

## Notes on the genus *Rubus* in southern Africa

C. H. STIRTON\*

**Keywords:** distribution, leaf variation, *Rubus*, subspecies, taxonomy

### ABSTRACT

The species *Rubus ludwigii* Eckl. & Zeyh. is re-examined and a key is provided to the subspecies recognized. A new subspecies *spatiosus* C. H. Stirton is described. *R. rigidus* Sm. var. *longepedicellatus* C. E. Gust. is raised to specific rank, viz *R. longepedicellatus* (C. E. Gust.) C. H. Stirton.

### INTRODUCTION

This short paper is the third in a series of papers on the genus *Rubus* in southern Africa (Stirton 1981a, 1981b).

#### 1 *Rubus ludwigii* Eckl. & Zeyh.

*Rubus ludwigii*, Ludwig's bramble, is perhaps the most distinctive of the indigenous species of *Rubus* in southern Africa. It is a widespread species, extending from Beaufort West in the south-west of its range to as far north as Lydenburg in the Transvaal.

Throughout its range it is quite variable. A closer study of this variation suggests that it should be divided into two subspecies.

*Rubus ludwigii* Eckl. & Zeyh., Enum. 2: 263 (1836); Harv. in Harv. & Sond., Fl. Cap. 2: 287 (1862); Focke in Bibl. Bot. 72, 2: 178, f. 178 (1911); Gustafsson in Arkiv. för Bot. 26A, 7: 13 (1933); non Sudre (1913). Type: Inter saxa strata (altit. IV) laterum montium 'Sturmberge' prope 'Witte — et Zwartekeyrivier' (Tembukiland). (PRE!; S!).

*Rubus rhodacantha* E. Mey. in Drège, Zwei Pfl. Donkum. 1:217 (1843), nom. nud.

Primocanes 1,0–1,5 m long, erect and arching or sprawling, covered in a white bloom; axis terete, eglandular; sparsely or densely covered in 1–4 mm long prickles, often with fine acicles at the base. Floricanes reddish, glabrous, with or without a bloom; sparsely covered in 3–5 mm long, patent and partly deflexed prickles or densely armed with robust curved prickles. Leaves 5–9 partite on floricanes; 3–7 partite on primocanes; lacerate, lacinate or incised; upper surface glabrous or sparsely pubescent on the blade, pubescent along the sunken veins; lower surface fine to coarsely woolly, pale greenish white to silver-white. Stipules inserted 1–5 mm above the base of the petiole, persistent, linear to lanceolate-falcate; 4–15 mm long, 0,5–2,0 mm wide, acute, entire, glabrous

inside, pubescent, tip glandular. Petioles of primocane leaves 12–40 mm long, of floricanes leaves 12–40 mm long. Synflorescence a few to many flowered frondose-bracteose thyrses; rhachis with or without prickles, glabrous to pubescent; pedicels with or without prickles. Flowers 10–13 mm wide, 4–7 mm deep. Hypanthium saucer-shaped, 4–5 mm across, finely pubescent outside, glabrous inside except near the base of the torus. Sepals 5–6 equal, spreading and upcurving at the tips, becoming erect after anthesis; teeth triangular, 5–10 mm long, 2–3 mm wide, pubescent. Petals pale pink to crimson, 5,5–7,0 mm long, 4,0–5,6 mm wide, held vertically. Stamens 100–120, glabrous, upcurving; filaments 2,5–5,0 mm long, held in two rows. Pistils 40–45, 2,5–3,5 mm long, variously pubescent below. Collective fruit ovoid, 6–10 mm across, densely white pubescent.

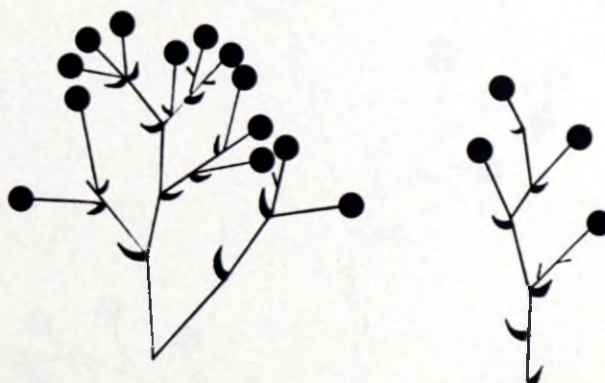


FIG. 1.—Synflorescence type I found in *Rubus ludwigii* subsp. *ludwigii*.

\* Botanical Research Institute, Department of Agriculture, Pretoria. Current address: The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, United Kingdom.

## KEY TO SUBSPECIES

- Synflorescence type I, (Fig. 1) 5–13 flowered; venation of lower surface of leaflets scarcely pubescent, brown on dried specimens, easily discernible against the greenish-white or cream finely woolly blade; tertiary venation obscure; terminal leaflets of floricanes leaves lacerate; primocanes liberally armed with robust recurved prickles ..... subsp. *ludwigii*
- Synflorescence type II, (Fig. 2) 20–40 flowered; venation of lower surface of leaflets thickly pubescent, scarcely discernible against the silver to greenish white coarsely woolly blade; tertiary venation raised, prominent; terminal leaflets of floricanes leaves incised, rarely laciniate; primocanes sparingly armed with slender, straight or partially deflexed prickles..... subsp. *spatiosus*

subsp. *ludwigii*

Primocanes up to 1 m long, sprawling or creeping, slender, densely covered in stiff patent or recurving 3–4 mm long prickles, extending along the entire cane, covered in a white bloom. *Floricanes* (Fig. 3) reddish, glabrous, with or without a bloom, armed with robust hooked prickles. *Leaves* 7-partite on primocanes, 5(–7)-partite on floricanes; range of variation shown in Fig. 4A discolorous below, upper surface of leaflets deep

green, sparsely pubescent on the blade, more dense along the sunken veins; lower surface finely appressed woolly, greenish-white to cream, venation scarcely pubescent, brown on dried specimens and contrasting with the blade, tertiary venation obscure. *Stipules* inserted, 1–3 mm above the base of the petiole, persistent, linear-lanceolate, 4–7 mm long 0,5–2,0 mm wide, much narrower and shorter on the floricanes. *Petioles* of primocanes 12–25(32) mm long, of floricanes leaves 12–20(25) mm long. *Synflorescence* a 5–13-flowered frondose-bracteose thyrse, not yet found on primocanes; rhachis glabrous with a bloom or sparsely pubescent, prominently armed with robust hooked prickles; pedicels densely pubescent and armed with narrow prickles. *Flowers* up to 11 mm wide, 4–6 mm deep. *Hypanthium* saucer-shaped, 4 mm across, pubescent at the base of the torus. *Sepals* 5–6, teeth 7–9 mm long, 2–3 mm wide. *Petals* pale pink to crimson, 5,5–6,0 mm long, 4,0–5,0 mm wide, narrowly elliptic to broadly ovate, margin ciliate and erose. *Stamens*  $\pm$  100–120, filaments 2,5–3,0 mm long, held in two rows. *Pistils* 40–45, 2,5–3,0 mm

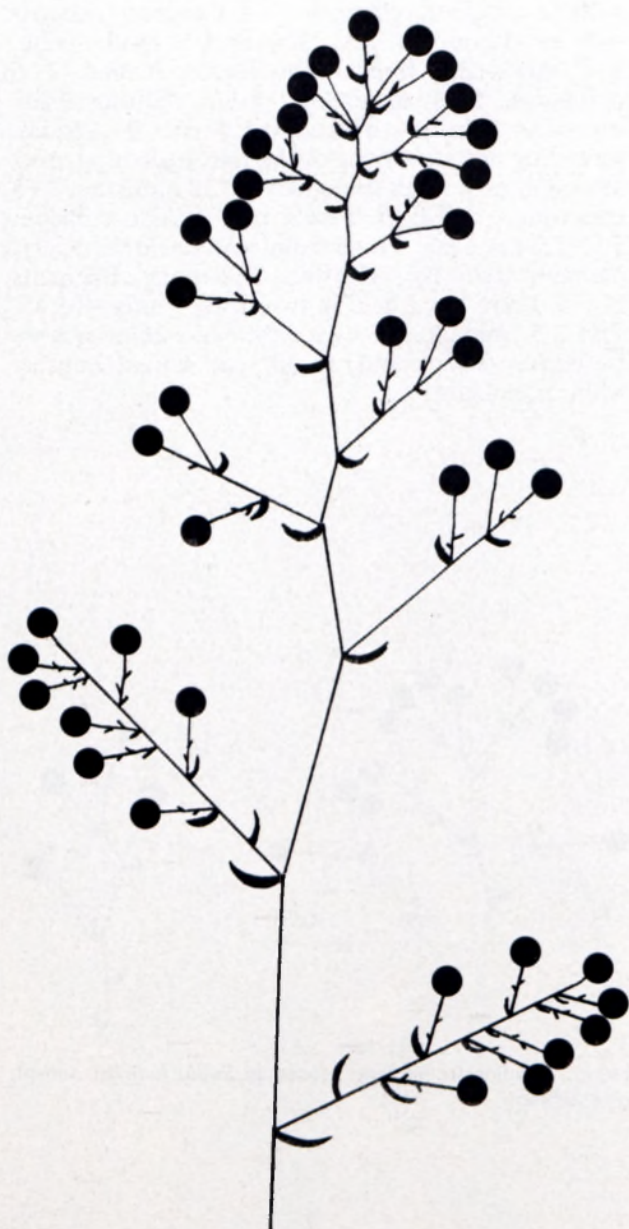


FIG. 2.—Synflorescence type II found in *Rubus ludwigii* subsp. *spatiosus*.



FIG. 3.—Upper section of the floricanes of *Rubus ludwigii* subsp. *ludwigii* (Burgher s.n., PRE 23252).

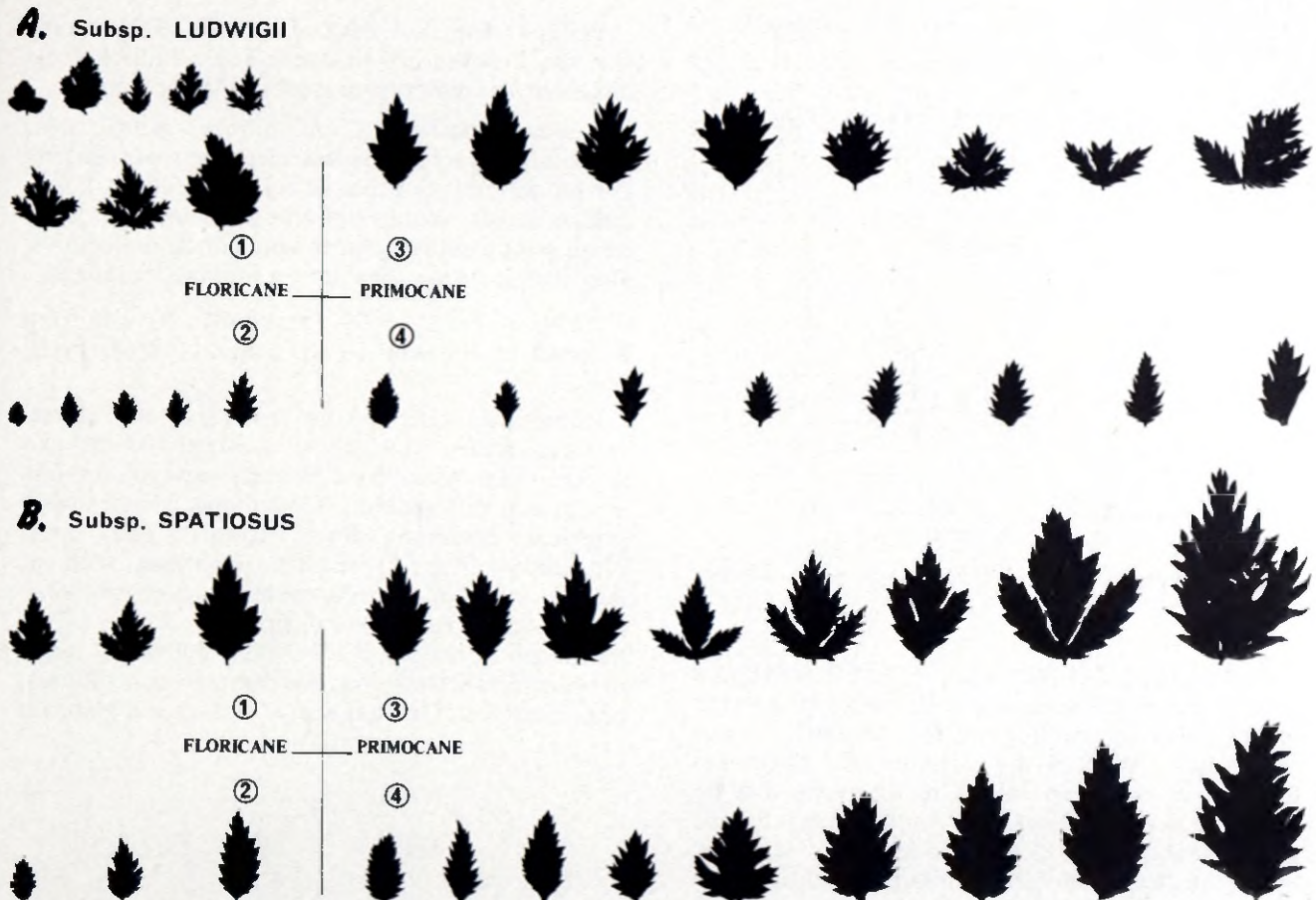


FIG. 4.—Range of variation of leaflets in *Rubus ludwigii* subsp. *ludwigii* (A) and in *Rubus ludwigii* subsp. *spatiosus* (B), from: 1, terminal leaflet of florican leaf; 2, lowest lateral leaflet of florican leaf; 3, terminal leaflet of primocane leaf and; 4, lowest lateral leaflet of primocane leaf.

long, pubescent; stigma bilobed. *Collective fruit* 6–8 mm across, southern populations smaller; sepals erect during fruit development. *Fruits* densely pubescent, greyish pink when young; lightly packed.

Subspecies *ludwigii* is found most commonly in rocky outcrops on grassy hillsides. From the few ecological notes that are available it seems to favour sandstone outcrops. In Lesotho this species sometimes forms tangles on the outskirts of woodlands and is said not to pose a problem (Jacot Guillarmod, 1971). This subspecies is distributed to the west and south of subspecies *spatiosus* (Fig. 5). It flowers from October to December, but has a peak in November.

TRANSVAAL.—2629 (Bethal): Nooitgedacht (–DB), *Henrici* 1132 (PRE).

O.F.S.—(Senekal). Doornkop (–BC), *Goossens* 911 (PRE); Westbury (–DD), *Galpin* 13939 (K; PRE). 2828 (Bethlehem): Bethlehem area (–AB), *Phillips* 3175 (K; PRE); Mt Morkel (–CA), *Repton* 6513 (PRE); Dunelm Farm, Fouriesburg (–CA), *Potts* 3101 (PRE); Clarence (–CB), *Van Hoepen s.n.* (PRE 18221); Wodehouse Plateau, Golden Gate Nature Reserve (–DA), *Roberts* 3391 (PRE), *Strey* 2881 (PRE). Nelson's Kop (–AB), *Cooper* 850 (K). 2927 (Maseru): Ladybrand (–AB), *Rogers* 5157 (PRE). 3026 (Aliwal North): Gaatje (–CC), *Drège s.n.* (P); 34 km from Aliwal North on road to Rouxville via Kalkfontein (–DB), *Herman* 454 (PRE).

NATAL.—3029 (Kokstad): farm Vaalfontein (–AD), *Comins* 1906 (PRE).

LESOTHO.—2828 (Bethlehem): Leribe (–CC), *Dieterlen* 19 (PRE; SAM; STR). 2927 (Maseru): near Guilbeault Hall (–AD), *Schmitz* 96 (PRE); Roma (–BC), *Ruch* 1792 (PRE), *Schmitz* 4530 (PRE). 2929 (Underberg): Tsoelikana, between the dam site and Khubetsoana (–CC), *Hoener* 1702 (PRE). 3027 (Lady Grey): 30 km from Mhales Hoek on road to Mafeteng (–AB), *Marais* 1071 (K, PRE).

TRANSKEI.—3127 (Lady Frere): Cala (–DA), *Pegler* 1644 (PRE).

CAPE.—3027 (Lady Grey): Jouberts Pass (–CA), *Werger* 1810 (PRE); Waterval farm in Saalboomspruit Catchment area (–CD), *Muller* 754 (PRE); Barkly East (–DC), *Gerstner* 166 (PRE). 3124 (Hanover): Carolus Poort (–BB), *Burchell* 2757 (K); Compasberg (–DC), *Drège s.n.* (P). 3126 (Queenstown); Molteno (–AD), *Kuntze s.n.* (K); between Garipina and Zuurepoort (–AD), *Ecklon and Zeyher s.n.* (PRE); Broughton (–AD), *Flanagan* 1584 (PRE); near Queenstown (–DD), *Galpin* 2189 (PRE). 3222 (Beaufort West): Kookfontein (–AB), *Burger s.n.* (PRE); Nieuvelde Mts (–BA), *Marloth* 8306 (PRE); Mountain View Farm (–BD), *Gibbs Russell, Robinson, Herman and Downing* 108 (PRE). 3224 (Graaff-Reinet): Graaff-Reinet (–BC), *Bowker* 31 (K); 3326 (Fort Beaufort): Great Winterberg (–AD), *Ford s.n.* (PRE). 3327 (Stutterheim): Windvogelberg (–AC), *Drège* 3565 (P); Hogsback (–CA), *Rattray s.n.* (PRE 55600).

WITHOUT PRECISE LOCALITY: *Jacot Guillarmod* 654 (PRE), *Drège s.n.* (K; PRE, ex Herb. Hennecart and Herb. Drake); *Drège s.n.* (PRE, ex Herb. Steudel and P); *Cooper* 1110, 2292 (K, 'Basutoland'); *Atherstone s.n.* (K); *Prior s.n.* (K).

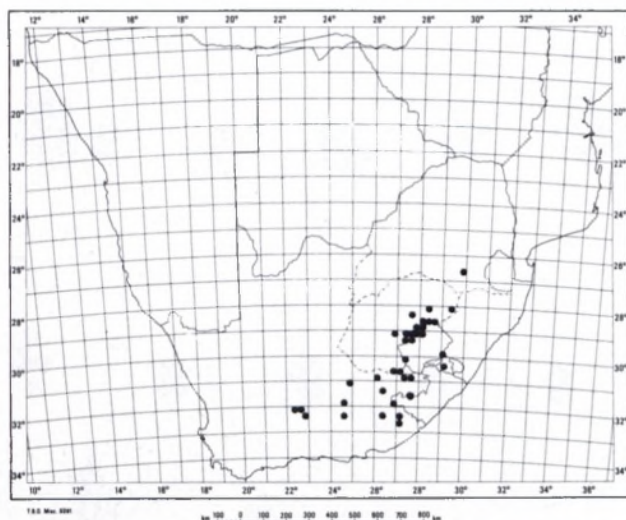


FIG. 5.—Known distribution of *Rubus ludwigii* subsp. *ludwigii*.

Focke's Fig. 73 in *Bibl. Bot.* 72,2: 178 (1911) is a photograph of this subspecies. He places *R. ludwigii* in subgenus *Ideobatus*, section *Ideanthi*, series *Pinnatifidi*. With it he includes *R. thibetanus* Franch., an Asian species. The diagnosis that he gives for series *Pinnatifidi*, 'Rami fertiles foliosi, apice flores fere 5–12 capitato-racemoso ferentes. Flores mediocres. Foliola pinnatifida, subtus albotomentosa', would have to be amended to include subsp. *spatiosus*. In any case, I do not believe that *R. ludwigii* and the Tibetan species are at all related.



FIG. 6.—Upper section of the primocane of *Rubus ludwigii* subsp. *spatiosus* (Trauseld 565).

Phillips (*Ann. S.A. Mus.* 16: 88-89, 1917) records that the Lesotho call this subspecies 'Monokotsoai oa basali', the mulberry or raspberry of the women.

subsp. *spatiosus* C. H. Stirton, subsp. nov., primocannis parce armatis aculeis angustis rectis vel partim deflexis; floricanne foliarum foliolis terminalibus incis; venulis tertiariis prominentibus venis dense pubescentibus contra laminam argenteam vel alboviridem grosse lanatam vix visilibus distinctus.

TYPE.— Natal, 3029 (Kokstad): 10 km from Kokstad to Franklin (—AD), Stirton 8144 (PRE, holo.!).

Primocanes (Fig. 6) up to 1.5 m tall, erect, arching, green, covered in a white bloom; axis terete, eglandular, base densely covered in fine acicles and stiff, patent 1–2 mm long, brown-tipped prickles, becoming fewer towards the apex. Floricanes (Fig. 7) reddish, glabrous, with or without a bloom, sparsely covered in 3–5 mm long, patent or partly deflexed prickles. Leaves 7–9 partite on floricanes, 3–5–7 on primocanes, range of variation shown in Fig. 4B, distinctly concolorous, upper surface of leaflets shiny, dark green, glabrous



FIG. 7.—Upper section of a florican of *Rubus ludwigii* subsp. *spatiosus* ( $\times 1$ ) showing: 1, surface view of a flower with inrolled petals ( $\times 2$ ), and 2, cross-section of a flower ( $\times 2$ ).

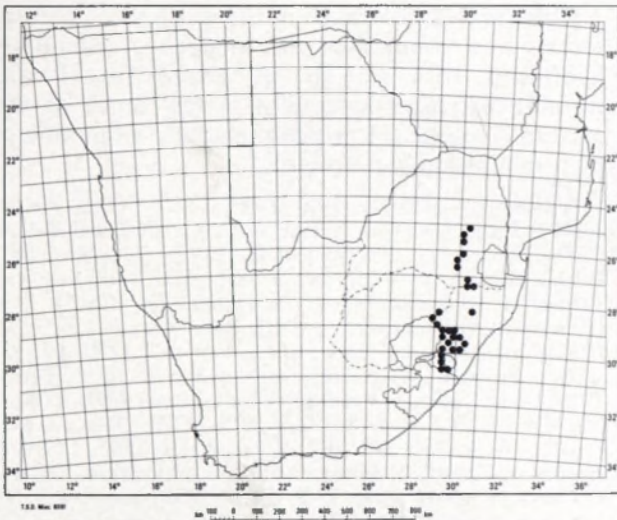


FIG. 8.—Known distribution of *Rubus ludwigii* subsp. *spatiosus*.

except for a few scattered hairs along the sunken veins; lower surface coarsely woolly, silvery-white to greenish white. *Stipules* inserted 4–5 mm above the base of the petiole, persistent, lanceolate-falcate, 10–15 mm long, 1.5–2.0 mm wide, edges of the outer face, tip glandular. *Petioles* of primocane leaves 30–40 mm long, of floricanes leaves 30–40 mm long. *Synflorescence* a frondose-bracteose thyrses, 30–40-flowered, fewer flowered on primocanes, axillary on floricanes, terminal on primocanes, leaves reducing apically to bracts; finely pubescent, rhachis scattered with small prickles; pedicels only rarely armed. *Flowers* 10–13 mm wide, 6–7 mm deep. *Hypanthium* saucer-shaped, 5 mm across, finely pubescent outside, glabrous inside except near the base of the torus. *Sepals* 5–6, equal, spreading and upcurving at the tips, becoming erect after anthesis; tips green with sessile glands; teeth triangular, 5–6(10) mm long, 3 mm wide; pubescent inside and outside. *Petals* bright pink (Bisalski

colour K11–4–3,5), 6–7 mm long, 5.0–5.6 mm wide, with claw 1.25–3.0 mm wide and sharply reflexed, erect covering androecium and gynoecium, forming a false corolla tube, margin erose, *Hermannia*-like, persistent, withering at fruit set. *Stamens*  $\pm$  120, glabrous; curving inwards, arched from the base; filaments 4–5 mm long, flushed pink just below the yellow anthers, held in two rows. *Pistils* 40–45; ovary 1 mm long, pubescent, style 3.0–3.5 mm long, sparsely hairy in basal half, grooved; stigma truncate, somewhat flared. *Collective fruit* ovoid, up to 10 mm across; sepals enclosing fruit. *Fruits* pubescent; endocarp rugose, lateral faces glabrous.

Subspecies *spatiosus* has been found in the *Themeda triandra* Grassveld, in and around bush clumps in open grassveld, near or among dolerite outcrops, on the edges of forest and alongside streams. It flowers between late October and January with a peak in December. This subspecies ranges from East Griqualand to the southern Transvaal (Fig. 8).

TRANSVAAL.—Lydenburg (–AB), Wilms 457 (K.) 2529 (Witbank): 35 km from Stoffberg to Lydenburg via Roossenekal (–BB), Stirton 9769 (PRE). 2530 (Lydenburg): 15 km S of Lydenburg (–AB), Codd 8291 (PRE; K); 4 km from Dullstroom to Belfast (–AC), Stirton 6727 (PRE); 1 km from Dullstroom to Lydenburg (–AC), Stirton 6729 (PRE). 2629 (Bethal): Spitzkop (–BD), Pott 4943 (PRE); Ermelo (–DB), Leendertz 7870 (PRE). 2630 (Carolina): Leeupoort (–AA), Burt Davy 7417 (PRE). 2730 (Vryheid): Wakkerstroom (–AC), Pole-Evans 19652 (PRE), Galpin 9871 (PRE), Watt and Brandwyk 1629 (PRE); Oshoek (–AD), Devenish 184 (PRE); 20 km north of Belfast (–DA), Prosser 2036 (PRE; K); Belfast (–DA), Burt Davy 1242 (PRE), Leendertz 2733 (PRE).

O.F.S.—2828 (Bethlehem): Witzieshoek (–DB), Junod 17421 (PRE).

NATAL.—2730 (Vryheid): 10 km SNE of Groenvlei (–AD), Thode 1156 (PRE). 2829 (Harrismith): Nolens Volens (–AC), Van der Zeyde 146 (PRE); Cathedral Peak Forest Station (–CC), Killick 1331 (PRE; K). 2830 (Dundee): Buffalo River (–BC), Rogers 5065 (PRE). 2929 (Underberg): Cathkin Peak



FIG. 9.—Habit and habitat of *Rubus ludwigii* subsp. *spatiosus* (Stirton 6727).

(-AB), *Galpin* 11872 (PRE); Giants Castle Game Reserve (-AB), *McGregor* 5 (PRE), *Trauseld* 565 (PRE); Ntabamhlope Research Station (-BA), *Acocks* 10033 (PRE); road from Giants Castle to Kamberg (-BA), *Henderson* 42 (PRE), Estcourt (-BB), *Wedermann & Oberdieck* 1214 (PRE; K); Rosetta (-BD), *Brown s.n.* (PRE 56005); Underberg (-CD), *McClellan* 773 (PRE; K); Carters Neck (-DA), *Henderson* 47 (PRE); Shafton Plantation (-DD), *G. Hemm s.n.* (PRE), 2930 (Pietermaritzburg); near Howick (-AC), *Hutchinson* 1852 (K; PRE), *Marr & Scotney* 5 (PRE); 1 km S of Curry's Post (-AC), *Moll* 1188 (K; NH; PRE); 30 km SW of Nottingham Road (-AC), *Codd* 8532 (PRE); Nottingham Road (-AC), *McClellan* 826 (PRE); Lidgetton (-AC), *Mogg* 6742 (PRE); Balgowan (-AC), *Mogg* 3914 (PRE); Tweedie (-AC), *Mogg* 1061 (PRE); Cedara (-CB), *Sim* 19967 (PRE); Keerom, Byrne (-CC), *Strey* 10849 (PRE); Deepdene, near Richmond (-CD), *Sanderson* 855 (K). 3029 (Kokstad): 14 km from Swartberg to Underberg (-AB), *Stirton* 8154 (PRE); 10 km from Kokstad to Franklin (-AD), *Stirton* 8144 (PRE), Umzimhlava River (-AD), *Schlechter* 6544 (K); Kokstad (-CB), *Tyson* 869, 1137 (PRE; K).

CAPE.—3029 (Kokstad): Mt Currie (-AD), *Goossens* 231 (PRE).

WITHOUT PRECISE LOCALITY: *Wood* 1856 (K).

*Rubus ludwigii* subsp. *spatiosus* is a more robust plant than subsp. *ludwigii* (Fig. 9).

There is a photograph of a Beauvens specimen of this subspecies in G with the manuscript name var. *tomentosus*. As far as I can determine, this is a manuscript name only.

## 2 *Rubus longepedunculatus* (C.E. Gust.) C. H. Stirton

The recent discovery of a hybrid swarm between two species of *Rubus*, one indigenous and one introduced, called for a re-evaluation of the correct identity of the indigenous element. Previously recognized as a forma of *R. rigidus*, the indigenous element is now considered a distinct species.

### *Rubus longepedunculatus* (C.E. Gust.) C. H. Stirton, comb. et stat. nov.

*Rubus rigidus* Sm. var. *longepedunculatus* C.E. Gust. in *Arkiv. Bot.* 26A, 7: 59 (1933). Type: Transvaal, Duiwelskloof, *Galpin* 10107 (PRE, iso.; K!).

*R. rigidus* Sm. var. *rigidus* f. *subinermis* C.E. Gust. in *Arkiv. Bot.* 26A, 7: 59 (1933). Lectotype: Transvaal, New Agatha, *McCullum* 887-88 (PRE!).

This species occurs along the margins of natural forests and plantations and in open grassland. It hybridizes with *R. sp. cf. cuneifolius* Pursh, forming extensive swarms in a few areas of the eastern Transvaal. It is predominantly a bramble of high rainfall upland areas.

TRANSVAAL.—2330 (Tzaneen): Duiwelskloof (-CA), *Galpin* 10107 (PRE; K); New Agatha (-CC), *McCullum* 887-88 (PRE); between Tzaneen and Duiwelskloof (-CC), *Stirton* 5783 (PRE); Tzaneen (-CC), *Stirton* 5756 (PRE); 10 km from Tzaneen to Duiwelskloof (-CC), *Stirton* 5755 (PRE). 2430 (Pilgrims Rest): Mariepskop (-DB), *Van der Schijff* 4562, 6249 (PRE, PRU); Bourkes Luck (-DB), *Viljoen* 27 (PRE); 15 km south of Bourkes Luck (-DB), *Gaum & Henderson* 32 (PRE); 14 km from Graskop to Vaalhoek (-DB), *Meeuse* 10011 (PRE); MacMac (-DB), *Smuts & Gillett* 2255 (PRE); Pilgrims Rest (-DD), *Burt Davy* 505 (PRE); Graskop (-DD), *Gūm & Henderson* 22 (PRE), *Stirton* 9865 (PRE); 3 km from MacMac to Graskop (-DD), *Stirton* 9862 (PRE). 2431 (Acornhoek): 8.6 km from Graskop-Bosbokrand-Hazyview T-junction (-CC), *Stirton* 9808 (PRE). 2531 (Komatiport): Klipkoppies (-AC), *Stirton* 9855 (PRE).

*Rubus longepedunculatus* is easily separated from *R. rigidus* Sm. by its well-developed, much ramified bracteose thyse, the consistently 3-foliolate floricanes and the 7-foliolate primocanes. The petals in this species exceed the sepals, whereas in *R. rigidus* the petals are equal to or shorter than the sepals.

### UITTREKSEL

*Die spesies Rubus ludwigii* Eckl. & Zeyh. is ondersoek en 'n sleutel tot die twee erkende subspecies word verskaf. 'n Nuwe subspecies *spatiosus* C. H. Stirton word as nuut beskryf. *R. rigidus* Sm. var. *longepedunculatus* C.E. Gust. word tot spesifieke rang verander, nl. *R. longepedunculatus* (C.E. Gust.) C. H. Stirton.

### REFERENCES

- JACOT GUILLARMOUD, A. F. M. G., 1971. *Flora of Lesotho (Basutoland)* 474 pp. Lehre: Cramer.  
 STIRTON, C. H., 1981a. Notes on the taxonomy of *Rubus* in southern Africa. *Bothalia* 13: 331-332.  
 STIRTON, C. H., 1981b. New records of naturalized *Rubus* in southern Africa. *Bothalia* 13: 333-337.