

13. *Passerina drakensbergensis* Hilliard & B.L.Burt. Annals of the Kirstenbosch Botanic Gardens 15: 233 (1987); Hilliard & B.L.Burt: 88 (1988). Type: KwaZulu-Natal, Harrismith, Bergville District, Cathedral Peak Forest Reserve, Ndedema River, 6 000 ft, 5 November 1985, Hilliard & Burt 18570 (E, holo.; K!, M!, P!, PRE!, S!).

Erect, many-stemmed shrubs, ± 2.0 m high, much branched. *Stems* grey-brown, indumentum of young stems closely white-tomentose, flaking off on older branches, forming lengthwise patterns with patches of yellowish brown cork, leaf scars prominent. *Leaves* greyish green (glaucous), imbricate, overlapping $\pm 15\%$, appressed, plane shape linear to lanceolate, longitudinally folded and somewhat keeled, length \times depth (3.5–)4.2–5.5(–6.5) \times 0.8–2.0 mm, adaxial surface concave, tomentose, abaxial surface slightly convex, rugose, glabrous; base sessile, abruptly narrowed; apex subacute, sometimes incurved; margins setose. *Inflorescences* with multiflowered main and co-florescences; spikes usually extended, 8–12-flowered, arrangement subterminal, axis white-tomentose, proliferating growth common. *Bracts* greyish green (glaucous), appressed, lanceolate, length \times depth 4.75–6.0(–7.0) \times 1.5 mm; lamina folded lengthwise and keeled, adaxially concave (inside), abaxially slightly convex (outside), villous inside, glabrous outside, coriaceous, obscurely ribbed and reticulately veined; base cuneate; apex obtuse to acute; margins sometimes narrowly membranous. *Floral envelope* ± 5.9 mm long; papyraceous and yellow-pink during pollination, dehydrated after shedding of pollen, turning red to brown. *Hypanthium* scantily tomentose at ovary, neck tomentose, ± 1.7 mm long. *Sepals*: outer and inner sepals concave lanceolate, outer sepals adaxially glabrous, abaxially tomentose; inner sepals adaxially and abaxially tomentose. *Androecium* with filaments of antipetalous whorl ± 1.2 mm and those of antisepalous whorl ± 2.0 mm long; anthers oblong, 0.9(–1.25) \times 0.3 mm, subbasifixed, 2-thecous and 4-locular. *Ovary* 2.4 \times 0.9 mm. *Fruit* an achene with pericarp membranous and dry, 2.5 \times 1.2 mm, enveloped by persistent, loosely arranged hypanthium, breaking up at neck base due to dehydration and torsification of tissue, resulting in the sepals and androecium being shed. Figure 7.14A–D.

Diagnostic characters and relationships

Passerina drakensbergensis is characterized by appressed leaves, up to 6.5 mm long. The bracts are lanceolate, up to 7.0 mm long, the apex is obtuse to acute without a leaf-like point and membranous wings are absent. It can easily be confused with *P. montivaga* and *P. montana*, both occurring in the northern KwaZulu-Natal Drakensberg area. *P. montivaga* has longer leaves (up to 8 mm) and bracts with the midrib extended, forming a straight or filiform, leaf-like point. The wings are ovate with margins hairy in distal half, or obtrullate, narrowing abruptly into the midrib. *P. montana* can be separated by its terminal subcapitulate spikes and short leaves (up to 4.0 mm long), which are linear to lanceolate, with a dilated base and with a prominent median vein in the upper third of the leaf, incurved at the acute apex. The bracts are ovate to obovate in outline.

Passerina montivaga is a fynbos element which possibly originated in the southern Cape and dispersed eastwards. Both this species and *P. montana* are distributed from the Eastern Cape via the Drakensberg Mountains northwards to Zimbabwe. Although the distribution of *P. drakensbergensis*, *P. montivaga* and *P. montana* overlap in the northern part of the KwaZulu-Natal Drakensberg, significant trends in the geographical and altitudinal ranges of these species have been identified.

Etymology

The specific epithet refers to the location of this species in the northern KwaZulu-Natal Drakensberg.

Distribution and ecology

Passerina drakensbergensis is endemic to the Bergville District in the northern KwaZulu-Natal Drakensberg. It has been collected from the Royal Natal National Park to Giant's Castle Game Reserve at altitudes between 1 500 and 1 980 m. It is

frequent at Cathedral Peak above Ndedema Gorge, where it is found in a marginal belt between forest and grassland. It also grows along streams and riverbanks and on mountain slopes. Figure 7.14E.

Conservation status: Least Concern (LC) (IUCN Species Survival Commission 2000).

Specimens examined

KWAZULU-NATAL.—2828 (Bethlehem): Bergville District, Royal Natal National Park, path to Mahai Falls, (–DB), *Edwards 973, 974* (BOL, PRE). 2829 (Harrismith): Bergville District, Cathedral Peak Forest Station, above Ndedema River, (–CC), *Hilliard & Burt 18570* (K, M, P, PRE, S); *Levyns 8236* (BOL); Ndedema Gorge near burning plots, (–CD), *Bredenkamp 1018–1021* (PRE). 2929 (Underberg): Cathedral Peak Forest, upper Indumeni River Valley, (–AB), *Killick 1973* (PRE); in Ndedema Valley, (–AB), *Killick 2289* (PRE); Giant’s Castle Game Reserve, Loembazo area, (–AB), *Trauseld 860* (PRE); Estcourt District, Tabamhlope Mountain, (–BA), *West 181* (PRE); Giant’s Castle Game Reserve, Mlombazo Stream, (–BB), *Trauseld 435* (PRE).

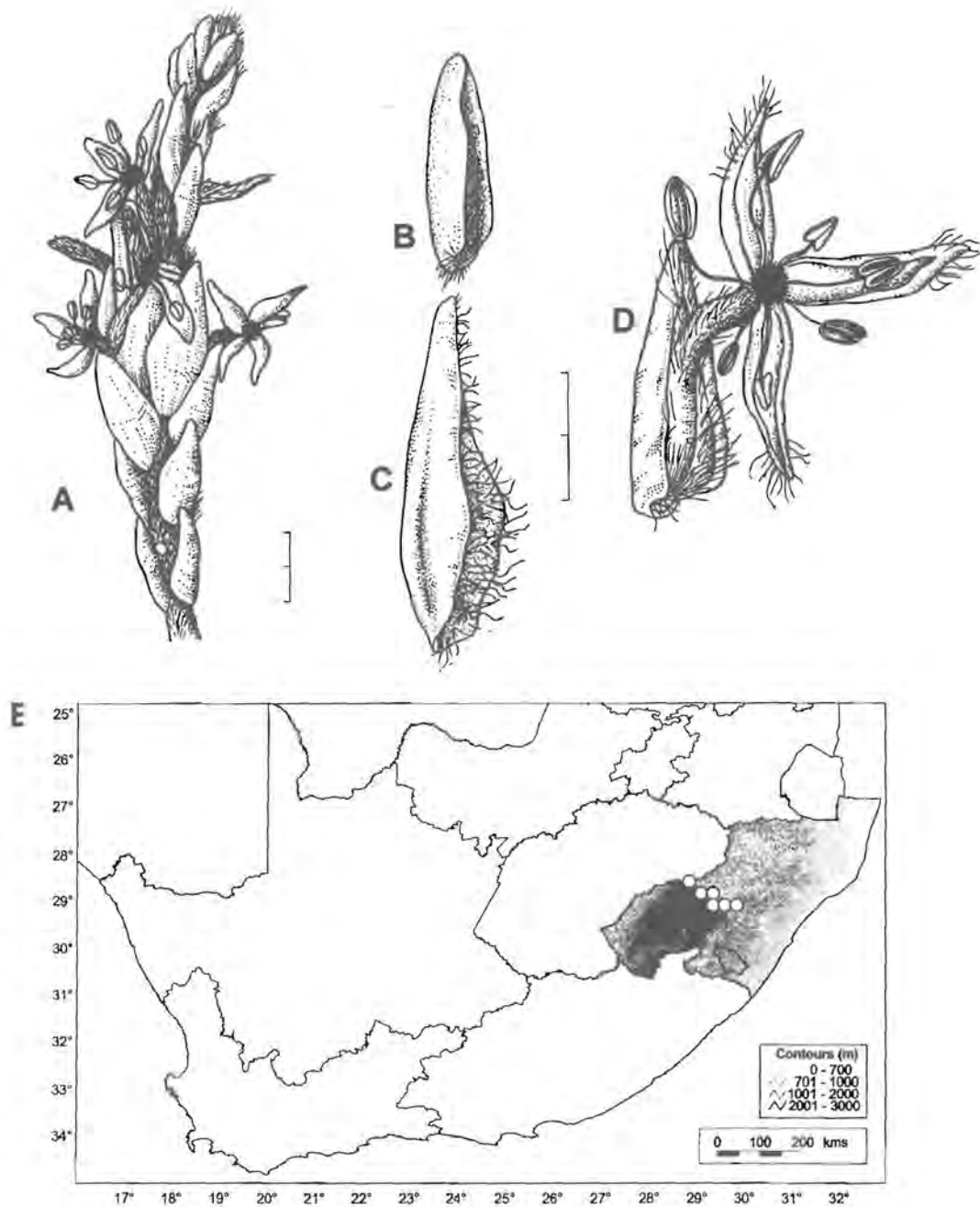


FIGURE 7.14.—*Passerina drakensbergensis* (Bredenkamp 1021). A, inflorescence with apex growing out, returning to vegetative growth (proliferating growth); B, leaf; C, bract; D, flower clasped by bract. Scale bars: 2 mm.

E. known distribution of *Passerina drakensbergensis*.

14. *Passerina corymbosa* Eckl. ex C.H.Wright. Flora capensis 5,2: 14 (1915); Thoday 4:162 (1924a). Type: Western Cape, Bredasdorp, Zwellendam, Pupas Valley, Voormansbosch and Duivelsbosch, Keurboomsrivier, October, Ecklon & Zeyher 40 (70.10) (B, holo.†; W!, lecto., here designated; MO!, S!).

Passerina filiformis L. var. *vulgaris* Meisn.: 399 (1840); Meisn. 14: 562 (1857); Drège: 87 (1843). *P. vulgaris* (Meisn.) Thoday 4: 162 (1924a); Bond & Goldblatt: 433 (1984); Goldblatt & Manning: 684 (2000). Type: locis subhumidis secus rivulum, prope Paarlberg, alt. 1 000–1500 ped. [subhumid locality along river, near Paarlberg, alt. 1 000–1 500 ft], Nov.–Dec. 1839, Drège s.n. [K, lecto., designated by Thoday 10: 388 (1924b); S!, W!].

Passerina filiformis sensu C.H.Wright: 11 (1915) pro parte, non L.

Much branched shrubs, (0.3–)1.0–1.5(–2.5) m high, younger branchlets leafy, older ones leafless, often arcuate, indurate. Stems often arising from a woody, underground rootstock, greyish brown, indumentum of young stems closely whitish tomentose, forming lengthwise patterns with cork on older branches, which gradually become glabrous; cork fissured lengthwise, with sclerenchyma fibres protruding between fissures; leaf scars oblate. Leaves greyish green, drying greyish brown, ascending, diverging at an angle of $\pm 40^\circ$, imbricate, overlapping up to 50%, laterally compressed, plane shape linear to narrowly lanceolate, length \times depth (2.0–)3.2–4.4 (–10.0) \times 0.5–0.8 mm, adaxial surface concave, tomentose, abaxial surface glabrous; lamina longitudinally folded, midrib distinct and somewhat keeled, with 2 or more lateral veins visible as faint striae when fresh, base sessile; apex tapered or acute; margins glabrous, involute. Inflorescences with multiflowered main and cymes; spikes usually extended, 10–16-flowered, arrangement subterminal, axis white-tomentose, proliferating growth common. Bracts greyish green, ascending, rhombic to orbiculate, distinctly angled, length \times depth (4.4–)5.1 \times 1.4(–1.7) mm; lamina folded lengthwise and keeled, adaxially concave (inside), abaxially slightly convex (outside), shortly villous inside, glabrous outside, coriaceous; wings coriaceous, distinctly 4- or 5-ribbed; base cuneate; midrib shortly extended into an

acute apex; margins glabrous, involute. *Floral envelope* ± 6.2 mm long, papyraceous and yellow-pink during pollination, dehydrated after shedding of pollen, turning red to brown. *Hypanthium* glabrous at ovary, neck scantily tomentose, ± 1.6 mm long. *Sepals*: outer sepals cymbiform, inner sepals obovate, outer and inner sepals adaxially scantily tomentose, abaxially glabrous. *Androecium* with filaments of antipetalous whorl ± 0.7 mm and those of antisepalous whorl ± 1.4 mm long; anthers ovoid, 0.9×0.4 mm, subbasifixed, 2-theous and 4-locular. *Ovary* 2.1×1.1 mm. *Fruit* an achene with pericarp membranous and dry, 2.6×1.5 mm, enveloped by persistent, loosely arranged hypanthium, breaking up at neck base due to dehydration and torsification of tissue, resulting in the sepals and androecium being shed. Figure 7.15A–G.

Diagnostic characters and relationships

Passerina corymbosa can be distinguished by its greyish green leaves and grey-brown stems of which the older branchlets are leafless, often arcuate and indurate. The leaves are laterally compressed with the distinct midrib somewhat keeled. The rhombic to obtrullate (diamond-shaped) bracts are always conspicuously angled and distinctly 4- or 5-ribbed. The most diagnostic leaf anatomical character of *P. corymbosa* is the presence of a hypodermal sclerenchymatous sheath, illustrated by Bredenkamp & Van Wyk (2001; see x.x). This species has always been confused with *P. filiformis sensu lato*, which has inconsistently been distinguished by longer, filiform leaves. In the Western Cape *P. filiformis* subsp. *filiformis* is separated by widely obovate bracts, narrowing abruptly into a filiform point. Where the distribution of *P. corymbosa* and *P. montivaga* overlap in the southern Cape, the latter species is distinguished by bracts with ovate wings and margins that are hairy in the distal half. In the Eastern Cape *P. montivaga* is distinguished by obtrullate bracts narrowing abruptly into a straight, leaf-like point.

Etymology

Of all the species in the genus, *Passerina corymbosa* is the most common, as it is adapted to a wide range of habitats mostly in the Western and Eastern Cape Provinces. The specific Latin epithet *corymbosa* (= with a cluster of flowers or of

fruits) is indicative of the 10–16-flowered, extended spikes usually arranged in multiflowered main and co-florescences.

Common names

According to Van Wyk & Gericke (2000), *P. corymbosa* (formerly known as *P. vulgaris*) can also be called *bakkersbos*, a name that commemorates an era when the official bakers in the Cape used this plant to heat up their outside ovens.

Uses

From an agricultural point of view, Story (1952) described *P. corymbosa* at Keiskammahoek as an unpalatable bush, which remained undamaged from grazing, among the few closely cropped specimens of *Cliffortia linearifolia* Eckl. & Zeyh. and *C. paucistaminea* Weim. However, the value of *P. corymbosa* as a pioneer, and also in combatting erosion, cannot be underestimated. This species is commonly found along roadsides and in other disturbed places. It is one of the most successful species for the rehabilitation of embankments along newly built roads in the Western and Eastern Cape Provinces. The plants are resprouters from woody, underground rootstocks and are excellent sand binders, often found on coastal sand dunes. Considering the human impact and invasion of alien vegetation along the Cape coast, *P. corymbosa* would be a natural pioneer, combatting erosion in areas where alien vegetation is cleared.

Distribution and ecology

Except for a few outliers, *P. corymbosa* is endemic to the Western and Eastern Cape Provinces, and all the phytogeographic Centres within the CFR. Although this species is distributed from Clanwilliam to Cape Town and eastwards to East London, it most commonly occurs in an area between the coast and the 33°S latitude and from 18° to 29°E longitude. *Gerstner 105* (PRE), collected near Compasberg in the Lady Grey District, represents the most northerly distribution of *P. corymbosa* in the

Eastern Cape. The specimens collected in KwaZulu-Natal are regarded as outliers, representing remnants of a former wider distribution. *Hilliard 4081* (PRE), collected at the Ellesmere Farm in Ngome (KwaZulu-Natal), is an anomalous specimen, with a greyish appearance, infected by fungi and recorded from cliff faces. This specimen was classified as *P. corymbosa* on the basis of the angular bracts and the leaves that are laterally compressed. The other two specimens, *Herb. Poeppig s.n.*, probably collected before 1868, and *Rudatis 1204* (PRE), collected in 1910, represent populations that have possibly succumbed to human impact. Figure 7.15H.

Passerina corymbosa is a species with a wide habitat spectrum. It most commonly occurs as a pioneer along roadsides over the whole range of its distribution. The species is found in stony areas on mountain slopes, peaks and mountain passes. Along the coastal region, it is often found on the rear dunes. It also grows in river valleys and on the banks of river mouths. This species is common in the whole of the Fynbos Biome of the CFR. In the Eastern Cape it is found in all the above-mentioned habitats, but also in grassland. Story (1952) reported that *P. corymbosa* is found in sourveld and mixed grassveld but that it showed no sign of advancing into the sweetveld. In open grassland this species is often clustered along streambanks or on rocky areas. *P. corymbosa* occurs at a range of altitudes, from sea level up to 1 300 m.

Conservation status: Least Concern (LC) (IUCN Species Survival Commission 2000).

Specimens examined

KWAZULU-NATAL.—2731 (Louwsburg): Ngome; Ellesmere Farm, (–CD), *Hilliard 4081* (K, PRE). 2931 (Stanger): Port Natal, (–CC), *Herb. Poeppig s.n.* (M, PRE). 3030 (Port Shepstone): Dumisa Station, Alexandra, (–AD), *Rudatis 1204* (K, PR, PRE, S).

EASTERN CAPE.—3027 (Lady Grey): Lady Grey, (–CA), *Gerstner 105* (PRE). 3124 (Hanover): Near Compasberg, (–DC), *Levy's 9603* (BOL). 3126 (Queenstown): Gwatyn, Junction Farm, (–DD), *Galpin 8279* (PRE). 3224 (Graaff-Reinet): Koudeveld Mountains, SE of Doornbosch, (–AA), *Oliver 5226* (PRE); Sneecuberg, (–AA), *Collector unknown 170* (S); Summit of Oudeberg, (–CC), *Bolus 170* (BOL, K). 3226 (Fort Beaufort): Mitchell's Pass, (–DB), *Marloth 10693* (PRE). 3227 (Stutterheim): Keiskammahoeck, Wolf River Plateau, (–CA), *Stayner 24* (GRA, PRE); near

beacon, *Lanyokwe 97*, (-CA), *Story 3885* (GRA); Mount Coke, (-CD), *Sim 1380, 1499* (C, NBG). 3228 (Butterworth): Sea shore near Kei River Mouth, (-CB), *Flanagan 1478* (BOL); East London, Gonubie Springs, (-CC), *Levyns 10833* (BOL). 3323 (Willowmore): Grootwes River, Nature's Valley, (-DC), *Parsons 169* (PRE); Kouga, Braam River near Joubertina, (-DD), *Esterhuysen 16295* (PRE). 3324 (Steytlerville): Opkoms, off Long Kloof, (-CA), *Bayliss 6117* (PRE); Harkerville, (-CD), *Bredenkamp 916* (PRE); Baviaanskloof, near Cambria, (-DD), *Van Wyk 390* (PRE). 3325 (Port Elizabeth): Zuurberg District, Melkhoutboom Cave, (-BC), *Louwrens A7763* (GRA); Zuurberg Mountains, (-BC), *Lubke s.n.* (GRA); Uitenhage District, Groendal, Spitskop Road, (-CB), *Bredenkamp 907* (PRE); Enon, (-CB), *Thode 1120* (PRE); Van Staden's Pass, (-CC), *Toughton 156* (GRA); Cockscomb, Great Winterhoek Mountains, (-CD), *Esterhuysen 27139a* (BOL); Port Elizabeth, German school, (-DC), *Drège 285* (GRA); Port Elizabeth, (-DC), *Drège TRV 10800* (PRE); St George's Park, (-DC), *Long 790* (GRA, PRE); driftsands Port Elizabeth, (-DC), *Sim 20* (K). 3326 (Grahamstown): Howison's Poort, (-AC), *Britten 2562* (GRA); Woest Hill, Albany, (-AD), *Bayliss 5035* (B, MO); Grahamstown, Gunfire Hill, (-AD), *Bredenkamp 901* (PRE); Albany, (-AD), *Dyer 963-966* (GRA, PRE); Grahamstown, Far Away, (-AD), *Jacot-Guillarmod 10003* (GRA, PRE); stony slopes near Grahamstown, (-AD), *MacOwen 103* (GRA, K, TCD); Howison's Poort, (-AD), *Reed 35* (GRA); Albany District, Highlands Road, Slaai Kraal Farm, (-AD), *Wells 2998* (PRE); Settler's Dam Road, *Bayliss 5289* (MO); Botha's Hill, drift between Grahamstown and Fort Brown, (-BA), *Britten 5522* (PRE); Botha's Ridge, (-BA), *Dyer 970* (PRE); Andries Vosloo Kudu Reserve, (-BA), *White 95* (GRA); Grahamstown, old municipal quarry, (-BC), *Bayliss BRI.B.32* (GRA, MO, PRE); Grahamstown, (-BC), *Bayliss 2468* (B, MO, NBG); Hillview road 33, left hand side of road, (-BC), *Bredenkamp 902* (PRE); Botha's Hill, (-BC), *Bredenkamp 903* (PRE); Grahamstown, (-BC), *Breijer TRV 16898* (PRE); Gunfire Hill, (-BC), *Britten 5489* (PRE); Farm Gretua, (-BC), *Dacombe s.n.* (GRA); Fish River Mouth, (-BC), *Dold 1099* (GRA); bush past Hamilton Dam, (-BC), *Dyer 179, 180* (PRE); Penrock Farm, (-BC), *Dyer 597* (GRA, K, PRE); Botha's Ridge, (-BC), *Dyer 962, 967, 968* (GRA, K, PRE); Hope's Garden Hill, (-BC), *Galpin 251* (PRE); Signal Hill, (-BC), *Levyns 3763* (BOL); Mountain Drive, (-BC), *Marloth 10912* (PRE); Grahamstown, (-BC), *Noel 322* (GRA); Milner Dam, (-BC), *Ramsay 1592* (GRA); Gunfire Hill, (-BC), *Rennie 480* (BOL, GRA); Grahamstown, (-BC), *Sim 19659* (PRE); *Van Dam TRV 23994* (PRE); Blaauwkrantz Drift, (-BD), *Britten 2828* (PRE); Grahamstown, (-BD), *Wirminghaus 178* (GRA); Bushmans River Poort, on Witteberg, (-CB), *Archibald 5583* (PRE); Waai Heuwel, (-CB), *Archibald 5727* (PRE); Tootabi, (-CB), *Archibald 6053* (PRE); Hopewell, (-DA), *Acocks 23848* (PRE); Boknes, (-DA), *Botha 2618* (PRE); Southwell District, (-DA), *Britten 2239* (PRE); Boknes Strand, (-DA), *Burrows 3066* (GRA); Kariega Park, (-DA), *Burrows 3956* (GRA); Kowie, (-DB), *Britten 5008* (GRA, PRE); Port Alfred, (-DB), *Hutton 1603* (K); Bathurst District, (-DB), *Sidey 3595, 3801* (PRE, S). 3327 (Peddie): 2.6 km to Kiwane from main Peddie-East London Road, (-BA), *Bredenkamp 896* (PRE); East London, (-BB), *Breijer TRV 16577* (PRE); East London, Potter's Pass, (-BB), *Jacot-Guillarmod & Brink 29* (GRA). 3423 (Knysna): Stormsriver Mouth, (-BB), *Rourke 3000* (NBG). 3424 (Humansdorp): Witte Els Beach, (-AB), *Fourcade 952* (BOL, GRA); 100 m from turn-off to Jeffreys Bay en route

to N2, (-BB), *Bredenkamp 912* (PRE); St Francis Bay, (-BB), *Cowling 51* (GRA); *Lubke 1861* (GRA); 18.4 mi. from Humansdorp to Cape St Francis, (-BB), *Marsh 1361* (PRE). 3425 (Skoenmakerskop): Cape Receife, (-BA), *Olivier 2988* (GRA); near Skoenmakerskop, (-BA), *Theron 631* (PRE).

WESTERN CAPE.—3218 (Clanwilliam): between Paleisheuvel and Leipoldtville, (-AB), *Werdermann & Oberdieck 476* (B, PRE); Clanwilliam, slopes down Langvlei, SE of Swartboskraal, (-BB), *Bean & Viviers 1508* (BOL); Piquetberg, 9.5 mi. NE of Velddrif, (-CC), *Acocks 19810* (NBG); Piquetberg, (-DA), *Marloth 6218* (PRE); Het Kruis, (-DA), *Stokoe s.n.* (NBG). 3222 (Beaufort West): Nuweveld, W slopes of Gert Adrian's Kop, (-BA), *Bremer 299* (BOL). 3318 (Cape Town): Hopefield District, 16.8 mi. NW of Ysterfontein, (-AB), *Acocks 20714* (PRE); Darling, Zonquasfontein Farm, (-AB), *Boucher 3301* (PRE); Hopefield, (-AB), *Letty 142* (PRE); Ysterfontein, (-AC), *Van Rensburg 151* (PRE); Platteklip, (-AD), *Marloth 2756* (PRE); near Mamre to Darling Road, (-CB), *Boucher 2449* (PRE); near Melkbosstrand, (-CB), *Esterhuysen 781* (MO); Kirstenbosch, (-CD), *Barker 349* (PRE); Camps Bay, (-CD), *Bredenkamp 957, 958* (PRE); Table Mountain, (-CD), *Ecklon 508* (BOL, HAL, M, PR, PRE, S, W,); Table Mountain, (-CD), *Ecklon 590* (S); Kirstenbosch, (-CD), *Forbes 160* (PRE); Newlands, (-CD), *Hafström s.n.* (S); Kirstenbosch, cultivated, (-CD), *Hilger 83/60* (M); Devil's Peak, (-CD), *Marloth 1585* (PRE); Pipe Track, (-CD), *McKinnon s.n.* (NBG); Kirstenbosch Reserve, (-CD), *Meebold 15151* (M); Cape Town, (-CD), *Meebold 15159* (M); *Pappe s.n.* (GRA); slopes above Camps Bay, (-CD), *Pillans 2792* (BOL); slope of Kirstenbosch Ridge, (-CD), *Pillans 8030* (BOL); Kirstenbosch Reserve, (-CD), *Schmidt 567* (M); Oranjezicht, (-CD), *Thoday 42* (NBG); Camps Bay, (-CD), *Thoday 52* (BOL, NBG); Kirstenbosch, (-CD), *Wall s.n.* (S); Table Mountain, (-CD), *Zeyher s.n.* (C); Cape Town, *Burchell 473* (K); Burgers Post Farm, near Pella, (-DA), *Boucher & Shepherd 4828* (PRE); Paarl, (-DB), *Bolus 2924* (K); Paarl Mountain, (-DB), *Cummings s.n.* (GRA); *Drège s.n.* (S, W); *Van der Merwe 964* (PRE); Wellington District, (-DB), *Wawra 3* (PRE); Milnerton, intersection of Malmesbury, Parow Roads, (-DC), *Boucher 3243* (PRE); E slope of Table Mountain at Constantia, (-DC), *Ecklon & Zeyher 37* (MO, S); Newlands, (-DC), *Ecklon & Zeyher 3782* (NBG, W); Kraaifontein, Beecroft Farm, (-DC), *Esterhuysen 961* (BOL); Constantia Road, (-DC), *Hafström s.n.* (S); Cape Town, (-DC), *Pappe s.n.* (NBG); Bellville, (-DC), *Rogers 17281* (BM); Table Mountain, (-DC), *Wall s.n.* (S); Constantia Neck, (-DC), *Wall s.n.* (S); Stellenboschberg, W foot below Donkergatkloof, (-DD), *Boucher 1955* (PRE); Jonkershoek Valley, Black Bridge, (-DD), *Brown 490* (PRE); Jonkershoek Forest Reserve, below Lambrechtsbos, (-DD), *De Kock 134* (PRE); Jonkershoek, Swartboschkloof, (-DD), *McDonald 819* (NBG, PRE); Stellenbosch District, (-DD), *Potts 1281* (PRE); Assegaaibos, (-DD), *Van der Merwe 1225* (PRE). 3319 (Worcester): Tulbagh Kloof, (-AA), *King 1* (M, PRE); Piquetberg, 9.5 mi. from Velddrift, (-AC), *Acocks 19810* (K, PRE); Watervalberg, Kleitjieskraal Forestry Plantation, (-AC), *Bredenkamp 974* (PRE); pass between Wolseley and Ceres, (-AC), *Bredenkamp 979, 980* (PRE); Waterfall Forest Station, Tulbaghweg, (-AC), *Fellingham 202* (PRE); Tulbagh Kloof, (-AC), *King 1* (BM, MO); Tulbagh, (-AC), *Levyns 2550* (BOL); Wolseley, banks of Breede River, (-AC), *Marloth 6189* (PRE); N of Wellington, Elandskloof Mountains, (-AC), *Stokoe s.n.* (NBG); Worcester, Tulbagh Waterfall,



(-AC), *Zeyher 34* (NBG); Mitchell's Pass, 12 km SW of Ceres along road to Tulbagh, (-AD), *Greuter 21845* (B, PRE); Ceres, (-AD), *Meebold 15153* (M); Bains Kloof, (-CA), *Gentry 18995* (PRE); *Germishuizen 4077* (PRE); Du Toits Kloof, (-CA), *Maguire 1127* (M); Bains Kloof, (-CA), *Thoday 13* (NBG); Worcester at Waterfall, (-CB), *Ecklon 1.11* (B, S); Orchard Siding, (-CB), *Rogers 16701* (K); Worcester, Waterfall, (-CB), *Zeyher s.n.* (MO); Wemmershoek Mountains, (-CC), *Davidson 24904* (PRE); Franschoek, (-CC), *Phillips 1294* (NBG); Zachariashoek Catchment, Kasteelkloof, (-CC), *Van Wilgen 163* (PRE); Villiersdorp in Botanical Garden, (-CD), *Bredenkamp 964, 965* (PRE); Botha's Halt, *Van Breda 679* (PRE). 3320 (Montagu): Laingsburg District, Witteberg Kloof, (-BC), *Compton 3005, 3166, 5915* (BOL, K); Cogman's Kloof, (-CC), *Kuntze s.n.* (K); *Michell 24* (PRE); Barrydale Mountains, (-DC), *Barnard s.n.* (NBG). 3321 (Ladismith): Matjiesvlei, Huis River, (-BC), *Bayliss 5023* (M, MO); Towerkop, (-CA), *Wurts 1211* (NBG); road between Riversdal and Stilbaai, (-CB), *Bredenkamp 931* (PRE); Witwater, en route to Korentherivier Dam, foot of Gysberg Pass, (-CC), *Bredenkamp 926* (PRE); summit of Garcia Pass, (-CC), *Bredenkamp 927* (PRE); Rooiberg, kloof W of Teeboskop, (-DA), *Oliver 5342* (PRE); Mossel Bay District, Cloete's Pass, (-DD), *Muir 12, 240* (NBG, PRE). 3322 (Oudtshoorn): Zwartberg, behind Ladismith, (-AC), *Levyns 2325* (BOL); George, Langekloof, (-CC), *Ecklon & Zeyher 100/12* (S); Uniondale Division, S slope Mannetjiesberg, (-DB), *Williams 1451* (NBG); Sedgfield District, near Rondevlei, (-DC), *Bayliss BRI.B.1105* (PRE); southern Cape, Ebb and Flow Nature Reserve, (-DC), *Boucher 2012, 2014* (PRE); *Taylor 7987, 7988* (PRE); Kaaiman's River, (-DC), *Wilman s.n.* (PRE); Oudtshoorn, *Jacot-Guillarmod 7610* (GRA). 3323 (Willowmore): Uniondale, (-CA), *Barnes 88* (GRA); Prince Alfred's Pass, Dieprivier, (-CC), *Thompson 3318* (K, MO, PRE); Knysna, Keurboomsrivier Hillsides, (-CD), *Compton 21673* (C, MO); *Theron 2097* (PRE); Bietou River, (-CD), *Theron 2216* (PRE); Zwelldam, Keurboomsrivier, (-CD), *collector unknown* (S). 3418 (Simonstown): Wineberg Hill, (-AB), *Andraea 597* (PRE); Chapman's Peak, (-AB), *Bredenkamp 959* (PRE); St James Mountain, (-AB), *Davies 33* (PRE); Caput Bonae Spei, (-AB), *Ecklon s.n.* (C); Chapman's Peak Drive, on road to Noordhoek, (-AB), *Germishuizen 4097* (PRE); Bakoven, (-AB), *Hafström s.n.* (S); Muizenberg, (-AB), *Lansdell s.n.* (PRE); Kommetjie, (-AB), *Lavrinos 11652* (PRE); Muizenberg, (-AB), *Lynes 1927* (BM); Simonstown, (-AB), *Meebold 15160* (M); between summits of Vlakkeberg and Skoorsteenkop, (-AB), *Pillans s.n.* (BOL, MO); E of Mowbray, (-AB), *Pillans 3779* (BOL, PRE); Constantia Bervliet Farm, (-AB), *Purcell s.n.* (NBG); Wineberg Hill, (-AB), *Salter 9370* (BM); slopes W of Hout Bay, (-AB), *Salter s.n.* (BOL); Glencairne Hill, (-AB), *Schmidt 569* (M); Hout Bay, (-AB), *Wall s.n.* (S); *Wright s.n.* (K); Cape of Good Hope, (-AD), *Alexander-Prior s.n.* (PRE); Cape Peninsula, (-AD), *Behemiae s.n.* (PR); near Cape Town, (-AD), *Bolus s.n.* (BOL); *Grondahl s.n.* (S); Cape Point, (-AD), *Mortensen 200* (C); Cape Peninsula, (-AD), *Oldenland, Herb. Schreb. s.n.* (M); *Osbeck s.n.* (S); *Sieber 74* (BOL, HAL, M, NBG, P, PRE, S, W); Cape of Good Hope Nature Reserve, at Rhebok's Dam, (-AD), *Taylor 5281* (PRE); Cape Flats, Tygerberg, (-BA), *Smuts s.n.* (NBG); foot of Sir Lowry's Pass en route to Villiersdorp, (-BB), *Bredenkamp 963* (PRE); between Gordon's Bay and Kogelbaai, (-BB), *Ihlenfeldt 1652* (PRE); Steenbras Siding, (-BB), *Phillips s.n.* (NBG); Stellenbosch, Van der Stel Triangle, (-BB), *Smith 4637, 4649* (PRE);

Sir Lowry's Pass, (-BB), *Van Rensburg 444* (PRE); Groot Hangklip Mountain, (-BD), *Boucher 761* (PRE); Betty's Bay, Harold Porter NBG, (-BD), *Bredenkamp 951, 953* (PRE); at Kogelbaai close to Rooiels River, (-BD), *Bredenkamp 955* (PRE); Harold Porter NBG, (-BD), *Ebersohn 136* (NBG); Pringle Bay, (-BD), *Greuter 21517* (PRE). 3419 (Caledon): near Caledon, (-AA), *Penther s.n.* (M, S); Houwhoek near Caledon, (-AA), *Penther 2891* (M, S, W); Kleinmond, Houw Hoek Pass, (-AA), *Werdermann & Oberdieck 691, 693* (B, PRE); Hermanus, (-AC), *De Beer TRV 16536* (PRE); Bot River, (-AC), *O'Callaghan 273* (PRE); Hermanus, (-AC), *Purcell s.n.* (NBG); *Rogers 26574* (GRA, NBG, PRE); *Van Breda 1664* (PRE); *Walters 2143* (NBG); Fern Kloof, (-AD), *Orchard 312* (C, MO, PRE, S); Mosselrivier, (-AD), *Potts s.n.* (NBG); Stanford, New Granton Farm, (-AD), *Van der Walt 409* (PRE); Vogelgat, (-AD), *Williams 2624* (MO, PRE); Little Hangklip, (-BD), *Levyns 10873* (BOL); Hangklip, (-BD), *Van Rensburg 2148* (PRE); Baardscheersbos, (-DA), *Stokoe s.n.* (NBG). 3420 (Bredasdorp): Swellendam, (-AA), *Burke 45* (K, PRE); Bontebok National Park, (-AB), *Barnard 660* (PRE); *Bredenkamp 943* (PRE); Puspas Valley, Voormansbos, (-AB), *Ecklon & Zeyher 40 (70.10)* (B, BREM, C, S, W); Swellendam 1 000–4 000 ft, (-AB), *Ecklon & Zeyher s.n.* (GRA); Bontebok National Park, (-AB), *Grobler 454* (NBG, PRE); Swellendam, (-AB), *Zeyher s.n.* (K, P); 13.3 mi. NE of Malgas, (-BA), *Acocks 23379* (PRE); Potberg, (-BC), *Bredenkamp 945* (PRE); *Burgers 1188, 2270* (PRE); near Cupidoskraal, E side of Potberg, (-BC), *Mauve & Hugo 167* (MO, PRE); Hamerkop Farm, (-BC), *Van Wyk 1920* (PRE, PRU); Cape Infanta, (-BD), *Bredenkamp 944* (PRE); De Hoop, Witwater, (-BD), *Morley 92* (M, PRE); The Poort, Bredasdorp, (-CA), *Acocks 1519* (S); limestone hills near Potberg, (-CA), *Esterhuysen 23319* (BOL); The Poort, (-CA), *Levyns 4443* (BOL); 6 mi. SW of Bredasdorp, (-CA), *Sidey 1812* (MO, PRE, S); Northumberland Point, (-CC), *Acocks 24257* (PRE). 3421 (Riversdale): Zoetmelk's River, (-AB), *Muir 4469* (K, PRE); hills near Riversdale, (-AB), *Muir 4538* (PRE); Brandfontein, (-AB), *Smith 5081* (PRE); 4.5 km S of Vermaaklikheid, (-AC), *Bredenkamp 936* (PRE); Takkiesfontein, (-AD), *Hugo 1241* (PRE); Albertinia District, Ystervarkfontein, (-BA), *Bayliss 5238* (MO); Riversdale District, Albertinia, (-BA), *Muir 683* (BOL, PRE); Albertinia, near cemetery, (-BB), *Bredenkamp 925* (PRE); between Gouritzmond and Stilbaai, (-BC), *Rycroft 3117* (S). 3422 (Mossel Bay): N2 near Klein Brak, (-AA), *Bredenkamp 924* (PRE); between Great and Little Brak Rivers, (-AA), *Burchell 6163* (K); Mossel Bay, Cloete's Pass, (-AA), *Levyns 9644* (BOL); 3 mi. W of Great Brak River crossing national road, (-AA), *Marsh 572* (PRE); Mossel Bay, (-AA), *Rogers 27026* (PRE); *Thompson 3300* (PRE); Great Brak River, 3 km E of Groot Brak River, (-AB), *Thompson 3303* (MO, PRE); south of Pacaltsdorp, George coastal region, inland of Rooiklip headland, (-AB), *Victor 498* (PRE); near Ruigtevlei Siding, (-BB), *Sidey 1696* (MO, PRE, S). 3423 (Knysna): Lake Pleasant Hotel, (-AA), *Acocks 21309* (PRE); Brenton on Lake, (-AA), *Bredenkamp 918* (PRE); Knysna District, (-AA), *Dahlgren & Peterson 168* (M); W of Plettenberg Bay, Cairn Brogil, (-AA), *Hugo 2079* (NBG, PRE); Knysna Heads, (-AA), *Schonland 3398, 3525* (GRA, PRE); Knysna, (-AA), *Rogers 26987, 27017* (K, PRE); Lake Pleasant, (-AA), *Story 3109* (PRE); mouth of Bitou River, (-AA), *Theron 2216* (M); Keurboomsrivier, (-AB), *Fourcade 1478* (BOL, GRA, K, PRE); Plettenberg Bay, Formosa, (-AB), *Fourcade 1484* (BOL, K); Plettenberg Bay, (-AB), *Kapp 1* (PRE); E of Bietou River, (-AB), *O'Callaghan 752* (PRE); Plettenberg Bay,

(-AB), *Rogers 15512, 26983* (K); *Smart 15512* (PRE). Grid ref. unknown: *Stikland, Acocks 1067* (S); *Cape, Andersson s.n.* (S); *Andraea 1227* (NBG); *Boemert, Herb. Reg. Monacense s.n.* (M); *Bot. Mus. Univ. Wien s.n.* (WU); *Brehm.: Herb. Reg. Monacense s.n.* (M); *Link's Herb at B, Burchell 3835, 6721* (K); *Caput Bonae Spei, ex Herb. Mus. Berol.* (UPS); *Cole s.n.* (TCD); *Caput Bonae Spei, Drège 85* (UPS); *Drège s.n.* (MO, P); *Ecklon s.n.* (C); *Ecklon & Zeyher 40* (MO, W); *Ecklon & Zeyher 41* (MO); *Ecklon & Zeyher s.n.* (BREM, MO, WU); *Herb. Reg. Monacense, Erlangh 1017* (M); *Herb. Scholae Lincopensis s.n.* (S); *Herb. J. Peterstein acc. no. 16/1946* (PR); *Herb. Princ. Paul, Dux de Wurte s.n.* (M); *Herb. Schmidel s.n.* (M); *Herb. Sieber 89* (S); *Herb. Swartzii s.n.* (S); *Herb. Bot. Hauniense s.n.* (C); *Herb. Praga Karlin, Herb. scholae med., Praga-Ka* (PR); *Herb. Reg. Monacense s.n.* (M); *Herb. Schreberianum s.n.* (M); *Herb. Thunberg s.n.* (UPS); *Herb. Thunberg s.n.* (UPS); *Joubert s.n.* (S); *Caput Bonae Spei, Jules Verreaux s.n.* (TCD); *Knaf s.n.* (PR); *Le Jolis s.n.* (S); *Hortus Monatensis, Leitz 182b, s.n.* (M); *Caput Bonae Spei, Lindley s.n.* (S); *Paris Jardin des Plantes, Meinkauff s.n.* (M); *Mus. Bot. Hauniense s.n.* (C); *Cape, Osbeck s.n.* (S); *Potts BLF 1300* (PRE); *Rogers 4724* (K); *Rutprum s.n.* (S); *Caput Bonae Spei, Schmidel s.n.* (M); *Sieber/Zeyher s.n.* (MO); *Caput Bonae Spei, Sparrman s.n.* (S); *Strey s.n.* (M); *Caput Bonae Spei, Thunberg s.n.* (UPS); *Trinity College s.n.* (TCD); *Von Gedow 473* (GRA); *Ward s.n.* (TCD); *Caput Bonae Spei, Wawra 3* (M); *Caput Bonae Spei, Wells s.n.* (MO); *Wright s.n.* (TCD); *collector unknown s.n.* (S); *Table Mountain, collector unknown s.n.* (S).

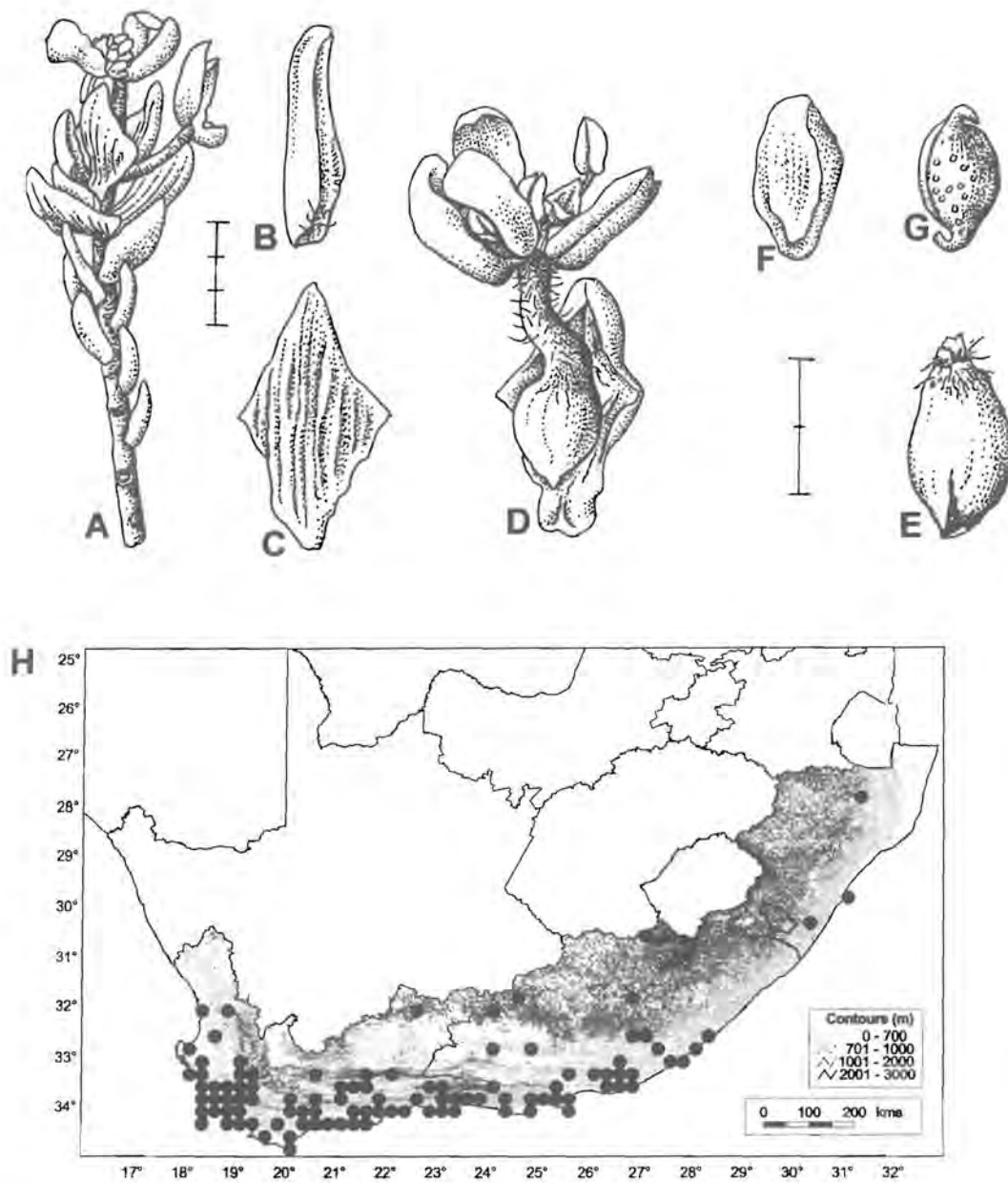


FIGURE 7.15.—*Passerina corymbosa* (Bredenkamp 944). A, inflorescence; B, leaf; C, bract; D, flower enveloped by bract; E, fruit enveloped by hypanthium, with fragmentation at neck base; F, achene, enveloped by membranous pericarp; G, achene in side view. Scale bars: A, 4 mm; B–G, 2mm.

H, known distribution of *Passerina corymbosa*.

15. *Passerina obtusifolia* Thoday. Bulletin of Miscellaneous Information 4:157 (1924a); Bond & Goldblatt: 433 (1984); Goldblatt & Manning: 683 (2000). Type: Western Cape, Worcester Division, between Osplaats and Tunnel Sidings 2 000–3 000 ft., Rogers 16703 [K!, lecto., designated by Thoday 10: 388 (1924b)].

Erect shrubs with several fairly stout stems, bare at base, branching profusely higher up, (0.3–)0.8–1.8(–2.4) m high. *Stems* ash-grey, indumentum of young stems whitish tomentose, flaking off, becoming scabrid on older branchlets and forming lengthwise patterns with cork, which fissures lengthwise, sclerenchyma fibres protruding between fissures, leaf scars oblate. *Leaves* greyish green, imbricate, spreading at an angle of 45°, plane shape linear, straight or incurved, length × depth 4.0–8.0(–12.0) × 0.9–1.5 mm, adaxial surface concave, comose, abaxial surface convex, coriaceous, glabrous; base sessile; apex obtuse; margins glabrous, involute. *Inflorescences* with multiflowered main and co-florescences; spikes usually extended, 8–16-flowered, arrangement terminal, axis whitish tomentose, proliferating growth common. *Bracts* spreading, narrowly obovate, length × depth (4.0–)5.8 × 1.5(–1.7) mm; lamina greyish green, adaxially concave (inside), abaxially convex (outside), coriaceous, glabrous outside, tomentose inside, closely 2-ribbed at margins, midrib extending beyond lamina into a leaf-like point, apex obtuse; wings absent; base cuneate; margins glabrous, involute. *Floral envelope* ± 6.8 mm long, papyraceous and yellow-pink during pollination, dehydrated after shedding of pollen, turning red to brown. *Hypanthium* glabrous at ovary, neck tomentose, ± 1.8 mm long. *Sepals*: with outer sepals cymbiform, adaxially tomentose, abaxially glabrous, inner sepals narrowly oblong, adaxially tomentose, abaxially glabrous. *Androecium* with filaments of antipetalous whorl ± 1.2 mm and those of antisepalous whorl ± 2.2 mm long; anthers 1.1 × 0.5 mm, subbasifixed, 2-theous and 4-locular. *Ovary* 2.5 × 1.1 mm. *Fruit* an achene with pericarp membranous and dry, 2.3 × 1.2 mm, enveloped by persistent, loosely arranged hypanthium, breaking up at circumference of ovary, resulting in sepals and androecium being shed. Figure 7.16A–F.

Diagnostic characters and relationships

The growth form of *P. obtusifolia* can easily be confused with that of *P. corymbosa*, but *P. obtusifolia* is distinguished by the spreading, linear, incurved leaves, with obtuse apices. The bracts are narrowly obtrullate, with the midrib extending beyond the lamina into a leaf-like point and the lamina is closely 2-ribbed at the margins. Intermediate forms between *P. obtusifolia* and *P. truncata* subsp. *truncata* are found in the Karoo Desert National Botanical Garden at Worcester. *P. obtusifolia* usually occurs on the northern side of the southern Cape mountain ranges in drier habitats and *P. falcifolia* is confined to the summits of mountains and southwards towards the southern Cape coast. Intermediates between *P. obtusifolia* and *P. falcifolia* have been found on the boundary between the two species, just north of the Prince Albert Pass.

Etymology

The Latin specific epithet, *obtusifolia*, refers to the obtuse apices of leaves and bracts, which are characteristic of this species.

Common name

The vernacular name *karoo gonna* is used by the local people at Genadendal.

Uses

According to the curator at the Museum in Genadendal, *P. obtusifolia* was traditionally used by the local people in the home industry of soap-making. The plants were burnt and the alkaline ashes used to react with the stearic acid in fat at boiling point, thus forming soap. In the Robertson area these plants are used in the wild flower industry. *Bayliss 521* (PRE) is a voucher specimen recorded in cancer research,

but the results must have been negative; these plants are not currently known for their medicinal value.

Distribution and ecology

Passerina obtusifolia is endemic to the Northern, Western and Eastern Cape Provinces. It is centred in a belt between 33° and 34°S latitude and from 19° to 27°E longitude, comprising all the Centres within the CFR—it is most common in the Karoo Mountain, Langeberg and Southeast Centres. *P. obtusifolia* is distributed from Worcester in the Western Cape, to Grahamstown in the Eastern Cape. The most northwesterly distribution are the Vanrhyn's Pass and the Hantamberg. The Karoo National Park and the Nuweveld Mountains in the Beaufort West District and the Lootsberg Pass at Middelburg are the most northerly distribution in the Western and Eastern Cape Provinces. *Hilliard & Burt 14654* and *Acocks 20170* from the Lady Grey District are considered as outliers. Figure 7.16G.

Passerina obtusifolia is well adapted to drier karoo habitats and is often found on the north-facing aspect of mountains in the southern Cape. It frequents the boundary of fynbos and karroid vegetation and is common in the Little Karoo, growing at altitudes of (300–)670–1 400(–1 700) m. Although this species occurs at high altitudes on the summit of the Swartberg Pass, it grows below the snow line and does not occur on the highest peaks of mountain ranges in its distribution range. It is common in drier mountainous habitats, growing in shallow rocky soil and between rocks on well-drained slopes. It also grows amongst sandstone boulders of upper mountain slopes and on stony ridges of mountain tops. On the Hantamberg it has been recorded in renosterveld on the flat, rocky, dolerite summit. On Jonaskop it grows in a zone below the fynbos and is absent at the summit. This species is also found amongst rocks in river valleys and dry streambanks. The average height of these plants is 0.8–1.8 m, but stunted forms have been recorded from the arid Bergkwagga National Park, which is one of the most northeasterly localities. *P. obtusifolia* is a very common species and amongst the dominant species within its distribution range.

Conservation status: Least Concern (LC) (IUCN Species Survival Commission 2000).

Specimens examined

EASTERN CAPE.—3027 (Lady Grey): road between Pitlochrie and Lundean's Nek, Glen Gyle, (–DA), *Hilliard & Burt 14654* (PRE); Barkly East, Moshesh's Ford, (–DC), *Acocks 20170* (M, PRE). 3124 (Hanover): Middelburg, Lootsberg Pass, (–DC), *Greuter 22180* (PRE); Lootsberg, (–DD), *Lavrinos 3700* (PRE). 3224 (Graaff-Reinet): Sneeuberg, between Graaff-Reinet and Murraysburg, (–AA), *Oliver 5194* (PRE); Jansenville District, Salt Pan's Neck, (–DC), *Acocks 16000* (K, PRE); Graaff-Reinet, Summit Oudeberg, *no collector 170* (TCD). 3225 (Somerset East): Bergkwagga National Park, (–AD), *Du Toit 155* (PRE); Sterkwater Farm, proposed extension to Bosberg Nature Reserve, (–DA), *Palmer 1094* (PRE). 3323 (Willowmore): 5 mi. N of Willowmore, (–AB), *Acocks 19000* (K, PRE); Willowmore District, Aasvogelberg, (–AC), *Marloth 14128* (PRE); Aasvogelberg, (–AC), *Andraea 979, 982* (PRE); Slypsteenberg, (–AC), *Levyns 6314* (BOL); Zes Mijlen Farm near Willowmore, (–AD), *Andraea 1030* (PRE); Blydeberg, (–AD), *Andraea 982* (NBG); mountain W of Miller Station, (–BB), *Andraea 1018* (PRE); Baviaanskloof Road between Willowmore and Patensie, (–BC), *Balkwill 456* (K PRE); Baviaanskloof, (–BD), *Levyns 9140, 9145* (BOL); *Bayliss 7731* (M, MO); upper Kouga; Long Kloof, (–DA), *Bayliss 521* (K, MO, PRE); Baviaanskloof, Nuwekloof, (–DA), *Glen 1568* (C, PRE); between Miskraal and Smitskraal, (–DA), *Hugo 1453* (K, PRE); Kouga Mountains, Smutsberg, Moordenaarskloof, (–DB), *Thompson 2005* (NBG, PRE). 3324 (Steytlerville): Baviaans Kloof, (–CA), *Bayliss 6093* (PRE); Klein Rivier, NE of Smitskraal, (–CB), *Oliver 4555* (PRE); Kleinplaat, (–CB), *Zantovska 120* (PRE); Goedehoop, between Cambria and Smitskraal, (–CD), *Wendelberger 406* (PRE); Kareedouw, Assegaaibos, (–CD), *Britten 1245* (GRA); Hankey, (–DD), *Cowling 926* (GRA). 3325 (Port Elizabeth): Olifantskop Pass, (–BD), *Acocks 21252* (K, PRE); Uitenhage, Addo Road, (–BD), *Long 386* (K, PRE); Groendal Wilderness Catchment Basin, KwaZunga, upper Swartkops, (–CA), *Scharf 1069, 1522* (PRE); Port Elizabeth, (–CD), *Paterson 833* (BOL); Uitenhage Mountains, (–CD), *Paterson 883* (PRE); Somerset East District, (–DA), *Van der Walt 250* (PRE); Coega Kop, (–DC), *Dold 2299* (GRA). 3326 (Grahamstown): Riebeeck East, (–AA), *Schrire 1869* (GRA); Alicedale, (–AC), *Jacot-Guillarmod 7464* (PRE); *Cruden 37* (NBG); *Marloth 4273* (PRE); mountains near Howison's Poort, (–AD), *MacOwen 103* (GRA); Botha's Hill, (–BC), *Bredenkamp 904* (PRE); Botha's River, hill above drift en route to Fort Brown, (–BC), *Britten 5523* (PRE); Collingham, (–BC), *Brooker-Leslie s.n.* (GRA); Grahamstown, Bloemhof, (–BC), *Doubell 27* (GRA); Penrock Farm, (–BC), *Dyer 596* (K, PRE); Botha's Ridge, (–BC), *Dyer 960, 961* (K, PRE); Niemandspoort near Grahamstown, (–BC), *Galpin 178* (PRE); Kariega Park, (–DA), *Burrows 4118* (GRA); Boesman's River Mouth, (–DA), *Burrows 4682* (GRA). 3423 (Knysna): Storm's River Mouth, (–BB), *Munro s.n.* (PRE). 3424 (Humansdorp): Groothoek near Humansdorp, (–BB), *Fourcade 741* (BOL, K, GRA).

NORTHERN CAPE.—3119 (Calvinia): Vanrhyn's Pass, (–AC), *Compton 2884* (BOL, NBG); Hantamsberg, (–BC), *Acocks 18634* (K, PRE); Waterkloof Mountain, (–BC), *Marloth 12785* (PRE); Vanrhynshoek, (–BD), Germishuizen 4024 (PRE).

WESTERN CAPE.—3222 (Beaufort West): Karoo National Park, (–AB), *Shearing 870, 891* (PRE); Karoo National Park, Torinkies on crest of mountain, (–AD), *Bengis 344* (PRE); Nuweveld, W slopes of Gert Adranskop, (–BA), *Bremer 299* (S); Nuweveld Mountains, (–BD), *Levyns 5538* (BOL). 3319 (Worcester): Orchard Siding, (–BC), *Rogers 16701A, 16705* (K, PRE); between Osplaas and Tunnel Sidings, (–BC), *Rogers 16703* (K); Hex River, Vendutieskraal, (–BC), *Starke s.n.* (NBG, PRE); Worcester Karoo Garden, (–CB), *Barker 5925* (C, NBG); *Barker 10580* (NBG); *Bredenkamp 971* (PRE); *Compton 18278* (M, NBG); *Cross 58* (MO, NBG); *Dobay 45* (NBG); Breede Rivier, (–CB), *Goldblatt & Manning 9589* (NBG); Worcester District, Bosches veld, (–CB), *Levyns 9741* (BOL); Bokkeveld, between Concordia and Eendracht, (–CB), *Michell 326* (PRE); on top of Rondekop Veld Reserve, (–CB), *Olivier 118* (M, PRE); Hex River, (–CB), *Sidey 2312* (MO, NBG, S). Boschjesveld Mountains, (–CB), *Stokoe s.n.* (NBG); Worcester District, (–CB), *Van Breda 131* (PRE); Pokkraal, (–CB), *Van Breda 639* (K); *Walters 384, 1017* (K, M, NBG, PRE); Langerug, (–CB), *Walters 1* (NBG); *Weltz 743* (NBG); Franschoek Forest Reserve, (–CC), *Esterhuysen s.n.* (BOL); Jonaskop, (–CD), *Bredenkamp 966–968* (PRE); Hex River Pass, 5 km from De Wet, (–DA), *Bredenkamp 970* (PRE); N slopes above Tierkloof, (–DA), *Oliver 3797* (PRE); 2 mi. N of De Wet, (–DA), *Van Breda 754* (K, PRE); Rabiesberg, (–DA), *Esterhuysen s.n.* (BOL); between Montagu and Eendracht, (–DB), *Compton 18380* (NBG); Hammanshof, Droërivier Mountains, (–DC), *Boucher 2439* (PRE); Jonaskop, (–DC), *Boucher 2244* (PRE); sandstone koppie S of Moordkuil, (–DC), *Levyns 9743* (BOL); Moordkuil, (–DC), *Van Rensburg 442* (PRE); Jonaskop, (–DC), *Walters 1769* (NBG); Kareevlakte, (–DD), *Grobler 540* (K); 8 mi. S of Robertson, (–DD), *Levyns 2813* (BOL); Robertson, (–DD), *Schmidt 41* (PRE); between Agterkliphooft and Robertson, (–DD), *Simpson 97* (NBG, PRE); Vrolikheid Nature Reserve, (–DD), *Van der Merwe 2420* (K, PRE). 3320 (Montagu): Matjiesfontein, Whitehill, (–BA), *Thoday 214* (BOL, NBG); Touwsberg, (–BD), *Victor 400* (PRE); Keisiesberg, (–CA), *Lewis 1796* (NBG); Montagu District, Baden, (–CA), *Lewis 1797* (NBG, PRE); Montagu, Ouberg Pass, (–CA), *McMurtry 335* (PRE); Dobbelaarskloof, (–CB), *Esterhuysen 23446* (BOL); *Levyns 8029* (BOL); *Lewis 1795* (NBG); Montagu, Rabiesberg, (–CC), *Compton 5725* (NBG); Montagu, (–CC), *Compton 18449* (NBG); Langeberg S of Montagu, (–CC), *Levyns 6514* (BOL); Keurkloof in Kogmanskloof, (–CC), *Raitt s.n.* (PRE); E of Anysberg, (–DA), *Van Zyl 3366* (NBG, PRE); Touwsberg, (–DB), *Oliver 10318* (NBG); Barrydale, (–DC), *Hutchinson 1101* (BM, K, PRE); Warmwaterberg near springs, (–DD), *Boucher 1559a* (NBG, PRE); Grootvaderbosch State Forest above Witbooisrivier, (–DD), *McDonald & Morley 1005* (BM, NBG, PRE, TCD); Montagu Baths, *Page 97* (PRE). 3321 (Ladismith): Ladismith, (–AC), *Fourie s.n.* (NBG); Prince Albert District, summit Swartberg Pass, (–AC), *Stokoe s.n.* (NBG, PRE); Towerkop, (–AC), *Wurts 1210, 1211* (NBG); Klein Swartberg, (–AD), *Bond 1820* (NBG); Rooiberg, (–AD), *Compton 3835* (BOL NBG); Seweweekspoort, (–AD), *Compton 7438* (NBG); Huis River Mountains, (–AD), *Compton 7498* (NBG); Waterkloof, (–AD), *Hutchinson 1104* (PRE); S entrance to Seweweekspoort, (–AD), *Levyns 2349* (BOL); foot of Swartberg, lower slopes in Seweweekspoort, (–AD), *Levyns 2414* (BOL);

Towerkop, (-AD), *Maguire 1210* (NBG); Seweweekspoort, (-AD), *Phillips 1503* (NBG); Seweweekspoort, (-AD), *Taylor 9356* (K, MO, PRE); Prince Albert District, Swartberg Pass, (-BD), *Stokoe s.n.* (NBG); Swartberg Mountains, Kliphuisvlei, *Taylor 7562* (K, PRE); *Thompson 2151* (NBG, PRE); Noukloof Nature Reserve, (-CA), *Laidler 372* (NBG, PRE); Ladismith District, (-CB), *Adamson 5124* (PRE); 10 km from Ladismith, Hartebeesfontein, (-CB), *Bredenkamp 929, 930* (PRE); Oudtshoorn, Gamka Mountain Reserve, (-CB), *Cattell & Cattell 167* (NBG); Van Wyksdorp, Rooiberg, (-CB), *Hoekstra 73* (NBG); *Levyns 6626* (BOL); *Marshall 130, 131* (NBG); *Thompson 3374* (PRE); foot of Garcia Pass, farm Muiskraal, (-CC), *Bredenkamp 928* (PRE); Riversdale, Langeberge, Springfontein, Kliphooigte, (-CC), *Fellingham 169* (NBG, PRE); Karoo between Muiskraal and Springfontein, (-CC), *Levyns 2303* (BOL); Calitzdorp, (-DA), *Bayliss 1684* (PRE); Gamka Mountain, (-DA), *Boshoff 156* (NBG); Rooiberg Pass, (-DA), *Oliver 3679* (K, PRE); *Thompson 1427* (NBG); Gamka Mountain Reserve, (-DB), *Allardice 1726* (NBG); Waterkloof near Ladismith, (-DC), *Hutchinson 1104* (K); Ladismith, Rooiberg, *Levyns 6627* (BOL). 3322 (Oudtshoorn): Prince Albert, (-AA), *Marloth 12724* (PRE); Swartberg Pass, (-AC), *Acocks 1007* (S); *Bean 1385* (BOL, MO, NBG); *Bolus 11630* (BM, BOL); *Boucher 2008* (PRE); *Esterhuysen 8978* (BOL); *Gillett 1986* (NBG); *Stokoe 6335, 8677, 8977* (BOL); *Stokoe s.n.* (NBG, PRE); *Vlok 1235* (PRE); *Wall 30, s.n.* (S); Swartberg Pass, (-AD), *Brink 924* (GRA); Prince Albert District, Kriedouw Mountains, (-AD), *Marloth 11283* (PRE); Swartberg Mountains, Die Aap, (-AD), *Marshall 244* (NBG, PRE); Oudtshoorn District, (-CA), *Britten 1633* (GRA, PRE); De Rust, P.K. le Roux's farm 'Die Krans', (-CB), *Dahlstrand 1490* (C, MO, NBG, PRE); foot of Robinson Pass, from Oudtshoorn to Mossel Bay, (-CC), *Bredenkamp 922* (PRE); Perdepoort adjacent to Doorn River, en route to Leydsdorp, (-CD), *Bredenkamp 919* (PRE); 4 mi. NW of Camfer's Station, (-CD), *Acocks 22862* (K, PRE); Kammanassie Mountains, (-DA), *Matthews 1153* (NBG); Kammanassie Mountains, (-DB), *Bredenkamp 1549, 1554* (PRE); Roode Els Kloof Farm, (-DB), *Matthews 284* (PRE); Mannetjiesberg, (-DB), *Williams 1451* (PRE); N side of Montagu Pass, (-DD), *Marloth 6862* (PRE). 3323 (Willowmore): between Uniondale and Avontuur, (-CA), *Marloth 10964* (PRE); upper Kouga, Longkloof, (-CB), *Bayliss 6060* (PRE); Uniondale, Kouga near Misgund, (-CD), *Compton 7427* (NBG). 3419 (Caledon): 18.4 km W of Greyton, (-AB), *Acocks 24427* (K, PRE). 3420 (Bredasdorp): Hill on E side of the Poort, (-CA), *Acocks 1549* (S). 3421 (Riversdale): Zandkraal, *Muir 4485* (BOL, PRE). Grid ref. unknown: Farm Hounslow, near Piggot Bridge, *Bayliss 8908* (M, MO); *Ecklon & Zeyher 98* (BOL); *Ecklon & Zeyher s.n.* (WU); Laingsburg district, Karoo Garden, Whitehill, *Esterhuysen 1998* (BOL); Zuurberg at Georgida, *Fourcade 4624, 4625* (BOL); Cradock Road, roadside in Hellpoort, *Jacot-Guillarmod s.n.* (GRA); Montagu Baths, *Levyns 15495* (BOL); Cogman's Kloof, *Michell 71* (PRE); above Cape Town, *Rogers 17222* (K); Caledon District, Somerset, Sneeuwkop, *Stokoe s.n.* (NBG).

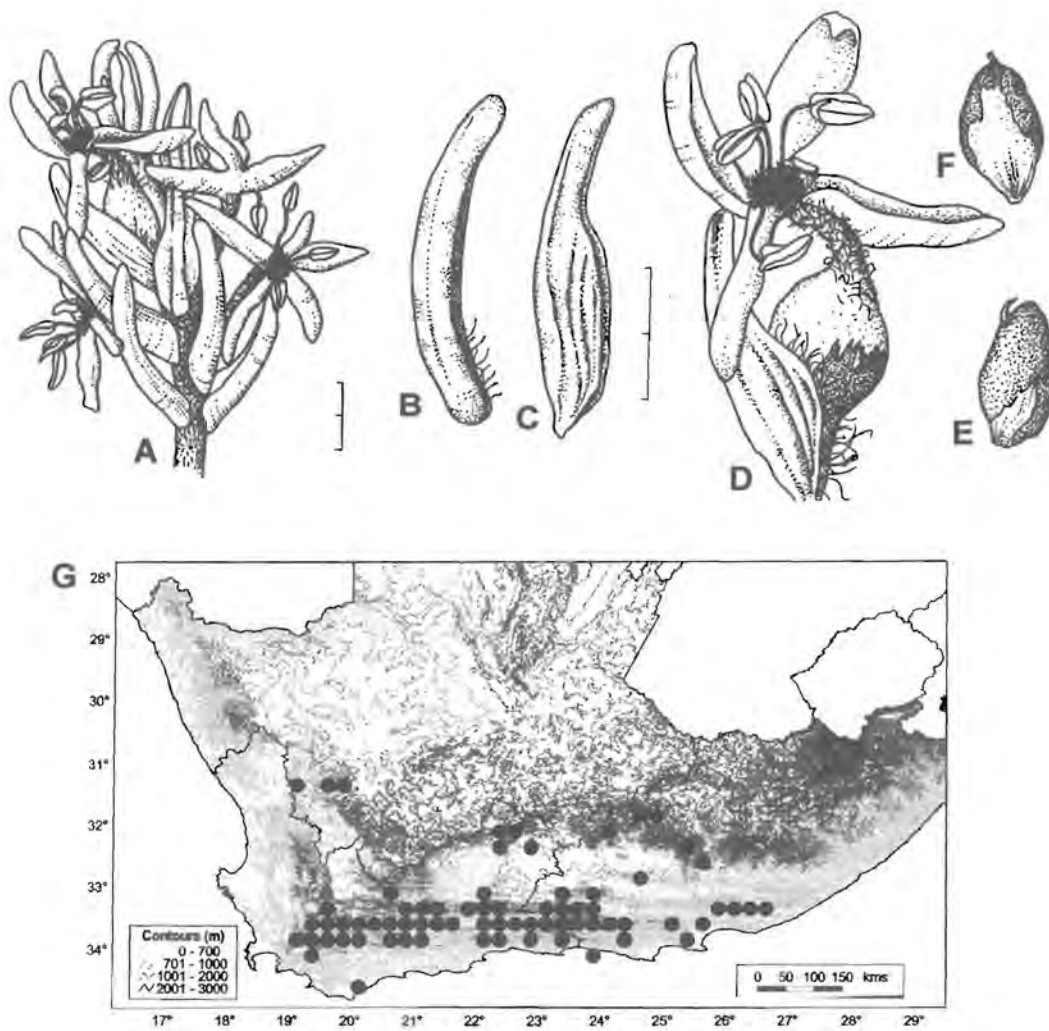


FIGURE 7.16.—*Passerina obtusifolia* (Bredenkamp 919). A, flowering inflorescence; B, leaf; C, bract; D, flower clasped by bract, fragmenting at circumference of ovary; E, achene in lateral view, with basal fragment of membranous pericarp; F, achene in ventral view, with remnant of membranous pericarp. Scale bars: 2 mm. G, known distribution of *Passerina obtusifolia*.

16. *Passerina paludosa* Thoday. Bulletin of Miscellaneous Information. Kew 4: 161 (1924a); Bond & Goldblatt: 433 (1984); Goldblatt & Manning: 683 (2000).
Types: Western Cape, Simonstown, Cape Flats, Riet Valley, in and near shallow vleis, November 1922, Thoday 100 [K!, lecto., designated by Thoday 10: 388 (1924b); C!, NBG!, PRE!].

Much branched shrubs or small tree, up to 2.0 m high. *Stems* fawn, indumentum of young stems closely white-tomentose, forming lengthwise patterns with cork on older branches, which gradually become glabrous, leaf scars oblate, comose at upper rim. *Leaves* erect, nearly straight, greyish green, imbricate, overlapping $\pm 25\%$, appressed; plane shape narrowly lanceolate to lanceolate, longitudinally folded and somewhat keeled, length \times depth (3.0–)5.5–6.8(–10) \times 0.8–1.4 mm, adaxial surface concave, tomentose, abaxial surface glabrous; base sessile; apex acute, sometimes incurved, bearing a persistent tuft of white, erect hairs; margins setose. *Inflorescences* with multiflowered main and co-florescences; spikes usually extended, 10–12-flowered, arrangement subterminal, axis white-tomentose, proliferating growth common. *Bracts* greyish green, appressed, narrowly obtrullate with leaf-like point, length \times depth (5.2–)7.0 \times 1.8(–2.0) mm; lamina folded lengthwise and keeled, adaxially concave (inside), abaxially slightly convex (outside), basally setose inside, glabrous outside, coriaceous, ± 2 -ribbed; wings membranous with obscure venation, glabrous; base cuneate; apex acute; margins white setose. *Floral envelope* ± 7.2 mm long, papyraceous and yellow-pink during pollination, dehydrated after shedding of pollen, turning red to brown. *Hypanthium* shortly tomentose at ovary, neck strigose, ± 2.6 mm long. *Sepals*: outer sepals cymbiform, ad- and abaxially glabrous, apex setose; inner sepals oblong, ad- and abaxially glabrous, apex setose with margins tomentose. *Androecium* with filaments of antipetalous whorl ± 1.2 mm and those of antisepalous whorl ± 2.4 mm long; anthers ovoid, 0.7 \times 0.5 mm, subbasifixed, 2-thecous and 4-locular. *Ovary* 2.3 \times 1.0 mm. *Fruit* an achene with pericarp membranous and dry, 2.4 \times 1.2 mm, enveloped by persistent, loosely arranged hypanthium, breaking up at neck base due to dehydration and torsification of tissue, resulting in sepals and androecium being shed. Figure 7.17A–D.

Diagnostic characters and relationships

Passerina paludosa is a stout shrub up to 2 m high, occurring mostly in marshy ground on lowland flats. It is characterized by erect, nearly straight, greyish green, imbricate, appressed leaves, which are \pm lanceolate. The bracts are narrowly obtrullate, with the midrib and leaf-like point stout and the apex acute. This species is distinguished from *P. filiformis* subsp. *filiformis* which has filiform leaves and widely obovate bracts, which narrow abruptly into a filiform point.

Etymology

The specific epithet *paludosa* refers to the habitat of this species, namely marshy lowland flats; from the Latin *paludosus* (= marshy, swampy or boggy).

Distribution and ecology

Passerina paludosa is endemic to the Southwestern Centre within the CFR. Herbarium specimens dated from 1921 to 1995 show that this species used to be distributed from sandy places along the Malmesbury Road (*Acocks* 2482), along marshy areas of the Cape Flats and the Stellenbosch District to the Palmiet River at Elgin, the most easterly locality. As *P. paludosa* was severely affected by urbanization and invasion by alien vegetation in the Cape Peninsula, it is currently confined to small marshy areas east of Muizenberg.

According to Smuts (1996) the only three extant populations known, are at the Rondevlei Nature Reserve, Zeekoevlei and along the Strandfontein Road. Label information on *Peterson* 1263, collected in 1982, states that the population at a housing estate site SE of Zeekoevlei consisted of \pm 400 plants, but Smuts (1966) reported only 60 living plants. At the same time the population at Rondevlei consisted of 35 plants and the one along the Strandfontein Road of possibly a few hundred. Currently both the Zeekoevlei and Strandfontein sites are in danger of urban

development and are being threatened by invasive alien vegetation, primarily Port Jackson (*Acacia saligna* (Labill.) Wendl.) and rooikrans (*A. cyclops* A.Cunn. ex G.Don). Conservation measures proposed by Smuts (1996) include an environmental impact study at the Zeekoevlei site prior to any development and a plea for urgent attention by conservation authorities to ensure the conservation of the Strandfontein population. Figure 7.17E.

The Rondevlei Nature Reserve boasts more than 250 plant species of which many are rare and endangered. Species associated with *P. paludosa* include *Chondropetalum nudum* Rottb., *Juncus krausii* Hochst. and *Leucadendron levisamus* (L.) Berg. In recent years the management at the reserve concentrated on restoring and managing its biodiversity. Alien vegetation has been cleared, plant species that occurred there historically have been re-introduced and *P. paludosa* has been successfully propagated by cuttings to expand the population. As aridification is an important effect of urbanization and as alien vegetation impacts on the natural drainage system of an area, the whole wetland east of Muizenberg can be conserved only if it is included in the Rondevlei Nature Reserve (Smuts 1996).

Recently two new populations of plants, that appear to be *P. paludosa*, were collected at the farm Springfontein near Stanford [3419AD, Louw 7083 (NBG, PRE)], and in seasonally wet clays at Heidehof, 5 km NW of Pearly Beach [3419CB, Helme 2376 (NBG, PRE)]. These specimens were not included in the distribution of *P. paludosa* as further population studies need to be done. Taking urbanization and invasion by alien vegetation into account the Red List status of *P. paludosa* was also not changed.

Conservation status: Critically Endangered, [CR B1ab(i,ii,iii,iv); C1] (IUCN Species Survival Commission 2000).

Specimens examined

WESTERN CAPE.—3318 (Cape Town): Stellenbosch District, Cape Flats, along Klipfontein Road, (–DC), *Esterhuysen 29962* (BOL, MO); Stellenbosch Flats, rare, *Duthie 1517* (BOL). 3418 (Simonstown): Muizenberg, marshy plot S of Sandvlei, (–AB), *Milton 2* (BOL); Rondevlei Nature Reserve, population between peninsula road and reserve, seasonal wetland, (–BA), *Bredenkamp 1035* (PRE); wetland on N bank of vlei, (–BA), *Jangle 156* (PRE); Cape Flats, (–BA), *Moss 5644* (BM); in and near Riet Valley, (–BA), *Thoday 100*, (C, NBG, PRE); 300 m SE of Zeekoevlei, c. 400 plants, housing estate site, (–BB), *Peterson 1263* (BOL). 3419 (Caledon): Palmiet River, Elgin, (–AA), *Stokoe 8226* (BOL). Grid ref. unknown: Malmesbury Road, sandy places near 27th milestone, *Acocks 2482* (S).

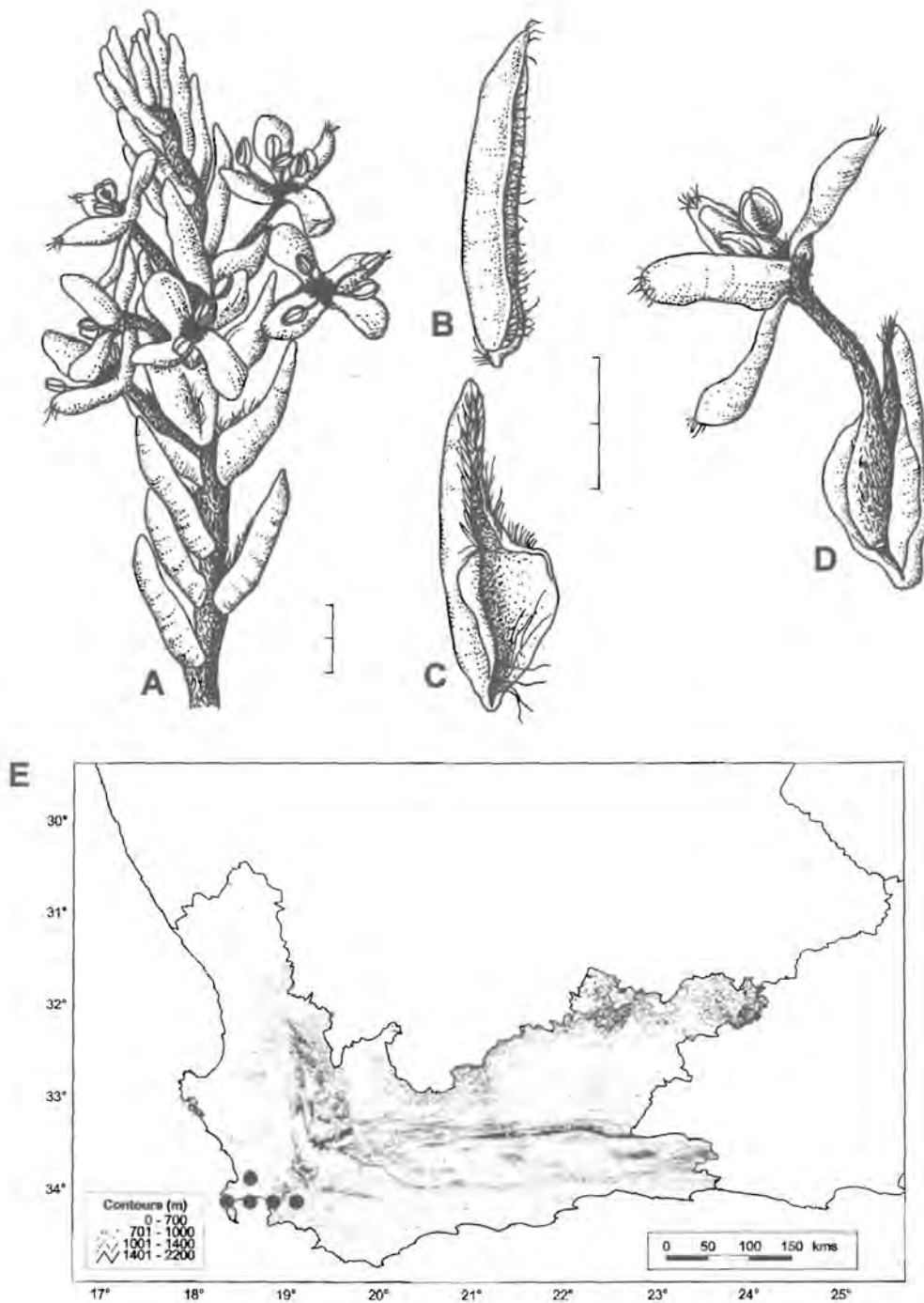


FIGURE 7.17.—*Passerina paludosa* (Jangle 156). A, inflorescence with apex growing out, returning to vegetative growth (proliferating growth); B, leaf; C, bract; D, flower clasped by bract. Scale bars: 2 mm. E, known distribution of *Passerina paludosa*.

17. *Passerina montivaga* Bredenk. & A.E.van Wyk, sp. nov., a *P. filiforme* L. habitu robustiore et luxuriantiore distinguenda. *Folia* cymbiformia, secus nervum medium plicata, lanceolata, ad apicem rotundatum decrescentia, basi expansa. *Bracteae* cymbiformes, ovatae ad obovatae, extra glabrae, intra basaliter setosae, in carinam longam, fere cylindricam, adaxialiter sulcatam, leviter incurvam gradatim decrescentes, basi cuneatae, coriaceae, sed lateris vel alis chartaceis, plus minusve tricostatis, marginibus trichomatibus conspicuis crassis serialibus secus dimidium distalem obsitis.

TYPUS.—KwaZulu-Natal, 2930 (Pietermaritzburg): Hills above Pinetown, 2 400 ft, (–DD), 3 December 1891, *J.M.Wood in PRE 49409* (PRE!, holo.; MO!, iso.).

Passerina filiformis L.: 559 (1753) pro parte, excluding type; Thunb.: 75 (1794); Wikstr. 39: 324 (1818); Thunb.: 374 (1825a); Meisn. 14: 562 (1857); C.H.Wright: 10 (1915); Thoday 4:159 (1924a); Bond & Goldblatt: 432 (1984); Hilliard & B.L.Burt: 182 (1987); Goldblatt & Manning: 683 (2000).

Passerina sp. nov. 4 Bredenk. & A.E.van Wyk 129: 70 (2000); 31,1: 56 (2001a); 31,2: 217 (2001b).

Low, spreading shrub 1(–2) m high; a vigorous resprouter. *Stems* initially greyish tomentose, cork fissuring lengthwise into fine, dark-grey, tomentose strips, older branchlets glabrous, with conspicuous leaf scars. *Leaves* greyish green, coriaceous, smooth, sessile, spreading from stem at angle of $\pm 45^\circ$; lamina cymbiform, folded along sturdy main vein, adaxial surface tomentose, abaxial surface glabrous, plane shape lanceolate, often slightly falcate, length \times depth 5.6–7(–8) \times 0.7–1 mm, tapering towards rounded apex, expanded at base; margin involute, ciliate. *Inflorescences* subterminal, 10–20-flowered, composed of proliferating spikes, common. *Bracts* cymbiform, outside glabrous, inside basally setose; lamina coriaceous, ovate to obovate, narrowing gradually into sturdy, leaf-like point of extended main vein; length \times depth $\pm 6.3 \times 1.6$ mm; base cuneate; wings chartaceous, ± 3 -ribbed, obscurely veined, greyish green; margins

conspicuously lined with strong white trichomes along distal half, often reaching up to apex. *Floral envelope* ± 6.6 mm long, yellow-pink during pollination; distal half of ovary and neck tomentose; neck ± 2.3 mm long; adaxial surface of outer and inner sepals glabrous, apex setose abaxially; outer sepals cymbiform, inner sepals obovate and $\pm 2.1 \times 1.3$ mm. *Androecium* with filaments of antipetalous whorl ± 0.8 mm, and those of antisepalous whorl ± 1.7 mm long; anthers $\pm 0.8 \times 0.3$ mm. *Ovary* $\pm 2.2 \times 0.7$ mm. *Fruit* enveloped by persistent, loosely arranged hypanthium fragmented at neck base; pericarp membranous and dry. Figure 7.18A–G.

Nomenclatural notes

Thoday (1924a) noted that plants named *P. filiformis* in present day KwaZulu-Natal, were more robust and luxuriant than those from the Western Cape. *Wood in PRE 49409* from Pinetown has been chosen as holotype of *P. montivaga* as it is a good representation of the new taxon; it was also determined and cited by Thoday (1924a).

Diagnostic characters and relationships

Passerina montivaga is easily distinguished from *P. filiformis* by its more robust and luxuriant habit. For some distance below the inflorescences, the foliage leaves are expanded at the base. Bracts are ovate to obovate, narrowing gradually into a sturdy, leaf-like point, with margins along their distal half conspicuously fringed by strong white trichomes. *P. montivaga* can also be distinguished from *P. falcifolia* by the apical beard on the young leaves and outer sepals and by the adaxial surface of the bracts, which is basally setose, with glabrous wings.

Etymology

The specific epithet is a compound of the Latin *montanus* (= pertaining to mountains) and *vagus* (= in several directions), referring to the distribution of this species from Mossel Bay and Oudtshoorn in the Western Cape to the Eastern Cape and northwards along the Great Escarpment.

Common names

Von Breitenbach *et al.* (2001) give the names 'brown gonna', *bruingonna* and *unwele oluncane* for *P. filiformis* in the wide sense, but these names are most appropriate for *P. montivaga* because of its wide distribution.

Distribution and ecology

Passerina montivaga has a wide distribution, from Mossel Bay and Oudtshoorn in the Western Cape northwards mainly along the Great Escarpment to KwaZulu-Natal, Swaziland, Mpumalanga, the Northern Province, Mozambique and Zimbabwe. The most southwesterly distribution of this species is in the southern Cape, a region transitional between winter and summer-rainfall. However, over most of its range the species is subject to summer-rainfall. Because of its wide distribution, especially along the Great Escarpment, *P. montivaga* is adapted to a variety of habitats, with relatively high rainfall. It is often found along forest margins in the ecotonal zone between Afromontane forest and grassland. It has been recorded from rocky mountain peaks and slopes, river valleys, gorges, and among riverside rocks. In coastal regions, it grows on hills and often borders small tributaries of streams flowing to the sea. Figure 7.18H.

Story (1952) reported that *P. montivaga* (= *P. filiformis*) dominated the western half of a small plateau north of the Mount McDonald beacon in the Keiskammahoek District. The plants were not browsed by stock although the plateau was heavily grazed. He regarded the species as useless and advised that it should be eradicated by hand, as it was not dense enough to burn without additional fuel. This fynbos species, distributed along the Great Escarpment, has not been reported as undesirable, and is currently not regarded as invasive, although it might be a dominant species in restricted areas.

Conservation status: Least Concern (LC) (IUCN Species Survival Commission 2000).

Specimens examined

ZIMBABWE.—1932: Chimanimani Mountains, Bundi Gorge, below hut, (–DD), *Goodier 637* (BM, M, PRE); Chimanimani, Melsetter, (–DD), *Goodier & Phipps 270* (MO).

MOZAMBIQUE.—1934: Manica and Sofala, *Pedro & Pedrogao 7310* (BOL).

MPUMALANGA.—2530 (Lydenburg): Lowveld Botanical Garden, (–BD), *Buitendag 712* (NBG, PRE); Badplaas, Buffelspruit, (–DC), *Botha 1445* (PRE).

SWAZILAND.—2631 (Mbabane): Black Mbuluzi Valley, (–AA), *Compton 26157* (NBG, PRE); Hlambanyati Valley, (–AC), *Compton 25157* (NBG); Mantenga Falls, (–AC), *Compton 29473* (NBG); Gobolo, (–AC), *Dlamini s.n.* (NBG, PRE); Usutu Dam, (–AC), *Dlamini s.n.* (NBG, PRE).

KWAZULU-NATAL.—2731 (Louwsburg): Vryheid District, Zungeni Peak, (–CD), *Acocks 11549* (PRE); Hlobane 20 mi. from Vryheid, (–CD), *Strey 9321* (PRE, S). 2830 (Dundee): Krantzkop District, The Kop, (–DD), *Edwards 820* (PRE). 2831 (Nkandla): Upper Umhlatuzi Dam, *Vincent & Wearne 4* (PRE); Eshowe, (–CD), *Meebold 15156* (M); Mtunzini District, Ngoye, (–DC), *Huntley 612* (MO, PRE). 2929 (Underberg): Umkomasi Forest Station, Nzinga River Valley, farm 'Cyprus', (–BC), *Hilliard & Burt 14463* (PRE); upper tributaries S of Mkomazi, (–CB), *Hilliard & Burt 15671* (N, PRE, S). 2930 (Pietermaritzburg): Table Mountain, forest margin close to descent into Amatulu, (–CB), *Killick 238* (PRE); Umgeni Valley, (–DA), *Cheadle & Wells 668* (M, PRE); Camperdown District, Nagle Dam, (–DA), *Wells 1809* (MO); Inanda, (–DB), *Wood 1182* (BOL); hills above Pinetown, (–DD), *Wood s.n.* (MO, PRE). 2931 (Stanger): Isipingo near Durban, (–CC), *Forbes & Obermeyer 58* (PRE); Bluff at Durban, (–CC), *Meebold 15157* (M). 3027 (Lady Grey): Barkley East District, road between Pitlochrie and Lundean's Neck, Glen Gyle, (–DA), *Hilliard & Burt 14654* (K). 3029 (Matatiele): Mt Currie Nature Reserve, (–AD), *Van Wyk BSA 2586* (PRE, PRU); Kokstad District, (–CB), *Mogg 5206* (PRE); Weza, Ngele Nature Reserve, KwaShiwili, (–DA), *Sikhakhane 524* (PRE); Mt Ingeli, (–DA), *Tyson 1287* (MO, NBG). 3030 (Port Shepstone): Emersdale, Dumisa Station Alexandra (–AC), *Rudatis 1204* (BM, PR, S); Oribi Falls, (–CA), *Mogg 13350* (K, PRE); Oribi Gorge, The Rocks, (–CA), *Mantell & Vassilatos 32* (PRE); Port Shepstone, farm Highlands, (–CB), *Strey 11363, 11364* (PRE); Oribi Gorge Hotel, (–CB), *Bredenkamp 1016, 1017* (PRE); Umtamvuna Nature Reserve, Beacon Hill, (–CC), *Abbott 43* (PRE); Umtamvuna Gorge, (–CC), *Germishuizen 1705* (PRE); Paddock District, (–CC), *Sidey 3862* (PRE, S); Port Edward, Beacon Hill, (–CC), *Van Wyk 5332* (PRE, PRU); Uvongo, littoral cliffs, (–CD), *Mogg 13397* (PRE); Uvongo Reserve, Skyline farm, 110 mi. S of Durban, (–CD), *Mogg 38026* (PRE); Mgongo, (–CD), *Strey 9284* (PRE); Margate, (–CD), *Ward 8832* (N, PRE); Uvongo N, Ngongongo K, off road to Gamalahke, (–CD), *Van Wyk 2622* (PRE, PRU, M).

EASTERN CAPE.—3128 (Umtata): hill above Mhlahlane Forest Station, (–BC), *Hilliard & Burt 18772A* (K, S). 3129 (Port St Johns): Lusikisiki District, Ngogwana Falls, (–BC), *Galpin 11016* (PRE). 3130 (Port Shepstone): Umtamvuna Nature Reserve, Pont Trail, (–AA), *Abbott 308* (PRE); Umtamvuna Bridge, E side of Bridge, (–AA), *Bredenkamp 1012, 1015* (PRE); Umtamvuna

Bridge, hills near sea, (-AA), *Strey 7112* (PRE); Umtamvuna River Bridge, (-AA), *Van Wyk & Bredenkamp 1* (PRE, PRU); Port Edward, (-AA), *Ward 10669* (PRE); Mkambati Game Reserve, Waterfall, (-AC), *Bredenkamp 1327, 1359, 1360* (PRE); Mkambati Game Reserve, Horseshoe Waterfalls, (-AC), *Germishuizen 9089* (PRE). 3227 (Stutterheim): Amatole Mountains, Lenye Plateau, (-CA), *Phillipson 1200* (MO, PRE); Keiskammahoek District, Mt McDonald Beacon, overlooking Amatola Basin, (-CA), *Story 3765* (GRA, PRE). 3228 (Butterworth): Kentani, Qolora River Bank, (-AD), *Pegler 1273* (BOL, GRA, NBG, PRE). 3326 (Grahamstown): Howison's Poort, (-AD), *MacOwen 16388* (BM); Howison's Poort, (-BC) *MacOwen s.n.* (MO). 3424 (Humansdorp): Diep River Valley near Humansdorp, (-BB), *Bolus 2440* (BOL, K).

WESTERN CAPE.—3321 (Ladismith): Mossel Bay Division, Voorattaquaskloof, (-DD), *Killick 3469* (PRE). 3322 (Oudtshoorn): Mossel Bay Division, valley of Ruitersbos, (-CC), *Bremer 317* (PRE, S); Oudtshoorn, Hoogekraal, Sedgefield area, (-DD), *Hugo 2019* (PRE); Hontini Pass, (-DD), *Roberts 66* (S). 3422 (Mossel Bay): E of Herold's Bay, George coastal region, inland of Oubaai, (-AB), *Victor 556* (PRE); George Division, Victoria Bay, (-BA), *Lewis s.n., 4064* (NBG); on road to Knysna from George, (-BB), *Gillett 4537* (BOL, PRE); Hoogekraal, 34 mi. E of George, (-BB), *Hutchinson 1298* (PRE); between George and Knysna, Garden Route, (-BB), *Roberts s.n.* (S). 3423 (Knysna): Redlands, (-AA), *Keet s.n.* (NBG, PRE); Knysna, Barrington, (-AA), *Morris 441* (NBG); Plettenberg Bay, (-AB), *Fourcade 4809* (BOL); W of Plettenberg Bay, between Marathon and Bosfontein, (-AB), *Hugo 2086* (NBG, PRE); Oyster Bay, (-BA), *Joffe 576* (TCD, PRE). Grid ref. unknown: Bey Plaats, *Fourcade 3473* (NBG); Tusizwa, *Penther 1919* (M, S); Tvungu River, *Thode 4657* (NBG); Pondoland, Umkwani River, *Tyson 2621* (NBG); Bothas, *Wood 8938* (MO).

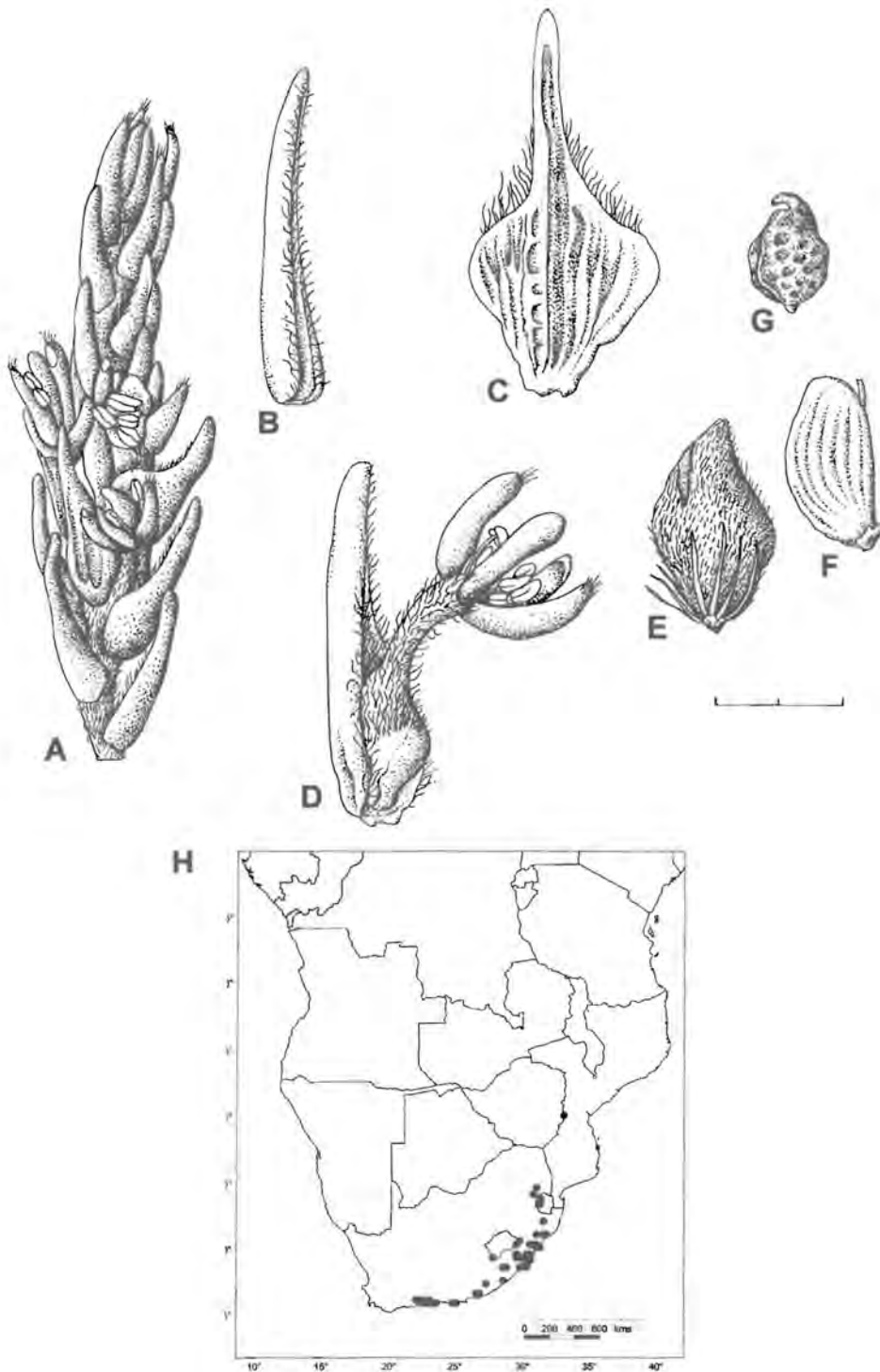


FIGURE 7.18.—*Passerina montivaga* (Bredenkamp 1327). A, inflorescence with apex growing out, returning to vegetative growth (proliferating growth); B, leaf; C, bract; D, flower clasped by bract; E, fruit enveloped by hypanthium, fragmented at neck base; F, achene, enveloped by membranous pericarp; G, achene in side view. Scale bars: 2 mm. H, known distribution of *Passerina montivaga*.

18. *Passerina filiformis* L. in Species plantarum: 559 (1753); Thunb.: 75 (1794); J.C.Wendl.: 18 (1798); Wikstr. 39: 324 (1818); Thunb.: 374 (1825a); Meisn. 14: 562 (1857); C.H.Wright: 10 (1915); Thoday 4:159 (1924a); Palmer & Pitman: 1587 (1972); Coates Palgrave: 648 (1977); Bond & Goldblatt: 432 (1984); Hilliard & B.L.Burt: 182 (1987); A.E.van Wyk & P.van Wyk (1997); Goldblatt & Manning: 683 (2000). Type: *Passerina filiformis*, *Linnean Herbarium 504.1* [LINN, lecto.!, designated by Thoday 10: 388 (1924b)].

P. cupressina J.C.Wendl. nom. nud. Meisn.: 404 (1840); Meisn. 14: 563 (1857); Thoday 4:159 (1924a). *P. cupressoides* Steud.: 273 (1841).

P. pectinata Lodd.: 18 (1816) nom. nud. Wikstr. 39: 347 (1818); Meisn.: 404 (1840); Meisn. 14: 562 (1857); Thoday 4:159 (1924a).

Large rounded shrubs up to 2 m high, often lax in the shade. *Stems* initially greyish tomentose, cork finely grey-brown tessellate, becoming glabrous, with conspicuous leaf scars and hair-like, whitish fibres protruding between bark fissures. *Leaves* dark green to greyish green, often drying brown, coriaceous, smooth, sessile, sometimes glutinous, closely adhering to stem or spreading from stem at an angle of $\pm 30^\circ$; lamina narrow, almost terete, adaxial groove tomentose, abaxial surface convex, glabrous, plane shape acerose or linear, transversely elliptic or cordiform in cross section, length \times depth (4.0–)5.5–8.0(–10.0) \times (0.4–)0.6–1.0 mm, tapering towards rounded apex, slightly widening or widening towards base; margin involute. *Inflorescences* subterminal, 10–20-flowered, composed of proliferating spikes. *Bracts* cymbiform, outside glabrous, inside setose from base to central part, ovate-acuminate to widely obovate, gradually narrowing to point or narrowing abruptly into filiform point, length \times depth \pm 4.6–7.3 \times 1.5–2.0 mm; base cuneate to widely cuneate; main vein strongly developed, often keeled, shortly extended or extending to form a leaf-like point; lamina coriaceous or chartaceous; wings glabrous, membranous with distinct venation, margins glabrous or ciliate, often with a few trichomes at apex adjacent to filiform point. *Flowers* glutinous or not. *Floral envelope* \pm 6.0–6.5 mm long, yellow-pink during pollination, scantily tomentose or tomentose at ovary, neck

scantily tomentose or tomentose, 1.5–1.7 mm long; outer and inner sepals concave, obovate and with adaxial surface glabrous, apex abaxially setose; inner sepals $\pm 2.2\text{--}2.5 \times 1.4\text{--}1.5$ mm. *Androecium* with filaments of antipetalous whorl $\pm 1.1\text{--}1.2$ mm, and those of antisepalous whorl ± 2.2 mm long; anthers $\pm 0.8 \times 0.3$ mm. *Ovary* $\pm 2.3\text{--}2.5 \times 0.5\text{--}0.6$ mm. *Fruit* enveloped by persistent, loosely arranged hypanthium fragmenting at neck base; pericarp membranous and dry.

Nomenclatural notes

Two of the four *Passerina* specimens in the Linnean Herbarium are named *P. filiformis* in the handwriting of Linnaeus; these specimens are numbered 504.1 and 504.2 in Savage (1945). Number 504.2 is without a doubt *P. paleacea* Wikstr. Thoday (1924a) maintained that number 504.1 is a Clifford specimen and probably the one Linnaeus saw when he wrote the first edition of *Species plantarum* (1753). Savage (1945) added the inscription [? ex herb. Cliff.], indicating doubt as to the origin of this specimen. The present author has seen this specimen and agrees with Thoday (1924a) that it perfectly matches the concept of *P. filiformis* as it is known in the Cape Peninsula. The phrase “*Passerina foliis linearibus*” in the *Species plantarum* (1753) has clearly been copied by Linnaeus from *Hortus Cliffortianus* (1737) and from Van Royen (1740). The leaves of the illustration in *Hortus Cliffortianus* are \pm lanceolate and the bracts are very similar to those of *P. filiformis* subsp. *glutinosa* (Thoday) Bredenk. & A.E. van Wyk stat. nov., which has acerose or filiform leaves. The specimen labelled *Passerina filiformis* L. in Clifford’s Herbarium is sterile, lacks characteristic bracts or flowers, and could possibly be *P. corymbosa* Eckl. ex C.H. Wright (= *P. vulgaris* Thoday). *P. corymbosa* is the dominant *Passerina* species in the southern and southwestern Cape and is constantly confused with *P. filiformis*. Specimen 504.1 in the Linnean Herbarium, named *P. filiformis* by Linnaeus, is here designated as the lectotype. *Thymelaea aethiopica*, in Plukenet (1700: 180), is cited in synonymy of *P. filiformis* by Linnaeus (1753). The illustrated synonym from Breynia (1678) most probably belongs to the genus *Phyllica* L. (Rhamnaceae) and that of Burman (1739) is clearly a member of *Struthiola* L. (Thymelaeaceae).

Etymology

The Latin specific epithet *filiformis* (= thread-like) obviously refers to the narrow leaves of this species.

Common names

The vernacular name ‘sparrow-wort’ was suggested by Miller (1768) for all *Passerina* species, indicating *P. filiformis* as ‘sparrow-wort with linear convex leaves’. Wendland (1798) used the German equivalent *fadenförmige Vogelkopf*. Marloth (1925) mentioned the names *kannabas* and *kaalgaar*. The following Afrikaans names appear in Smith (1966) and some of them also in Palmer & Pitman (1972) and Coates Palgrave (1977): *bakbossie*, *bakkersbossie*, *bruingonna*, *fyntaaios*, *gannabas*, *gonnabas*, *kaalgaarbos*, *kaalgaring*, *kabelgaring*, *kannabas*, *koordehaar*, *taaios*, *windmakersbessie*, *windmakersbossie*.

Key to subspecies

- 1a Branchlets and inflorescences dry, mostly not glutinous; bracts widely obovate, narrowing abruptly into filiform point..... 18a. subsp. *filiformis*
- 1b Branchlets and inflorescences glutinous; bracts ovate acuminate, gradually narrowing into a point..... 18b. subsp. *glutinosa*

18a. subsp. *filiformis*

Leaves dark-green to greyish green, spreading from stem at angle of $\pm 30^\circ$; lamina almost terete, cordiform in cross section, length \times depth (4–)5.5–8(–10) \times 0.6–1 mm, slightly widening towards base. *Inflorescences* not glutinous. *Bracts* widely obovate, narrowing abruptly into filiform point; length \times depth $\pm 7.3 \times 2.0$ mm; base widely cuneate; main vein strongly developed, often keeled, extending to form a leaf-like point; lamina chartaceous; margins glabrous, often with a few trichomes at apex adjacent to filiform point. *Flowers* not glutinous. *Floral envelope*

± 6.0 mm long; hypanthium surrounding ovary, and neck tomentose; neck 1.7 mm long; outer sepals concave, obovate, inner sepals obovate. Figure 7.19A–C.

Diagnostic characters and relationships

Subsp. *filiformis* is morphologically distinguished by the almost terete, adaxially grooved, acerose or linear leaves and the cymbiform, widely obovate floral bracts, which abruptly narrow to a filiform point. Diagnostic characters of *P. corymbosa* include linear to narrowly lanceolate leaves and diamond-shaped bracts. Some specimens of subsp. *filiformis* with incurved, tapering leaves, exerted receptacle tubes and veined bracts could be mistaken for *P. falcifolia*. The apical beard on the young leaves and outer sepals and the glabrous inner sides of the bracts are reliable diagnostic characters for subsp. *filiformis*.

Common name

According to Van Wyk & Gericke (2000) the name *bakkerbos* commemorates an era in the Cape when the officially licensed bakers used this plant to heat their ovens. The plants used at that time were clearly subsp. *filiformis*.

Uses

When ignited, plants of subsp. *filiformis* disappear in a blaze of hot flame owing to a waxy secretion on the leaves (Smith 1966). The plants were formerly used for heating up stoves. Today it is quite scarce around Cape Town, probably because of the impact of collecting on this once abundant resource. At maturity these plants are quite ornamental and they have been cultivated in Britain and Europe since the time of Linnaeus. Plants of subsp. *filiformis* are vigorous resprouters, they are well adapted to the Cape climate and would be suitable for reclamation plantings in areas where invasive alien vegetation has been cleared. The bark is very tough and has been used by indigenous peoples as twine (Marloth 1925). According to Laidler (1928) a decoction of this plant has been used by the Khoekhoe for the treatment of shooting pains.

Distribution and ecology

Passerina filiformis subsp. *filiformis* is endemic to the Northwestern, Southeastern and Langeberg Centres within the CFR. It is found in the Cape Peninsula, and is distributed from Piquetberg, across the Hex River Mountains, to Attaquaskloof in the southwestern Cape. It grows in rocky areas, mostly on south-facing mountain slopes, as well as on sandy plains, like the Rietvallei and Stellenbosch Flats. Figure 7.19D.

Conservation status: Least Concern (LC) (IUCN Species Survival Commission 2000).

Specimens examined

WESTERN CAPE.—3218 (Clanwilliam): Piquetberg, (–AD), *Penther s.n.*, 1912 (S, WU); Piquetberg near Sauer, (–DC), *Barker 8095, 5795*, (MO, NBG). 3318 (Cape Town): between Darling and Vredenburg, (–AA), *Hutchinson 258* (PRE); Kloofnek, slopes above old tram, (–CD), *Acocks 890* (S); Table Mountain, Cairn Face, (–CD), *Andraea 1165* (NBG, PRE); Cape Town, (–CD), *Bolus 2925* (BOL, K); Signal Hill, (–CD), *Bredenkamp 1039* (PRE); Cape Town, (–CD), *Burchell 66* (K); Table Mountain, (–CD), *Ecklon s.n.* (PR); *Esterhuysen 26437, 34096*, (BOL, MO, M, S); India Window Route, (–CD), *McKinnon 32* (NBG); Kloofnek, (–CD), *Moss 5643* (BM); Table Mountain, (–CD), *Prior s.n.* (K); *Rob & Fries 3393, 3396, 3397, 3398, 3399* (UPS, S); Kirstenbosch, (–CD), *Schmidt 568* (M); Lions Head, (–CD), *Wall 1060* (S); Signal Hill, close to signal station, (–CD), *Wolley-Dod, 3103* (K); Cape Town, (–CD), *Worsdell s.n.* (K); Paarlberg, (–DB), *Drège s.n.* (K); Rietvallei Flats, (–DC), *Mund & Maire s.n.* (K); Stellenbosch Flats, (–DD), *Garthside 17* (K). 3319 (Worcester): Tulbagh Kloof, (–AC), *Grant 1* (C); Hex River Pass, (–BD), *Rogers 16701B* (PRE). 3321 (Ladismith): Attaquas Kloof, (–DD), *Gill s.n.* (K). 3418 (Simonstown): granite gravel beside Llandudno Road, (–AB), *Acocks 5174* (S); Hout Bay, (–AB), *Compton 11762* (NBG); Llandudno, (–AB), *Compton 14827* (NBG); Table Mountain, (–AB), *Esterhuysen 35680* (BOL); Simon's Bay, (–AB), *Wright s.n.* (MO). 3420 (Bredasdorp): De Hoop, (–AD), *Van der Merwe 1101* (PRE). Grid ref. unknown: *Acocks 5754* (S); *Anferweg 850* (PR); Hortus Botanicus Frankfurt, *Buchenau s.n.* (BREM); *Burchell 276* (K); Great False River, Riversdale, *Burchell 6544* (K); ex Horto Leindenb., *Burmeister s.n.* (SBT); *Gerrard 1478* (BM, TCD, K); *Hardy s.n.* (K, S); ex *Herb. Linairiaro* (PR); *Herb. Regium Monacense s.n.* (M); ex *Herb. Rofski* (PR); *Herb. Zuccarinii s.n.* (M); *Krebs 282* (MO); Prague, *Kutzelman's Herbarium s.n.* (PR); *Lehman 1891* (C); *Medical Soc. Univ. s.n.* (K); *Moss T10* (BM); *Museum Bot. Hauniense s.n.* (C);

Niven & Laubert s.n. (S); *Pappe s.n.* (NBG); *Sparman s.n.* (S); *Talbot s.n.* (K); *Thom 553* (K); *Somerset, Thom 577* (K); *Trinity College s.n.* (TCD); C.B.S., *without collector 692* (K); *Cap. Wie Leidelbast benubst* (UPS).

Cultivated, *s.n.* (BM); cultivated, *Hort. Herb. Pallas s.n.* (BM); cultivated, *s.n.* (PR); cultivated, *Hort. Prague s.n.* (PR); cultivated, *Vinaf s.n.* (PR).

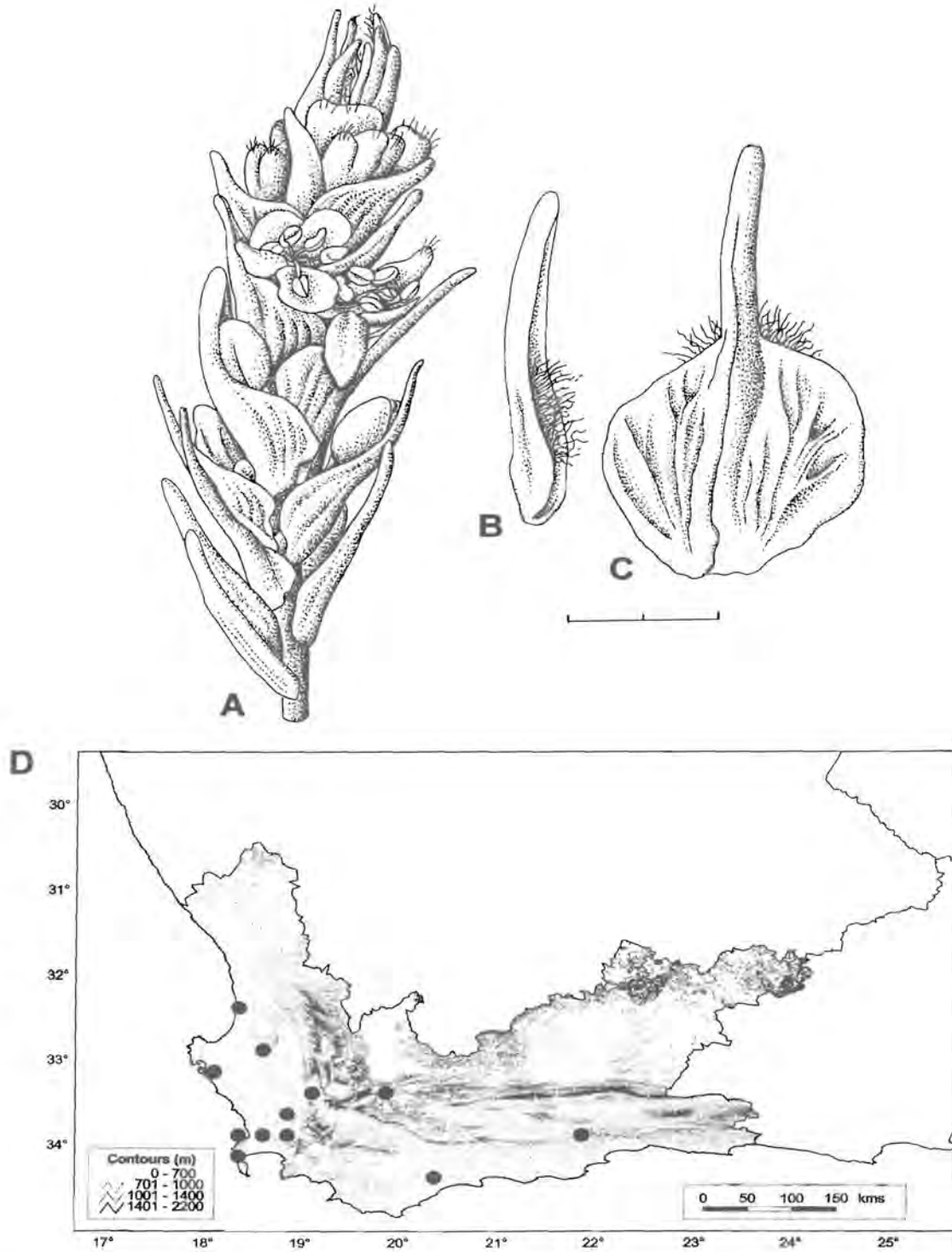


FIGURE 7.19.—*Passerina filiformis* subsp. *filiformis*, A–C (Bredenkamp 1039). A, inflorescence with apex growing out, returning to vegetative growth (proliferating growth); B, leaf; C, bract. Scale bar: 2 mm.

D, known distribution of *Passerina filiformis* subsp. *filiformis*.

18b. subsp. *glutinosa* (Thoday) Bredenk. & A.E. van Wyk, stat. nov. TYPUS.—
Malmesbury Division: round Langeenheid Station, *Thoday 215* (NBG, lecto.!, here
designated; BOL!).

Passerina filiformis L. var. *glutinosa* Thoday 4: 160 (1924a). Type: as above.

Leaves dark green, drying brown, glutinous, closely adhering to stem or
spreading at angle of $\pm 30^\circ$; lamina narrow, acerose or linear, transversely elliptic
in cross section; length \times depth $\pm 7.0 \times 0.4$ mm, tapering towards rounded apex,
widening towards base. *Inflorescences* glutinous, somewhat longer than in typical
subspecies. *Bracts* ovate-acuminate, gradually narrowing to point; length \times depth \pm
 4.6×1.5 mm; base cuneate; main vein strongly developed; lamina coriaceous;
wings membranous with distinct venation; margins often ciliate. *Flowers* glutinous.
Floral envelope ± 6.5 mm long; ovary scantily tomentose, neck scantily
tomentose, 1.5 mm long; outer and inner sepals concave, obovate. Figure 7.20A–C.

Nomenclatural notes

Thoday 215 in NBG was chosen as lectotype because of the longer
inflorescences and the conspicuously glutinous, narrow leaves. Duplicates of the
syntype of var. *glutinosa*, *Schlechter 5125*, were seen from BM, C, K, MO, PRE
and S. Although these specimens agree closely with the concept of var. *glutinosa*
(Thoday 1924), they are somewhat atypical as the glutinous character is not evident
in the dried material.

Etymology

The Latin name *glutinosa* (= viscous) obviously refers to the branchlets and
inflorescences that are glutinous in this subspecies.

Distribution and ecology

Subsp. *glutinosa* is endemic to the Northwestern and Southwestern Centres
within the CFR. It occurs in the Strandveld (Acocks 1988), from Doring Bay in the

north to St Helena Bay in the south. The vegetation around Doring Bay is described as Strandveld Succulent Karoo by Hoffman (1998). The area is characterized by deep, calcareous, coastal Quaternary sands and generally low rainfall. St Helena Bay is situated in the Sand Plain Fynbos (Rebelo 1998) and this part of the range is characterized by a Mediterranean climate with summer drought and deep acid sands. Sand Plain Fynbos is a highly endangered vegetation type as a result of urbanization and the impact of invasive alien plant species (Rebelo 1998). Figure 7.20D.

Conservation status: Near Threatened, [NT] (IUCN Species Survival Commission 2000).

Specimens examined

WESTERN CAPE.—3118 (Vanrhynsdorp): Vredendal Division, 7 m E by S of Doring Bay, (–CD), *Acocks* 24062 (PRE); Doring Bay, (–CD), *Thompson* 41 (S); Doring Bay, (–DA), *Thompson* 41 (NBG). 3217 (Vredenburg): Vredenburg, (–DD), *Compton* 15888 (NBG). 3218 (Clanwilliam): Diepkloof S of Verlorevlei, (–AD), *Boucher* 2833 (PRE); 6 m W by N of Graafwater, (–BA), *Acocks* 19671 (K, M, NBG, PRE); Alexandershoek, (–BC), *Schlechter* 5125 (BM, C, K, MO, PRE, S); Steenberg Cove, (–CC), *Taylor* 1542 (NBG, PRE); Saldanhaabaai, Langeenheid Station, (–CC), *Thoday* 215 (BOL, NBG); St Helena Bay, 9 km from Velddrif, (–CC), *Thompson* 801 (NBG, PRE).

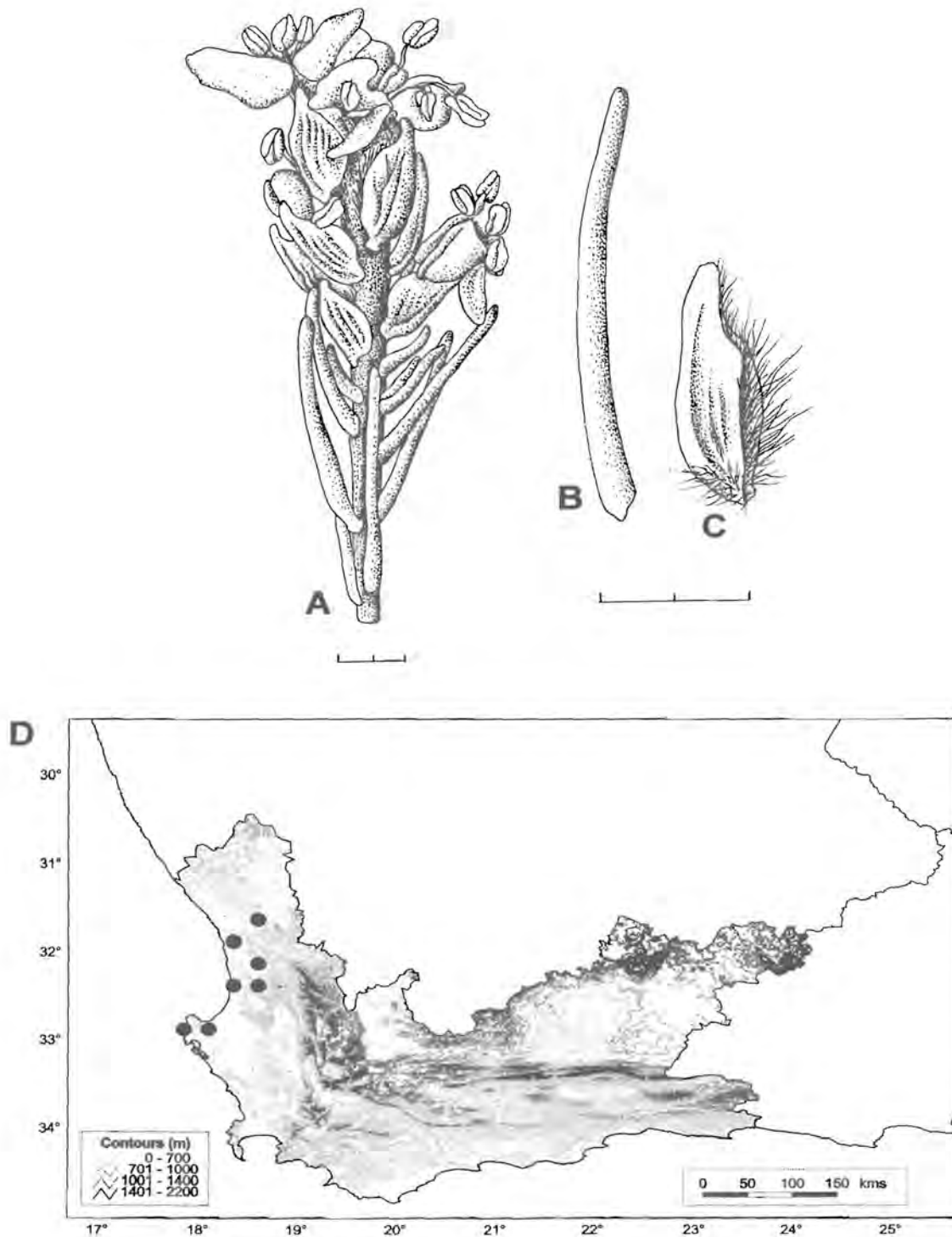


FIGURE 7.20.—*P. filiformis* subsp. *glutinosa*, A–C (Schlechter 5125). A, flowering inflorescence; B, leaf; C, bract. Scale bar: 2 mm.

D, Known distribution of *Passerina filiformis* subsp. *glutinosa*.

19. *Passerina falcifolia* (Meisn.) C.H.Wright. Flora capensis 5,2: 10 (1915); Thoday 4:158 (1924a); Palmer & Pitman: 1585 (1972); Coates Palgrave: 648 (1977); Bond & Goldblatt: 433 (1984); Goldblatt & Manning: 683 (2000). Type: Eastern Cape, Uitenhage, Vanstaadesberg [now Van Staden's Mountains], 1 000–2 000 ft, Drège s.n. (K!, lecto., designated by Thoday 10: 388 (1924b)).

Passerina filiformis L. var. *divaricata* Wikstr. 39: 325 (1818); Thoday 4:158 (1924a). Type: Western Cape: Caput Bonae Spei [Cape Peninsula], Sparrman s.n., Herb. Thunberg 9573 (UPS, holo!), Herb. Swartzii (S, iso!).

Passerina filiformis L. var. *falcifolia* Meisn.: 399 (1840); Drège: 118, 124 (1843); Meisn. 14: 562 (1857); C.H.Wright: 10 (1915); Thoday 4:158 (1924a). Type: same as for *P. falcifolia*.

Much-branched tall shrubs or small ornamental trees, (1.0–)1.2–2.0(–3.04) m high, branchlets often arcuate, pendulous. *Stems* grey-brown, indumentum of young stems closely whitish tomentose, forming lengthwise patterns, with cork on older branches, which gradually become glabrous, fissuring lengthwise, yellowish brown lenticulae present; leaf scars oblate. *Leaves* greyish green, drying greyish brown, falcate, linear to narrowly lanceolate, longitudinally folded, triangular in section, length × depth 3.9–5.6 × 0.6 mm, adaxial surface concave, tomentose, abaxial surface glabrous; base sessile; apex obtuse or tapered; margins glabrous, involute; younger leaves inclined, diverging at an angle of ± 60°, imbricate, overlapping up to 50%, older leaves horizontally spreading, not imbricate. *Inflorescences* with multiflowered main and co-florescences; spikes usually extended, lax, often arcuate, up to 16-flowered, arrangement subterminal, axis white-tomentose, proliferating growth common. *Bracts* mottled grey-green, rose-tinted during flowering time, ascending, imbricate, widely ovate, narrowing into a leaf-like, falcate point, length × depth (5.3–)5.8 × 1.7(–2.0) mm; older bracts folded lengthwise along midrib and keeled, younger bracts adaxially concave (inside), abaxially slightly convex (outside), villous inside, glabrous outside, coriaceous; wings chartaceous, distinctly ± 4-ribbed and reticulately veined; base cuneate; apex obtuse or tapered; margins ciliate in distal half. *Floral envelope* ± 8.4 mm long, papyraceous and yellow-pink during pollination, dehydrated after shedding

of pollen, turning red to brown. *Hypanthium* scantily tomentose at ovary, neck exerted, often arcuate, tomentose, ± 3.0 mm long. *Sepals*: outer sepals concave, obovate, adaxially scantily tomentose, abaxially glabrous; inner sepals obovate, adaxially tomentose, abaxially glabrous. *Androecium* with filaments of antipetalous whorl ± 1.4 mm and those of antisealous whorl ± 2.1 mm long; anthers ovoid, 1.0×0.4 mm, subbasifixed, 2-thecous and 4-locular. *Ovary* 2.5×0.7 mm. *Fruit* an achene with pericarp membranous and dry, 2.5×1.4 mm, enveloped by persistent, loosely arranged hypanthium, breaking up at neck base due to dehydration and torsification of tissue, resulting in sepals and androecium being shed. Figure 7.21A–F.

Nomenclatural notes

Wright (1915) overlooked the combination *P. filiformis* L. var. *divaricata* Wikstr. (1818), also indicated by Thoday (1924a), which is the earliest name for the taxon. However, this name based on *Sparrman s.n.* (Herb. Thunberg 9573) falls into synonymy under *P. falcifolia*, as the name of a taxon does not have priority outside the rank in which it was published (Greuter *et al.* 2000).

Diagnostic characters and relationships

Passerina falcifolia can be distinguished by the mottled grey-green falcate leaves, which are inclined or horizontally spreading. The widely ovate bracts are villous inside and narrow into a leaf-like, falcate point, with chartaceous wings that are distinctly ± 4 -ribbed and reticulately veined. The most conspicuous floral character is the slender, often arcuate, tomentose hypanthium neck, exerted from the clasping bract. This species can be confused with *P. filiformis* subsp. *filiformis* which has widely obovate bracts, narrowing abruptly into a filiform point. The bracts are basally to centrally setose on the inside and the wings are glabrous. *P. montivaga* is another close species, but can be distinguished by bracts that are basally setose on the inside, with glabrous wings.

Etymology

The specific epithet *falcifolia* is derived from the Latin *falcatus* (= curved like a sickle), referring to the falcate or sickle-shaped leaves of these plants.

Common names

Passerina falcifolia is also known as the 'Outeniqua gonna' or the *Outeniekwagonna*, referring to the Outeniqua Mountains where it occurs (Coates Palgrave 1977). Palmer & Pitman (1972) use the vernacular name 'forest gonna', as these plants are commonly seen along roadsides on mountain passes of the southern Cape forests. Von Breitenbach *et al.* (2001) use the names *Outeniekwa-gonna*, *gonnabas*, *gonnabos*, *kannabas* and 'Outeniqua gonna, gonna bush'.

Uses

Passerina falcifolia is used for fuel or for making cord (Palmer & Pitman 1972). According to label information on *Dahlstrand 1905* (PRE), the species is cultivated by florists. Plants grow into small ornamental trees and could be used more widely in horticulture. According to *Grobbelaar 63* (PRE), *P. falcifolia* is a host to members of the insect genus *Eremmus*.

Distribution and ecology

Passerina falcifolia is associated with forests and Mountain Fynbos (Rebello 1998) in the southern Cape and the southern parts of the Eastern Cape. It is a near-endemic to the CFR and occurs in the Karoo Mountain, Southwestern and Southeastern Centres, as well as the Zuurberg, Blaauwkrantz and Alexandria Forests of the Eastern Cape. It most commonly occurs in a belt between the coast and the 33°S latitude and from 22° to 26°E longitude. The two specimens, *Brown 25975* and *Rogers 28858*, collected near Caledon in October 1924, are regarded as outliers, possibly indicating a

wider previous distribution of the species into areas with woody vegetation in the Western Cape. *P. falcifolia* occurs from Meiringspoort, in the Oudtshoorn area, to Ruytersbosch in the Mossel Bay area, and along the Outeniqua, Tsitsikamma and Great Winterhoek Mountains to the Grahamstown area. Figure 7.21G.

Passerina falcifolia is found on mountain plateaus and southeast-facing slopes on Table Mountain Sandstone in shallow, sandy loam soil. Plants commonly occur along forest margins, in open patches, or disturbed areas along roadsides. This species is also found in coastal regions and riverine fynbos. *P. falcifolia* grows at a range of altitudes, from sea level up to 1 100 m.

Conservation status: Least Concern (LC) (IUCN Species Survival Commission 2000).

Specimens examined

EASTERN CAPE.—3225 (Somerset East): Zuurberg, (–DA), *Compton 20274* (NBG). 3323 (Willowmore): 12.5 mi. from Keurboomsrivier to Storms River, (–CD), *Thompson 880* (K, PRE); Joubertina, Groot River, (–DA), *Manson 147* (PRE); Ratel’s Bosch, (–DC), *Fourcade 74* (BOL, K); Nature’s Valley, Grootwes River Mouth, (–DC), *Parsons 172* (PRE); Bloukrantz Hoek, (–DC), *Schrire 2083* (GRA); Uniondale District, Tsitsikama Forest, (–DD), *Capener CF/2* (PRE). 3324 (Steytlerville): Slagboom Mountain, (–AD), *Britten 5812* (GRA, PRE); opposite Tsitsikama Lodge, near Sanddrif turn-off, (–CD), *Bredenkamp 915* (PRE); Cockscorb, (–DB), *Abel s.n.* (NBG); Uitenhage, Swartkops River, (–DB), *Zeyher 277* (BOL, K, NBG, TCD); Baviaanskloof near Cambria, (–DD), *Van Wyk 390* (K). 3325 (Port Elizabeth): Grootwinterhoekberge, Strydomsberg, (–CA), *Noel s.n.* (GRA); Uitenhage District, Groendal Wilderness, Eland’s River Catchment Basin, (–CA), *Scharf 1023* (PRE); Deysel’s Kraal Farm, (–CA), *Scharf 1578, 2001, 2005* (NBG, PRE); KwaZunga Catchment Basin, Os Plaat Farm, (–CA), *Scharf 2002* (PRE); Kromkloof Catchment Basin, Strydomsberg, Farm Waainek, (–CA), *Scharf 2033* (GRA, PRE); Coega Catchment Basin, (–CB), *Scharf 1689* (K, NBG, PRE); Groendal Wilderness Reserve, Bauerskraal Farm, (–CB), *Scharf 1985* (PRE); near Uitenhage, Van Staden’s Mountains, stony places, 1 000–3 000 ft, (–CC), *Drège s.n.* (K); Van Staden’s Mountains, Longmore Forest Station, (–CC), *Hugo 1405* (K, NBG, PRE); Longmore Bosstasie, (–CC), *Olivier 593* (K, PRE); Van Staden’s Mountains, (–CC), *Thompson 1856* (PRE); Van Staden’s Mountains, (–CC), *Zeyher 3778* (NBG); stony channels of Swartkops River, (–CD), *Zeyher 277* (K). 3326 (Grahamstown): Grahamstown, Port Elizabeth Road, (–BD), *Britten 5812* (PRE); Blaauwkrantz Pass, (–BD), *Story 3559* (K, M, PRE); Boknes



Strand, 7 km SW of Kenton-on-Sea, near Bakana's River, (-DA), *Burrows 2464* (PRE). 3423 (Knysna): Humansdorp District, Storms River, (-BB), *Marloth 13044* (PRE). 3424 (Humansdorp): Kruisfontein Mountains, (-BA), *Cowling 1419* (GRA); Groot River Forest, (-BB), *Barker 6036* (S); Humansdorp, Stan's River Mouth, (-BB), *Rycroft 3000* (S); Humansdorp District, (-BB), *Thode 993* (K, MO, PRE).

WESTERN CAPE.—3322 (Oudtshoorn): Meiringspoort, (-BC), *Ueckermann 7793* (PRE); Mossel Bay, Outeniqua Mountains, Ruitersbosch, (-CC), *Britten 130* (PRE); Kouma River, Outeniqua Pass, (-CC), *Campbell 13541* (NBG); S foot of Robinson Pass, (-CC), *Salter 6352* (BM, BOL, K); between Ruytersbosch and Robinson Pass, (-CC), *Van Niekerk 95* (NBG); Montagu Pass, near George, (-CD), *Bayliss BRI b295* (PRE); Prince Alfred Pass, (-CD), *Bredenkamp 920* (PRE); Robinson Pass, (-CD), *Bredenkamp 921* (PRE); Wolf-drift, Malgaten River, (-CD), *Burchell 6109* (K, PRE); Montagu Pass, (-CD), *Compton 7584* (C), Montagu Pass, Saasveld Forest Station, (-CD), *Dahlstrand 1285* (C); George on road to Knysna, (-CD), *Gillett 4536* (K); Montagu Pass, (-CD), *Humbert 9908* (PRE); Montagu Pass, (-CD), *Levyns 5040* (BOL); George, (-CD), *Marloth 6244* (PRE); George, (-CD), *Mund s.n.* (BM, NBG); Montagu Pass, (-DC), *Compton 7422, 7584* (NBG); Wilderness, Hoekwil, (-DC), *Wahl 42* (NBG); Hoogekraal, Sedgefield, (-DD), *Hugo 2019* (K); Karatara, (-DD), *Keet 1152* (PRE); 20 mi. NW of Knysna beyond Homtini Pass, (-DD), *Marsh 594* (K, PRE). 3323 (Willowmore): Gouna Staatsbos, (-CC), *Bredenkamp 917* (PRE); Knysna, Gouna Road, (-CC), *Levyns 7842* (BOL). 3419 (Caledon): near Caledon, (-AB), *Brown 28858* (PRE). 3422 (Mossel Bay): on road to Knysna from George, (-BB), *Gillett 4536* (BOL, PRE). 3423 (Knysna): Groot Rivier, (-AA), *Barker 6036* (NBG); Knysna, (-AA), *Grobbelaar 63* (PRE); Blaauwkrantz, (-AA), *Martin s.n.* (GRA); Paardekop, (-AA), *Morris 396* (NBG); near Coldstream, (-AA), *Rodin 1305* (BOL, K, MO, PRE); Knysna, (-AA), *Rogers 27004* (BM, NBG, PRE); Knysna, Blaauwkrantz, (-AA), *Tyson 1449* (K, NBG, PRE); Groot Rivier, (-AA), *Wurts 2121* (NBG); George, (-AA), *Zeyher 38* (BOL); Knysna, (-AA), *collector unknown s.n.* (S); bordering forest at Plettenberg Bay and Knysna, (-AB), *Bowie 5* (BM); Plettenberg Bay, (-AB), *Rogers 28983* (GRA, NBG). Grid ref. unknown: Cultivated, *Dahlstrand 1905* (MO, PRE); *Ecklon & Zeyher 38 or 91* (MO); Humansdorp District, Rietvlei, *Esterhuysen 6634* (BOL); *Herb. Thunberg s.n.* (UPS); Montagu Pass, *Lam & Meeuse 4660* (MO); Paris Jardin des Plantes, *Meinkauff s.n.* (M); Caput Bonae Spei, *Herb. Gasstromii, Sparrman s.n.* (S); ex *Herb. Swartzii, Sparrman s.n.* (S); *Herb. Wikstromii, Sparrman s.n.* (S); *Herb. Regium Monacense, Sparrman s.n.* (M); *Wallich s.n.* (K); Cape, *Zeyher s.n.* (S).

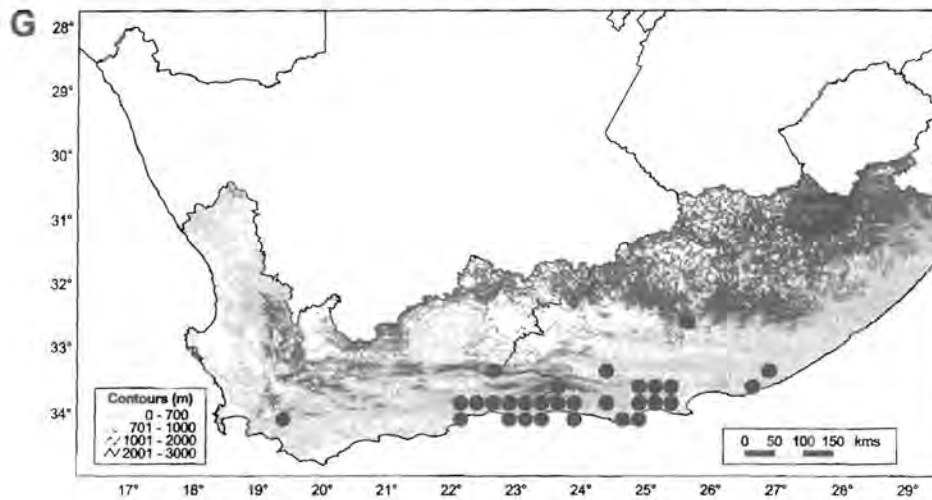
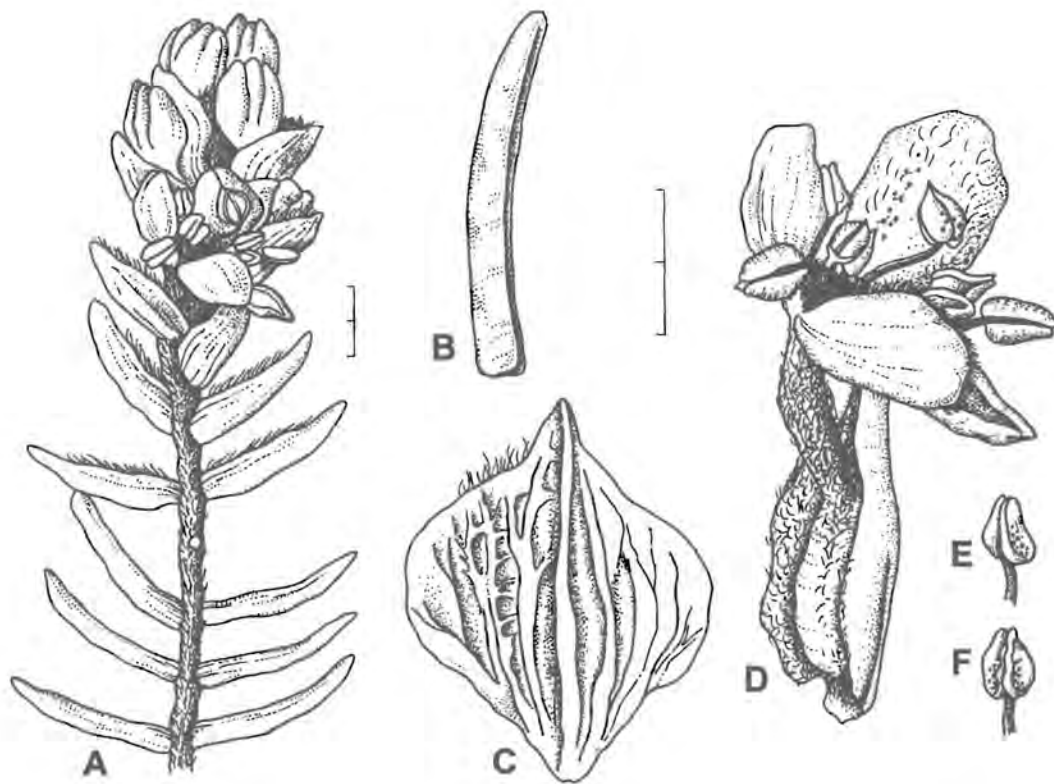


FIGURE 7.21.—*Passerina falcifolia* (Bredenkamp 917). A, flowering inflorescence; B, leaf; C, bract; D, flower clasped by bract. E, anther, dorsal view; F, anther ventral view. Scale bars: 2 mm.

G, known distribution of *Passerina falcifolia*.

20. *Passerina rubra* C.H.Wright. Flora capensis 5,2: 12 (1924a); Thoday 4:156 (1924a); Bond & Goldblatt: 433 (1984); Goldblatt & Manning: 684 (2000). Type: Western Cape, Ladismith, Muiskraal, near Garcia Pass, 1 200 ft, 3 October 1897, Galpin 4492 [K!, lecto., designated by Thoday 10: 388 (1924b); GRA!, PRE!].

Passerina filiformis L. var. *squarrosa* Meisn. 14: 562 (1857); Thoday 4:156 (1924a). Type: Eastern Cape, prope Cradockstad et Port-Elisabeth [near Cradock Town and Port Elizabeth], October, Zeyher 3779 (S!, lecto., here designated; BM!, MEL!, NBG!, W!).

Much branched, erect shrubs, with rigid branchlets and inflorescences or smaller, extensively branched, rounded shrublets under arid, calcareous habitat conditions, (0.2–)0.3–0.75(–1.1) m high. *Stems*: older ones grey-brown, indurate, and sclerenchyma fibres exposed; young stems reddish brown, indumentum whitish tomentose, forming lengthwise patterns with cork on older branches, which gradually become glabrous, cork fissuring lengthwise; internodes longer than leaves during prolific lengthening of branchlets or shorter under arid conditions. *Leaves* greyish green, ascending, appressed, decussate and rigid, or under arid conditions, imbricate (overlapping 5–30%), appressed or ascending, diverging at an angle of up to 30°; lamina narrowly lanceolate or oblong, longitudinally folded, triangular in section, length × depth 2.4–4.3 × 0.7 mm, adaxial surface concave, tomentose, abaxial surface glabrous; base sessile; apex obtuse; margins glabrous, involute. *Inflorescences* with conspicuous, multiflowered main and co-florescences; spikes robust, rigid, extended, narrowly ellipsoid, with rows of enlarged, decussate, pointed bracts, 20–30-flowered, arrangement subterminal, axis white-tomentose, proliferating growth common. *Bracts* grey-green, rose-tinted during flowering time, ascending, imbricate, widely ovate, midrib shortly extended into a point, length × depth (4.3–)5.1 × 1.8(–2.0) mm; older bracts folded lengthwise along midrib, younger bracts adaxially concave (inside), abaxially slightly convex (outside), villous inside, glabrous outside, coriaceous; wings widely ovate, chartaceous, ± 5-ribbed, reticulately veined; base cuneate; apex acute; margins ciliate in distal half. *Floral envelope* ± 8.4 mm long, papyraceous and yellow-pink during pollination, dehydrated after shedding of pollen, turning red to

brown. *Hypanthium* glabrous at ovary, neck exerted, sparsely pubescent, ± 2.0 mm long. *Sepals*: outer sepals cymbiform, ad- and abaxially glabrous, inner sepals obovate, adaxially scantily tomentose, abaxially glabrous. *Androecium* with filaments of antipetalous whorl ± 0.7 mm and those of antisepalous whorl ± 1.7 mm long; anthers ovoid, 0.9×0.3 mm, subbasifixed, 2-thecous and 4-locular. *Ovary* 2.7×1.1 mm. *Fruit* an achene with pericarp membranous and dry, 2.1×1.2 mm, enveloped by persistent, loosely arranged hypanthium, breaking up at neck base due to dehydration and torsification of tissue, resulting in the sepals and androecium being shed. Figure 7.22A–G.

Nomenclatural notes

As the starting date for a Latin diagnosis is 1 January 1935 (Greuter *et al.* 2000), *P. rubra* is a valid name, although it was published with a full description, but without a Latin diagnosis, by Wright (1915). The combination *P. filiformis* L. var. *squarrosa* (Meisner 1857), was overlooked by Wright (1915), but mentioned in synonymy by Thoday (1924a). In the present revision all the type material cited by both Wright (1915) and Meisner (1857) was studied. *Galpin 4492* (K) was selected as the lectotype of *P. rubra* by Thoday (1924b) and *Zeyher 3779* in S was selected as lectotype for *P. filiformis* var. *squarrosa* as it is internationally available in many herbaria.

Diagnostic characters and relationships

The distribution of *P. rubra* partly coincides with that of *P. corymbosa*, *P. montivaga* and *P. falcifolia*. *P. rubra* is a smaller shrub (average height 0.3–0.75 m), often occurring in calcareous soil. It can be distinguished from the other three species which are taller (average heights 1–2 m), and especially from *P. falcifolia*, which is a tall shrub or a small tree (up to 3.04 m), often associated with indigenous forests. *P. rubra* can also be separated by the inflorescences which have extended, robust spikes, with up to 30 fertile, enlarged bracts. The bracts are typified by the midrib which is shortly extended into a point and by the wings which are adaxially

tomentose, widely ovate, chartaceous, \pm 5-ribbed and reticulately veined. Flowers are distinguished by the exerted hypanthium neck, which is \pm 2.0 mm long and glabrous to sparsely pubescent.

Etymology

The specific epithet *rubra* has been derived from the Latin *ruber* (= red), referring to the conspicuous, multiflowered inflorescences of these plants, which have 20–30 flowers arranged in four rows and turning red after wind pollination.

Uses

Passerina rubra is a pioneer which often occurs along to roadsides or in disturbed places, e.g. close to the salt works in the vicinity of Port Elizabeth. It is also found on calcareous soils between Port Elizabeth and Cradock. In the Coega area, earmarked for industrial development, *P. rubra* might be a useful plant for combatting erosion.

Distribution and ecology

Passerina rubra is near-endemic to the CFR, occurring in the Langeberg, Karoo Mountain and Southeastern Centres, as well as southern parts of the Eastern Cape. It most commonly occurs in a belt between the coast and the 33°S latitude and from 20° to 26°E longitude. *P. rubra* is distributed from the Bontebok National Park in the Swellendam District, eastwards to Gowie's Kloof near Grahamstown (Figure 7.22H). This species is somewhat variable. It was initially thought that plants in the Western Cape were more rigid, with longer internodes and appressed leaves, which did not overlap, whereas those in the Eastern Cape tended to be rounded shrublets, with imbricate, ascending leaves. After many specimens, from all parts of the range had been studied, no geographical or morphological discontinuity between the two forms could be shown, and it was decided that the morphological differences were probably

due to plasticity. Plants growing in more arid conditions and calcareous soil, typical of the Port Elizabeth and Cradock areas, tend to be rounded much-branched shrublets, with short internodes and imbricate, ascending leaves. Under more favourable conditions in sandy loam, the plants are taller, less branched, internodes are longer and the appressed leaves do not overlap.

Passerina rubra is common in the Steytlerville, Humansdorp, Port Elizabeth and Grahamstown areas of the Eastern Cape and less frequent in the Western Cape. The area between Cradock and Port Elizabeth is renowned for the ancient dunes and flats, abounding in limestone. Acocks (1988) described the vegetation occurring on the limestone as False Fynbos (A70), also known as Mountain Fynbos or Grassy Fynbos (Rebelo 1998). *P. rubra* seems to be well adapted to the calcareous soils on which it occurs. These plants are often pioneers in disturbed areas and along roadsides, as in the Colchester, Coega and the Markman industrial areas of Port Elizabeth. At the Groendal Catchment Basin, this species occurs in grassland on sandstone and it is also found on semikarroid, dry, rocky hillsides in the Bavianskloof area. At the Bontebok National Park it is found in flat areas between fynbos species. *P. rubra* grows at altitudes of 70–700 m.

Conservation status: Least Concern (LC) (IUCN Species Survival Commission 2000).

Specimens examined

WESTERN CAPE.—3321 (Ladismith): Muiskraal, near Garcia Pass, (–CC), *Galpin 4492* (GRA, K, PRE). 3322 (Oudtshoorn): near George, (–CD), *Bayliss 6861* (K, MO, S); Langkloof, Keurboomsrivier, (–CD), *Fourcade 1646* (BOL). 3420 (Bredasdorp): Swellendam district, Bontebok National Park, (–AB), *Acocks 22365* (PRE); *Barnard 699* (PRE); E of Swellendam, (–AB), *Johnson 102* (M, NBG); Bontebok National Park, (–AB), *Liebenberg 6574* (PRE); Breede River, N of National Road Bridge, (–AB), *Taylor 3413* (NBG, PRE); Langeberg, Clock Peaks, (–AB), *Wurtz 208* (NBG); near Heidelberg, (–BB), *Barker 5565* (NBG); Potberg, above Diepkloof, (–BC), *Burgers 1464* (PRE). 3422 (Mossel Bay): Sedgefield District, hills above Rondevlei, (–BB), *Bayliss 6856* (M, MO). 3423 (Knysna): near Knysna, (–AB), *Edwards 17260* (BM).

EASTERN CAPE.—3324 (Steytlerville): en route to Cradock, (–BC), *Bayliss BRI.B.1088* (PRE); Baviaanskloof, (–CA), *Bayliss 546* (K, M, MO, NBG); Kareedouw, Vaalkraal, (–CC), *Schrire 2037* (GRA); Zuurany en route to Kareedouw, (–CD), *Bredenkamp 914* (PRE); Humansdorp, Papiessfontein, (–DD), *Cowling 1223* (GRA); Humansdorp, on road to Hankey, (–DD), *Fourcade 5747* (NBG); Gamtoos Bridge, (–DD), *Van Jaarsveld & Sardien 10998* (PRE). 3325 (Port Elizabeth): Addo Elephant National Park, Zuurkop, (–BD), *Archibald 5259* (K, PRE); *Barnard 526* (PRE); Zuurkop, Bruinveld, (–BD), *Botha 5656* (GRA); Paterson en route to Mimosa, Vista Farm, (–BD), *Retief 12* (PRE); hills between Coega River and Zondagsrivier, (–CB), *Ecklon 598* (S); between Swartkops- and Zondagsrivier, (–CB), *Zeyher 156* (BM, BOL, K, NBG, TCD); Van Stadensberg, Lady’s Slipper, (–CD), *Dold 1063* (GRA); Bethelsdorp, (–CD), *Paterson 270* (GRA); Swartkops Catchment, Groendal Forest Reserve, Great Winterhoek Mountains, (–CD), *Scharf 1961* (K, PRE); Port Elizabeth, flats SW of Greenbushes, (–CD), *Thompson 1874* (PRE); on Motherwell, Addo road, Tregathlyn Estate, (–DA), *Palmer 3932* (GRA); Addo, Farm Windmolen, (–DA), *Schrire 1968, 1969* (GRA); Colchester, on limestone, (–DB), *Bredenkamp 905* (PRE); NE of Coega, (–DC), *Acocks 21424* (K, M, PRE); Port Elizabeth, hillsides, (–DC), *Bolus 1905* (BOL); 2 km E of Coega, (–DC), *Bredenkamp 906* (PRE); Markman industrial area, (–DC), *Dahlstrand 2836, 2849, 2850, 3251* (C, GRA, MO, NBG, PRE); Aloes, (–DC), *Drège 3006* (GRA, PRE); Swartkopsrivier, (–DC), *Long 809* (PRE); Redhouse, (–DC), *Long 1061* (GRA, PRE); Emerald Hill, (–DC), *Lynes 1737* (BM); Redhouse, (–DC), *Paterson TRV 25754* (PRE); slopes around Port Elizabeth, (–DC), *Tyson 2178* (K, NBG); *West 358* (GRA); near Cradock Town and Port Elizabeth, *Zeyher 3779* (BM, MEL, NBG, S W). 3326 (Grahamstown): Albany, Grahamstown, (–AD), *Bayliss 5164* (MO); Cradock Road, Albany, (–AD), *Bayliss 8850* (M, MO); army base, (–AD), *Bredenkamp 900* (PRE); military camp, (–AD), *Brink 232* (GRA, K, PRE); mountains near Howison’s Poort, (–AD), *MacOwen 103* (K, GRA, S); Albany, (–AD), *Williamson s.n.* (TCD); near Grahamstown, (–BC), *Bolton s.n.* (DUB); Grahamstown near drive-in, (–BC), *Hoole 10* (GRA, PRE); Grahamstown, (–BC), *Shumane P58* (GRA); Gowie’s Kloof, (–BC), *Sidey 1219* (S); *Story 3162* (PRE); Alexandria, (–CB), *Archibald 3833* (GRA); Hougham Park, (–CB), *Archibald 4558* (K, PRE). 3424 (Humansdorp): Essensbosch Hills, (–BB), *Fourcade 4417* (BOL); 7 mi. from Humansdorp Kloof, on road to Hankey, (–BB), *Fourcade 5747* (BOL); between Kabeljous and Mondplaas, (–BB), *Fourcade 5940* (BOL, PRE); Seekoei River, (–BB), *Montgomery 18* (NBG); 8.8 mi. from Humansdorp to Cape St Francis, (–BB), *Thompson 903* (NBG, PRE); Humansdorp District, Bokkeveld Shale, (–BB), *Youthed 663* (GRA); Kareedouw, Suuranys Mountains, (–CC), *Schrire 2038* (GRA). Grid ref. unknown: Cape District, *Bowie 3* (BM); *Masson s.n.* (BM).

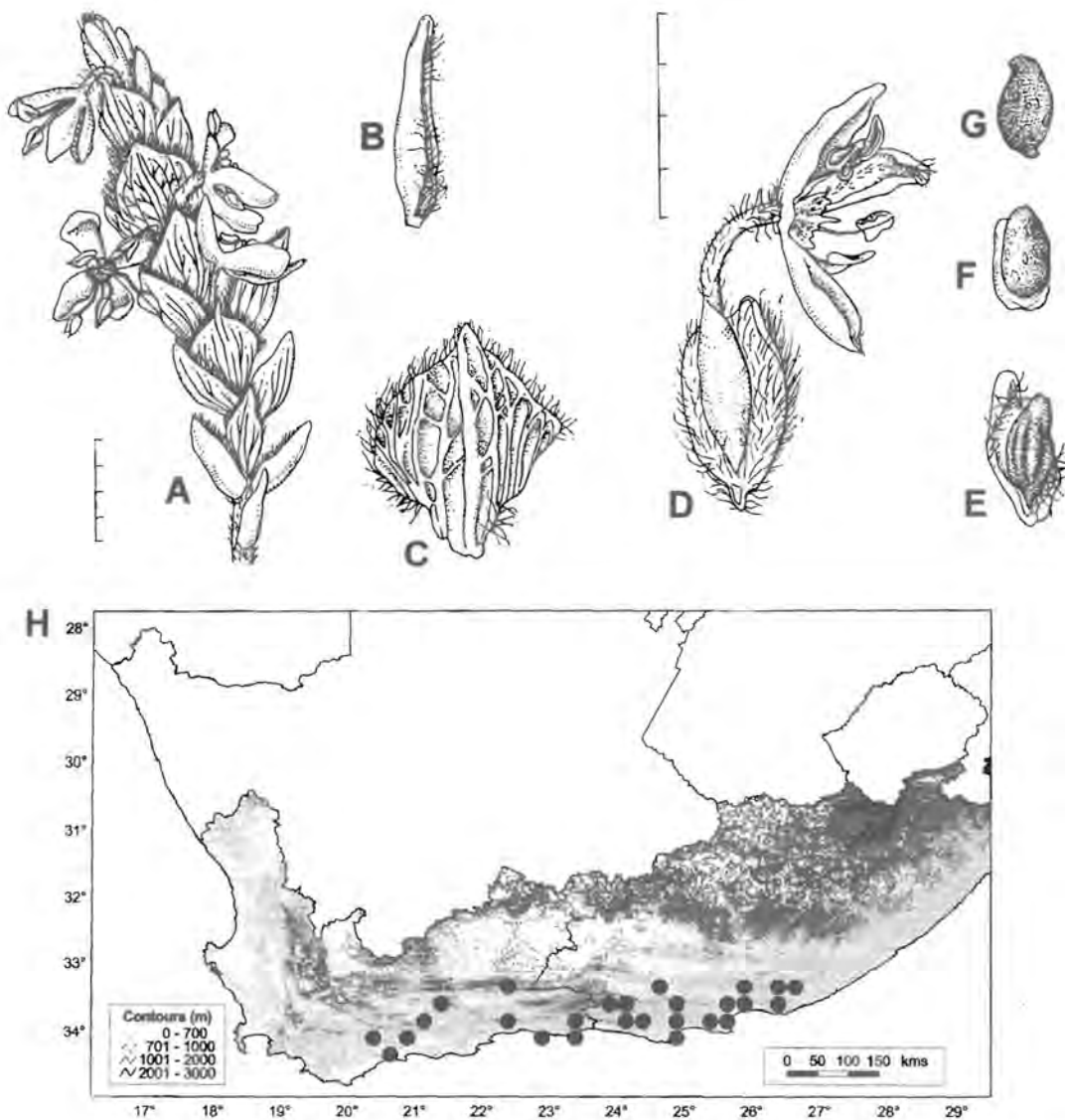


FIGURE 7.22.—*Passerina rubra* (Bredenkamp 914). A, inflorescence with apex growing out, returning to vegetative growth (proliferating growth); B, leaf; C, bract; D, flower clasped by bract; E, fruit clasped in tomentum of bract, enveloped by hypanthium, fragmented at neck base; F, achene, enveloped by membranous pericarp; G, Achene in side view. Scale bars: 4 mm.

H, known distribution of *Passerina rubra*.

7.4 Doubtful name

Passerina hamulata Gdgr.: 418 (1913). Hab.: Cap, in dunis arenosis prope

Wynberg [Western Cape, Simonstown, sand dunes near Wineberg], *Bolus s.n.*—

Notes: *Passerina paleacea*, *Bolus 2926*, complies with this distribution, but the name *P. hamulata* is not written on this specimen, therefore *P. hamulata* was not placed in synonymy under *P. paleacea*.

7.5 Excluded names

Sources of information:

- *Passerina* databases at National Botanical Institute
- Literature cited in the list
- Royal Botanic Gardens, Kew. Index Kewensis on Compact Disc (1997).

Lachnaea conglomerata L.: 560 (1753); 374 (1784); Willd.: 434 (1799); Wikstr. 39: 323 (1818); Thunb.: 374 (1825a); Meisn. 14: 562 (1857); Cafferty & Beyers: 171, 172 (1999); Brummitt: 805 (2000) nom. rejic. = **Phylica stipularis** L. (Rhamnaceae) in Cafferty & Beyers: 171 (1999).

Passerina ammodendron Kar. & Kir.: 444 (1842) = **Stellera lessertii** C.A.Mey. in Meisn. 14: 550 (1857). Iran.

Passerina annua Auch. ex Meisn. 14: 552 (1857) = **Thymelaea aucheri** Meisn. 14: 552 (1857); K.Tan: 235 (1980). Syria, Lebanon, W Iran.

Passerina annua Wikstr. 39: 320 (1818) = **Thymelaea passerina** (L.) Coss. & Germ. in K.Tan: 236 (1980) [= *Thymelaea arvensis* Lam. in Meisn. 14: 551 (1857) (= *Stellera passerina* L.)]. Widespread: C and S Europe, SW Asia, C Russia.

Passerina anthylloides L.f.: 226 (1782) = **Gnidia virescens** Wikstr. in Meisn. 14: 592 (1857). South Africa: Cape Peninsula.

Passerina anthylloides Thunb.: 75 (1794) = **Gnidia virescens** Wikstr. in Meisn. 14: 592 (1857). South Africa: Cape Peninsula.

Passerina aragonensis Rouy: 123 (1910). Pyrenees.

Passerina argentata Pau: 67 (1922) = **Thymelaea argentata** (Lam.) Pau in K.Tan: 212 (1980). Spain and N Africa.

Passerina arvensis Ball: 653 (1878) = **Thymelaea passerina** (L.) Coss. & Germ. in K.Tan: 236 (1980) [= *Thymelaea arvensis* Lam. in Meisn. 14: 551 (1857) (= *Stellera passerina* L.)]. Widespread: C and S Europe, SW Asia, C Russia.

Passerina axillaris Thunb.: 106 (1792), = **Pimelea virgata** Vahl in Meisn. 14: 516 (1857). New Zealand.

Passerina baccifera Mihi? nom. nud., *Eckl. & Zeyh. s.n.* (BOL!, P!, W!) = **P. ericoides** L.

Passerina baccata, *Pappe s.n.* (NBG!, SAM!) err. typogr. = **P. ericoides** L.

Passerina bartlingiana Meisn. True identity unknown.

Passerina broteriana (Cout.) Sampaio: 104 (1913) = **Thymelaea broteriana** Cout.: 145 (1909); K.Tan: 227 (1980). Endemic to N and C Portugal.

Passerina bruniades Eckl. & Zeyh. ex Meisn. 14: 579 (1857) = **Lachnaea penicillata** Meisn. 14: 579 (1857); J.B.P.Beyers: 96 (2001). South Africa: Western Cape Province.

Passerina brunioides Eckl. & Zeyh. in Meisn. 14: 563, 579 (1857) = *Passerina bruniades* Eckl. & Zeyh. ex Meisn.

Passerina calocephala Meisn.: 393 (1840) = **Gnidia calocephala** (C.A.Mey.) Gilg: 226–228 (1894a). South Africa: KwaZulu-Natal and Eastern Cape Provinces.

Passerina calycina Lam. & DC.: 360 (1805) = **Thymelaea calycina** (Lapeyr.) Meisn. 14: 555 (1857); K.Tan: 226 (1980). C Pyrenees, rare.

Passerina campanulata E.Mey. ex Meisn.: 407 (1840) = **Lachnaea grandiflora** (L.f.) Baill. in J.B.P.Beyers: 45 (2001). South Africa: Western Cape Province.

Passerina canescens Schousb.: 190 (1800) = **Thymelaea lanuginosa** (Lam.) Ceballos & Vicioso in K.Tan: 211 (1980) [= *Thymelaea canescens* (Schousb.) Endl. in Meisn. 14: 556 (1857)]. S Spain, Morocco and Gibraltar.

Passerina cantabrica Pourr. ex Willk. & Lange: 299 (1862) = **Thymelaea coridifolia** (Lam.) Endl. in K.Tan: 226 (1980). Endemic to N Spain.

Passerina capitata L.: 88 (1760) = **Lachnaea capitata** (L.) Crantz in J.B.P.Beyers: 66 (2001). South Africa: Western Cape Province.

Passerina cephalophora Thunb.: 75 (1794) = **Lachnaea eriocephala** L. in J.B.P.Beyers: 98 (2001). South Africa: Western Cape Province.

Passerina chamaedaphne Bunge: 58 (1833) = **Wikstroemia canescens** Meisn. 14: 547 (1857). Nepal.

Passerina chamaejasme Fisch. ex Meisn. 14: 549 (1857) = **Stellera chamaejasme** L. in Meisn. 14: 549 (1857). Siberia.

Passerina chamaejasme Schangin: in Meisn. 14: 549 (1857) = **Stellera altaica** Thieb. in Meisn. 14: 549 (1857). Siberia.

Passerina ciliata L.: 559 (1753) = **Gnidia penicillata** Licht. ex Meisn. in B.Peterson: 476 (1959). South Africa: Western Cape Province.

Passerina ciliata Thunb.: 75 (1794) = **Lachnaea ciliata** (L.) Crantz in J.B.P.Beyers: 109 (2001), excluded species.

- Passerina concinna* Walp.: 583 (1849) = **Thymelaea passerina** (L.) Coss. & Germ. in K.Tan: 236 (1980) [= *Thymelaea arvensis* Lam. in Meisn. 14: 551 (1857) (= *Stellera passerina* L.)]. Widespread: C and S Europe, SW Asia, C Russia.
- Passerina conglomerata* (L.) Thunb.: 75 (1794); Wikstr. 39: 322 (1818) = **Phylla stipularis** L. (Rhamnaceae) in Cafferty & Beyers: 171 (1999).
- Passerina coridifolia* Wikstr. 39: 334 (1818) = **Thymelaea coridifolia** (Lam.) Endl. in K.Tan: 226 (1980). Endemic to N Spain.
- Passerina cornucopiae* = **Pimelea cornucopiae** Vahl in B.Hansen & P.Wagner: 352 (1998). Australia.
- Passerina corsica* J.Gay ex Litard. in Briq.: 6 (1938) = **Thymelaea tartonraira** All. subsp. **thomasii** (Duby) Briq. in K.Tan: 220 (1980) [= *Thymelaea tartonraira* All var. *calvescens* Gren. & Godr. in Meisn. 14: 556 (1857)]. Circum-Mediterranean.
- Passerina costata* Griff.: 367 (1854) = **Diarthron vesiculosum** C.A.Mey. in Meisn. 14: 558 (1857). Persia.
- Passerina diarthronoides* Griff.: 365 (1854) = **Thymelaea passerina** (L.) Coss. & Germ. in K.Tan: 236 (1980) [= *Thymelaea arvensis* Lam. in Meisn. 14: 551 (1857) (= *Stellera passerina* L.)]. Widespread: C and S Europe, SW Asia, C Russia.
- Passerina dichotoma* Steud.: 273 (1841) = **Stellera chamaejasme** L. in Meisn. 14: 549 (1857). Siberia.
- Passerina dioica* Ramond: 139 (1800) = **Thymelaea dioica** (Gouan) All. in K.Tan: 222 (1980). W Pyrenees to SW Alps.
- Passerina dodecandra* L.: 10 (1755) = **Struthiola dodecandra** (L.) Druce in Levyns: 599 (1950). South Africa: Eastern Cape and Western Cape Provinces.
- Passerina elliptica* Boiss.: 556, t. 158 (1842) = **Thymelaea pubescens** (L.) Meisn. subsp. **elliptica** (Boiss.) K.Tan: 231 (1980) [= *T. elliptica* (Boiss.) Endl.: 66 (1847)]. Endemic to S. Spain.
- Passerina empetrifolia* Lapeyr.: 212 (1813) = **Thymelaea dioica** (Gouan) All. subsp. **dioica** in K.Tan: 222 (1980). W Pyrenees to SW Alps.
- P. filiformis* var. *ereifoifolia* Eckl. & Zeyh. 39 (G!), err. typogr. = **P. ericoides** L.
- Passerina eriocephala* Thunb.: 75 (1794) = **Lachnaea globulifera** Meisn. 14: 576 (1857); J.B.P.Beyers: 107 (2001). South Africa: Western Cape Province.
- Passerina filiformis* Mill. 8: no. 1 (1768) = **Struthiola** sp.
- Passerina ganpi* Sieb. ex Miq. 2: 77, no. 696 (1870); Meisn. 14: 564 (1857) = **Stellera?** **ganpi** Meisn. 14: 550 (1857). Japan.

- Passerina geminiflora* Ram. in K.Tan: 222 (1980) = **Thymelaea dioica** (Gouan) All. subsp. **dioica** in K.Tan: 222 (1980). W Pyrenees to SW Alps.
- Passerina globosa* Lam. 2: 431 (1792) = **Lachnaea alpina** Meisn. 14: 578 (1857); J.B.P.Beyers: 59 (2001). South Africa: Western Cape Province.
- Passerina gnidia* L.f.: 226 (1782) = **Pimelea gnidia** Banks et Sol. New Zealand.
- Passerina gnidia* Forst.: 28 no. 170 (1786); Meisn. 14: 516 (1857) = **Pimelea gnidia** Banks et Sol. in Meisn. 14: 516 (1857). New Zealand.
- Passerina granatensis* Pau: 7 (1904) = **Thymelaea dioica** (Gouan) All. subsp. **granatensis** (Pau) Malag in K.Tan: 222 (1980). SE Spain, C and W Pyrenees.
- Passerina grandiflora* L.f.: 226 (1782) = **Lachnaea grandiflora** (L.f.) Baill. in J.B.P.Beyers: 45 (2001). South Africa: Western Cape Province.
- Passerina gymnostachya* Meisn.: 397 (1840). = **Gnidia gymnostachya** (C.A.Mey.) Gilg in E.Phillips: 63 (1944). South Africa: North-West, Gauteng, Mpumalanga, Free State, KwaZulu-Natal and Eastern Cape Provinces, also in Lesotho.
- Passerina hirsuta* Asso in Meisn. 555 (1857) = **Thymelaea tinctoria** (Pourr.) Endl. subsp. **tinctoria** in K.Tan: 223 (1980). Portugal (?), NE and E Spain and S France.
- Passerina hirsuta* Brot. in K.Tan: 227 (1980) = **Thymelaea broteriana** Cout.: 145 (1909); K.Tan: 227 (1980). Endemic to N and C Portugal.
- Passerina hirsuta* L.: 559 (1753) = **Thymelaea hirsuta** Endl. in K.Tan: 209 (1980). Circum-Mediterranean, Europe, SW Asia and N Africa.
- Passerina imbricata* Burm.f.: 12 (1768). True identity unknown.
- Passerina imbricata* Sennen: 69 (1924). True identity unknown. Spain.
- Passerina incana* Pourr. ex Willk. & Lange 1: 300 (1862) = **Thymelaea velutina** (Pourr. ex Camb.) Endl. in K.Tan: 221(1980). Endemic to the Balearics.
- Passerina inconspicua* Meisn.: 397 (1840) = **Gnidia inconspicua** Meisn. in Arnold & De Wet: 516 (1993) [= *Arthrosolen inconspicuus* Meisn. 560 (1857)]. South Africa: Western Cape Province.
- Passerina incurva* Wendl. ex Bartl.: 404 (1840). True identity unknown.
- Passerina involucrata* Spreng. ex Meisn. 14: 595 (1857) = **Gnidia capitata** L.f. in B.Peterson: 627 (1958) [= *Lasiosiphon linifolius* Decne. var. *glabrata* Meisn. 14: 595 (1857)]. South Africa: Northern Province, North-West, Gauteng, Mpumalanga, Free State, KwaZulu-Natal and Eastern Cape Provinces, also Botswana, Swaziland and Lesotho.

- Passerina involucrata* Thunb. 13: 106 (1792) = **Pimelia linifolia** Sm. in B.Hansen & P.Wagner : 352 (1998). Australia.
- Passerina japonica* Sieb. & Zucc.: 76 (1846) = **Wikstroemia japonica** Miq.: 184 (1863). Japan.
- Passerina javanica* Thunb.: 19 (1825b). True identity unknown. Java.
- Passerina juniperifolia* Lapeyr.: 213 (1813) = **Thymelaea tinctoria** (Pourret) Endl. subsp. **nivalis** (Ramond) K.Tan [= *Thymelaea nivalis* (Ram.) Meisn. 14: 555 (1857)] K.Tan: 224 (1980). Endemic to C and W Pyrenees.
- Passerina kalifolia* Pourr. ex Willk. & Lange: 301 (1862) = **Thymelaea lanuginosa** (Lam.) Ceballos & Vicioso in K.Tan: 211 (1980) [= *Thymelaea canescens* (Schousb.) Endl. in Meisn. 14: 556 (1857)]. S Spain, Marocco and Gibraltar.
- Passerina laevigata* L.2: 15 (1756) = **Gnidia oppositifolia** L. in Meisn. 14: 586 (1857). South Africa: Eastern Cape and Western Cape Provinces.
- Passerina laniflora* C.H.Wright: 11 (1915) = **Lachnea laniflora** (C.H.Wright) Bond in J.B.P.Beyers: 81 (2001). South Africa: Western Cape Province.
- Passerina lanuginosa* Pau: 67 (1922) = **Thymelaea lanuginosa** (Lam.) Ceballos & Vicioso in K.Tan: 211 (1980). Marocco, S Spain, Gibraltar.
- Passerina lateriflora* Hort. ex Wikstr. 39: 347 (1818) = **Gnidia spicata** (L.f.) Gilg in E.Phillips: 63 (1944). South Africa: Western Cape Province.
- Passerina laxa* L.f.: 226 (1782) = **Gnidia laxa** (L.f.) Gilg: 226 (1894a). South Africa: Eastern Cape and Western Cape Provinces.
- Passerina lessertii* Wikstr. 39: 341 (1818) = **Stellera Lessertii** C.A.Mey. in Meisn. 14: 550 (1857). Persia.
- Passerina linariaefolia* Pourr. ex Wikstr. 39: 333 (1818) = **Thymelaea pubescens** (L.) Meisn. subsp. **thesioides** (Lam.) K.Tan: 231 (1980). Spain.
- Passerina linearifolia* Wikstr. 39: 343 (1818) = **Gnidia linoides** Wikstr. var. **major** Meisn. 14: 583 (1857).
- Passerina linearis* Wendl. ex Bartl.: 404 (1840). Species non descriptae, Meisn. 14: 563 (1857).
- Passerina linoides* Thunb.: 75 (1794) = **Gnidia linoides** Wikstr. in Meisn. 14: 582 (1857). South Africa: Western Cape Province.
- Passerina longiflora* Thunb.: 189 (1800) = **Pimelea longifolia** Banks et Sol. in Meisn. 14: 516 (1857). New Zealand.
- Passerina longifolia* Thunb. 22: 32 (1797) = **Pimelia longifolia** Banks et Sol. in

- Meisn. 14: 516 (1857). New Zealand.
- Passerina matnak* J.F.Gmel.: 1597 (1792), sphalm. = *Passerina metkan* J.F.Gmel.: 634 (1791), sphalm.
- Passerina metnam* Forssk.: 81 (1775) = **Thymelaea hirsuta** Endl. in K.Tan: 209 (1980). Circum-Mediterranean, Europe, SW Asia and N Africa.
- Passerina metnan* Forssk. in Meisn. 14: 564 (1857) = **Thymelaea hirsuta** Endl. in K.Tan: 209 (1980). Circum-Mediterranean, Europe, SW Asia and N Africa.
- Passerina microphylla* Coss. & Dur.: 744 (1856) 744 = **Thymelaea microphylla** Meisn. 14: 556 (1857); K.Tan: 214 (1980). N Africa.
- Passerina nervosa* Thunb.: 75 (1794) = **Lachnaea nervosa** (Thunb.) Meisn. in J.B.P.Beyers: 69 (2001). South Africa: Western Cape Province.
- Passerina nervosa* Wikstr. 39: 328 (1818) = **Lachnaea striata** (Poir.) Meisn. 14: 577 (1857); J.B.P.Beyers: 77 (2001). South Africa: Western Cape Province.
- Passerina nitida* (Vahl) Desf.: 331, t. 94 (1798) = **Thymelaea argentata** (Lam.) Pau in K.Tan: 212 (1980) [= *Thymelaea nitida* Endl. in Meisn. 14: 554 (1857)]. Spain and N Africa.
- Passerina nivalis* Ram.: 131, t. 9 (1800) = **Thymelaea tinctoria** (Pourret) Endl. subsp. **nivalis** (Ramond) K.Tan: 224 (1980). Endemic to C and W Pyrenees.
- Passerina orientalis* Willd.: 431 (1799) = **Thymelaea tinctoria** (Gouan) All. subsp. **dioica** [*Thymelaea orientalis* Meisn. 14: 557 (1857)] in K.Tan: 222 (1980). W Pyrenees to SW Alps.
- Passerina passerina* Huth.: 135 (1898) = **Thymelaea passerina** (L.) Coss. & Germ. in K.Tan: 236 (1980) [= *Thymelaea arvensis* Lam. in Meisn. 14: 551 (1857) (= *Stellera passerina* L.)]. Widespread: C and S Europe, SW Asia, C Russia.
- Passerina pentandra* Thunb.: 76 (1794) = **Lonchostoma obtusiflorum** Wikstr. in Meisn. 14: 564 (1857).
- Passerina persica* Boiss.: 85 (1846) = **Stellera lessertii** C.A.Mey. in Meisn. 14: 550 (1857). Persia.
- Passerina pilosa* G.Forst. in Meisn. 14: 564 (1857); B.Hansen & P.Wagner: 352 (1988) = **Pimelea tomentosa** (J.R. & G.Forst.) Druce in B.Hansen & P.Wagner: 352 (1998). New Zealand.
- Passerina pilosa* L.f.: 226 (1782) = **Pimelea tomentosa** (J.R. & G.Forst.) Druce in B.Hansen & P.Wagner: 352 (1998) (= *Pimelea virgata* Vahl). New Zealand.
- Passerina planifolia* Burm.f.: 12 (1768) = **Lachnaea alpina** Meisn. 14: 578 (1857);

J.B.P.Beyers: 59 (2001). South Africa: Western Cape Province.

Passerina polycephala E. Mey ex Meisn.: 390 (1840) = **Gnidia polycephala**

(C.A.Mey.) Gilg: 227 (1894a). Namibia, Botswana and South Africa: North-West, Gauteng, Mpumalanga, Free State, Eastern Cape and Northern Cape Provinces.

Passerina polygalaefolia Lapeyr.: 214 (1813) = **Thymelaea hirsuta** Endl. in K.Tan: 209 (1980). Circum-Mediterranean, Europe, SW Asia and N Africa.

Passerina prostrata Forst.: 28 (1786) = **Pimelea prostrata** (J.R. & G.Forst.) Willd. in B.Hansen & P.Wagner: 352 (1998). New Zealand.

Passerina prostrata L.f.: 227 (1782) = **Pimelea prostrata** (J.R. & G.Forst.) Willd. in B.Hansen & P.Wagner: 352 (1998). New Zealand.

Passerina pubescens Guss.: 451 (1843) = **Thymelaea mesopotamica** (Jeffrey) Peterson in K.Tan: 239 (1980) [= *Thymelaea arvensis* Lam. var. *pubescens* (Guss.) Meisn. 14: 552 (1857)]. SE Anatolia, Iraq, W Iran, Kuwait.

Passerina pubescens (L.) Wikstr. 39: 332 (1818) = **Thymelaea pubescens** (L.) Meisn. subsp. **pubescens** in K.Tan: 231 (1980). Pyrenees, S and E Spain.

Passerina pubescens (L.) Loscos var. *virgata* Pau: 33 (1925) = **Thymelaea pubescens** (L.) Meisn. subsp. **thesioides** (Lam.) K.Tan: 231 (1980). Spain.

Passerina purpurea Wikstr. 39: 323 (1818) = **Lachnaea eriocephala** L. in J.B.P.Beyers: 99 (2001). South Africa: Western Cape Province.

Passerina racemosa Wikstr. 39: 320 (1818) = **Stellera altaica** Thieb. in Meisn. 14: 549 (1857). Subalpine region, the Caucasus.

Passerina rosmarinifoliae fide Meisn.: 400 (1840) = **Phylica sp.**, *Herb. Lamarck* (P, microfiche 574).

Passerina ruizii (Loscos.) Font-Quer in K.Tan: 225 (1980) = **Thymelaea ruizii** [Loscos] Casav. in K.Tan: 225 (1980). High ranges, Sierra de Cabrera in NE Portugal to C Pyrenees.

Passerina salina Munby = **Thymelaea passerina** (L.) Coss. & Germ. in K.Tan: 236 (1980); seen from (C), specimen without collector and number.

Passerina salsa Hunley, *Debeaux s.n.* (PR), cf. *P. annua* (Salisb.) Wikstr. var. *salsa* Munby in K.Tan: 238 (1980) = **Thymelaea salsa** Murb. in K.Tan: 238 (1980). S Spain, Morocco and Algeria.

Passerina salsolaefolia Poir.: 41 (1804) = **Phylica sp.** in Meisn.: 400 (1840); *Herb. Lamarck* (P, microfiche 574).

- Passerina sanamunda* (All.) Bub.: 135 (1897) = **Thymelaea sanamunda** All. in Meisn. 14: 553 (1857); K.Tan: 233 (1980). Spain, S France and Italian Riviera.
- Passerina segobriensis* Pau: 25 (1887) = **Thymelaea argentata** (Lam.) Pau in K.Tan: 212 (1980) [= *Thymelaea nitida* Endl. in Meisn. 14: 554 (1857)]. Spain and N Africa.
- Passerina sericea* L.: 15 (1755) = **Gnidia sericea** L. in Meisn. 14: 583 (1857). South Africa: Eastern Cape and Western Cape Provinces.
- Passerina setosa* Thunb.: 75 (1794) = **Gnidia setosa** Wikstr. in Meisn. 14: 590 (1857). Eastern Cape.
- Passerina spicata* L.f.: 226 (1782) = **Gnidia spicata** (L.f.) Gilg in E.Phillips: 63 (1944). South Africa: Western Cape Province.
- Passerina stachyoides* Schrenk in Meisn. 14: 550 (1857) = **Stellera stachyoides** Schrenk in Meisn. 14: 550 (1857). Siberia.
- Passerina stelleri* Ram. ex Lam. & DC.: 361 (1805) = **Thymelaea passerina** (L.) Coss. & Germ. in K.Tan: 236 (1980) [= *Thymelaea arvensis* Lam. in Meisn. 14: 551 (1857)]. Widespread: C and S Europe, SW Asia, C Russia.
- Passerina stelleri* Wikstr. 39: 321 (1818) = **Stellera chamaejasme** L. in Meisn. 14: 549 (1857). Siberia.
- Passerina striata* Poir.: 44, t. 291, f. 2 (1804) = **Lachnaea striata** (Poir) Meisn.: 415–416 (1840); J.B.P.Beyers: 77 (2001). South Africa: Western Cape Province.
- Passerina stricta* Thunb.: 75 (1794) = **Gnidia wikstroemiana** Meisn. 14: 582 (1857). South Africa: Northern Cape and Free State Provinces.
- Passerina subspicata* Meisn.: 395 (1840) = **Wikstroemia subspicata** Meisn. 14: 547 (1857).
- Passerina tartonraira* Schrad.: 89 (1810) = **Thymelaea Tartonraira** All. in Meisn. 14: 556 (1857); K.Tan: 215 (1980). Circum-Mediterranean.
- Passerina tenuiflora* Willd.: 426 (1809) = **Gnidia laxa** (L.f.) Gilg: 226 (1894a). South Africa: Eastern Cape and Western Cape Provinces.
- Passerina tetragona* Steud.: 274 (1841) = **Struthiola dodecandra** (L.) Druce in Levyns: 599 (1950). South Africa: Eastern Cape and Western Cape Provinces.
- Passerina thesioides* Wikstr. 39: 333 (1818) = **Thymelaea pubescens** (L.) Meisn. subsp. **thesioides** (Lam.) K.Tan [= *Thymelaea thesioides* (Lam.) Endl. in Meisn. 14: 553 (1857)] in K.Tan : 231 (1980). Spain.
- Passerina thomasii* Duby: 406 (1828) = **Thymelaea tartonraira** All. subsp. **thomasii** (Duby) Briq. [= *Thymelaea tartonraira* All var. *calvescens* Gren. & Godr. in Meisn.

14: 556 (1857)] in K.Tan: 220 (1980). Circum-Mediterranean.

Passerina thunbergii Wikstr. 39: 343 (1818) = **Gnidia sericea** L. in Meisn. 14: 583 (1857). South Africa: Eastern Cape and Western Cape Provinces.

Passerina thymelaea (Lam.) DC. in Lam. & DC.: 366 (1815) = **Thymelaea sanamunda** All. in Meisn. 14: 553 (1857); K.Tan: 233 (1980). Spain, S France and Italian Riviera.

Passerina tinctoria Pourr. in Meisn. 14: 565 (1857) = **Thymelaea tinctoria** (Pourr.) Endl. subsp. **tinctoria** in K.Tan: 223 (1980). Portugal (?), NE and E Spain and S France.

Passerina tinctoria var. *angustifolia* Boiss.: 556 (1842) = **Thymelaea calycina** Meisn. 14: 555 (1857); K.Tan: 226 (1980). C Pyrenees, rare.

Passerina tingitana Salzm. ex Meisn. 14: 554 (1857) = **Thymelaea villosa** (L.) Endl. in K.Tan: 229 (1980). S Portugal, Spain, Gibraltar, Morocco.

Passerina tomentosa Wikstr. 39: 332 (1818) = **Thymelaea tartonraira** All. in Meisn. 14: 556 (1857); K.Tan: 215 (1980). Circum-Mediterranean.

Passerina uniflora Drège ex Meisn. 14: 574 (1857) = **Gnidia penicillata** Licht. ex Meisn. in B.Peterson: 476 (1959), [= *Cryptadenia ciliata* (Thunb.) Meisn. in J.B.P.Beyers: 45 (2001), exluded species].

Passerina uniflora L.: 560 (1753) = **Lachnaea uniflora** (L.) Crantz in J.B.P.Beyers: 43 (2001). South Africa: Western Cape Province.

Passerina uniflora L. var. *angustifolia* Burm.f.: 12 (1768). = **Lachnaea uniflora** (L.) Crantz in J.B.P.Beyers: 43 (2001). South Africa: Western Cape Province.

Passerina uniflora L. var. *purpurea* Berg.: 128 (1767). = **Lachnaea uniflora** (L.) Crantz in J.B.P.Beyers: 43 (2001). South Africa: Western Cape Province.

Passerina uniflora L. var. *alba* Berg.: 129 (1767) = **Lachnaea grandiflora** (L.f.) Baill. in J.B.P.Beyers: 45 (2001). South Africa: Western Cape Province.

Passerina uniflora L. var. *latifolia* Burm.f.: 12 (1768). = **Lachnaea grandiflora** (L.f.) Baill. in J.B.P.Beyers: 45 (2001). South Africa: Western Cape Province.

Passerina velutina Boiss.: 81 (1838) = **Thymelaea pubescens** (L.) Meisn. subsp. **elliptica** (Boiss.) K.Tan: 231 (1980). Endemic to S Spain.

Passerina velutina [Pourr.] Cambess.: 183 (1827) = **Thymelaea velutina** (Pourr. ex Camb.) Endl. in K.Tan: 221(1980). Endemic to the Balearics.

Passerina vesiculosus Fisch. & C.A.Mey.: 170 (1839) = **Diarthron vesciculosum** C.A. Mey. in Meisn. 14: 558 (1857). Persia.

Passerina villosa Thunb.: 106 (1792) = **Pimelea arenaria** Cunn. in Meisn. 14: 517 (1857). New Zealand.

Passerina villosa Wikstr. 39: 332 (1318) = **Thymelaea villosa** (L.) Endl. in Meisn. 14: 554 (1857); K.Tan: 229 (1980). S Portugal and Spain, Gibraltar, Morocco.

Passerina virescens Coss. & Dur. ex Meisn. 14: 554 (1857) = **Thymelaea virescens** Meisn. 14: 554 (1857); K.Tan: 212 (1980). NW Africa.

Passerina virgata Desf.: 331, t. 95 (1798) = **Thymelaea virgata** (Desf.) Endl. in K.Tan: 228 (1980); subsp. **virgata** from NW Africa and S Spain & subsp. **broussonetii** from NW Africa.

TABLE 7.1.—A summary of taxa in the most comprehensive works on *Passerina* from Linnaeus (1753) to the present study

Linnaeus (1753)	Wikström (1818)	Thunberg (1825a)	Meisner (1840)	Meisner (1857)	Wright (1915)	Thoday (1924a)	Present study
<i>P. filiformis</i> L.	<i>P. filiformis</i> L.	<i>P. filiformis</i> L.	<i>P. filiformis</i> L.	<i>P. filiformis</i> L.	<i>P. filiformis</i> L.	<i>P. filiformis</i> L.	<i>P. filiformis</i> L. (= <i>P. cupressina</i> J.C.Wendl. nom. nud.) (= <i>P. pectinata</i> Lodd. nom. nud.) <i>subsp. filiformis</i> <i>subsp. glutinosa</i> (Thoday) Bredenk. & A.E.van Wyk
			<i>P. filiformis</i> L. α <i>vulgaris</i> Meisn.	<i>P. filiformis</i> L. α <i>vulgaris</i> Meisn.	<i>P. corymbosa</i> Eckl. ex C.H.Wright	<i>P. vulgaris</i> Thoday (= <i>P. filiformis</i> L. var. <i>vulgaris</i> Meisn.) (= <i>P. corymbosa</i> Eckl. ex Meisn)	<i>P. corymbosa</i> Eckl. ex C.H.Wright (= <i>P. filiformis</i> L. var. <i>vulgaris</i> Meisn.) (= <i>P. vulgaris</i> (Meisn.) Thoday)

Linnaeus (1753)	Wikström (1818)	Thunberg (1825a)	Meisner (1840)	Meisner (1857)	Wright (1915)	Thoday (1924a)	Present study
	<i>P. filiformis</i> L. <i>β divaricata</i> Wikstr.		<i>P. filiformis</i> L. <i>β falcifolia</i> Meisn.	<i>P. filiformis</i> L. <i>β falcifolia</i> Meisn.	<i>P. falcifolia</i> <i>C.H. Wright</i>	<i>P. falcifolia</i> <i>C.H. Wright</i> (= <i>P. filiformis</i> L. <i>var. divaricata</i> Wikstr.) (= <i>P. filiformis</i> L. <i>var. falcifolia</i> Meisn.)	<i>P. falcifolia</i> (<i>Meisn.</i>) <i>C.H. Wright</i> (= <i>P. filiformis</i> L. <i>var. divaricata</i> Wikstr.) (= <i>P. filiformis</i> L. <i>var. falcifolia</i> Meisn.)
			<i>P. filiformis</i> L. <i>γ comosa</i> Meisn.	<i>P. filiformis</i> L. <i>γ comosa</i> Meisn.	<i>P. comosa</i> <i>C.H. Wright</i>	<i>P. comosa</i> <i>C.H. Wright</i>	<i>P. comosa</i> (<i>Meisn.</i>) <i>C.H. Wright</i> (= <i>P. filiformis</i> L. <i>var. comosa</i> Meisn.) (= <i>P. falciformis</i> Drège)
				<i>P. filiformis</i> L. <i>δ squarrosa</i> Meisn.	<i>P. rubra</i> <i>C.H. Wright</i>	<i>P. rubra</i> <i>C.H. Wright</i> (= <i>P. filiformis</i> L. <i>var. squarrosa</i> Meisn.)	<i>P. rubra</i> <i>C.H. Wright</i> (= <i>P. filiformis</i> L. <i>var. squarrosa</i> Meisn.)

Linnaeus (1753)	Wikström (1818)	Thunberg (1825a)	Meisner (1840)	Meisner (1857)	Wright (1915)	Thoday (1924a)	Present study
<i>P. hirsuta</i> L.	<i>P. hirsuta</i> L. (= <i>P. metnan</i> Forsk.)			<i>Thymelaea hirsuta</i> <i>Endl.</i> (= <i>P. hirsuta</i> L.) (= <i>P. metnan</i> Forsk.)			
<i>P. ciliata</i> L.	<i>P. ciliata</i> L.	<i>P. ciliata</i> Thunb. (= <i>P. ciliata</i> L.)		<i>Cryptadenia ciliata</i> <i>Meisn.</i> (= <i>P. ciliata</i> Thunb.) <i>Gnidia?</i> <i>ciliata</i> <i>Meisn.</i> (= <i>P. ciliata</i> L.)			
<i>P. uniflora</i> L.	<i>P. uniflora</i> L.	<i>P. uniflora</i> L.		<i>Cryptadenia</i> <i>uniflora</i> <i>Meisn.</i> (= <i>P. uniflora</i> L.)			
<i>Lachnaea</i> <i>conglomerata</i> L.	<i>P. conglomerata</i> <i>Thunb.</i> (= <i>L. conglomerata</i> L.) (= <i>P. glomerata</i> Thunb.)	<i>P. glomerata</i> <i>Thunb.</i> (= <i>L. conglomerata</i> L.) (= <i>P. ericoides</i> L.)		<i>L. conglomerata</i> L.		<i>P. glomerata</i> Thunb. (= <i>L. conglomerata</i> L.)	<i>L. conglomerata</i> L. nomen rejiciendum

Linnaeus (1753)	Wikström (1818)	Thunberg (1825a)	Meisner (1840)	Meisner (1857)	Wright (1915)	Thoday (1924a)	Present study
	<i>P. paleacea</i> Wikstr. (= <i>Lachnaea paleacea</i> fide Wikstr.)		<i>P. paleacea</i> Wikstr.	<i>P. paleacea</i> Wikstr. (= <i>Lachnaea paleacea</i> fide Wikstr.)	<i>P. paleacea</i> Wikstr. (= <i>Lachnaea paleacea</i> fide Wikstr.)	<i>P. paleacea</i> Wikstr. (= <i>Lachnaea paleacea</i> Wikstr.) (= <i>P. glomerata</i> fide Thunb.)	<i>P. paleacea</i> Wikstr. (= <i>Lachnaea paleacea</i> fide Wikstr.) (= <i>P. glomerata</i> sensu Thunb.) (= <i>P. ericoides</i> sensu Thunb.)
	<i>P. ericoides</i> L.		<i>P. ericoides</i> L. ?	<i>P. ericoides</i> L. (= <i>P. glomerata</i> Thunb.) (= <i>Lachnaea conglomerata</i> L.)	<i>P. ericoides</i> L. (= <i>P. glomerata</i> Thunb.) (= <i>Lachnaea conglomerata</i> L.)	<i>P. ericoides</i> L. (= <i>Chymococca empetroides</i> Meisn.) (= <i>P. filiformis</i> var. <i>crassifolia</i> Eckl. & Zeyh. fide Meisn.)	<i>P. ericoides</i> L. (= <i>Chymococca empetroides</i> Meisn.) (= <i>P. filiformis</i> L. var. <i>crassifolia</i> Eckl. & Zeyh. fide Meisn.) (= <i>P. glomerata</i> sensu Meisn.)

Linnaeus (1753)	Wikström (1818)	Thunberg (1825a)	Meisner (1840)	Meisner (1857)	Wright (1915)	Thoday (1924a)	Present study
	<i>P. rigida Wikstr.</i>		<i>P. rigida Wikstr.</i>	<i>P. rigida Wikstr.</i>	<i>P. rigida Wikstr.</i>	<i>P. rigida Wikstr.</i>	<i>P. rigida Wikstr.</i> (= <i>P. eriophora</i> Gand.) (= <i>P. ericoides</i> sensu Meisn.)
			<i>P. rigida Wikstr.</i> <i>α comosa Meisn.</i>	<i>P. rigida Wikstr.</i> <i>α comosa Meisn.</i>	<i>P. rigida Wikstr.</i> <i>var. δ comosa Meisn.</i>	<i>P. pendula Eckl. & Zeyh. ex Meisn.</i> (= <i>P. rigida</i> var. <i>comosa</i> Meisn. pro parte)	<i>P. pendula Eckl. & Zeyh. ex Thoday.</i> (= <i>P. rigida</i> Wikstr. var. <i>comosa</i> Meisn.)
			<i>P. rigida Wikstr.</i> <i>β tetragona Meisn.</i>	<i>P. rigida Wikstr.</i> <i>β tetragona Meisn.</i>	<i>P. rigida Wikstr.</i> <i>var. γ tetragona Meisn.</i>	<i>P. burchellii Thoday</i> (= <i>P. rigida</i> var. <i>comosa</i> Meisn. pro parte). (= <i>P. tetragona</i> Burch.)	<i>P. burchellii Thoday</i> (= <i>P. tetragona</i> fide Thoday)
			<i>P. rigida Wikstr.</i> <i>γ truncata Meisn.</i>	<i>P. rigida Wikstr.</i> <i>γ truncata Meisn.</i>	<i>P. rigida Wikstr.</i> <i>β truncata Meisn.</i>	<i>P. glomerata Thunb.</i> (= <i>P. rigida</i> Wikstr.)	<i>P. truncata (Meisn.) Bredenk. & A.E. van Wyk</i> (= <i>P. rigida</i> Wikstr.)

Linnaeus (1753)	Wikström (1818)	Thunberg (1825a)	Meisner (1840)	Meisner (1857)	Wright (1915)	Thoday (1924a)	Present study
						var. <i>truncata</i> Meisn.) (= <i>P. rigida</i> Wikstr. var. <i>tetragona</i> Meisn. pro parte)	var. <i>truncata</i> Meisn.) (= <i>P. rigida</i> Wikstr. var. <i>tetragona</i> Meisn.) (= <i>P. glomerata</i> sphalm. quoad L. <i>conglomerata</i> L. sensu Thunb.) (= <i>Lachnaea</i> <i>glomerata</i> sphalm. quoad <i>L. conglomerata</i> L. sensu Thunb.) (= <i>P. ericoides</i> sensu Thunb.) (= <i>P. glomerata</i> sensu Thoday) <i>subsp. truncata</i> <i>subsp. monticola</i> Bredenk. & A.E.van Wyk

Linnaeus (1753)	Wikström (1818)	Thunberg (1825a)	Meisner (1840)	Meisner (1857)	Wright (1915)	Thoday (1924a)	Present study
			<i>P. pectinata</i> <i>nom. nud.</i>	<i>P. filiformis</i> L. (= <i>P. pectinata</i> <i>nom. nud.</i>)		<i>P. filiformis</i> L. (= <i>P. pectinata</i> <i>nom. nud.</i>)	<i>P. filiformis</i> L. (= <i>P. pectinata</i> <i>nom. nud.</i>)
			<i>P. cupressina</i> <i>J.C.Wendl. ex Bartl. nom. nud. Capensis nobis ignotae.</i>	<i>P. cupressina</i> <i>J.C.Wendl. ex Bartl. nom. nud.</i>		<i>P. filiformis</i> L. (= <i>P. cupressina</i> <i>J.C.Wendl. nom. nud.</i>)	<i>P. filiformis</i> L. (= <i>P. cupressina</i> <i>J.C.Wendl. nom. nud.</i>)
				<i>Chymococca empetroides</i> <i>Meisn.</i>	<i>Chymococca empetroides</i> <i>Meisn.</i>	<i>P. ericoides</i> L. (= <i>Chymococca empetroides</i> <i>Meisn.</i>)	<i>P. ericoides</i> L. (= <i>Chymococca empetroides</i> <i>Meisn.</i>)
					<i>P. galpini</i> <i>C.H.Wright</i>	<i>P. galpini</i> <i>C.H. Wright</i>	<i>P. galpinii</i> <i>C.H. Wright</i>
					<i>P. laniflora</i> <i>C.H.Wright</i>	<i>P. laniflora</i> <i>C.H.Wright</i> : type specimen is a <i>Lachnaea</i> .	<i>Lachnaea laniflora</i> (<i>C.H.Wright</i>) <i>Bond</i> (= <i>P. laniflora</i> <i>C.H.Wright</i>) =
					<i>P. eriophora</i> <i>Gand.</i>	<i>P. rigida</i> <i>Wikstr.</i> (= <i>P. eriophora</i> <i>Gand.</i>)	<i>P. rigida</i> <i>Wikstr.</i> (= <i>P. eriophora</i> <i>Gand.</i>)

Linnaeus (1753)	Wikström (1818)	Thunberg (1825a)	Meisner (1840)	Meisner (1857)	Wright (1915)	Thoday (1924a)	Present study
					<i>P. hamulata Gand.</i>	<i>P. hamulata Gand.</i> Probably <i>P. paleacea</i>	<i>P. hamulata Gand.</i> Nom. dub.
						<i>P. montana Thoday</i> (= <i>P. ericoides</i> C.H. Wright non L. pro parte)	<i>P. montana Thoday</i> (= <i>P. ericoides sensu</i> Meisn.) (= <i>P. rigida Wikstr.</i> var. <i>tetragona Meisn.</i> pro parte)
						<i>P. obtusifolia Thoday</i>	<i>P. obtusifolia Thoday</i>
						<i>P. paludosa Thoday</i>	<i>P. paludosa Thoday</i>
							<i>P. drakensbergensis</i> <i>Hilliard & B.L. Burtt.</i>
							<i>P. quadrifaria</i> <i>Bredenk. &</i> <i>A.E. van Wyk</i>

Linnaeus (1753)	Wikström (1818)	Thunberg (1825a)	Meisner (1840)	Meisner (1857)	Wright (1915)	Thoday (1924a)	Present study
							<i>P. nivicola</i> Bredenk. & A.E.van Wyk
							<i>P. esterhuyseniae</i> Bredenk. & A.E.van Wyk
							<i>P. montivaga</i> Bredenk. & A.E.van Wyk

*The complete list of excluded species described by Meisner (1857: 563) was not included in Table 7.1 as most names are dealt with under 'Excluded names'.

**7.6 INDEX TO SCIENTIFIC NAMES IN THE TAXONOMIC
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Accepted names in *Passerina* are in bold roman type and synonyms in italics.

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<i>Chymococca empetroides</i> Meisn.	218
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<i>Passerina falcifolia</i> (Meisn.) C.H. Wright	296
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<i>Passerina filiformis</i> L. var. <i>comosa</i> Meisn.	240
<i>Passerina filiformis</i> L. var. <i>crassifolia</i> Eckl. & Zeyh.	218
<i>Passerina filiformis</i> L. var. <i>divaricata</i> Wikstr.	296
<i>Passerina filiformis</i> L. var. <i>falcifolia</i> Meisn.	296
<i>Passerina filiformis</i> L. var. <i>squarrosa</i> Meisn.	302
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<i>Passerina glomerata</i> sensu Meisn.	218
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<i>Passerina quadrifaria</i> Bredenk. & A.E. van Wyk	199
<i>Passerina rigida</i> Wikstr.	224
<i>Passerina rigida</i> Wikstr. var. <i>comosa</i> Meisn.	244
<i>Passerina rigida</i> Wikstr. var. <i>tetragona</i> Meisn.	185
<i>Passerina rigida</i> Wikstr. var. <i>tetragona</i> Meisn.	204



<i>Passerina rigida</i> Wikstr. var. <i>truncata</i> Meisn.	185
Passerina rubra C.H.Wright	302
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