

Notes on *Boerhavia* in Southern Africa

by

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ABSTRACT

A key is provided to the six species recognized in South Africa, of which *B. pterocarpa* S. Wats. and *B. erecta* L. are introduced weeds from America. *B. deserticola* (South West Africa) is described as new.

During the preparation of a handbook on the more common weeds of South Africa, it became necessary to review the names in use for the species of *Boerhavia* present in this country. Many of the species are cosmopolitan weeds and, as is common experience in such cases, their nomenclature presents some difficulty. Thus, although the available herbarium material may be sorted into groups of specimens, it is not always easy to assign a name to each group. For assistance in this respect I am grateful to our Liaison Officer at Kew, Dr. O. A. Leistner, who, in turn, received valuable advice from Mr. R. D. Meikle, the author of the treatment of *Boerhavia* in the second edition of the Flora of West Tropical Africa, Vol. 1, p. 177 (1954).

In the Flora Malesiana 6, 3: 452 (1964), Stemmerik takes a broad view of the genus and reduces *Commicarpus* Standl. to synonymy. This view seems unnecessarily drastic as the two genera can be distinguished chiefly by the character of the fruits, although florally they are very close. In South Africa, six species of *Boerhavia* and four species of *Commicarpus* are recognized. The present study is concerned with *Boerhavia* sens. strict.

Boerhavia fruits (anthocarps) are very small but, under magnification, often provide useful diagnostic features. When a clear-cut fruit character is associated with a relatively constant facies, it is considered that such a combination provides grounds for separate taxonomic status, especially when the type of pubescence is also relatively constant within the group of specimens.

BOERHAVIA

Boerhavia L., Sp. Pl. 3 (1753); Gen. Pl. ed. 5: 9 (1754); Willd., Sp. Pl. 1: 19 (1797) (as "Boerhaavia"); Choisy in DC., Prodr. 13, 2: 449 (1852); Heimerl in Pflanzenfam. 3, 1b: 26 (1889); 16c: 117 (1934); Bak. & Wright in Fl. Trop. Afr. 6, 1: 2 (1909); T. Cooke in Fl. Cap. 5, 1: 393 (1910); Standley in N. Amer. Fl. 21: 204 (1918); Burt Davy, Fl. Transv. 1: 209 (1926); Cufodontis in Bull. Jard. Bot. Brux. 23 (Suppl.): 76: (1953) (as "Boerhavia"); Meikle in Fl. W. Trop. Afr. ed. 2, 1: 177 (1954); Stemmerik in Fl. Males. 6, 3: 452 (1964).

A small genus containing several cosmopolitan weeds and other species of more restricted distribution. Six species are recognized in South Africa, one of which is subdivided into three varieties. Probably three or four species are indigenous and there is a possibility that, in certain cases, there may be indigenous and introduced populations.

Synonymy was investigated only to the extent necessary to ascertain, as far as possible, the correct name for each taxonomic unit recognised in South Africa.

B. diffusa var. *diffusa* is reported to be a good fodder plant, but the sticky fruits of this, and certain other species, are generally regarded as being objectionable, especially in wool-producing areas.

Fruit eglandular:

Fruit 3-4-winged..... 1. *B. pterocarpa*

Fruit 5-ribbed:

Fruit truncate at the apex, ribs obscurely undulate; perianth purple, up to 2.5 mm long; leaves broadly ovate; stems puberulous..... 2. *B. erecta*

Fruit rounded at the apex, ribs smooth: perianth white to pale pink, 3-5 mm long; leaves ovate or ovate-elliptic to ovate-lanceolate; stems puberulous to glandular-hispid
5. *B. deserticola*

Fruit glandular:

Flowers in ultimately lax, much-branched cymes; leaves usually more than 2.5 cm long:

Leaves broadly ovate to subrotund; stems glabrous to densely glandular-hirsute:

Stems usually glabrous; young leaves fringed with long septate hairs, otherwise glabrous, usually not wrinkled below; flowers deep purple..... 3a. *B. diffusa* var. *diffusa*

Stems puberulous to glandular hirsute; leaves thick-textured, often wrinkled and whitish below, usually puberulous to hispid; flowers white to deep pink:

Stems puberulous to hispid often with scattered multicellular hairs; leaves usually thinly hispid below, glabrescent..... 3b. *B. diffusa* var. *hirsuta*

Stems and leaves densely hirsute, viscid, with stipitate glands often present 3c. *B. diffusa* var. *viscosa*

Leaves ovate-elliptic to lanceolate; stems densely glandular-hirsute..... 4. *B. hereroensis*

Flowers in axillary clusters or short cymes up to 2.5 cm long; leaves small, usually less than 2.5 cm long..... 6. *B. repens*

1. *B. pterocarpa* S. Wats. in Proc. Am Acad. 17: 376 (1882); Standley in N. Amer. Fl. 21: 209 (1918). Type: from Arizona, U.S.A.

B. cordobensis Kuntze, Rev. Gen. 3, 2: 264 (1898). Type: from Argentina, S. America.

Annual herb. *Stems* prostrate, puberulous to hispid with scattered long septate hairs. *Leaves* broadly ovate to subrotund; blade 2.5-4 cm long and 1.5-2.5 cm broad, sparsely hispid on the margins and nerves below, glabrous above, apex acute to obtuse, base truncate; petiole 0.5-2.5 cm long. *Inflorescence* cymose, usually freely branched; peduncles glandular-puberulous. *Flowers* small, in many-flowered glomerate capitula, colour not recorded on specimens collected in South Africa. *Anthocarp* eglandular, obconical-clavate, 3-4-winged, broadly truncate at the apex (Fig. 1:2).

A weed, widespread in the warmer parts of America. First recorded in South Africa from the Kimberley District in 1919 and now known to occur in several districts in central and northern Cape Province and western Orange Free State. Common and evidently spreading along roads and in gardens.

CAPE.—Beaufort West: Adamson D162; Theron 1615; Nelspoort, Lewis 4015 (SAM); Fraserburg Road, C. A. Smith 2497. Graaff Reinet: Swart River, Maguire 725 (NBG). Kimberley: Leistner 938; Schmidt's Drift, Jan. 1919, Wilman in BOL 15854 (BOL), in SAM 13307 (SAM); Kalk Drift, Brueckner 780. Prieska: Bryant J198; Wilman in BOL 3047 (BOL). Prince Albert: Prince Albert Road, Compton 23903 (NBG). Steytlerville: Gill 55. Taung: Parker s.n.

ORANGE FREE STATE.—Fauersmith: Leistner 1084. District unknown: Pocock in SAM 52266 (SAM); Mostert 1217.

Superficially similar to *B. diffusa* var. *diffusa* but is a smaller plant and may readily be separated by the eglandular fruits, truncate at the apex, with 3 or 4 wing-like ridges (see Fig. 1). The margins of the ridges are smooth, not undulate as in the next species.

The South African specimens cited above are an excellent match of the type of *B. cordobensis* Kuntze, which comes from the Argentine. In addition, a specimen of *Leistner* 1084 was sent to the Gray Herbarium of Harvard University where it was reported to be an almost perfect match of the type of *B. pterocarpa* S. Wats.

2. *B. erecta* L., Sp. Pl. 3 (1753); Standley in N. Amer. Fl. 21: 210 (1918); Meikle in Fl. W. Trop. Afr. ed. 2, 1: 178 (1954); Woodson et al. in Ann. Miss. Bot. Gard. 48: 51 (1961). Type: America, LINN 9·1 (PRE, photo.).

Annual herb. Stems decumbent to prostrate, puberulous, with scattered long septate or gland-tipped hairs, sometimes viscid. Leaves ovate to broadly ovate, sparsely hispid to subglabrous on the margins and on the nerves below, glabrous above, apex acute to obtuse, base rounded to truncate; blade 2–4·5 cm long and 1·5–3 cm broad; petiole 1–2 cm long. Inflorescence cymose, usually freely branched; peduncles glandular-puberulous. Flowers minute, magenta, in glomerate, 4–10-flowered capitula. Anthocarp eglandular, clavate, broadly obtuse at the apex, tapering to the base, 5-ribbed, the ribs slightly undulate along the margins (Fig. 1:1, 1a, b, c, d).

A weed, widespread in the warmer parts of America. First recorded in South Africa from the Bloemfontein District in 1934. Now known, in addition, from Pretoria and several localities in the eastern Cape Province. It also occurs in tropical Africa.

CAPE.—Bedford: 5 miles S.E. of Daggaboers Nek, *Acocks* 15802; Baviaansrivier, *Theron* 407. Somerset East: *Marais* s.n. Uitenhage: *Weed Inspector* s.n.

ORANGE FREE STATE.—Bloemfontein: Tempe Farm, 1934, *Motsamoi* 4958.

TRANSVAAL.—Pretoria: *Repton* 4856; *Walters* in PRE 29073; *Codd* 10514.

May be recognised by the eglandular, 5-ribbed fruits, truncate at the apex, and with obscurely undulate margins.

3. *B. diffusa* L., Sp. Pl. 3 (1753). Type: India, LINN 9·3 (PRE, photo.).

Stems decumbent to prostrate, diffusely branched, glabrous or variously pubescent from minutely puberulous, with or without long brown septate hairs, to hispid or glandular-hispid, sometimes viscid. Leaves broadly ovate to subrotund, glabrous, except for a fringe of septate hairs on the margins, to sparingly or densely hispid, apex obtuse to rounded, base truncate to subcordate; blade 3·5–5 cm long and 2·5–4·5 cm broad; petiole 1–3 cm long. Inflorescence cymose, ultimately diffusely branched; peduncles glabrous to puberulous. Flowers small, whitish to red or purple, in 2–5-flowered capitula. Anthocarp glandular, clavate, 5-ribbed, rounded at the apex, tapering to the base; ribs entire, not undulate.

Three varieties recognized in South Africa, differing mainly in pubescence of stems and leaves. For key to varieties, see key to species.

(a) var. *diffusa*.

B. diffusa L., Sp. Pl. 3 (1753); Choisy in DC., Prodr. 13, 2: 452 (1852); Cufodontis in Bull. Jard. Bot. Brux. 23 (Suppl.): 76 (1953), pro parte, excl. syn. *B. repens* L.; Meikle in Fl. W. Trop. Afr. ed. 2, 1: 178 (1954). *B. repens* var. *diffusa* (L.) Hook.f. in Fl. Brit. Ind. 4: 709 (1885); Bak. & Wright in Fl. Trop. Afr. 6, 1: 5 (1909); T. Cooke in Fl. Cap. 5, 1: 394 (1910). *B. adscendens* Willd., Sp. Pl. 1: 19 (1797); Bak. & Wright in Fl. Trop. Afr. 6, 1: 4 (1909); T. Cooke in Fl. Cap. 5, 1: 395 (1910). Type: from Guinea (Herb. Willd.).

Stems glabrous or minutely puberulous with a few long brown septate hairs at the nodes; leaves glabrous except for scattered long septate hairs on the margins; underside not markedly wrinkled; flowers mauve, reddish or purple (Fig. 24).

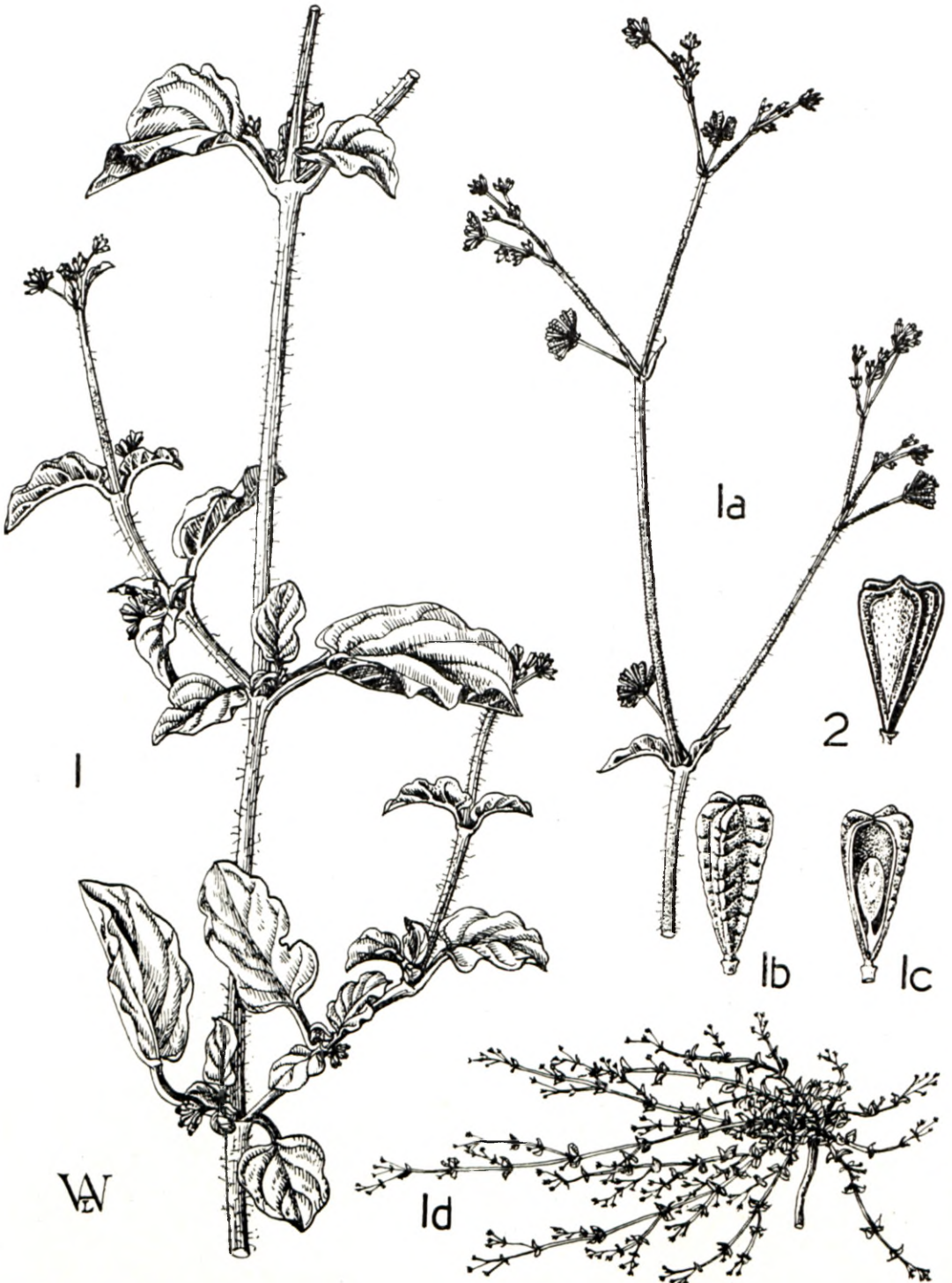


FIG. 1.—1, 1a, *Boerhavia erecta* (Walters in PRE 29073); 1b, fruit, $\times 6$; 1c, fruit, longitudinal section, $\times 6$; 1d, habit, much reduced. 2, *B. pterocarpa*, fruit, $\times 6$ (Leistner 1084).

A weed, widespread in the tropics of both hemispheres, possibly introduced into South Africa; recorded from the coastal areas of Natal and from eastern and northern Transvaal.

NATAL.—Durban: *Medley Wood* 7199; 9345; 12220; Isipingo, *Ward* 586. Pietermaritzburg: Umgeni Dam, *Barker* 5221 (NBG). Umlazi: Amanzimtoti, *Medley Wood* 13206.

TRANSVAAL.—Barberton: *Pott* 5475; Kaapmuiden, *Rogers* 30050. Nelspruit: *Liebenberg* 2499. Letaba: Modjadji's Reserve, *Krige* 126; Duiwelskloof, *Scheepers* s.n. Pretoria: Wonderboom, *C. A. Smith* 2292; 2298; *Wasserfal & Van Niekerk* s.n. Sibasa: Punda Milia, *Lang* in TRV 32168; 13 miles N.E. of Sibasa, *Codd* 6883.

(*b*) var. *hirsuta* Heim. in Bot. Jahrb. 10: 9 (1889). Type: "Kuruman", *Marloth* 1102 (on the PRE specimen the locality of this number is given as "Namaqualand, Ga Mhana Peak").

B. schinzii Heim. in Ver. Bot. Verein. Brandenburg 31: 222 (1889). Type: Ovamboland, *Schinz* 741 (Z, holo.; BOL!; PRE, photo.). —forma *angustata* Heim., l.c. 223 (1889). Type: Hereroland, *Lüderitz* 174. —forma *villosa* Heim., l.c. 223 (1889). Syntypes: Hereroland, Omaruru, *Schinz* 742 (Z; PRE, photo.); *Lüderitz* s.n. *B. marlothii* Heim. in Bot. Jahrb. 10: 9 (1889). Type: Otjimbingwe, *Marloth* "1372" (this is the number cited with the type description on p. 9 though, later in the same publication, Heimerl changed the number to 1342; on the PRE specimen, the original number 1342 has been crossed out and replaced by 1372). *B. diffusa* forma *subhirsuta* Heim. in Bull. Herb. Boiss. 5, Appendix 3: 67 (1897). Type: Amboland, *Höpfner* 66. *B. bracteata* T. Cooke in Kew Bull. 1909: 421 (1910); Fl. Cap. 5, 1: 394 (1910); Burt Davy, Fl. Transv. 1: 209 (1926). Syntypes: Transvaal, Barberton, *Galpin* 1240 (PRE); Bechuanaland, Chue Valley, *Burchell* 2381 (PRE); Natal, Tugela, *Gerrard* 1787. *B. diffusa* sensu Burt Davy, l.c. 209 (1926). *B. coccinea* Mill. var. *a* Meikle in Fl. W. Trop. Afr. ed. 2, 1: 177 (1954).

Stems hispid, often with numerous long brown septate hairs, sometimes glabrescent with age; leaves with scattered hispid hairs on the nerves below, with septate or hispid hairs on the margins, usually glabrous above, thick-textured; lower surface usually whitish and wrinkled; peduncles glabrous; flowers white, pink or mauve, rarely pinkish-purple.

Widespread in the drier parts of tropical Africa and America. This is the commonest member of the genus in South Africa, occurring in northern Natal, Swaziland, Transvaal, northern Cape Province and South West Africa. It is probably indigenous but behaves as a weed, spreading on bare areas, the sticky fruits being dispersed by grazing animals.

NATAL.—Ngotshe: Pongola Bridge, *Gerstner* 2460.

SWAZILAND.—Hlatikulu: Big Bend, *Compton* 30913.

TRANSVAAL.—Barberton: Avoca, *Galpin* 1240; Kaapmuiden, *Rogers* 24286; Komatipoort, *Schlechter* 11874. Lydenburg: Sekukuniland, *Barnard & Mogg* 981. Witrivier: Kruger National Park, near Skukuza, *Letty* 31; *Codd & De Winter* 5010; Lower Sabie Rest Camp, *Van der Schijff* 799. Pretoria: Pienaars River, *Schlechter* 4221; *Leendertz* 774. Sibasa: 32 miles N.E. of Punda Milia, *Codd* 5981. Soutpansberg: Wylliespoort, *Breyer* in TRV 22025; *Rodin* 4234; Waterpoort, *Bremekamp & Schweickerdt* 298; Soutpan, *Schweickerdt & Verdoorn* 551; Messina: Messina, *Rogers* 19273; 19433; 19434; 21191; 21226; Dongola area, *Codd* 4385.

CAPE.—Kimberley: Windsorton, *Marloth* 4823; Leeuwpoot, *Acocks* 8578. Namakwaland: Ga Mhana Peak, *Marloth* 1102. Postmasburg: Klapin, *Leistner* 2065. Kuruman: *Silk* 1341; Chue Valley, *Burchell* 2381.

SOUTH WEST AFRICA.—Bethanien: *Kinges* 2074; Buchholzbrunn, *Pearson* 3664 (BOL). Grootfontein: *Schoenfelder* 551. Kaokoveld: Namutoni, *Barnard* 550 (SAM); Kunene Banks, *Barnard* 551 (SAM). Karibib: *Seydel* 917; 1335; Otjimbingwe, *Marloth* 1404 (SAM); 1372. Keetmanshoop: Great Karasberg, *Pearson* 8473 (BOL). Rehoboth: Büllspoort, *Tölken & Hardy* 662. Okahandja: *Dinter* 357 p.p.; *Merxmüller & Giess* 1020; near Okahandja, *Tölken & Hardy* 723; 22 miles from Okahandja on road to Kalkfield, *Tölken & Hardy* 730. Okavango Native Territory: Cigarette,

Maguire 2317; 6 miles E. of Tondoro Mission, *De Winter* 3968. Outjo: *Thorne* in SAM 31701 (SAM); near Kamanjab, *De Winter & Leistner* 5118; near turn-off to Welwitschia on Fransfontein road to Outjo, *Tölken & Hardy* 846; 20 miles from Fransfontein on road to Outjo, *Tölken & Hardy* 859. Ovamboland: *Schinz* 741 (BOL). Windhoek: *Gillman* 152 (SAM); *Wilman* in BOL 15227 (BOL).

BECHUANALAND.—Ngamiland, *Van Son* in TRV 28953.

Intermediates between this variety and the previous one occur in the northern and eastern Transvaal, but the great majority of specimens can be allocated without difficulty.

Pearson 9176 (BOL) from Ababes, Rehoboth District, probably is a form of *B. diffusa* var. *hirsuta*, although it is described as being a "3 ft. bush". The leaves (immature?) are only 1–1.4 cm long and 0.6–1 cm broad; the inflorescence is diffusely branched, but there are only 1 or 2 flowers to each ultimate peduncle. However, the anthocarps and the pubescence on stems and leaves agree well with *B. diffusa* var. *hirsuta*.

(c) var. *viscosa* (Lag. & Rodr.) Heim. in Beitr. Syst. Nyct. 27 (1897). Type: from South America.

B. viscosa Lag. & Rodr. in Anal. Cienc. Nat. 4: 256 (1801). *B. coccinea* Mill. var. *viscosa* (Lag. & Rodr.) R.M. Mosc. in Cat. Fl. Doming. 1: 180 (1943); Meikle in Fl. W. Trop. Afr. ed. 2, 1: 177 (1954).

Stems densely glandular-hispid, viscid; leaves densely hispid on both surfaces; peduncles glandular-puberulous; flowers pink to reddish-purple.

Indigenous in dry, rocky places in northern Cape Province and South West Africa. Described originally from South America and also present in tropical West Africa.

CAPE.—Gordonia: near Nakop Station, *Acocks* 18813. Hay: Magoras, *Acocks* 1985. Prieska: between Prieska and Marydale, *Acocks* 1757; 16 miles E. of Draghoender, *Codd* 1237.

SOUTH WEST AFRICA.—Keetmanshoop: Great Karasberg, *Pearson* 8174 (BOL); near Narubis, *Wilman* 328 (BOL). Maltahohe: *Dinter* 2002 (2 sheets in SAM dated 16/3/1911 and 31/3/1911).

4. *B. hereroensis* Heim. in Bot. Jahrb. 10: 9 (1889); Bak. & Wright in Fl. Trop. Afr. 6, 1: 3 (1909). Type: Otjimbingwe, *Marloth* 1403 (PRE, SAM).

Stems suberect to erect, 30–40 cm long, glandular-hirsute, viscid. Leaves ovate-elliptic or ovate-lanceolate to lanceolate; blade 2–3 cm long and 0.5–1.5 cm broad, glandular-hispid on both surfaces, apex acute, base rounded; petiole 1–2 cm long, glandular-hispid. Inflorescence cymose, freely branched; peduncles glandular-puberulous. Flowers solitary or in 2–4-flowered capitula; perianth 2–2.5 mm long, purple. Anthocarp glandular, elliptic-clavate, 5-ribbed, rounded at the apex, margin of ribs entire (Fig. 2: 5).

Indigenous in the northern Cape Province and South West Africa, usually in stony places.

CAPE.—Gordonia: near Riemvasmaak, *Acocks* 16391.

SOUTH WEST AFRICA.—Bethanien: Kuibis, *Range* 922 (SAM). Kaokoveld: Kapupa Valley, *Stroy* 5889. Karibib: *Kinges* 3136; *Seydel* 1436; Otjimbingwe, *Marloth* 1403; Small Spitzkop, *Tölken & Hardy* 810. Keetmanshoop: Great Karasberg, *Pearson* 8474 (BOL). Okahandja: *Dinter* 357 (SAM), p.p. Omaruru: Brandberg, *Merxmüller & Giess* 1663.

The pubescence is similar to that found in *B. diffusa* var. *viscosa*, but the leaves are constantly narrower in relation to their length, and the stems tend to be more ascending.

5. *B. deserticola* Codd, sp. nov., *B. hereroensis* Heim. affinis, sed fructibus eglandulosis et perianthio majore differt.

Caules decumbentes 40–80 cm longi; rami puberuli vel glanduloso-hirsuti. *Folia* opposita, ovata vel ovato-lanceolata, subglabra vel glanduloso-hispidula, 3·5–5 cm longa, 1·3–2·8 cm lata, apice acuta, basi cuneata vel obtusa. *Inflorescentia* 15–30 cm longa; bractee lineari-lanceolatae, acuminatae. *Flores* in cymis multi-floris dispositi; perianthium album 3–5 mm longum. *Fructus* 5-costatus, eglandulosus, elliptico-clavatus, 3·5–4 mm longus.

Type: South West Africa: Kaokoveld Reserve, Orupembe Waterhole near Sanitatas, 5th May, 1957, *De Winter & Leistner* 5722 (PRE, holotype; K, M).

Perennial herb. *Stems* woody at the base, decumbent, 40–80 cm long, divaricately branched, puberulous to glandular-hirsute and viscid. *Leaves* opposite, ovate to ovate-lanceolate, subglabrous to glandular-hispidulous and viscid; petiole 0·5–2·5 cm long; blade 3·5–5 cm long and 1·3–2·8 cm broad, apex acute, minutely apiculate, base cuneate to rounded; lower surface usually paler and somewhat wrinkled. *Inflorescence* elongate, divaricately branched, 15–30 cm long; rhachis glandular-hispidulous or puberulous; bracts linear-lanceolate, gradually acuminate, 3–5 mm long. *Flowers* glomerate in dense, many-flowered cymes; bracteoles ovate-lanceolate, acuminate, 2 mm long; perianth white to pale pink, 3–5 mm long, 5-lobed; stamens 4, anthers just exerted at anthesis; style filiform, 6 mm long; stigma peltate. *Anthocarp* 5-ribbed, eglandular, 3·5–4 mm long, elliptic-clavate, rounded at the apex, ribs entire, conspicuous (Fig. 2: 1, 1a, b, 2, 2a).

Known as yet from two restricted areas in South West Africa, one in the Kaokoveld near Sanitatas, and the other in the Omaruru District, inhabiting dry watercourses and rocky places.

SOUTH WEST AFRICA.—Omaruru: Brandberg, *Boss* in TRV 36251; *Merxmüller & Giess* 1645; 8 miles from Uis on road to Welwitschia, *Tölken & Hardy* 831; 28 miles from Uis on road to Welwitschia, *Tölken & Hardy* 836. Kaokoveld Reserve: Orupembe Waterhole, near Sanitatas, *De Winter & Leistner* 5722; Anabib (Orupembe), *Story* 5733.

In general facies this species comes nearest to *B. hereroensis* Heim. but differs in the eglandular anthocarps and longer perianth, which is white (rarely pale pink) instead of deep pink to purple. In the field, the two may also be distinguished by the difference in habit, *B. hereroensis* having semi-erect to erect stems, forming a bushy, viscid, herb about 30 cm tall, while the stems of *B. deserticola* are decumbent, up to 80 cm long, ascending at the ends, and are less conspicuously viscid.

The specimens now included in *B. deserticola* vary considerably in pubescence. *Merxmüller & Giess* 1645 comes nearest to *B. hereroensis* in this respect, having glandular-hirsute stems with leaves glandular-hispidulous (glandular-hispid in *B. hereroensis*). At the other extreme is the specimen selected as the type, namely *De Winter & Leistner* 5722, with minutely puberulous stems, glandular-puberulous inflorescence-branches and peduncles, and subglabrous to minutely puberulous leaves. This gathering was made on "outcrops of volcanic origin (amygdaloidal basalt and a lava-like rock) with overlying limestone", and the stems and leaves of the dried specimen have a greyish-green appearance.

At first, consideration was given to maintaining these two gatherings as distinct varieties, but the two recent collections *Tölken & Hardy* 831 and 836 are somewhat intermediate in the character of the pubescence. These two gatherings and *Merxmüller & Giess* 1645 are found on granite formation, in dry watercourses and among rocks.

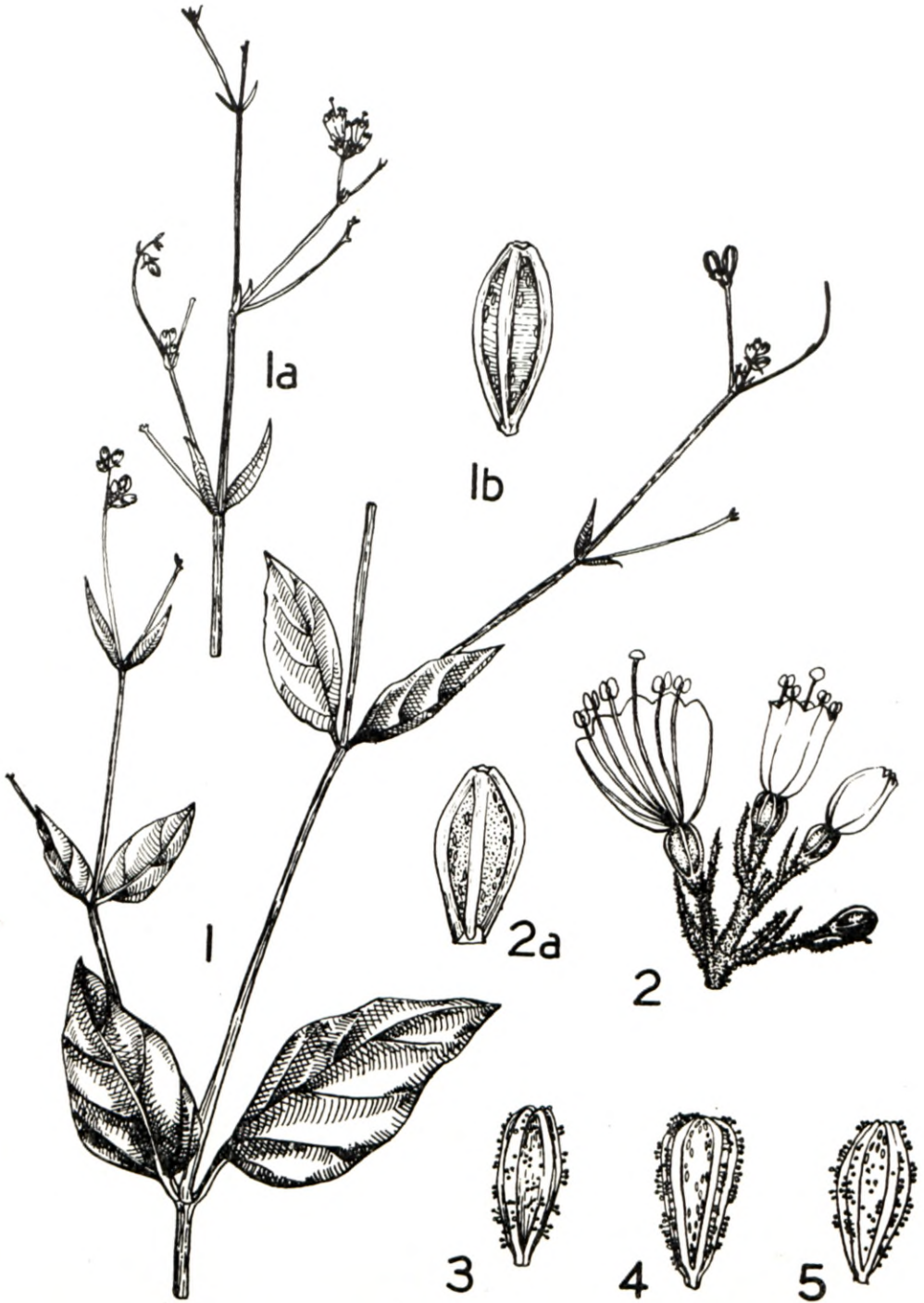


FIG. 2.—1, 1a, *Boerhavia deserticola*, $\times 1$ (De Winter & Leistner 5722), 1b, fruit, $\times 6$. 2, *B. deserticola*; inflorescence, $\times 6$ (Merxmüller & Giess 1645); 2a, fruit, $\times 6$. 3, *B. repens*, fruit, $\times 6$ (Bryant 198a). 4, *B. diffusa* var. *diffusa*, fruit, $\times 6$ (Pott 5475); 5, *B. hereroensis*, fruit, $\times 6$ (Tölken & Hardy 810).

6. *B. repens* L., Sp. Pl. 3 (1753); Meikle in Fl. W. Trop. Afr. ed. 2, 1: 177 (1954). Type: Egypt, LINN 9·8 (PRE, photo.).

B. repens var. *minor* Del., Fl. Egypte Icon. t.3, 1 (1813). Type: It is not known if a specimen exists, but the illustration will suffice. *B. diffusa* var. *minor* (Del.) Cuf. in Bull. Jard. Bot. Brux. 23 (Suppl.): 77 (1953).

Stems prostrate, pallid, glabrous. *Leaves* small, broadly ovate or subrotund to ovate-lanceolate; blade 1–2·5 cm long and 0·6–1·5 cm broad; petiole 0·5–1·4 cm long. *Flowers* in axillary clusters, in short cymes up to 2·5 cm long, rarely solitary, often in 2–4-flowered capitula on axillary peduncles, white, pink or mauve. *Anthocarp* glandular, elliptic-clavate, rounded at the apex, 5-ribbed, margin of ribs entire (Fig. 2:3).

A species of tropical Africa and Asia, probably indigenous in southern Africa, where it occurs in dry water-courses and at the sides of pans in northern Cape Province and South West Africa. Although locally common, it does not appear to be a potential weed.

CAPE.—Gordonia: Obobogorap, *Leistner* 1783; Gemsbok National Park, *Leistner* 1048; 1889. Hay: *Acocks* 1978. Kenhardt: near Kakamas, *Acocks* 16367. Namakwaland: near Springbok, *Krapohl* in PRE 23295. Prieska: *Bryant* 198a.

SOUTH WEST AFRICA.—Gibeon: Mariental, *Dinter* 1978 (SAM). Karibib: Farm Otjimbojo, *Kinges* 3380; Farm Ameib, *Tölken & Hardy* 767. Keetmanshoop: *De Winter* 3348; *Liebenberg* 5193; Seeheim, *Dinter* 2957 (SAM); *Pearson* 3724 (BOL); near Asab *Tölken & Hardy* 637. Windhoek: *Avisdam*, *Liebenberg* 4494.

The type of *B. repens* L. appears, from the photograph in PRE, to be an immature specimen, with the result that the interpretation of it has varied considerably. It has been united with *B. diffusa* L., both as *B. diffusa* var. *repens* and as *B. repens* var. *diffusa*.

The specimens cited above are an excellent match of the plant described by Delile as *B. repens* var. *minor* Del., and it is clear that Meikle interpreted *B. repens* in the Flora of West Tropical Africa ed. 2, 1: 177 (1954) on the basis of var. *minor* Del. It is convenient to follow this interpretation here. The South African specimens, whether they should be correctly known as *B. repens* L. or *B. repens* var. *minor* Del., are certainly distinct, at the specific level, from those cited under *B. diffusa* and its varieties, and from the other South African species.

