium incanum* DC.**, Prodrum systematis naturalis regni vegetabilis 2: 332 (1825); Bak.: 163 (1871); Hutch. & Dalz.: 418 (1928); Nicolson: 365 (1978). Type illustration: Plumier, in J. Burman, Pl. Amer.: 140, t. 149, fig. 1 (1757)—*Hedysarum folii's ternatis, ovatis, floribus spicatis* (!).

Hedysarum racemosum Aubl.: 774 (1775). Type: as for species. This is the first legitimate name but the epithet is unavailable in *Desmodium*. *Hedysarum incanum* Swartz: 107 (1788) reprint 1962; Swartz: 1264 (1806), non Thunb. (1784). Illegitimate renaming of *H. racemosum* Aubl. *Hedysarum canum* J. F. Gmel.: 1124 (1791), non Lunan (1814). Superfluous renaming of *H. racemosum* Aubl. *Desmodium canum* (J. F. Gmel.) Schinz & Thell.: 371 (1913); Schinz & Thell.: 428 (1913); Schubert: 184 (1954); Hepper: 584 (1958); Schubert: 456

(1971). Treated as a new name with priority from publication because of the illegitimate basionym, it is a superfluous renaming of *D. incanum* DC.

Hedysarum frutescens auct. non L.: Jacq.: 47, t. 89 (1776).

Desmodium frutescens sensu Schindl.: 9 (1928); Bak. f.: 328 (1929). Intended as a new combination of *H. frutescens* sensu Jacq.

Distribution: *Desmodium incanum* occurs along the coast and hinterland up to 1 000 m in Natal, and in coastal Transkei just into the eastern Cape.

Vouchers: *Fisher 590* (NH, NU); *Gillett 1203* (BOL, NH); *Grobbe-laar 284* (PRE, PRU); *Ward 584* (NU, PRE); *Wood 644* (BOL, SAM).

Notes

(1) *D. incanum* is a spreading herb to woody subshrub up to 1 m (if protected from fire); the leaf shape may vary; leaves in deep shade may superficially resemble those of *D. adscendens*. Confusion between the two may occur on forest margins but the partially connate stipules, deep mauve flowers and characteristic fruit of *D. incanum* will help to distinguish them. *D. incanum* is otherwise readily recognized by its shiny dark green leaves with a light discolouration along the midrib. Flowering occurs from September to June.

(2) The plant is a weed in disturbed grassland, woodland and forest edges, along streams, paths and roadsides and often occurs in lawns. It is also invasive in undisturbed grassland.

(3) *D. incanum* is tropical American in origin but is widely scattered throughout tropical Africa where it is introduced. It is most likely to have entered the Flora area along the Natal coast. The Zulu name 'isinama' describes the fruit which readily catches and sticks to clothing. Allen & Allen (1981) refer to the plant as Kaimi clover or creeping beggarweed and it is favoured as a forage legume in Hawaii and Florida for its tolerance to acid soils and wet warm climate.

3. ***Desmodium tortuosum* (Swartz) DC.**, Prodrum systematis naturalis regni vegetabilis 2: 332 (1825); Schubert: 202 (1954); Hepper: 585 (1958); Lind & Talantire: 82, t. 32 (1962); Laundon: 223 (1966); Schubert: 474 (1971); Verdc.: 526 (1974). Type: Jamaica, Swartz (S, lecto.—GH, photo.!).

Hedysarum tortuosum Swartz: 107 (1788) reprint 1962; Swartz: 1271 (1806).

Desmodium spirale auct. non (Swartz) DC.: Bak.: 160 (1871); Bak. f.: 331 (1929).

Distribution: *D. tortuosum* is an escape from cultivation which has now become naturalized in disturbed grassy areas or along roadsides, in Nelspruit in the Transvaal, and in the Durban and Port Shepstone Districts of Natal.

Vouchers: *Coleman 1103* (NH); *Mogg, Govt. Herb. 10071* (PRE); *Nichols 433* (NH); *Rabie 273* (PRE).

Notes

(1) The Swartz specimen has been chosen as the type (Schubert pers. comm. 1983) in preference to the Sloan illustration: 116, t. 9 (1696), following the precept in the Guide for the Determination of Types, ICBN (Staffeu 1983), T. 4b: 'A specimen is to be given preference over pre-Linnaean or other cited descriptions or illustrations when lectotypes of names of species or infra-specific taxa are designated (see Art. 9.3)'.

(2) *D. tortuosum* is an herbaceous suffrutex or small shrub to 1 m, flowering from December to May. It is known as Florida beggarweed in the south eastern United States (Schubert 1971) and is cultivated as a green manure. It is now naturalized throughout the Old World tropics coming originally from tropical and subtropical America. The populations in Durban and Port Shepstone are large and well established.

4. *Desmodium salicifolium* (Poir.) DC., Prodr. systematis naturalis regni vegetabilis 2: 337 (1825). Type: *Herb. de l'Inde de M. Poivre* (P-Ju 15552, holo. —GH, photo.!).

Hedysarum salicifolium Poir.: 422 (1805).

Desmodium paleaceum Guill. & Perr.: 209 (1832). Type: Senegal, Perrotet 246 (P, holo.; W).

Desmodium grande E. Mey.: 124 (1836). Type: Durban (Port Natal), Drège (B, holo.; W, K!).

var. *salicifolium*

Schubert in Bulletin du Jardin botanique de l'Etat, à Bruxelles 22: 294 (1952); Schubert: 470, t. 65/1 (1971); Verdc.: 523 (1974).

Hedysarum salicifolium Poir.: 422 (1805). *Desmodium salicifolium* (Poir.) DC.: 337 (1825); Bak.f.: 330 (1929); Schubert: 294 (1952); Schubert: 198, t. XV (1954); Hepper: 584 (1958); White: 150 (1962); Laundon: 224, t. 20A (1966); Schubert: 469, t. 65/1 (1971); Verdc.: 522 (1974).

Desmodium paleaceum Guill. & Perr.: 209 (1832); Bak.: 166 (1871); Hutch. & Dalz.: 418 (1928).

Desmodium grande E. Mey.: 124 (1836); Harv.: 228 (1862).

Distribution: *D. salicifolium* var. *salicifolium* occurs in northern South West Africa/Nambia, Caprivi and northern Botswana, and in Mozambique coming into Komatiport and Nelspruit in the Transvaal, eastern Swaziland and southward along coastal Zululand and Natal, from 0–1 000 m. It occurs widely in tropical Africa, Madagascar and the Mascarene Islands.

Vouchers: Buitendag 1155 (NBG, PRE); Moll & Nel 5610 (NH, PRE); Venter 5489 (PRE, ZULU); Ward 5560 (NH, NU); Wylie sub Wood 10335 (GRA, PRE, SAM, STE).

Note

D. salicifolium is a suffrutex or shrub of wet places, principally along river margins or in swamp forest. It often occurs in wet clayey soil and flowers from August to May.

5. *Desmodium velutinum* (Willd.) DC., Prodr. systematis naturalis regni vegetabilis 2: 328 (1825); Schubert: 294 (1952); Schubert: 194 (1954); Hepper: 584 (1958); White: 150 (1962); Schubert: 292 (1963); Laundon: 219 (1966); Schubert: 466, t. 65/7 (1971); Verdc.: 518 (1974). Type: *Herb. Willdenow 13763* (B, holo. —GH, photo.!).

Hedysarum velutinum Willd.: 1174 (1802).

Hedysarum lasiocarpum Beauv.: 32, t. 18 (1805). *Desmodium lasiocarpum* (Beauv) DC.: 328 (1825); Bak.: 162 (1871); Hutch. & Dalz.: 418 (1928); Bak.f.: 326 (1929). Type: Nigeria, Palisot de Beauvois (G, holo. —A, photo.!).

Distribution: *D. velutinum* is only known from the north-eastern Lowveld of the Transvaal, up to 750 m, from near Leydsdorp to the southern boundary of the

Kruger National Park. It is widespread throughout the Old World tropics from Africa and Madagascar to India, south-east Asia and Malasia.

Vouchers: Junod sub TRV 5279 (PRE); Schrire 655 (NH); Van der Schijff 2659 (PRE).

Note

The plant occurs as a small shrub or suffrutex in wooded and open grassland, woodland and on forest margins.

6. *Desmodium gangeticum* (L.) DC., Prodr. systematis naturalis regni vegetabilis 2: 327 (1825); Wight & Arn.: 225–226 (1834); Bak.: 161 (1871); Hutch. & Dalz.: 418 (1928); Bak.f.: 327 (1929); Brenan: 420 (1949); Schubert: 196 (1954); Hepper: 584 (1958); White: 150 (1962); Laundon: 219 (1966); Schubert: 465, t. 65/10 (1971); Verdc.: 520 (1974). Type: *Herb. Linnaeus 921.13* (LINN, holo. —A, photo.!).

Hedysarum gangeticum L.: 746 (1753).

Hedysarum maculatum L.: 746 (1753). *Desmodium gangeticum* (L.) DC. var. *maculatum* (L.) Bak.: 168 (1876); Hepper: 584 (1958); Laundon: 220 (1966). Type: *Herb. Linnaeus 921.14* (LINN, holo. —A, photo.!).

Desmodium natalitium Sond.: 32 (1850); Harv.: 229 (1862); Schindl.: 285 (1928). Type: South Africa, Port Natal, Gueinzus 203 (Herb. Sond.).

Distribution: *D. gangeticum* occurs in the Transvaal from the Soutpansberg in the north, through the Lowveld between Barberton and Nelspruit to Swaziland in the south. In Natal this distribution continues through northern Natal to Zululand and then along the coast southwards to the Transkei, from 0–1 200 m.

Vouchers: McDonald 118 (NU, PRE); Schlechter 3129 (BOL, GRA, PRE); Van der Schijff 965 (PRE, PUC); Ward 2406 (NH, PRE); Wood 4936 (BOL, PRE, SAM).

Notes

(1) The epithets *gangeticum* and *maculatum* were published on the same date and they were combined under the name *Desmodium gangeticum* by Wight & Arn.: 225–226 (1834).

(2) The plant is a spreading suffrutex to erect subshrub occurring in wooded grassland, bushveld or thicket or in open grassland. It readily becomes a weed in semi-disturbed areas i.e. old lands or roadsides, and flowers from August to March.

(3) This species is widespread throughout the Old World tropics and has been introduced into America. Allen & Allen (1981) note that *D. gangeticum* is used as a pioneer plant to control erosion of denuded areas. The roots of *D. gangeticum* yield a lectone and seven alkaloids. One of these, hordenine, has been used in experimental medicine as a sympathomimetic and another, bufotenine, is an hallucinogen.

7. *Desmodium setigerum* (E. Mey.) Benth. ex Harv. in Flora capensis 2: 229 (1862); Milne-Redh.: 417 (1937); Schubert: 187, t. 11E (1954); Hepper: 585 (1958); Laundon: 222 (1966); Schubert: 460, t. 65/5 (1971); Verdc.: 513 (1974). Type: Transkei, Umzimvubu River, Drège 446 (B, holo.; W, K!).

Nicolsonia setigera E. Mey.: 124 (1836).

Desmodium hirtum auct. non Guill. & Perr.: Bak.: 163 (1871), pro parte; Wood: 14, t. 212 (1902); Hutch. & Dalz.: 418 (1928); Schindl.: 279 (1928); Bak. f.: 329 (1929), pro parte; Compton: 272 (1976).

Distribution: *D. setigerum* occurs in the Transvaal from the Soutpansberg and Tzaneen in the north, through the area between Lydenburg and Sabie to western Swaziland in the south. In Natal it is found from sea level to 2 000 m, except in the lowveld of Zululand, and it extends to coastal Transkei. It is widespread throughout tropical Africa.

Vouchers: *Bos 1253* (PRE, STE); *Compton 30608* (NBG, PRE); *Ross 1679* (NH, NU, PRE); *Scheepers 581* (PRE, PRU); *Strey 2996* (NH, PRE).

Notes

(1) Misinterpretation of types (Schubert 1971) has led to confusion between two separate species, *Desmodium setigerum* (E. Mey.) Benth. ex Harv. and *D. hirtum* Guill. & Perr. This began with *D. hirtum* sensu Bak.: 163 (1871).

(2) The plant is a prostrate or low semi-erect suffrutex of open grassland in damp sites, occurring occasionally on streambanks, forest margins or on drier rocky hillsides. It is also found in semi-disturbed vegetation on roadsides and flowers from December to May, i.e. it is a later summer-flowering species.

8. *Desmodium adscendens* (Swartz) DC., *Prodr. systematis naturalis regni vegetabilis* 2: 332 (1825); Bak.: 162 (1871); Hutch. & Dalz.: 418 (1928); Bak. f.: 330 (1929); Brenan: 419 (1949); Laundon: 222, t. 20A1 (1966). Type: West Indies, Swartz (S, holo.—GH, photo.!).

Hedysarum adscendens Swartz: 106 (1788) reprint 1962; Swartz: 1263 (1806).

var. *robustum* Schubert in *Bulletin du Jardin botanique de l'Etat, à Bruxelles* 22: 290 (1952); Schubert: 190 (1954); Hepper: 585 (1958); Schubert: 461, t. 65/13 (1971); Verdc.: 514 (1974). Type: Congo, Kivu, Mokoto Lakes, *Ghesquiere 4994* (BR, holo.).

Distribution: *D. adscendens* var. *robustum* is found in the Soutpansberg and Woodbush areas of the northern Transvaal and entering from Mozambique along the Natal coast to the Transkei border. It is widespread in tropical Africa but the species is pantropical, from America, Africa, Asia and Malesia.

Vouchers: *Gillett 3156* (BOL, PRE, STE); *Moll 2720* (NU, PRE); *Moll & Strey 3896* (NH, PRE); *Strey 7151* (NH, NU, PRE); *Venter 5291* (PRE, ZULU).

Note

The plant is a straggling herb or undershrub of shaded mesic forest floors, and flowers from November to March. On forest margins along the coast, this species may be confused with the shade form of *D. incanum* (see under that species). Schubert (1971) records that *D. adscendens* is an excellent food for stock.

9. *Desmodium dregeanum* Benth. in *Plantae Junghuhnianae* 2: 222 in adnot. (1852); Harv.: 228 (1862); Bak.: 165 (1871); Schubert: 476, t. 65/3 (1971); Verdc.:

528 (1974). Type: Transkei, Umsimkaba River, *Drège* (B, holo.; GH, K!). Based on *Nicolsonia caffra* E. Mey.

Nicolsonia caffra E. Mey.: 123 (1836).

Desmodium caffrum (E. Mey.) Druce: 619 (1917); Schindl.: 360 (1927); Bak. f.: 331 (1929); Brenan: 419 (1949); Laundon: 225 (1966), non Eckl. & Zeyh. (1836), nom. illegit. *D. caffrum* Eckl. & Zeyh. is a later homonym of *D. repandum* (Vahl) DC.

Distribution: *D. dregeanum* is predominantly a low altitude plant from coastal Mozambique to the coast of northern Transkei. It does however occur in the Lydenburg, Barberton and Volksrust Districts of the Transvaal and the hinterland of Natal from 0–1 800 m. It is an endemic African species occurring widely in eastern and southern Africa.

Vouchers: *Grobbelaar 1104* (PRE, PRU); *Rogers 28284* (GRA, STE); *Ross & Moll 1830* (NH, PRE); *Strey 4971* (NH, NU, PRE); *Wood 817* (BOL, SAM).

Note

The plant is an erect or straggling herb in open grassland most often in moist or marshy areas in sandy soils. It can become a woody subshrub to 1 m high if protected from fire and it is common in semi-disturbed grasslands, roadsides or forest margins. Flowering may occur throughout the year.

10. *Desmodium barbatum* (L.) Benth. in *Plantae Junghuhnianae* 2: 224 (1852); Schubert: 477 (1971); Verdc.: 530 (1974). Type: Jamaica?, *Herb Linnaeus 921.48* (LINN, holo.).

Hedysarum barbatum L.: 1170 (1759).

10a. var. *dimorphum* (Welw. ex Bak.) Schubert in *Bulletin du Jardin botanique de l'Etat, à Bruxelles* 22: 298 (1952); Schubert: 205 (1954); Hepper: 564 (1958); Schubert: 478 (1971); Verdc.: 531 (1974). Type: Angola, Cuanza Norte, Golungo Alto, *Welwitsch 2165* (LISU, lecto.; K!, BM!); Malawi, Manganya, *Kirk* (K, syn.!).

Desmodium dimorphum Welw. ex Bak.: 161 (1871); Hutch. & Dalz.: 417 (1928); Bak. f.: 332 (1929). *Nicolsonia barbata* (L.) DC. var. *dimorpha* (Welw. ex Bak.) Schindl.: 359 (1927). *D. barbatum* (L.) Benth. subsp. *dimorphum* (Welw. ex Bak.) Laundon: 225, t. 20/A2 (1966).

Distribution: *D. barbatum* var. *dimorphum* is found in the Transvaal from the Letaba District near Tzaneen south to Lydenburg, Barberton and Nelspruit, from 100–1 000 m.

Vouchers: *Kluge 1222* (PRE); *Krige 139* (J); *Liebenberg 2897* (PRE); *Scheepers 241* (PRE, PRU); *Schrire 661* (NH).

Note

The plant is a spreading suffrutex to erect subshrub up to 1 m high, in the grassland component of open woodland, and it flowers from February to June.

10b. var. *argyreum* (Welw. ex Bak.) Schubert in *Bulletin du Jardin botanique de l'Etat, à Bruxelles* 22: 298 (1952); Schubert: 205 (1954); Schubert: 479 (1971); Verdc.: 531 (1974). Type: Angola, Huila, *Welwitsch 2162* (LISU, holo.; BM!).

Desmodium dimorphum Welw. ex Bak. var. *argyreum* Welw. ex Bak.: 161 (1871); Bak.f.: 332 (1929). *Nicolsonia barbata* (L.) DC. var. *argyrae* (Welw. ex Bak.) Schindl.: 359 (1927). *D. barbatum* (L.) Benth. subsp. *dimorphum* sensu Laundon: 225 (1966), pro parte.

Distribution: *D. barbatum* var. *argyreum* has been recorded from South West Africa/Namibia.

Voucher: Merxmüller & Giess 1862 (WIND).

Notes

(1) The plant is erect with silvery-white or fulvous stems which are appressed silky-pilose. The leaves are almost all 1-foliolate with the leaflets densely silvery-silky beneath. It occurs in woodland or grassland from 1 000–2 000 m.

(2) Schubert (1971) notes that, although this variety is quite distinguishable from var. *dimorphum* in the extreme, there are many plants which form a transition between the two.

Desmodium uncinatum and *D. intortum* or Silverleaf and Greenleaf *Desmodium*, have been deliberately introduced from central America and cultivated as pasture legumes in the eastern Cape. This is largely out of the natural range of the genus in southern Africa, and there is no evidence that they have become naturalized. *Desmodium asperum* was once collected on the south coast of Natal but it has not been seen again. A large number of other species of *Desmodium* are being tested in agricultural stations around the country for their pasture potential.

PSEUDARTHRIA

***Pseudarthria* Wight & Arn.**, Prodr. fl. peninsul. Indiae orientalis 1: 209 (1834); Benth.: 521 (1865); Bak.: 167 (1871); Bak.: 153 (1876); Taub.: 329 (1894); Schindl.: 11 (1914); Hutch. & Dalz.: 386 (1928); Bak.f.: 338 (1929); Burt Davy: 381 (1932); Phill.: 419 (1951); J. Léonard: 234 (1954b); Hepper: 585 (1958); White: 161 (1962); Hutch.: 399 (1964); Torre: 231 (1966); Verdc.: 64 (1970); Verdc.: 483 (1971); Verdc.: 534 (1974); Dyer: 264 (1975). Type species: *P. viscida* (L.) Wight & Arn. (*Hedysarum viscidum* L.).

Hedysarum L.: 745 (1753), pro parte.

Desmodium Desv. in DC.: 325 (1825), pro parte.

Anarthrosyne E. Mey.: 124 (1836); Harv.: 229 (1862), pro parte; Harv.: 82 (1868).

The name *Pseudarthria* is derived from the Greek 'pseudo', meaning false, and 'arthron' or joint; the constrictions between the seeds give the impression of the pod being falsely jointed. Only one species occurs in southern Africa.

***Pseudarthria hookeri* Wight & Arn.**, Prodr. fl. peninsul. Indiae orientalis 1: 209 (1834); Bak.: 168 (1871); Schindl.: 11 (1914); Hutch. & Dalz.: 386 (1928); Bak.f.: 339 (1929); Robyns: 313 (1948); Brenan: 436 (1949); J. Léonard: 235, t. 15/A–B (1954b); Hepper: 586 (1958); White: 161 (1962); Torre: 232 (1966); Verdc.: 65 (1970); Verdc.: 484, t. 69/1–9 (1971); Verdc.: 534 (1974). Type: Mauritius, cultivated from Zanzibar, *Telfair* (K, ?holo!).

Anarthrosyne robusta E. Mey.: 125 (1836); Harv.: 229 (1862). Type: Transkei, Umgazana, *Drège* 452 (K!).

var. *hookeri*

Verdc. in Kew Bulletin 24: 65 (1970); Verdc.: 484, t. 69/1–9 (1971); Verdc.: 535 (1974).

Distribution: *Pseudarthria hookeri* var. *hookeri* occurs in the Transvaal from Louis Trichardt and Tzaneen in the north, between Lydenburg and Skukuza, and between Middelburg and Komatipoort, to Swaziland and Piet Retief in the south. The species also occurs from Pietersburg through Nylstroom to Thabazimbi in the Waterberg Mountains. In Natal the range extends southwards through northern Natal and Zululand to the coast and midlands up to Pietermaritzburg, Richmond, Ixopo and Harding. Further south the range becomes restricted to coastal Transkei to the eastern Cape border. This species occurs widely in tropical and southern Africa, Madagascar, Mauritius and Réunion.

Vouchers: *Bos* 1300 (PRE, STE); *Galpin* 776 (GRA, NH, SAM); *Hemm* 555 (J, PRE, VENDA); *Moll* 2744 (NH, NU, PRE); *Schlechter* 4551 (BOL, GRA).

Note

This species is found most frequently as a suffrutex or subshrub to 3 m high, in mixed woodland or bushveld, along forest margins, in open grassland or as a ruderal along roadsides or in other disturbed areas, from 0–2 000 m. It is also occasionally associated with streambanks, vleis or swampy areas. Flowering occurs between November and May.

ALYSICARPUS

***Alysicarpus* Desv.**, Journal de botanique 1: 120, t. 4.f. 8. (1813), nom. conserv.; DC.: 352 (1825); Harv.: 230 (1862); Benth.: 522 (1865); Harv.: 82 (1868); Bak.: 169 (1871); Bak.: 157 (1876); Hutch. & Dalz.: 418 (1928); Bak. f.: 341 (1929); Burt Davy: 427 (1932); Phill.: 419 (1951); J. Léonard: 84 (1954a); J. Léonard: 223 (1954b); Hepper: 586 (1958); Hutch.: 482 (1964); Torre: 234 (1966); Schreiber: 13 (1970); Verdc.: 491 (1971); Verdc. 544 (1974); Dyer: 264 (1975); Compton: 273 (1976); Dillon: 548 (1980). Type species: *A. bupleurifolius* (L.) DC. (*Hedysarum bupleurifolium* L.).

Hedysarum L.: 745 (1753), pro parte.

Fabricia Scop.: 307 (1777); Kuntze: 181 (1891); Taub.: 329 (1894).

Alysicarpus gets its name from the Greek, 'halysis', meaning chain and 'karpos' meaning fruit; the pods are moniliform with the joints in chain formation.

Note

Alysicarpus Neck.: 15 (1790) is not to be treated as a generic name, according to ICBN Art. 20, unless it has been published, as such, by a subsequent author. Noted in Stafleu (1976) is the following: 'Since Necker designated this category as 'species', the monomial names (which are in many cases the generic names of previous authors) are to be regarded as unitary designations of species and hence to be regarded as not validly published'.

KEY TO SPECIES

- 1a Fruit with straight margins, not constricted between the articles; calyx lobes narrow, sharply acuminate, not at all overlapping at the base 1. *A. vaginalis*
- 1b Fruit moniliform, strongly constricted between the articles; calyx lobes ovate-lanceolate, slightly to conspicuously overlapping at the base:
- 2a Articles smooth; leaves coriaceous with very prominent reticulate venation 2. *A. zeyheri*
- 2b Articles with obvious transverse ridge sculpturing; leaves subcoriaceous with reticulate venation only slightly prominent:
- 3a Calyx lobes 0,8–1,5 mm wide, slightly overlapping and imbricate initially, not so in fruit; inflorescences elongate and spike-like; fruit well exerted from the calyx 4. *A. glumaceus*
- 3b Calyx lobes 1,5–2,5 mm wide, conspicuously overlapping and imbricate, and rounded or subcordate at the base; inflorescences often short and compact; fruit only partially exerted from the calyx 3. *A. rugosus*

SYNOPSIS OF SPECIES

1. ***Alysicarpus vaginalis* (L.) DC.**, *Prodromus systematis naturalis regni vegetabilis* 2: 353 (1825); *Bak.*: 170 (1871), pro parte; *Hutch. & Dalz.*: 419 (1928), pro parte; *Bak.f.*: 342 (1929), pro parte; *Robyns*: 331 (1948); *J. Léonard*: 84 (1954a); *J. Léonard*: 224, t. 13/A (1954b); *Hepper*: 587 (1958); *Torre*: 234 (1966); *Verdc.*: 493, t. 71/A (1971); *Verdc.*: 546 (1974); *Compton*: 273 (1976). Syntypes: Ceylon, *Hermann* (BM–HERM, 1: 27, 59, syn.).

Hedysarum vaginale L.: 746 (1753).

var. ***vaginalis***

Verdc. in *Kew Bulletin* 24: 67 (1970); *Verdc.*: 493, t. 71/A (1971); *Verdc.*: 443 (1972); *Verdc.*: 546 (1974).

Distribution: *A. vaginalis* occurs in the Transvaal Lowveld through Swaziland and Tongaland to the Zululand coast. It is widespread throughout the Old World tropics.

Vouchers: *Buitendag* 302 (NBG, PRE); *Clarke* 262 (PRE, PRU); *Rogers* 25092 (J); *Venter* 4593 (BLFU, PRE); *Ward* 1796 (NH, NU, PRE).

Notes

(1) The plant occurs as a semi-prostrate or decumbent trailing herb in the herbaceous vegetation of open areas in bushveld or in grassland up to 800 m. More commonly it becomes a weed of disturbed sandy or rocky soils in these areas, i.e. in alluvia, old lands or along roadsides. It flowers nearly all year round from July to May.

(2) *A. vaginalis* has been introduced into America where it is reported to have no economic importance except as a noxious weed (Schubert 1980). In Africa, however, Schubert (1980) notes that various species including *A. vaginalis* are used locally as, 'fodder, for all kinds of domestic stock, used fresh, but preferably cut after fruiting and stored as hay'. It is also regarded as an excellent fodder for horses, but it is said to cause mucous diarrhoea if given in excess in the young and immature state during the rains. It is also known as Alyce clover, and Allen & Allen (1981) state that it is considered as a good cover crop in Malaysia to prevent erosion on clay soils of rubber plantations.

2. ***Alysicarpus zeyheri* Harv.** in *Flora capensis* 2: 230 (1862); *Bak.*: 170 (1871); *Hutch. & Dalz.*: 419 (1928); *Bak.f.*: 343 (1929); *Robyns*: 332 (1948); *J. Léonard*: 228, t. 13/C (1954b); *Hepper*: 587 (1958); *Torre*:

235 (1966); *Verdc.*: 494, t. 71/C (1971); *Verdc.*: 549 (1974). Type: Transvaal, Aapies River, *Burke & Zeyher* (K, syn.!, PRE!).

Although quoted as *Burke & Zeyher* in *Flora capensis*, these are two simultaneous but separate collections and are therefore syntypes.

Distribution: *A. zeyheri* occurs in the Transvaal and northern Natal at altitudes between 900–2 400 m. It is found from Pietersburg southwards to Pretoria, and from Pretoria westwards to Zeerust in Sourish Mixed Bushveld. East of Pretoria it occurs in the North-eastern Mountain Sourveld and Lowveld Sour Bushveld from Lydenburg, Nelspruit and Barberton down through Swaziland. It also occurs in the North-eastern Sandy Highveld, Piet Retief Sourveld and related veld types from near Middelburg through Ermelo to Louwsburg and Mahlabatini in the south.

Vouchers: *Du Plessis* 1136 (PRE, PRU); *Galpin* 1158 (GRA, NH, PRE, SAM); *Leendertz* 399 (BOL, J. PRE); *Rudatis* 131 (STE); *Steyn* 995 (NBG).

Notes

(1) The plant is an erect to spreading herb of open areas in bushveld or in grassland in sandy, rocky or gravel soils, and often occurs in grazed, seasonally burned grassland, along roadsides or railway lines and in old lands. It flowers from October through to April.

(2) Watt & Breyer-Brandwijk (1962) report that *A. zeyheri* is used as a remedy in South Africa for impotence, while Allen & Allen (1981) quote a reference in which the species has been used as a snake-bite remedy in some African communities.

3. ***Alysicarpus rugosus* (Willd.) DC.**, *Prodromus systematis naturalis regni vegetabilis* 2: 353 (1825); *Bak.*: 171 (1871), pro parte; *J. Léonard*: 92, t. 12 (1954a); *J. Léonard*: 229 (1954b); *Hepper*: 587 (1958); *Lind & Tallantire*: 82 (1962); *Torre*: 236 (1966); *Schreiber*: 14 (1970); *Verdc.*: 495 (1971); *Verdc.*: 550 (1974); *Compton*: 273 (1976). Type: Guinea, *Isert in Herb. Willdenow* (B, holo.).

Hedysarum rugosum Willd.: 1172 (1802).

Alysicarpus violaceus (Forssk.) Schindl.: 13 (1928), pro parte; *Hutch. & Dalz.*: 419 (1928), pro parte, non *Hedysarum violaceum* L.: 749 (1753); *Forssk.*: 136 (1775).

KEY TO SUBSPECIES

- Erect annual; calyx lobes with white cilia; SWA/Namibia only subsp. *rugosus*
- Decumbent spreading perennial with many flexuous stems; calyx lobes with brown to orange cilia subsp. *perennirufus*

3a. subsp. **rugosus**

J. Léonard in Bulletin du Jardin botanique de l'Etat, à Bruxelles 24: 92, t. 12 (1954a); J. Léonard: 229 (1954b).

Distribution: the typical subspecies is recorded in the Flora area only from the Grootfontein District in South West Africa/Namibia. A specimen, *Liebenberg 2789* (PRE), from Barberton in the Transvaal may also be subsp. *rugosus*, but it is too underdeveloped to be identified with certainty. Subsp. *rugosus* is an erect annual in open areas in thornveld savanna or in swamps.

Vouchers: *Dinter 7628* (BOL, PRE, WIND); *Merxmüller & Giess 30098* (WIND).

3b. subsp. **perennirufus** J. Léonard in Bulletin du Jardin botanique de l'Etat, à Bruxelles 24: 95 (1954a); J. Léonard: 230, t. 13/D (1954b); Torre: 236 (1966); Verdc.: 496, t. 71/D (1971); Verdc.: 552 (1974). Type: Congo, Kivu, Rutshuru, *Lebrun 9021* (BR, holo.; K!).

Alysicarpus wallichii Wight & Arn.: 234 (1834); Harv.: 230 (1862). Types: *Wallich cat. 5763 a, b* (K-WALLICH!).

Alysicarpus glaber E. Mey.: 125 (1836). Type: Transkei, between Umzimvubu and Umsikaba Rivers, *Drège* (K!).

Alysicarpus violaceus (Forssk.) Schindl.: 13 (1928), pro parte; Hutch. & Dalz.: 419 (1928), pro parte, non *Hedysarum violaceum* L.: 749 (1753); Forssk.: 136 (1775).

Distribution: this subspecies is widespread in the eastern half of the Flora area, from the Transvaal, Swaziland, Natal to the eastern Cape. In the Transvaal it occurs from Louis Trichardt and Tzaneen in the north through Pietersburg and Potgietersrust to Lydenburg and Komatipoort and to Swaziland in the south. Westwards it occurs from Belfast and Ermelo through Pretoria to Rustenburg with a slight extension into the higher altitude Bankenveld north of Johannesburg and Potchefstroom. The distribution in Natal is chiefly northern Natal from Newcastle to Pongola (an extension of the range in the south-east Transvaal) through the midlands to the coast. It does not occur further west of a line extending from Bergville, Estcourt and Richmond, i.e. into the uplands, nor does it occur further north than Hluhluwe in Zululand. Along the coast and adjacent interior, particularly where there are projections inland of Valley Bushveld, the distribution continues down to East London and inland to the Harding, Umtata, Engcobo and Fort Beaufort Districts.

Vouchers: *Acocks 9872* (NH, PRE); *Flanagan 416* (GRA, PRE, SAM); *Galpin 12975* (BOL, PRE); *Moll 1505* (NH, NU, PRE); *Tyson 2002* (BOL, NBG, PRE).

Note

Verdcourt (1971) mentions that intermediates occur between the two subspecies in the *Flora of tropical east Africa*. He notes that a few examples have been found in the Transvaal.

4. ***Alysicarpus glumaceus*** (Vahl) DC., *Prodromus systematis naturalis regni vegetabilis* 2: 353 (1825); Robyns: 332 (1948), pro parte; J. Léonard: 98, t. 13 (1954a); J. Léonard: 231, t. 13/E (1954b); Hepper: 587 (1958); Lind & Tallantire: 82 (1962); Torre: 236 (1966); Verdc.: 497, t. 71/E (1971); Verdc.: 553 (1974). Type: Yemen, Surdud, *Forsskål* (C, holo.).

Hedysarum violaceum Forssk.: 136 (1775) non L., nom. illegit. Type as above.

Hedysarum glumaceum Vahl: 106 (1791).

Alysicarpus violaceus (Forssk.) Schindl.: 13 (1928), pro parte; Bak.f.: 342 (1929), pro parte.

subsp. **glumaceus** var. **glumaceus**

Verdc. in Kew Bulletin 24: 68 (1970); Verdc.: 497, t. 71/E (1971); Verdc.: 553 (1974).

Distribution: *Alysicarpus glumaceus* is found in the hot lowlands of northern Botswana, Transvaal, Swaziland and Natal. In South Africa it occurs from Phalaborwa in the north through Setara and between Louw's Creek and Komatipoort to eastern Swaziland; and in Tongaland and coastal Zululand, south to Eshowe.

Vouchers: *Bredenkamp 1847* (PRE); *Pooley 726* (NH, NU); *Schrire 909* (NH); *Venter 3765* (ZULU); *Ward 1891* (NH, NU).

Notes

(1) Only the typical taxon is found in the Flora area.

(2) This species occurs as an erect annual herb of open places in bushveld or in grassland, and is often associated with moisture, i.e. floodplains, depressions, saline marshes or near streams. It is also a weed of old lands or along roadsides. Flowering occurs from November to June.

(3) Allen & Allen (1981) report that this is also known as Alyce clover and, like *A. vaginalis*, is said to be cultivated as a summer graze for domestic animals. Watt & Breyer-Brandwijk (1962) state that *A. glumaceus* is used in east Africa as a remedy for thrush and veld sores. In Arabia and India the herb is used as an external application to swollen feet.

Subtribe Lespedezinae

Lespedezinae (Hutch.) Schubert in *Advances in legume systematics* 1: 300 (1981).

Lespedezeae Hutch.: 486 (1964).

LESPEDEZA

Lespedeza Michx., *Flora boreali-americana* 2: 70 (1803); Hutch.: 487 (1964); Clewel: 365 (1966). Type species: *L. procumbens* Michx.

Hedysarum L.: 745 (1753), pro parte.

The name *Lespedeza* is derived from Vincenzo Manuel de Cespedes, governor of the Florida Colony from 1784–1790 and patron of the botanist Michaux. The current spelling of the genus name presumably resulted from illegibility or a printer's error (Allen & Allen 1981).

Lespedeza cuneata (Du Mont.) G. Don, *A general system of gardening and botany* 2: 307 (1832); Wilbur: 185 (1963). Type: Japan, Nagasaki, *Oldham 328* (K!).

Hedysarum sericeum Thunb.: 287 (1784), nom. illegit.

Anthyllis cuneata Dumont de Courset: 100 (1811).

Lespedeza sericea auct. non Benth.: 227 (1852); (Thunb.) Miq.: 49 (1867).

Distribution: *L. cuneata* is an escape from cultivation, now naturalized in the Natal midlands in the Kokstad, Ixopo and Pietermaritzburg Districts.

Vouchers: *Edwards 12* (NH); *Hilliard 3888* (NU); *Schrire 1368* (NH); *Tainton s.n.* (NU).

Notes

(1) The plant occurs in old lands, along roadsides or old railway lines. It is an herbaceous suffrutex to 0.8 m high, flowering from February to April.

(2) *L. cuneata* is native to eastern Asia but is widely cultivated in the United States. Known as Japanese bush-clover, it is the most widespread and familiar of all the species and is used extensively to control erosion on roadside banks and similar areas (Wilbur 1963). It is also held in high esteem as a forage, hay and protein supplement to stockfeed (Allen & Allen 1981).

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SPECIMENS EXAMINED

Specimens are listed alphabetically according to the name of the collector for each genus. Figures in brackets after the collector's number refer to the number of the taxon in the text.

Desmodium

Acocks 9648(1) PRE; 10118(1) NH; 10888(2) PRE; 10899(9) PRE; 13332(7) PRE. *Ahrens* 23(7) NU. *Allsopp* 969(9) NU; 999(6) NH, NU, PRE; 1017(9) NH; 1024(7) NH, NU.

Bajinath 185(7) NU, PRE. *Balsinhas* 2804(2) PRE; 3223a(4) PRE. *Barker* 5155(7) NBG; 6138(2) NBG; 10012(9) NBG. *Baur* 114(1) BOL, GRA. *Bayliss* 2757(1) NBG, PRE; 4667(7) NBG. *Blenkinson* J 14446(1) J. *Bokelmann*, NBG 67393(1) NBG. *Bolus* 7731(6) BOL; 8882(9) BOL; 8883(7) BOL; 8884(7) BOL; 11827(7) BOL, PRE; *STE* 24837(1) STE. *Bos* 1230(1) PRE, STE; 1253(7) PRE, STE. *Botha* 2583(1) PUC. *Bourquin* 122(7) NU; 253(2) NU; 357(9) NU. *Bourquin & Lawson* 1168(7) NH, PRE; 1171(9) NH, PRE. *Breyer sub TRV* 17848(10) PRE; *sub TRV* 19552(1) PRE. *Buitendag* 209(6) NBG, PRE; 271(6) PRE, 1155(4) NBG, PRE.

Clarke 269(6) PRU; 371(7) PRE, PRU; 373(1) PRE, PRU; 464(2) PRE, PRU. *Codd* 1076(1) PRE; 6412(7) PRE; 9312(9) PRE; 9339(7) GRA, PRE; 9362(2) NH, PRE. *Codd & De Winter* 5144(10) PRE. *Codd & Muller* 325(1) PRE. *Coleman* 13(9) NH, PRE; 65(7) NH, PRE; 1103(3) NH. *Collins sub TRV* 9895(1) PRE. *Comins* 1956(9) GRA, PRE. *Compton* 25075(7) NBG; 25615(1) PRE, SAM; 27287(1) NBG, PRE; 28692(1) NBG, PRE; 30608(7) NBG, PRE. *Cooper* 204(1) PRE. *Crawford* 368(2) PRE. *Culverwell* 1235(4) PRE.

Denley in J 30699(9) J. *Devenish* 1647(1) NU; 819(1) NH, PRE. *De Winter & Killeck* 8922(1) PRE. *Dlamini in NBG* 49174(7) NBG; *in NBG* 49172(1) NBG; *in PRE* 55645(1) PRE. *Dohse & Lindahl* 94(7) NH, PRE; 98(1) NH, PRE. *Dutton* 47(9) NH. *Dyer* 3153(1) PRE.

- Edwards D. 1312(1) NU, PRE; 3250(9) NU, PRE. *Eicker s.n.*(9) ZULU. *Elan-Puttick* 16(1) PRE. *Eliovson J* 26989(1) J. *Ellis* 2616a(2) PRE. *Esterhuysen* 12875(1) BOL, PRE. *Evans* 112(1) NH; 181(9) NH.
- Fairall* 13(6) NBG. *Fisher B.S.* 590(2) NH, NU; 752(6) NH. *Fisher D.K.* SAM 66046(1) SAM. *Fitzsimons & Van Dam* sub TRV 26257(1) PRE. *Flanagan* 515(1) BOL, GRA, NBG, NU, PRE, SAM; 2574(9) NH, PRE, SAM; 2608(7) PRE, SAM; PRE 55637(1) PRE. *Forbes* 35(2) NH, PRE; 605(2) NH; STE 13501(2) STE. *Forrester & Gooyen* 187(1) PRE. *Fourcade* 233(1) BOL, GRA. *Frith* 121(7) J.
- Galpin* 1287(1) PRE; 3479(1) BOL; 6303(1) PRE; 9743(2) PRE; 10090(1) PRE; 11005(9) PRE; 11019(2) PRE; 11024(7) PRE; 11444(1) PRE; 14457(1) BOL, PRE; 11858(1) BOL, PRE; 11933(1) PRE. *Gemmell BLFU* 5349(1) BLFU; BLFU 6050(9) BLFU. *Gerstner* 626(1) PRE; 2936(6) NH; 3845(1) NH; 6005(1) PRE; NH 28779(7) NH. *Getliffe* 113(2) NU; NU 27810(9) NU. *Giffen* 837(1) PRE. *Gill NH* 22592(7) NH. *Gillett Mrs.* 1203(2) BOL, NH. *Gillett J.B.* 3156(8) BOL, PRE, STE. *Gordon-Gray* 94(2) NU; 97(2) NU; 1047(6) NU; 1308(7) NU. *Grobbelaar* 59(9) PRU; 66(7) PRE, PRU; 78(7) PRE, PRU; 127(2) PRE, PRU; 279(9) PRE, PRU; 284(2) PRE, PRU; 649(9) PRE, PRU; 999(9) PRE, PRU; 1104(9) PRE, PRU; 1337(2) PRU; 1807(2) PRU; 1821(9) PRE, PRU; 2312(7) PRU; 2324(7) PRU; 2329(9) PRU. *Guy* 34(1) NU, PRE.
- Hanekom* 2299(1) PRE. *Harrison* 244(9) NH, PRE. *Haygarth* sub Wood 1061(4) BOL, PRE. *Heygarth W.* STE 9446(7) STE. *Henderson* 53(1) BLFU. *Hilliard* 1095(9) NU; 1134(9) NU; 1227(7) NU; 1336(9) NU; 1344(7) NU; 1365(1) NH, NU; 1951(1) NU; 2639(7) NU. *Hilliard & Burt* 3310(1) NU; 6852(4) NU. *Hitchins* 391(6) PRE. *Hofmeyer* PRE 55621(1) PRE. *Holt* 207(10) PRE. *Howlett* 16(1) NH, NU, PRE; 26(1) PRE; 106(1) NH, PRE. *Huntley* 195(7) NH, PRE; 686(2) NU. *Hutchinson* 1759(2) BOL; 2245(8) BOL, PRE.
- Jacobs* 1757(1) PRE. *Jacobsen* 2671(1) PRE. *Jarman & Guy* 71(2) NU. *Jenkins* 7068(7) PRE; sub TRV 7072(9) PRE. *Johnson* 369(2) NBG; 391(9) NBG. *Junod* 46(1) PRE; 182(1) PRE; 4357(1) PRE; 4382(7) PRE; 5265(7) PRE; 5267(10) PRE; 5270(6) PRE; sub TRV 5279(5) PRE; sub TRV 5284(10) PRE.
- Kalf* 35(7) NU; 36(9) NU; 38(2) NU. *Keit NH* 11142(9) NH. *Kemp* 1153(1) PRE. *Killick* 144(1) NU, PRE; 1667(1) PRE. *Kluge* 467(1) PRE, PRU; 483(7) PRE, PRU; 1222(10) PRE. *Kotze* 51(4) WIND. *Krige* 139(10) J.
- Lang* sub TRV 32297(6) PRE. *L'Ange* 86(1) NU. *Lawn* 3(9) NH; 32(2) NH; 72(1) NH; 169(7) NH; 217(7) NH; 752(2) NH; 1807(9) NH; 2031(9) NH. *Lawson* 307(2) NU; 479(9) NH; 704(9) NH. *Leighton* 2993(9) BOL; 3083(2) BOL, PRE. *Leistner* 648(1) PRE. *Letty* 248(1) PRE; 460(1) PRE. *Lewis SAM* 61374(1) SAM; SAM 61553(7) SAM; 61554(2) SAM; SAM 68719(1) SAM; SAM 69720(1) SAM. *Liebenberg* 2374(10) PRE; 2551(7) PRE; 2897(10) PRE; 2947(1) PRE; 8048(9) PRE. *Louw* 2165(7) PUC, STE; 2730(1) PUC, STE.
- Macgregor* 64(9) NU. *Martin A.J.* 061(8) NU. *Martin B.* 191(2) NBG. *Mauve* 4099(9) PRE. *McClellan* 183(7) PRE; 439(9) NH; 496(9) NH. *McDonald* 118(6) E, K, NU, PRE. *Medley Wood* 93(9) BOL, SAM; NH 163(9) NH; 209(9) BOL, SAM; 508(1) BOL, SAM; 644(2) BOL, SAM; 790(7) BOL; 817(9) BOL, SAM; 3010(4) NH, SAM; 3103(1) NH; 3129(9) NH; 3134(2) NH; 4936(6) BOL, PRE, SAM; 4936(6) GRA; 5350(1) PRE; 5591(9) PRE; NH 6416(7) NH; 9788(7) NBG; 11845(9) PRE. *Merxmüller & Giess* 1862(10) WIND. *Miller* PRE 55638(2) PRE. *Miller O.B.* 4279(1) PRE. *Mogg* 4399(7) PRE; 4891(7) PRE; 11921(9) PRE; 12700(9) PRE; 13072(9) PRE; 13455(9) PRE; 33984(1) J; J 36211(1) J. *Mohle* 268(1) PRE. *Moll* 2471(6) PRE; 2720(8) NU, PRE; 3439(1) NU, NH; 4767(9) NH, PRE; 5406(7) NH; 5410(2) NH; 5421(1) NH. *Moll & Nel* 5610(4) NH, PRE. *Moll & Strey* 3896(8) NH, PRE. *Morgan* 70(1) PRE. *Morris* 175(6) NU; 190(2) NU; 195(9) NU. *Moss* 3298(7) J; 3298(2) J, PRE; J 3299(9) J; 3300(1) PRE; J 14213(1) J; J 15784(1) J; J 18018(1) J. *Mtombeni* 26(2) ZULU; 40(7) ZULU. *Muller* 2352(1) PRE. *Muller & Giess* 544(4) PRE, WIND.
- Netshungani* (7) VENDA. *Nichols* 423(8) NH; 433(3) NH; 477(1) NH. *Nicholson* 105(9) NH; 1200(7) PRE.
- Oatley* 26(9) PRE. *Obermeyer* sub TRV 29363(6) PRE; sub TRV 30325(1) PRE; sub TRV 30371(1) PRE. *Otto* 124(7) PRE.
- Parkhouse* NBG 16886(9) NBG. *Phillips E.P.* PRE 55667(7) PRE. *Phillips J. J* 35347(1) J. *Pole-Evans* 970(1) PRE; 4549(1) PRE. *Pott* 5334(6) PRE; 5335(1) PRE. *Prosser* 1840(1) PRE.
- Randles* 10(1) NU. *Rehmann* 8699(7) BOL. *Repton* 5862(1) PRE. *Rogers* 1259(9) PRE; 11606(9) J; 15059(9) J; 15060(2) SAM; 15061(2) J; 18410(9) PRE; sub TRV 20707(6) PRE; 23564(6) NH; 26050(10) PRE; 28284(9) GRA, STE. *Ross* 78(2) NU; 208(7) NU; 723(7) BLFU, NH, NU; 775(7) NU; 1679(7) NH, NU, PRE; 1822(9) NH, PRE; 1994(1) NH, PRE; NU 25765(7) NU; NU 25769(1) NU. *Ross & Moll* 1830(9) NH, PRE; 1841(8) NH, PRE; 2267(2) NH, PRE. *Rudatis* 68(9) STE; 115(1) STE; 288(9) PRE; 334(1) PRE; STE 2339(7) STE. *Rump NH* 21063(9) NH; 14-7-1929(9) NY; Feb. 1931(9) NU. *Rycroft* 2420(4) NBG; 2601(2) NBG.
- Sanderson* 870(1) NH. *S.A.R.* PRE 55639(2) PRE. *Scheepers* 241(10) PRE, PRU; 248(1) PRE, PRU; 581(7) PRE, PRU; *Scheepers & Haasbroek Alkaloid survey SKF no.* 1140(7) PRE. *Schelp* 51(9) BOL. *Schlechter* 3129(6) BOL, GRA, PRE; 3354(7) PRE; 4742(1) PRE; 6668(7) BOL; 12105(8) SAM; 12275(10) BOL, SAM. *Schonken* 15(1) STE. *Schonland* 845(1) GRA, PRE. *Schrire* 153(6) NH; 262(2) NH; 263(2) NH; 264(2) NH; 265(2) NH; 266(2) NH; 267(7) NH; 268(8) NH; 272(2) NH; 273(7) NH; 274(7) NH; 275(2) NH; 276(2) NH; 277(9) NH; 278(2) NH; 283(7) NH; 284(9) NH; 285(9) NH; 286(9) NH; 287(9) NH; 288(2) NH; 289(9) NH; 290(8) NH; 291(2) NH; 292(8) NH; 293(2) NH; 294(9) NH; 296(9) NH; 297(8) NH; 332(2) NH; 335(1) NH; 340(2) NH; 350(2) NH; 356(9) NH; 382(9) NH; 385(4) NH; 386(8) NH; 392(2) NH; 396(7) NH; 399(1) NH; 655(5) NH; 661(10) NH; 671(2) NH; 716(9) NH; 717(2) NH; 855(9) NH; 881(9) NH; 882(7) NH; 883(6) NH. *Shuter* 59(9) NU. *Sidey* 3876(2) PRE; 3976(9) NH, PRE; 4186(9) PRE. *Sim* 4057(1) GRA, PRE. *Smith* 693(4) PRE; 2331(4) PRE. *Stanton* 70(1) NU. *Stephen, Van Graan & Schwabe* 1197(9) PRE. *Stirton* 39(1) NU; 462(9) PRE; 508(2) PRE; 536(9) PRE; 1753a(1) PRE; 1753b(1) PRE; 5362(2) PRE; 8685(10) NH. *Strey* 2996(7) NH, PRE; 3725(1) PRE; 3873(9) NH, PRE; 4103(1) PRE; 4559(2) NH, PRE; 4887(9) NH, PRE; 4971(9) NH, NU, PRE; 5486(7) NH, PRE; 6354(2) NH, PRE; 7151(8) NH, NU, PRE; 7394(2) NH, PRE; 7843(1) NH; 8530(1) NH, PRE; 9618(7) NH, NU, PRE; 10752(1) NH, NU, PRE; 10937(7) NH, PRE. *Swierstra* PRE 55605(1) PRE.
- Taylor R.H.* 85(9) NU. *Theron* 1600(1) PRE; 3612(1) PRE, PRU. *Thode* A317(1) NH, PRE; STE 3802(9) STE; STE 3803(7) STE; STE 3805(9) STE; STE 6443(1) STE. *Thorncroft* 893(7) NH; *Gov. Herb.* 11361(7) PRE. *Thorpe* NH 29880(1) NH. *Tinley* 343(8) PRE; 1487(4) WIND. *Tomlinson* 2/115(9) NH. *Trauseld* 375(1) PRE. *Tyson* 1165(1) BOL; 1438(7) SAM, STE; 1439(1) SAM, STE; 1525(1) PRE, SAM; 2144(1) BOL; 2782(7) PRE, SAM; 2816(1) SAM; 3151(1) PRE.
- Vahrmeijer* 541(8) PRE; 667(4) NH, PRE. *Vahrmeijer & Hardy* 1627(9) PRE. *Vahrmeijer & Tölken* 859(4) PRE; 8282(9) PRE. *Van der Merwe D.D.* PRE 58466(6) PRE. *Van der Merwe P.* 312(1) PRE. *Van der Schijff* 965(6) PRE, PUC; 1132(6) PRE; 1325(6) PRE; 2023(9) PRE; 2419(10) PRE; 2659(5) PRE;

4332(1) PRE, PRU; 4941(1) PRE, PRU; 5066(7) PRE, PRU; 5976(7) PRE, PRU; 6437(7) PRE, PRU. *Van Jaarsveld* 12(4) NBG; 678(4) NBG, PRE; 3800(1) NBG. *Van Son sub TRV* 30688(1) PRE. *Van Vuuren* 88(1) PRE. *Van Wyk* 915(1) PRE, PUC. *Venter F.* 697(1) PRE. *Venter H.J.T.* 7(2) ZULU; 300(2) BLFU; 570(9) NH; 634(9) NH; 729(9) ZULU; 832(7) ZULU; 2273(2) ZULU; 2289(7) BLFU; 2424(1) PRE, ZULU; 3303(9) ZULU; 3304(7) ZULU; 3485(1) ZULU; 4547(9) BLFU; 4993(4) PRE, ZULU; 4996(7) ZULU; 5283(8) BLFU; 5291(8) PRE, ZULU; 5489(4) PRE, ZULU. *Verdoorn PRE* 58467(1) PRE. *Vogt PRE* 55600(1) PRE. *Vorster L.L.* 15(1) PRU. *Vorster P.* 2623(8) PRE.

Wager H.A. sub TRV 22462(6) PRE; *sub TRV* 22988(1) PRE; *sub TRV* 24101(2) PRE; *PRE* 55633(1) PRE. *Wager V.* C45(7) PRE. *Ward* 222(9) NU; 584(2) NU, PRE; 733(7) NU, PRE; 1874(9) NH, NU; 1875(9) NH, PRE; 2155(1) NU; 2406(6) NH, PRE; 4361(9) NH, PRE; 5381(7) NH, PRE; 5389(9) NH, NU, PRE; 5498(1) NU; 5560(4) NH, NU; 6263(2) NU; 6375(9) NH, NU, PRE; 6509(9) NH, NU; 7601(7) NU; 7696(9) NH, NU. *Watmough* 486(2) PRE. *Weeks* 82(9) J. *Wells* 1429(2) NU; 2880(1) GRA, NH, PRE; 3375(2) GRA, PRE; 4263(2) NH; 4266(2) PRE. *West* 1089(1) PRE. *Williams* 8(7) NU. *Williams Miss sub TRV* 7622(1) PRE. *Wilson* 35(9) NU. *Wylie sub Wood* 8990(4) NH; 10335(4) GRA, PRE, SAM, STE.

Young PRE 55596(1) PRE; *PRE* 55607(1) PRE.

Pseudarthria hookeri

Acocks 1217 PRE; 232136 PRE. *Adlam SAM* 15562 SAM. *Ahrens* 13 NBG. *Allsop* 800 NU.

Barrett 532 PRE. *Baylis* 1145 PRE. *Biggs* 197 PRE. *Bokus* 8885 BOL; 10949 BOL, PRE. *Bos* 1300 PRE, STE. *Botha* 1335 PRE, PUC. *Boullé* 8 NU. *Bourquin* 127 NU. *Breyer sub TRV* 17844 PRE; *sub TRV* 18387 PRE; *PRE* 55685 PRE. *Briiten* 4753 GRA, PRE. *Brown & Shapiro* 464 PRE. *Buitendag* 498 NBG, PRE. *Burt Davy* 1451 PRE; 1546a PRE; 2923 PRE.

Cholmondely PRE 55672 PRE. *Clarke* 47 PRE, PRU. *Codd* 5918 PRE; 6015 PRE. *Codd & Muller* 329 PRE. *Coetzer* 211 BLFU, PRU. *Coleman* 66 NH. *Collins sub TRV* 9892 PRE. *Comins* 88 NH, NU; 1948 GRA, PRE. *Compton* 24876 NBG; 26606 NBG, PRE; 27393 NBG, PRE; 31263 NBG, PRE. *Crawford* 434 PRE. *Cross* 86 NBG.

Davison 91 PRE. *Devenish* 629 PRE. *Dimock Brown* 356 PRE; 482 PRE. *Dohse & Lindahl* 104 NH, PRE. *Dyer* 3152 PRE.

Eliovsen J 27186 J. *Edwards* 6 NU. *Elan-Puttick* 255 PRE.

Flanagan 2534 PRE, SAM; 2571 PRE. *Frith* 141 J.

Galpin 776 GRA, NH, SAM; 778 PRE; 13727 PRE; 14386 PRE; *BOL* 32274 BOL; *BOL* 32275 BOL. *Gerstner* 6216 BOL. *Gordon-Gray* 1372 NU. *Grobbelaar* 448 PRE, PRU; 2310 PRU.

Harding sub TRV 5181 PRE. *Harrison* 450 NH, PRE. *Haygarth STE* 214 STE. *Hemm s.n.* VENDA, J. PRE. *Hilliard* 1325 NH, NU. *Hitchins* 737 NH, PRE. *Holt* 42 PRE; 42 NH; 192 NH, PRE; 207 NH. *Huntley* 209 NH, NU, PRE. *Hutton* 50 GRA.

Indian collector NH 17731 NH; *sub TRV* 34012 PRE.

Jacobsen 2255 PRE. *Jenkins sub TRV* 7077 PRE; *PRE* 55702 PRE; *PRE* 55703 PRE. *Johnson* 368 NBG. *Junod* 2369 PRE; 4381 PRE.

Killick 74 PRE. *Kluge* 410 PRE, PRU; 1183 PRE.

Lawn 305 NH. *Leach* 12109 PRE. *Letty* 441 PRE. *Liebenberg* 2379 PRE. *Louw* 2134 PUC, STE. *Lovell PRE* 55698 PRE.

Macgregor 55 NU. *Maguire* 689 J. *McCallum PRE* 55668 PRE. *McClellan* 129 PRE; 147 PRE. *Medley Wood* 802 SAM, BOL, PRE; 1036 BOL, SAM; NH 1491 NH; 7402 PRE; 9992 NH. *Meeuse* 9884 PRE. *Moll* 1527 NH, NU, PRE; 2744 NH, NU, PRE; 5265 NH, PRE. *Morgan* 67 PRE. *Morris* 786 NH, NU, PRE. *Moss* 18448 J. *Mudd PRE* 55678 PRE. *Muller* 2475 PRE. *Murray* 690 PRE.

Nicholson 236 NH.

Obermeyer 319 PRE; 484 PRE.

Pegler 697 BOL, PRE. *Pierce* 6 PRE. *Pole-Evans H.* 17030 PRE. *Pooley & Joubert* 2013 E, K, NU, MO.

Rehmann 6281 BOL. *Repton* 3482 PRE. *Robbertse* 102 PRU. *Rogers STE* 13602 STE; 24054 PRE. *Ross* 85 NU; 271 NU; 771 BLFU; 780 NU. *Rudatis* 392 STE. *Rump NH* 10403 NH.

Scheepers 106 PRE, PRU; 320 PRE, PRU. *Schlechter* 4551 BOL, GRA; *sub TRV* 2220 PRE; *sub TRV* 13151 PRE. *Schlieben* 9478 PRE; 10183 PRE. *Schrire* 295 NH; 397 NH; 400 NH; 484 NH; 663 NH; 857 NH; 859 NH; 872 NH. *Smith PRE* 55688 PRE. *Smuts* 255 PRE; 301 PRE. *Stephan* 298 PRE; 581 PRE. *Stirton* 1751b PRE. *Strey* 3322 PRE; 4686 NH, PRE; 9721 NH, PRE.

Theron 2351 PUC. *Thode STE* 3456 STE; *STE* 6367 STE. *Thorncroft* 402 PRE; *sub TRV* 2849 PRE. *Tyson* 1440 PRE, SAM, STE; 2046 SAM.

Venter 744 ZULU; 870 BLFU; 2300 ZULU; 5212 PRU, ZULU. *Verdoorn* 2442 PRE. *Vahrmeijer* 2403 PRE. *Van Dam PRE* 55684 PRE. *Van der Merwe* 106 PRE. *Van der Schijff* 722 PRE; 4577 PRE, PRU. *Van Elden* 1 PRE. *Van Rooyen* 6 NU. *Van Son sub TRV* 30436 PRE. *Van Wyk A.E.* 2568 PRU; 4044 PRE.

Wade NU 52896 NU. *Wager C.30 PRE.* *Ward* 2069 NU, PRE; 2510 NH, PRE; 7591 PRE. *Watson* 3 PRE. *Wells* 1111 NU, PRE; 4270 NH; *NU* 34142 NU. *Werdermann & Oberdieck* 2116 PRE. *Williamson* 269 PRE. *Wilson* 20 NU. *Wood* 156 NU.

Alysicarpus

Acocks 9872(3) NH, PRE; 13160(2) PRE.

Barker 2742(3) BOL, NBG; 4282(3) NBG. *Barrett* 348(4) PRE. *Baur* 572(3) SAM. *Bokus* 11074(2) BOL; 11829(2) BOL, PRE. *Bourquin* 103(3) NU; 371(1) NU; 650(1) PRE. *Bredenkamp* 1737(4) PRE; 1739(4) PRE; 1847(4) PRE; 1865(1) PRE. *Bredenkamp & Van Vuuren* 139(2) PRE; 293(3) PRE. *Breyer sub TRV* 17056(1) PRE; *sub TRV* 17857(1) PRE; *sub TRV* 20903(3) PRE; *PRE* 55731(2) PRE; *PRE* 55733(2) PRE. *Buitendag* 302(1) NBG, PRE. *Burke PRE* 9323(2) PRE. *Burt Davy* 804(2) PRE; 811(3) PRE. *Buthelesi* 114(3) NH; 142(3) NH; 150(2) NH; 168(3) NH; 218(3) NH; 252(3) NH.

Clarke 131(2) PRU; 262(1) PRE, PRU; 263(3) PRE, PRU; 470(3) PRE, PRU; 523(1) PRU. *Codd & De Winter* 4884(1) PRE; 4964(1) PRE. *Coetzee B.J.* 6063(4) PRE. *Coetzee NH* 35014(3) NH. *Coetzer* 103(2) PRE; 135(1) PRE. *Compton* 28332(3) PRE; 28348(1) NBG, PRE. *Comins* 436(3) NU; 1779(3) GRA, PRE. *Culverwell* 1183(2) PRE; 1196(3) PRE; 1325(1) PRE. *Cuthbert NU* 52685(3) NU.

Devenish 929(3) PRE. *De Winter* 7692(3) PRE. *Dinter* 7628(3) BOL, PRE, WIND. *Dixon* 21(3) NU. *Du Plessis* 1136(2) PRE, PRU.

Elan-Puttick 246(2) PRE. *Ellis* 2616b(3) PRE.

Fisher 743(3) NH, NU. *Flanagan* 416(3) GRA, PRE, SAM; 2802(3) NH, PRE. *Forbes* 738(3) NH. *Frankish* 66(3) NU.

Galpin 1158(2) GRA, NH, PRE, SAM; 3408(3) BOL, PRE; 5779(3) PRE; 9729(3) PRE; 12975(3) BOL, PRE. *Germishuizen* 388(2) PRE; 551(2) PRE; 654(2) PRE. *Gerstner* 4209(3) NH; 6844(4) PRE; NH 33781(2) NH. *Gertenbach* 7021(4) PRE. *Giffen* 1070(3) PRE; 1096(3) PRE. *Gordon-Gray* 1128(3) NU. *Gordon Truscott* 7a(3) PRE. *Grobbelaar* 2(3) PRE, PRU; 5(3) PRU; 323(3) PRE, PRU; 2320(3) PRU.

Hall & Sons PRE 55715(1) PRE. *Hanekom* 1913(3) PRE. *Hilliard* 1259(3) NU; 1848(3) NU; 1943(3) NU. *Hitchins* 866(3) PRE. *Huntley* 1502(2) PRE. *Hutton* 1031(3) GRA, NBG.

Jacobsen 1588(3) PRE. *Jacobsz* 768(3) PRE; 805(3) PRE.

King 57(3) PRE; 64(3) PRE.

Lawn 1120(3) NH; 1908(3) NH. *Leeman* 23(3) PRE. *Leendertz* 399(2) BOL, J, PRE; 407(3) PRE, SAM; sub TRV 5985(2) PRE; sub TRV 8754(2) PRE; sub TRV 11298(2) PRE. *Lennox* NU 28057(3) NU. *Liebenberg* 2788(2) PRE; 3293(1) PRE; 3298(3) PRE; 5308(3) NH; 5312(2) NH; 8482(2) PRE; 8721(3) PRE.

Mauve 5298(3) NH. *Medley Wood* 274(3) NH; 6091(3) BOL. *Merxmüller & Giess* 1862(3) WIND; 30098(3) WIND. *Mogg* 5960(3) NH, PRE; 6143(3) PRE; 6603(3) PRE; 15064(3) PRE. *Moll* 1057(3) NU, PRE; 1505(3) NH, NU, PRE; 1686(3) NU, PRE; 2595(3) NU, PRE. *Moss* 383(3) J; 8490(2) J; 13214(2) J. *Moss & Rogers* 517(1) J; 602(1) J; 993(3) J.

Obermeyer 148(3) PRE; 1144(3) PRE. *Obermeyer & Van Nouhuys* sub TRV 27805(3) PRE.

Pegler 163(3) PRE; 1459(3) PRE. *Pelletier* J 30510(3) J. *Penny* Col. Herb. 2388(3) PRE. *Pooley* 726(4) E, K, NH, NU. *Poit* 5073(3) PRE; sub TRV 15081(3) PRE; 5345(2) PRE. *Preller* 139(3) PRE. *Purce* PRE 55727(1) PRE.

Ranger 302(3) PRE. *Ratray* 616(3) GRA. *Reachmoor* PRE 11854(1) PRE. *Rehmann* 461(3) BOL. *Repton* 87(3) PRE; 838(3) PRE; 2767(2) PRE; 2785(3) PRE. *Rogers* 301(3) GRA; sub TRV 5165(3) PRE; 10931(3) PRE; 14394(3) J, PRE; 18294(3) J; 21921(2) PRE; 24860(3) PRE; 25092(1) J. *Rudatis* 131(2) STE; 1365(3) STE; 1729(3) PRE. *Rump* NH 20290(3) NH; NH 20328(3) NH.

Scheepers 176(3) PRE, PRU. *Schlechter* 3121(3) PRE; 3221(3) BOL, PRE. *Schrire* 269(3) NH; 270(3) NH; 271(3) NH; 403(3) NH; 667(3) NH; 874(3) NH; 909(4) NH; 1120(2) NH; 1320(3) NH. *Shirley* 304(3) NU; NU 32878(3) NU. *Sim* 19436(3) PRE; 20175(3) PRE, NU. *Smith* 1451(3) PRE; 2443(4) PRE. *Smuts & Gillelt* 2214(3) PRE. *Steyn* 995(2) NBG. *Stirton* 5076(3) PRE; 5190(3) PRE; 5757(3) PRE; 10516(3) NH. *Strey* 4808(3) NH; 9115(2) NH, PRE.

Taylor 55(4) NH. *Theiler* PRE 55709(3) PRE. *Thode* STE 6662(3) STE. *Tinley* 751(3) NU. *Tyson* 23(3) GRA, NH, PRE; 1441(3) SAM, STE; 1196(3) PRE, SAM; 2002(3) BOL, NBG, PRE.

Vahrmeijer & Tölken 905(1) NH, PRE. *Van Dam* 21137(4) PRE. *Van der Schijff* 437(1) PRE; 1396(1) PRE; 5290(3) PRE, PRU; 5291(2) PRE, PRU; 5291(3) PRE. *Van Rensburg* 2(3) NU. *Van Vuuren* 531(2) NH. *Van Wyk* 4712(1) PRE. *Venter* 774(1) ZULU; 1699(3) NH, PRE; 1969(3) ZULU; 3436(3) ZULU; 3765(4) ZULU; 4593(1) BLFU, PRE. *Verdoorn* 135(3) PRE.

Wahl sub TRV 15525(3) PRE; PRE 55723(3) PRE. *Ward* 1512(3) NH, PRE; 1796(1) NH, NU, PRE; 1891(3) NH, NU; 2426(1) NH, NU, PRE; 8805(1) PRE. *Wilms* 5873(3) PRE. *Wylie* NH 28026(3) NH.

Young A331(3) PRE.

Zeyher SAM 32864(2) SAM.

SAGP/SAAB 1/113(3) PRE, PRU.

Lespedeza cuneata

Edwards 12 NH.

Hilliard 3888 NH, PRE.

Schrire 1368 NH.

Tainton s.n. NU.