

# *Luetzelburgia Harms*

Domingos Benício Oliveira Silva Cardoso

Universidade Federal da Bahia; cardosobot@gmail.com

---

This treatment is composed of the following taxa: *Luetzelburgia*, *Luetzelburgia amazonica*, *Luetzelburgia andrade-limae*, *Luetzelburgia auriculata*, *Luetzelburgia bahiensis*, *Luetzelburgia guaissara*, *Luetzelburgia guianensis*, *Luetzelburgia harleyi*, *Luetzelburgia neurocarpa*, *Luetzelburgia praecox*, *Luetzelburgia purpurea*, *Luetzelburgia trialata*.

## HOW TO CITE

Cardoso, D.B.O.S. 2020. *Luetzelburgia* in **Flora do Brasil 2020**. Jardim Botânico do Rio de Janeiro. Available at: <http://floradobrasil.jbrj.gov.br/reflora/floradobrasil/FB29739>.

## DESCRIPTION

**Small shrubs** (1 m) to **large trees** (35 m), trunk to c. 100 cm diameter, never buttressed at base, external bark greyish, exfoliating in irregular, soft and flaky sheets or shallowly vertically fissured, the superficial internal wood greenish; branchlets erect, arising in fascicles of two to ten per node, glabrous to sericeous or hirsute; flowering en masse when leafless. **Stipules** not seen. **Leaves** spirally alternate and clustered at the branchlet apex, imparipinnately compound, rarely paripinnate on the same plant, petiolate, the pulvinus 3.0–10 mm long, terete, brownish; leaf rachis slightly channelled above; pulvinules brownish, terete; stipels absent; leaflets (1)3–19, narrowly elliptic to widely ovate or orbicular, chartaceous, opposite to subopposite, sometimes distinctly alternate, symmetrical, apex rounded, deeply emarginated, or obtuse to strongly acuminate, base acute, obtuse or rounded to subcordate, margin entire or shallowly to deeply crenate or denticulate, bearing a minute, globular gland-like dot on each crenation, upper surface usually glabrous, lower surface glabrous or densely pubescent to tomentose, mid-vein abaxially prominent, secondary veins in five to nine pairs, brochidodromous, more or less perpendicular with the mid-vein, or c. 30° arcuate, together with the reticulate tertiaries usually easily observed with the naked eye. **Inflorescences** terminal, erect or pendent on shoot apices, strongly congested to laxly arranged in 1–3(6) pyramidal **panicles**, the central one usually larger, the inflorescence sometimes appearing subglobose when composed of more than two panicles, each panicle formed by several densely flowered racemose shoots, these becoming progressively shorter towards the panicle apex, the panicle ending in terminal flowers; axes, pedicels and bracts sericeous with dense short, appressed to suberect trichomes; bracts persistent or early caducous, concave, apex obtuse to acuminate; pedicels bearing two bracteoles submedially or just below the calyx, they are opposite, persistent or early caducous; flower buds ellipsoid to ovoid in pre-anthesis. **Flowers** zygomorphic, nearly papilionate, sometimes sweetly scented; hypanthium short, up to 3.0 mm long; calyx usually almost as wide as long, campanulate to subglobose, rarely tubular, sometimes turbinate along the hypanthium length, densely sericeous outside, with short, appressed trichomes, glabrous internally, five-lobed, the lobes 1.0–2.0 mm long, inflexed against the petals, triangular, the two upper lobes partially joined, margin tomentose; petals five, white, pink or dark red, crimped, auriculate at the base, sericeous submedially on outer surface; the standard larger than wide, reflexed at anthesis, not emarginate at the apex, the median portion thick and fleshy, with a yellow-green spot changing to dark purple or vinaceous, the claw short, thick, up to 2.5 mm wide, occasionally channelled above; lateral (wing-like) and abaxial (keel-like) petals undifferentiated in shape but slightly differentiated in size, free, overlapping, blades symmetric, sometimes slightly asymmetric, lamellate sculpturing present externally only on the wing-like petals, long clawed, the claw thin, up to 1.0 mm wide; stamens nine or ten, unequal, filaments basally connate for 0.5–1.0 mm, glabrous, flattened towards the base, anthers 0.8–1.2 × 0.5–0.8 mm, dorsifixed, oblong–elliptical to suborbicular, apex rounded, sometimes conspicuously apiculate; gynoeceum borne on a stipe, the ovary densely sericeous, expanded ventrally, with or without a conspicuous crest on each side, sometimes the crest evident through colour change of the trichomes, ovule one, rarely two, style glabrous, erect or curved, stigma punctiform. **Fruit** an apically winged **samara**, densely sericeous or pubescent, the calyx usually persistent, the stipe compressed, endocarp indistinct, the seed chamber subligneous, smooth or with a small lateral wing on each side, ending before the stipe; the apical wing transversely veined, chartaceous, suboblong, falcate or strongly incurved, the apex rounded to acute. **Seeds** compressed laterally, ovate, curved at the apex, testa coriaceous, smooth, light to dark brown, hilum 0.8–1.2 × c. 0.5 mm, elliptical.

## COMMENTS

The papilionoid genus *Luetzelburgia* Harms (Fabaceae) comprises 13 species of trees and shrubs. In Brazil, we have recorded 11 species, most of which are endemic to the country, where they occur largely in seasonally dry tropical forests and woodlands, including the Caatinga. It is readily distinguished by a unique combination of crimped, biauriculate petals that are externally sericeous, a standard blade that is usually oblong to obovate, lateral (wing-like) and abaxial (keel-like) petals that are free and undifferentiated, the winglike petals with lunate-lamellate sculpturing covering the entire outer surface, stamens nearly free or basally connate for one-fifth of their length, samaroid pod with a distal wing and an indistinct endocarp, and, in most species, the seed chamber or body of the legume having a small, wing-like crest on each side (Cardoso et al. 2014).

### Life Form

Shrub, Tree

### Substrate

Terrestrial

## DISTRIBUTION

Native, Not endemic to Brazil

### Phytogeographic Domains

Amazon Rainforest, Caatinga, Central Brazilian Savanna, Atlantic Rainforest

### Vegetation Types

Caatinga (stricto sensu), Carrasco Vegetation, Cerrado (lato sensu), Seasonally Deciduous Forest, Seasonal Evergreen Forest, Seasonally Semideciduous Forest, Ombrophylous Forest (Tropical Rain Forest)

### Geographic Distribution

#### Confirmed occurrences

North (Pará, Rondônia, Roraima, Tocantins)

Northeast (Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte)

Central-west (Distrito Federal, Goiás, Mato Grosso do Sul, Mato Grosso)

Southeast (Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Santa Catarina)

## IDENTIFICATION KEY

1. Flowers < 12 mm long ..... 2
1. Flowers equal or larger than 13 mm long . ..... 6
2. Leaves usually 11–19-foliolate, densely pubescent or tomentose; ovary without lateral crests; samaras with a smooth seed chamber ..... 3
2. Leaves always with < 11 leaflets, glabrous to only sparsely pubescent-sericeous; ovary with conspicuous lateral crests in post-anthesis flowers; samaras with a small wing on each side of the seed chamber ..... 4
3. Leaflets predominantly oblong-elliptical to lanceolate, the apex obtuse to acute and margins frequently entire, rarely denticulate; inflorescence axes, calyces and samaras covered by fulvous sericeous to tomentose indumentum; occurring in seasonally dry forests on limestone outcrops of the Brazilian states of Bahia and Goiás ..... *L. andrade-limae*
3. Leaflets widely elliptical to ovate, the apex acute to strongly acuminate and the margins commonly denticulate; inflorescence axes and calyces dark brown to atropurpureous sericeous; samaras covered by light to dark brown sericeous indumentum; semi-deciduous Atlantic forest of south-eastern Brazil ..... *L. guaissara*
4. Petals white-pinkish; narrowly endemic to the Brazilian caatinga dry woodlands of southern Chapada Diamantina, Bahia ..... *L. harleyi*
4. Petals dark red ..... 5
5. Standard sagittate; bracteoles c. 0.5 mm long, ovate to ovate-elliptical, inserted at base of the calyx; samaras with seed chamber 2.0–2.7 × 1.1–1.6 cm, the apical wing

- 4.5–6.5 × 1.5–2.0 cm, apex acute; endemic to Brazilian arboreal caatinga of central to south-western Bahia ..... *L. purpurea*
5. Standard pandurate to oblong; bracteoles 0.8–1.3 mm long, linear-lanceolate, inserted in the middle of the pedicel; samaras with seed chamber 3.0–3.5 × 2.0–2.2 cm, the apical wing 6.0–7.5 × 2.5–3.0 cm, apex rounded; endemic to the Atlantic rain forest of south-eastern Brazil ..... *L. trialata*
6. All petals widely spatulate, the apex at least 2× wider than the base ..... 7
6. Standard oblong to obovate, lateral and abaxial petals oblong, suboblong to widely elliptical or ovate ..... 8
7. Leaves (1) 3–7-foliolate; panicles pendent; flowers (18–)20–28 mm long, petals white; samaras with a small wing on each side of the seed chamber; widespread in caatinga dry woodlands, but mostly in the state of Bahia ..... *L. bahiensis*
7. Leaves 9–11-foliolate; panicles erect; flowers 15–17 mm long, petals pinkish to light red; samaras with a slightly raised rib or vein on each side of the seed chamber; only known from the type locality in the caatinga of Morro do Chapéu, Bahia ..... *L. neurocarpa*
8. Petals dark red; geographically concentrated in seasonally dry forests of the Guiana Shield ..... *L. guianensis*
8. Petals light pink to predominantly white ..... 9
9. Large tree to 35 m tall; leaves usually 7–11-foliolate; endemic to Brazilian southern Amazonian dry forests ..... *L. amazonica*
9. Shrubs or small trees never > 10 m tall; leaves usually 3–9-foliolate; from eastern Brazil ..... 10
10. Inflorescence axes and calyces dark brown sericeous; flowers 10–13 mm long, standard 4.0–5.0 mm wide, panduriform, apex as wide as the base; narrowly endemic to the caatinga woodlands of southern Chapada Diamantina, Bahia ..... *L. harleyi*
10. Inflorescence axes and calyces usually fulvous or white-greyish, sericeous; flowers 13–18 mm long, standard 4.5–10 mm wide, obovate, apex 1.1–1.7× wider than the base ..... 11
11. Leaves densely tomentose or pubescent and leaflet pulvinules 3.0–6.0 mm long; inflorescence axes and calyces usually fulvous or light brown sericeous, trichomes rarely greyish; flowers with predominantly white petals; geographically concentrated in the caatinga woodlands of northeastern Brazil ..... *L. auriculata*
11. Leaves entirely glabrous or occasionally glabrescent and leaflet pulvinules often larger, 6.0–9.0 mm long; inflorescence axes and calyces white-greyish sericeous; flowers with pinkish petals; endemic to the cerrado woodlands of central Brazil ..... *L. praecox*

## FIELD IMAGES / ILLUSTRATIONS



Figure 1: *Luetzelburgia* Harms



Figure 2: *Luetzelburgia* Harms



Figure 3: *Luetzelburgia* Harms



Figure 4: *Luetzelburgia* Harms



Figure 5: *Luetzelburgia* Harms



Figure 6: *Luetzelburgia* Harms



Figure 7: *Luetzelburgia* Harms

## REFERENCE

- Cardoso, D.B.O.S.; Queiroz, L.P. & Lima, H.C. 2008. Three new species of *Luetzelburgia* (Leguminosae, Papilionoideae) from the caatinga of Bahia, Brazil and an identification key to all species of the genus. *Kew Bulletin* 63: 289–300.
- Cardoso, D.B.O.S.; Queiroz, L.P. & Lima, H.C. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

# *Luetzelburgia amazonica*

D.B.O.S.Cardoso, L.P.Queiroz &  
H.C.Lima

## DESCRIPTION

**Leaf:** leaflet number 7 to 11; leaflet form widely elliptic to ovate; leaflet margin commonly denticulate; leaflet apex acute to strongly acuminate; leaflet and foliar rachis indumentum totally glabrous or sometimes glabrescent; leaflet pulvinus 6 to 8 mm long (mm). **Inflorescence:** bracteole(s) shape linear to lanceolate; indumentum of the axis and calyx dark brown sericeous; panicle erect. **Flower:** size more than 13 mm; petal colour pinkish; standard shape obovate; wing and keel oblong. **Fruit:** lateral wing on the seed chamber present.

## ADDITIONAL DESCRIPTION

**Large tree** to 35 m, trunk 45–70 cm in diameter; branchlets glabrous to dark brown, sericeous. **Leaves** 18–39 cm long, 7–11-foliolate; petiole 5.0–8.5 cm long; leaf rachis 7.0–21 cm long, glabrous to sparsely short-pubescent, interfoliolar segments 1.8–5.0 cm long; pulvinules 5.0–8.0 mm long, glabrous to slightly pubescent; uppermost leaflets usually larger than the basal ones and differentiated in shape, the upper ones 6.5–11.2 × 2.5–4.5 cm, narrowly elliptical to oval, the basal ones 4.5–8.0 × 2.0–4.0 cm, usually ovate, seldom elliptical or oval, apex acute to strongly acuminate, the acumen up to 8.0 mm long, base acute to rounded, glabrous on both surfaces. **Panicles** erect, main axis 8.5–14.5 cm long, lateral panicle branches 1.0–6.0 cm long; axes, pedicels and bracts sericeous, with dense, short, appressed, dark brown trichomes; bracts 3.0–4.0 × 1.5–2.0 mm, broadly ovate, apex acuminate; pedicels 2.5–4.0 mm long; bracteoles 1.5–2.0 mm long, linear-lanceolate, inserted in the middle of the pedicel. **Flowers** 13–16 mm long; calyx 5.0–7.0 × 5.0–7.0 mm, densely dark brown sericeous; petals light pink, sericeous externally, trichomes dark brown; standard 11–14 mm long, apex 5.8–6.8 mm wide, base 4.0–5.0 mm wide, obovate, apex 1.1–1.5× wider than the base, light pink with a central yellow–green spot changing colour to dark purple (*M. Nee 34997*) or with a purple line between the pink margin and the central yellow–green spot (*M. Nee 35002*), claw 3.5–4.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 11–13 × 3.0–5.0 mm, oblong, claw 4.0–5.5 mm long; stamens 8.0–12 mm long; gynoeceum 11–13 mm long, the ovary 4.5–7.0 × 1.5–2.0 mm, densely dark brown sericeous, falcate, laterally compressed, with a crest on each side, stipe 1.5–2.0 mm long, style 4.0–6.0 mm long. **Samaras** 7.3–11 cm long, falcate, sericeous, with short, appressed, dark brown trichomes, stipe c. 6 mm long, seed chamber 2.9–3.5 × 1.8–2.0 cm, lateral wings 22–30 × 6.0–9.0 mm, apical wing 6.5–9.3 × 2.4–3.5 cm, oval-elliptical, apex rounded. **Seed** c. 19 mm long, c. 12 mm wide, c. 4.0 mm thick.

## COMMENTS

Growing to 35 m, *L. amazonica* is one of the tallest species in the genus. It appears in a phylogenetically isolated position, but close to two odd accessions of the morphologically distinct *L. auriculata* and *L. praecox* (Cardoso et al. 2014). Because of the similar number and morphology of glabrous leaflets, relatively large samara and dark brown sericeous indumentum, densely covering inflorescence axes and calyces, *L. amazonica* resembles *L. trialata*, endemic to the Atlantic Forest. However, *L. amazonica* differs from *L. trialata* by the larger flowers (13–16 mm long vs. 9.0–11 mm long), petals predominantly pinkish (vs. dark reddish) and the standard obovate in outline and larger, 11–14 mm long, with the apex 5.8–6.8 mm wide (vs. pandurate to slightly oblong and of 8.0–9.5 × 3.0–4.0 mm).

## Life Form

Tree

## Substrate

Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

**Phytogeographic Domains**

Amazon Rainforest

**Vegetation Types**

Seasonally Semideciduous Forest

**Geographic Distribution**Confirmed occurrences

North (Rondônia)

**HERBARIUM MATERIAL**

D.B.O.S. Cardoso, 2920, HUEFS (HUEFS160756), Rondônia


M. Nee, 34997, NY,  (NY01551947), MBM, RondôniaC. Ferreira, 8908, NY,  (NY1582729), MBM, Rondônia, **Typus****FIELD IMAGES / ILLUSTRATIONS**Figure 1: *Luetzelburgia amazonica* D.B.O.S.Cardoso, L.P.Queiroz & H.C.LimaFigure 2: *Luetzelburgia amazonica* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima





Figure 3: *Luetzelburgia amazonica* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 4: *Luetzelburgia amazonica* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 5: *Luetzelburgia amazonica* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 6: *Luetzelburgia amazonica* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima

## REFERENCE

- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2012. A new species of *Luetzelburgia* (Leguminosae: Papilionoideae: Vataireoid clade) from Brazilian Amazonia. *Kew Bulletin* 67: 833–836.
- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

# *Luetzelburgia andrade-limae* H.C.Lima

## DESCRIPTION

**Leaf:** leaflet number 11 to 19; leaflet form oblong-elliptic to lanceolate; leaflet margin frequently entire; leaflet apex obtuse to acute; leaflet and foliar rachis indumentum densely tomentose or pubescent; leaflet pulvinus less than 6 mm long. **Inflorescence:** bracteole(s) shape ovate to elliptic; indumentum of the axis and calyx fulvous sericeous; panicle erect. **Flower:** size less than 12 mm; petal colour reddish to dark red; standard shape panduriform; wing and keel oblong. **Fruit:** lateral wing on the seed chamber absent.

## ADDITIONAL DESCRIPTION

**Tree** 3–10 m high, trunk 45–70 cm in diameter; branchlets densely fulvous tomentose. **Leaves** 15–20 cm long, (5-) 11- to 19-foliolate; petiole 1.5–4.0 cm long; leaf rachis 9.0–16 cm long, densely tomentose, interfoliolar segments 1.5–3.0 cm long; pulvinules 0.8–1.5 mm long, densely tomentose; the uppermost leaflets usually differentiated in shape and larger than the basal ones, 5.0–8.0 × 2.0–3.0 cm, up to 3.5 × larger than the basal ones, oblong-elliptical to lanceolate, apex obtuse to acute, base obtuse to rounded, the basal leaflets 2.0–3.5 × 1.5–2.5 cm, usually widely ovate to suborbicular, rarely broadly elliptical, apex rounded, emarginate, base rounded to subcordate, margins entire, rarely denticulate, sparsely to densely hirsute on both surfaces, tomentose abaxially along the mid-vein. **Panicles** erect, laxly pyramidal to congested, the main axis 9.0–25 cm long, lateral panicle branches 3.0–10 cm long; axes, pedicels and bracts sericeous to tomentose with dense, flexuous to appressed, fulvous trichomes; bracts 2.0–4.0 × 1.0–1.2 mm, broadly ovate, apex acute; pedicels 3.0–4.0 mm long; bracteoles 1.0–1.5 mm long, ovate, inserted in the middle of the pedicel. **Flowers** 8.0–10 mm long; calyx 4.0–5.0 × c. 3.0 mm, densely sericeous, with fulvous or unusually dark brown trichomes; petals red, sericeous externally, trichomes fulvous; standard 8.0–9.0 × 4.0–5.0 mm, pandurate, the apex as wide as the base, claw c. 2.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 8.0–9.0 × 4.0–5.0 mm, slightly spatulate to oblong-obovate, the apex 1.3–1.6× wider than the base, claw 2.0–3.0 mm long; stamens 5.0–8.0 mm long; gynoeceium 5.5–6.0 mm long, the ovary 3.0–3.5 × 1.5–2.0 mm, densely fulvous sericeous, ovoid, the lateral crests absent, borne on a short, 0.2–0.3 mm long stipe, style c. 2.0 mm long. **Samaras** 6.5–10.5 cm long, falcate to straight, never incurved, densely fulvous sericeous, with subappressed trichomes, stipe 4.0–7.0 mm long, seed chamber 2.4–3.0 × 1.5–2.0 cm, smooth, lateral wings absent, the apical wing 4.0–8.5 × 2.0–3.5 cm, elliptic to widely oval, apex rounded to acute. **Seeds** 17–22 mm long, 10–12 mm wide, 4.0–6.0 mm thick.

## COMMENTS

Among the six caatinga *Luetzelburgia* spp., *L. andrade-limae* is morphologically quite distinct in having > 11 leaflets and samaras without small wings on the seed chamber (Cardoso et al. 2014). The latter character and small (< 10 cm long) flowers with red petals and a pandurate standard led us to place this species in close morphological similarity to *L. guaissara* of south-eastern Brazil. Indeed, these species and the few-foliolate species *L. trialata* are closely related (Cardoso et al. 2014). However, *L. andrade-limae* differs from *L. guaissara* by leaflets that are predominantly oblong-elliptical to lanceolate, with an obtuse to acute apex and with margins rarely denticulate (versus leaflets widely elliptical to ovate, with the apex strongly acute to acuminate and the margins frequently denticulate to sparsely serrulate in *L. guaissara*). In addition, the inflorescence axes and calyx are usually covered by fulvous, seldom dark brown indumentum (vs. always dark brown indumentum in *L. guaissara*).

### Life Form

Tree

### Substrate

Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

### Phytogeographic Domains

Caatinga, Central Brazilian Savanna

### Vegetation Types

Caatinga (stricto sensu), Seasonally Deciduous Forest

### Geographic Distribution


#### Confirmed occurrences


Northeast (Bahia)


Central-west (Goiás)

Southeast (Minas Gerais)


### HERBARIUM MATERIAL

D. Andrade-Lima, 75-6966, RB, 208242,  (RB00540304), PEUFR, Bahia, **Typus**

F.B. Ramalho, 215, RB, 175509,  (RB00540305), PEUFR, Bahia

D.B.O.S. Cardoso, 2051, RB, 452625,  (RB00495189), Bahia

D.B.O.S. Cardoso, 3000, HUEFS, 506094 (HUEFS160836), Bahia

D.B.O.S. Cardoso, 1860, RB, 452656,  (RB00495220), Bahia

D.B.O.S. Cardoso, 2518, RB, 506094,  (RB00605943), RB, PEUFR, Goiás

### FIELD IMAGES / ILLUSTRATIONS



Figure 1: *Luetzelburgia andrade-limae* H.C.Lima



Figure 2: *Luetzelburgia andrade-limae* H.C.Lima



Figure 3: *Luetzelburgia andrade-limae* H.C.Lima



Figure 4: *Luetzelburgia andrade-limae* H.C.Lima



Figure 5: *Luetzelburgia andrade-limae* H.C.Lima



Figure 6: *Luetzelburgia andrade-limae* H.C.Lima



Figure 7: *Luetzelburgia andrade-limae* H.C.Lima

## REFERENCE

- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2008. Three new species of *Luetzelburgia* (Leguminosae, Papilionoideae) from the caatinga of Bahia, Brazil and an identification key to all species of the genus. *Kew Bulletin* 63: 289–300.
- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

# *Luetzelburgia auriculata* (Allemão) Ducke

## Has as synonym

homotype *Bowdichia freirei* Ducke  
 heterotypic *Luetzelburgia brasiliensis* Yakovlev  
 heterotypic *Luetzelburgia pallidiflora* (Rizzini) H.C.Lima  
 heterotypic *Luetzelburgia pterocarpoides* Harms  
 heterotypic *Vataireopsis pallidiflora* Rizzini

## DESCRIPTION

**Leaf:** leaflet number 3 to 9; leaflet form widely elliptic to ovate/suborbicular to orbicular rarely ovate; leaflet margin commonly denticulate; leaflet apex obtuse to acute/rounded sometimes emarginate; leaflet and foliar rachis indumentum densely tomentose or pubescent; leaflet pulvinus less than 6 mm long. **Inflorescence:** bracteole(s) shape ovate to elliptic; indumentum of the axis and calyx fulvous sericeous/dark brown sericeous; panicle erect. **Flower:** size more than 13 mm; petal colour white and pinkish; standard shape obovate; wing and keel oblong. **Fruit:** lateral wing on the seed chamber present.

## ADDITIONAL DESCRIPTION

**Trees** to 10 m high, sometimes shrubs 1.5–2.5 m; branchlets densely sericeous by fulvous trichomes. **Leaves** (10–)12–30 cm long, (3)5–9(11)-foliolate, densely pubescent or tomentose, rarely glabrescent; petiole (2.5–)3.5–7.5 cm long; leaf rachis 5.0–21 cm long, interfoliolar segments (1.5–)2.0–5.5 cm long; pulvinules 3.0–6.0 mm long; leaflets (2.5–)3.5–11.5 × (1.5–)2.0–7.5 cm, narrowly elliptical to widely ovate or sometimes suborbicular, apex rounded to acuminate or profoundly emarginate, base acute to rounded, or subcordate, densely pubescent or tomentose along the mid-vein beneath, occasionally sparsely pubescent on both surfaces. **Panicles** erect, the main axis 8.5–25 cm long, lateral panicle branches 3.5–11.5 cm long; axes, pedicels and bracts sericeous, covered by dense, short, appressed, fulvous or light brown trichomes, the indumentum rarely greyish or dark brown; bracts 2.5–3.5 × 1.5–2.0 mm, broadly ovate, apex acuminate; pedicels 1.5–3.0 mm long; bracteoles 0.5–1.5 mm long, ovate, seldom lanceolate, inserted in the middle of the pedicel or right below the calyx. **Flowers** 13–16 mm long; calyx 4.5–8.0 × 5.0–7.0 mm, sericeous, covered by dense, short, appressed, fulvous trichomes, the indumentum rarely white-greyish or dark brown; petals predominantly white; standard 12–15 mm long, apex 5.0–10 mm wide, base 3.0–6.0 mm wide, with a reddish stripe, obovate, apex 1.2–1.7× wider than the base, claw 2.5–3.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 11–16 × 3.0–7.0 mm, oblong, claw 4.0–5.5 mm long; stamens 9.0–14 mm long; gynoeceum 11–15 mm long, the ovary 4.0–5 × 2.0–2.5 mm, densely sericeous, falcate, laterally compressed, with a crest on each side, stipe 1.0–2.0 mm long, style 6.0–8.0 mm long. **Samaras** (5.5–)7.0–9.0 cm long, straight to strongly falcate or downwardly incurved, fulvous sericeous, stipe 5.0–7.0 mm long, seed chamber (1.5–)2.5–3.7 × (1.0–)1.5–2.1 cm, lateral wings (13–)17–30 × 3.0–9.0 mm, apical wing (4.5–)5.5–7.0 × 2.3–4.0 cm, oblong to widely oval, apex rounded. **Seeds** 12–25 mm long, 7.0–15 mm wide, 4.0–7.0 mm thick.

## COMMENTS

*Luetzelburgia auriculata* is most likely to be confused with *L. bahiensis* in the caatinga dry woodlands of north-eastern Brazil, and with *L. praecox* in the cerrado woodlands of central Brazil. *Luetzelburgia auriculata* has smaller flowers, measuring 13–16 mm long, and oblong lateral and abaxial petals, whereas the flowers of *L. bahiensis* are 18–28 mm long, with widely spatulate petals. Leaves of *L. bahiensis* are either glabrous or sparsely tomentose on the rachis and lower surface of leaflets, whereas, in *L. auriculata*, they are densely pubescent or tomentose. Differences with respect to *L. praecox* are discussed in some detail in the comments of that species. Our own field and herbarium observations revealed exceptionally variable size and morphology leaflets and samaras in *L. auriculata* even within limited geographical areas (Cardoso et al. 2014). Careful study of more than 200 specimens from its entire range demonstrates that leaflet variation is continuous and therefore cannot be a basis for maintaining *L. pallidiflora* as proposed by Rizzini (1971).

## Life Form

Tree

## Substrate

Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

### Phytogeographic Domains

Amazon Rainforest, Caatinga, Central Brazilian Savanna

### Vegetation Types

Caatinga (stricto sensu), Carrasco Vegetation, Cerrado (lato sensu)

### Geographic Distribution

#### Confirmed occurrences

North (Pará, Tocantins)


Northeast (Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte)

Central-west (Distrito Federal, Goiás, Mato Grosso do Sul, Mato Grosso)

Southeast (Minas Gerais)

### HERBARIUM MATERIAL


G. Hatschbach, 60845, MBM, K, Mato Grosso do Sul

A.M. Miranda, 5348, RB, 425357,  (RB00389288), Piauí


M.L. Guedes, 22394, ALCB, 425357 (ALCB031341), Rio Grande do Norte

Fernandes, A., s.n., EAC, 425357 (EAC0001610), Ceará

F. Allemão, 425, JPB, RB, Ceará, **Typus**

P.C. Gadelha-Neto, 441, JPB, RB, 413381,  (RB00115299), Paraíba

D.B.O.S. Cardoso, 2641, HUEFS, Bahia


D.B.O.S. Cardoso, 2617, RB, 506073,  (RB00605922), HUEFS, RB, Distrito Federal

J.A. Ratter, 7768, UB, E, Maranhão

J.A. Ratter, 7453, E, Mato Grosso

D.B.O.S. Cardoso, 2977, RB,  (RB00661290), HUEFS, Piauí

D.B.O.S. Cardoso, 2367, HUEFS (HUEFS145098), Pernambuco

D.B.O.S. Cardoso, 3482, RB,  (RB00899512), Rio Grande do Norte

### FIELD IMAGES / ILLUSTRATIONS



Figure 1: *Luetzelburgia auriculata* (Allemão) Ducke





Figure 2: *Luetzelburgia auriculata* (Allemão) Ducke



Figure 3: *Luetzelburgia auriculata* (Allemão) Ducke



Figure 4: *Luetzelburgia auriculata* (Allemão) Ducke



Figure 5: *Luetzelburgia auriculata* (Allemão) Ducke



Figure 6: *Luetzelburgia auriculata* (Allemão) Ducke



Figure 7: *Luetzelburgia auriculata* (Allemão) Ducke

## REFERENCE

- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2008. Three new species of *Luetzelburgia* (Leguminosae, Papilionoideae) from the caatinga of Bahia, Brazil and an identification key to all species of the genus. *Kew Bulletin* 63: 289–300.
- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

# *Luetzelburgia bahiensis* Yakovlev

## Has as synonym

heterotypic *Luetzelburgia freire-allemanni* Rizzini & A.Mattos

## DESCRIPTION

**Leaf:** leaflet number (1) 3 to 7; leaflet form widely elliptic to ovate/suborbicular to orbicular rarely ovate; leaflet margin commonly denticulate; leaflet apex obtuse to acute/rounded sometimes emarginate; leaflet and foliar rachis indumentum totally glabrous or sometimes glabrescent; leaflet pulvinus less than 6 mm long. **Inflorescence:** bracteole(s) shape deltoid to suborbicular; indumentum of the axis and calyx fulvous sericeous; panicle pendent. **Flower:** size more than 13 mm; petal colour white; standard shape spathulate; wing and keel spathulate. **Fruit:** lateral wing on the seed chamber present.

## ADDITIONAL DESCRIPTION

**Shrub** 1.5 m, profusely branched from the base, to **tree** to 10 m; branchlets light brown puberulent. **Leaves** 5.5–20 cm long, (1)3–5(7)-foliolate, entirely glabrous to finely puberulous or shortly sericeous, trichomes appressed; petiole 1.0–7.0 cm long; leaf rachis (0.5–)1.0–9.0 cm long, interfoliolar segments (0.5–)1.0–4.5 cm long; pulvinules 2.0–4.5 mm long; leaflets (2.0–)2.5–7.5 × (2.0–)2.5–6.0 cm, the terminal leaflet usually c. 1.7× larger than the basal ones, widely oval to orbicular, rarely elliptical, apex rounded to obtuse, slightly to deeply emarginate, base rounded to subcordate, rarely obtuse, glabrous or occasionally sparsely sericeous on both surfaces, trichomes short and appressed. **Panicles** pendent, rarely erect, subglobose, the main axis 5.0–20 cm long, lateral panicle branches (2.0–)4.0–11 cm long; axes, pedicels and bracts densely sericeous with short, appressed, light brown trichomes; bracts 1.5–2.5 × 1.0–1.4 mm, deltoid to suborbicular, apex acute, early deciduous or sometimes persistent; pedicels 2.0–3.0 mm long; bracteoles 0.5–1.8 mm long, suborbicular to lanceolate, inserted near the calyx base; flower buds oblong-ellipsoid. **Flowers** (18–)20–28 mm long; calyx 8.0–12 × 7.0–8.0 mm, densely sericeous with appressed, light brown trichomes, rarely ferruginous and dark brown; petals white; standard 16–26 × 8.0–12 mm, widely spathulate, apex c. 2× wider than the base, claw 4.0–7.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 16–25 × 8.0–11 mm, widely spathulate, apex 2.6–2.8× wider than the base, claw 6.0–8.0 mm long; stamens 12–15 mm long; gynoeceum 13–19 mm long, the ovary 4.5–8.0 × 1.8–2.0 mm, densely light brown sericeous, elliptical to falcate, laterally compressed, small crests conspicuous on each side, stipe 1.5–2.0 mm long, style 7.0–9.0 mm long. **Samaras** 5.5–10 cm long, straight to falcate, sometimes strongly curved downwardly, light brown sericeous, with short, appressed trichomes, stipe 4.0–10 mm long, seed chamber 1.8–3.0 × 1.1–1.7 cm, lateral wings 13–25 × 2.0–9.0 mm, apical wing 4.5–7.5 × 2.3–4.0 cm, suboblong to widely oval, apex rounded. **Seeds** 19–25 mm long, 10–12 mm wide, 5.0–7.0 mm thick.

## COMMENTS

*Luetzelburgia bahiensis* is strongly supported as closely related to *L. neurocarpa* in a clade of strictly caatinga-inhabiting species (Cardoso et al. 2014). Overall differences with respect to *L. neurocarpa* are provided in the taxonomic discussion of that species. Large, showy flowers of *L. bahiensis* are unparalleled in *Luetzelburgia* and readily distinguish this species from all others in the genus. This species has great variation in number and shape of leaflets, but has leaves that are usually 3–5-foliolate and glabrous, with leaflets rounded and obtuse to emarginate at the apex. These vegetative characters are useful in distinguishing between *L. bahiensis* and the morphologically close *L. auriculata*, in which the leaf petiole and rachis and the outer surface of leaflets are always densely to sparsely pubescent or tomentose. The species also stands out from *L. auriculata* by having pendent panicles (versus usually erect) and spathulate lateral and abaxial petals (vs. oblong).

## Life Form

Shrub, Tree

## Substrate

Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

## Phytogeographic Domains

Caatinga

**Vegetation Types**



Caatinga (stricto sensu)

**Geographic Distribution**Confirmed occurrences

Northeast (Bahia, Pernambuco, Piauí)

**HERBARIUM MATERIAL**D.B.O.S. Cardoso, 1861, HUEFS, RB,  (RB00495208)L.P. Queiroz, 7414, UFRN,  (UFRN00001793), HUEFS

L.P. Queiroz, 6566, ALCB (ALCB031348), HUEFS

R.M. Santos, 1387, RB,  (RB00530453), HUEFSJ.S. Blanchet, 2753, K,  (K000188310), K,  (K000188309), K, **Typus**

D.B.O.S. Cardoso, 2967, HUEFS (HUEFS160803), Bahia

**FIELD IMAGES / ILLUSTRATIONS**Figure 1: *Luetzelburgia bahiensis* YakovlevFigure 2: *Luetzelburgia bahiensis* Yakovlev



Figure 3: *Luetzelburgia bahiensis* Yakovlev



Figure 4: *Luetzelburgia bahiensis* Yakovlev



Figure 5: *Luetzelburgia bahiensis* Yakovlev



Figure 6: *Luetzelburgia bahiensis* Yakovlev



Figure 7: *Luetzelburgia bahiensis* Yakovlev

## REFERENCE

- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2008. Three new species of *Luetzelburgia* (Leguminosae, Papilionoideae) from the caatinga of Bahia, Brazil and an identification key to all species of the genus. *Kew Bulletin* 63: 289–300.
- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.
- Lewis, G.P. 1987. *Legumes of Bahia*. Royal Botanic Gardens, Kew.
- Lima, H.C.de. 1984. Uma nova espécie de *Luetzelburgia* (Leguminosae, Papilionoideae) da Bahia, Brasil. In: *Anais do 34 Congresso Nacional de Botânica, Comunicações*, vol. 2, pp. 191-197, Sociedade Botânica do Brasil, Porto Alegre.
- Queiroz, L.P.de. 2009. *Leguminosas da caatinga*. Feira de Santana: Universidade Estadual de Feira de Santana. 467p.

# Luetzelburgia guaissara Toledo

## Has as synonym

heterotypic *Luetzelburgia reitzii* Burkart

## DESCRIPTION

**Leaf:** leaflet number 11 to 19; leaflet form widely elliptic to ovate; leaflet margin commonly denticulate; leaflet apex acute to strongly acuminate; leaflet and foliar rachis indumentum densely tomentose or pubescent; leaflet pulvinus less than 6 mm long. **Inflorescence:** bracteole(s) shape linear to lanceolate; indumentum of the axis and calyx dark brown sericeous; panicle erect. **Flower:** size less than 12 mm; petal colour reddish to dark red; standard shape panduriform; wing and keel oblong. **Fruit:** lateral wing on the seed chamber absent.

## ADDITIONAL DESCRIPTION

**Tree** 5–20 m; branchlets densely to sparsely pubescent, with short and straight fulvous trichomes. **Leaves** 20–25 cm long, (9)11–19-foliolate, densely pubescent or tomentose, with short and straight fulvous trichomes; petiole 3.5–5.0 cm long; leaf rachis 16–20 cm long, interfoliolar segments 1.5–2.5 cm long; pulvinules 2.0–3.0 mm long; uppermost leaflets usually differentiated in shape and larger than the basal ones, with the upper ones (4.0–)6.5–9.0 × 1.5–4.0 cm and up to 2.0× larger than the basal ones, elliptical to broadly ovate, apex acute to strongly acuminate, the acumen up to 8.0 mm long, rarely obtuse, base obtuse to rounded, the basal leaflets 3.0–4.5 × 1.7–2.8 cm, oval to widely ovate, apex rounded to long acuminate, base rounded, margins frequently denticulate, rarely entire, densely pubescent or tomentose abaxially along the mid-vein, trichomes fulvous, short and straight. **Panicles** erect, the main axis 8.0–19 cm long, lateral panicle branches 3.0–8.0 cm long; axes, pedicels and bracts sericeous, with dense, appressed, dark brown to atropurpureous trichomes; bracts 3.0–6.0 × 1.5–2.0 mm, ovate, apex acute; pedicels 1.0–3.0 mm long; bracteoles 2.0–3.0 mm long, linear-lanceolate, inserted in the middle of the pedicel or right below the calyx. **Flowers** 8.0–10 mm long; calyx 4.0–5.0 × 4.0–7.0 mm, densely dark brown sericeous, rarely covered by light brown trichomes; petals red; standard 7.0–10 × 3.0–5.0 mm, pandurate, apex as wide as the base, seldom slightly obovate, claw 1.5–2.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 6.5–9 × 2.0–4.0 mm, slightly obovate to oblong, claw 2.0–3.0 mm long; stamens 5.0–8.0 mm long; gynoeceium 6.0–8.5 mm long, the ovary 2.0–4.0 × 1.5–2.0 mm, densely dark brown sericeous, subfalcate, laterally compressed, lateral crests absent, stipe 0.5–1.0 mm long, style 3.0–3.5 mm long. **Samaras** 8.0–9.0 cm long, falcate, densely sericeous, with appressed, short, light to dark brown trichomes, stipe 5.0–8.0 mm long, seed chamber 2.5–3.0 × 1.5–1.7 cm, smooth, lateral wings absent, apical wing 6.5–7.5 × 2.0–3.3 cm, elliptical to widely oval, apex rounded. **Seeds** 22–24 mm long, 11–12 mm wide, 4.0–5.0 mm thick.

## COMMENTS

*Luetzelburgia guaissara* and the caatinga-endemic *L. andrade-limae* are the only species in the genus with leaves having > 15 leaflets and samaras without small wings on the seed chamber. The differences in petal and leaflet morphology between the two species were mentioned above. Whether in flower or sterile, *L. guaissara* has been consistently confused with its sister species *L. trialata* (Cardoso et al. 2014), which is known only from Rio de Janeiro in south-eastern Brazil. Both species have leaflets that are usually ovate, with acute to acuminate apex and small, < 12-mm-long flowers and the inflorescence axes, bracts and calyx covered by dark brown sericeous indumentum. However, in addition to the absence of small wings on the seed chamber, *L. guaissara* has tomentose leaves (versus glabrous in *L. trialata*) with more leaflets (11–17 versus 3–9).

## Life Form

Tree

## Substrate

Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

## Phytogeographic Domains

Atlantic Rainforest







**Vegetation Types**

Seasonally Semideciduous Forest

**Geographic Distribution**Confirmed occurrences

Southeast (Rio de Janeiro, São Paulo)

South (Paraná, Santa Catarina)

**HERBARIUM MATERIAL**D.B.O.S. Cardoso, 2213, RB, 477956,  (RB00554846), Rio de JaneiroAraujo, P., 42179, K, 83988,  (K000500801), **Typus**G.M. Nunes, 295, MBM, RB, 83988,  (RB00178783), Rio de JaneiroE. M. Francisco, s.n., NY, 477956,  (NY00777384), Paraná

G. Hatschbach, 69942, UB, BHCB, R, ALCB, CEPEC, CESJ, CTES, ESA, HUEFS, K, LPB, MBM, MO, NY, SPF, CEN (CEN00046318), Paraná

**FIELD IMAGES / ILLUSTRATIONS**Figure 1: *Luetzelburgia guaissara* ToledoFigure 2: *Luetzelburgia guaissara* Toledo



Figure 3: *Luetzelburgia guaissara* Toledo



Figure 4: *Luetzelburgia guaissara* Toledo



Figure 5: *Luetzelburgia guaissara* Toledo

## REFERENCE

- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2008. Three new species of *Luetzelburgia* (Leguminosae, Papilionoideae) from the caatinga of Bahia, Brazil and an identification key to all species of the genus. *Kew Bulletin* 63: 289–300.
- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

# *Luetzelburgia guianensis*

D.B.O.S.Cardoso, L.P.Queiroz &  
H.C.Lima

## DESCRIPTION

**Leaf:** leaflet number (1) 3 to 7; leaflet form widely elliptic to ovate; leaflet margin commonly denticulate; leaflet apex obtuse to acute; leaflet and foliar rachis indumentum totally glabrous or sometimes glabrescent; leaflet pulvinus less than 6 mm long. **Inflorescence:** bracteole(s) shape linear to lanceolate; indumentum of the axis and calyx dark brown sericeous; panicle erect. **Flower:** size more than 13 mm; petal colour reddish to dark red; standard shape obovate; wing and keel oblong. **Fruit:** lateral wing on the seed chamber present.

## ADDITIONAL DESCRIPTION

**Shrub to tree** of 2–8 m; branchlets glabrous to sparsely sericeous, with dark brown trichomes. **Leaves** 12.5–32 cm long, (1)3–7-foliolate; petiole 1.5–7.5 cm long; leaf rachis 5.0–20 cm long, interfoliolar segments 1.5–5.5 cm long, glabrescent to sparsely sericeous, with short, appressed, light to dark brown trichomes; pulvinules 2.5–5.0 mm long; leaflets (3.5–)4.5–14.5 × (2.5–)3.5–7.5 cm, sometimes the terminal leaflets 1.3–1.8× larger than the basal ones; leaflet blade oval to broadly ovate, rarely suborbicular, apex obtuse to acute, rarely rounded and emarginate, base obtuse or rounded to subcordate, glabrescent to sparsely sericeous along the mid-vein, trichomes short, appressed, light to dark brown. **Panicles** erect, the main axis 4.5–15 cm long, lateral panicle branches 1.5–7.6 cm long; axes, pedicels and bracts sericeous, with dense, short, appressed, dark brown trichomes; bracts early deciduous, not seen; pedicels 3.5–5.5 mm long; bracteoles, c. 1.0 mm long, linear, inserted in the middle of the pedicel. **Flowers** 13–15 mm long; calyx 6.0–7.0 × 6.0–7.0 mm, densely sericeous, with short, appressed, dark brown trichomes; petals dark red; standard 11.8–14 mm long, apex 5.5–6.0 mm wide, base 4.5–5.5 mm wide, suboblong to slightly obovate, apex 1.1–1.2× wider than the base, claw c. 3.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 11–14 × 3.0–4.0 mm, oblong, claw 3.5–4.5 mm long; stamens 9.0–12.5 mm long; gynoecium 11.5–15 mm long, the ovary 4.5–6.0 × 1.8–2.0 mm, densely dark brown sericeous, suboblong to falcate, laterally compressed, small crests present on each side, stipe 1.0–1.8 mm long, style 5.5–8.0 mm long. **Samaras** 7.0–11.5 cm long, falcate, sericeous, with short, appressed, dark brown trichomes, stipe 5.0–7.0 mm long, seed chamber 2.5–4.0 × 1.5–2.0 cm, lateral wings 20–35 × 5.0–13 mm, apical wing 6.0–9.5 × 2.5–4.0 cm, broadly oval to oboval, apex rounded. **Seed** 21–28 mm long, 10–14 mm wide, c. 4.0 mm thick.

## COMMENTS

*Luetzelburgia guianensis* is readily distinguished from its putative sister species *L. andina* (Cardoso et al. 2014) by the larger flowers (13–15 mm long in *L. guianensis* vs. 10–11 mm long in *L. andina*) and broader leaflets (3.5–7.5 cm wide or rarely 2.5 cm wide vs. usually 1.7–3.0 cm wide), in addition to the geographical disjunction. *Luetzelburgia guianensis* is similar to the other Bolivian endemic *L. sotoi* in the number of leaflets and petal coloration and morphology. It differs from *L. sotoi* by the combination of smaller pulvinules (2.5–5.0 mm long in *L. guianensis* vs. 8.0–13 mm long in *L. sotoi*), lateral and abaxial petals narrower and with smaller claw (3.0–4.0 mm wide and claw 3.5–4.5 mm long in *L. guianensis* vs. 4.0–7.0 mm wide and claw 5.0–6.5 mm long in *L. sotoi*). In addition, *L. guianensis* has glabrescent leaves with dark brown trichomes, whereas *L. sotoi* has entirely glabrous leaves. Although the leaflet shape in *L. guianensis* varies considerably (Cardoso et al. 2014), it is mostly oval to ovate, with an obtuse to acute apex, further differentiating it from *L. sotoi*, which has leaflets that are mostly suborbicular and with a rounded apex. Flowering phenology is also markedly different in these species and their geographical distribution does not overlap. Considerable genetic differences in the ITS and some plastid sequences also indicate the separate status of *L. guianensis* and *L. sotoi* (Cardoso et al. 2014).

## Life Form

Tree

## Substrate

Terrestrial

## DISTRIBUTION

Native, Not endemic to Brazil

### Phytogeographic Domains

Amazon Rainforest

### Vegetation Types


Seasonally Deciduous Forest

### Geographic Distribution


#### Confirmed occurrences

North (Roraima)

## HERBARIUM MATERIAL

W.C. Steward, 173, NY, 543418,  (NY01551953), Roraima

M.J. Jansen-Jacobs, 2690, P, 543418 (P04145527)

D.B.O.S. Cardoso, 2853, RB, 543418,  (RB00702934), Roraima

D.B.O.S. Cardoso, 2857, HUEFS (HUEFS160693), CEPEC, F, INPA, K, MBM, MG, MIRR, MO, MONT, NY, RB, SP, Roraima, **Typus**

## FIELD IMAGES / ILLUSTRATIONS



Figure 1: *Luetzelburgia guianensis* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 2: *Luetzelburgia guianensis* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 3: *Luetzelburgia guianensis* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 4: *Luetzelburgia guianensis* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 5: *Luetzelburgia guianensis* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima

## REFERENCE

Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

# *Luetzelburgia harleyi* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima

## DESCRIPTION

**Leaf:** leaflet number (1) 3 to 5; leaflet form widely elliptic to ovate; leaflet margin commonly denticulate; leaflet apex obtuse to acute; leaflet and foliar rachis indumentum totally glabrous or sometimes glabrescent; leaflet pulvinus less than 6 mm long. **Inflorescence:** bracteole(s) shape ovate to elliptic; indumentum of the axis and calyx dark brown sericeous; panicle erect. **Flower:** size less than 12 mm; petal colour white and pinkish; standard shape panduriform; wing and keel oblong/obovate. **Fruit:** lateral wing on the seed chamber present.

## ADDITIONAL DESCRIPTION

**Small tree** to 5 m; branchlets glabrous to pubescent, with dark brown trichomes. **Leaves** 8.5–15.5 cm long, (1)3–5-foliolate; petiole 2.0–6.0 cm long; leaf rachis 1.0–4.5 cm long, glabrous to shortpubescent, interfoliolar segments 1.0–3.0 cm long; pulvinules 1.0–3.0 mm long; leaflets (2.8–)5.0–9.0 × (2.0–)3.5–5.0 cm, the terminal leaflet 1.1–1.4× larger in trifoliate leaves, ovate to widely ovate, apex obtuse to acute and emarginate, base rounded to subcordate, glabrous above, sparsely dark brown pubescent beneath along the mid-vein. **Panicles** erect, subglobose to pyramidal, the main axis 4.0–6.0 cm long, lateral panicle branches 1.5–3.0(–4.0) cm long; axes, pedicels and bracts sericeous, with dense, short, appressed, dark brown trichomes; bracts 1.0 × 0.8 mm, ovate, apex acute; pedicels c. 2.0 mm long; bracteoles 0.8–1.0 mm long, ovate, inserted in the middle of the pedicel. **Flowers** 10–13 mm long; calyx 5.0–6.0 × 4.0–6.0 mm, densely sericeous, covered with short, appressed, dark brown trichomes; petals warm pink, with whitish margins; standard 10–13 × 4.0–5.0 mm long, panduriform, apex as wide as the base, claw 3.0–4.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 10–13 × 5.0–6.0 mm, obovate to oblong-obovate, apex 1.7–2.0× wider than the base, claw 4.0–5.0 mm long; stamens 7.0–10 mm long; gynoecium 8.0–11 mm long, the ovary 3.0–4.0 × 1.0–1.5 mm, sericeous, with dark brown trichomes, falcate, laterally compressed, with a conspicuous crest on each side, stipe c. 1.0 mm long, style 4.0–6.0 mm long. **Samaras** 6.0–7.0 cm long, subfalcate, brownish, densely covered with fulvous to dark brown sericeous, short, appressed hairs, stipe c. 5.0 mm long, seed chamber 2.0–2.5 × 1.1–2.0 cm, lateral wings 18–22 × 4.0–5.0 mm, apical wing 4.5–6.0 × 2.0–2.4 cm, oval, apex rounded. **Seeds** c. 14 mm long, c. 8.0 mm wide, c. 4.0 mm thick.

## COMMENTS

The species is unique in the genus because of its whitish petals with pink stripes. Phylogenetically, *L. harleyi* is closely related to the morphologically divergent *L. purpurea* (Cardoso et al. 2014). It morphologically resembles the widespread *L. auriculata*, with both species having leaflets with acute to acuminate apices. However, *L. harleyi* differs in having fewer leaflets (1–5 vs. mostly 5–11 in *L. auriculata*), shorter inflorescences (the main axis 4.0–6.0 cm long vs. usually > 10 cm long), dark brown sericeous indumentum on the inflorescences and calyx (vs. fulvous-sericeous), the standard panduriform (vs. obovate) and lateral and abaxial petals obovate to oblong-obovate (vs. oblong). In addition, *L. auriculata* is rare in Bahia, where it is known from only a few locations in the western part of the state.

### Life Form

Tree

### Substrate

Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

### Phytogeographic Domains

Caatinga

### Vegetation Types

Caatinga (stricto sensu), Seasonally Deciduous Forest




**Geographic Distribution**Confirmed occurrences

Northeast (Bahia)

**HERBARIUM MATERIAL**

D.B.O.S. Cardoso, 2080, HUEFS (HUEFS121374), Bahia

D.B.O.S. Cardoso, 2187, RB, 474845,  (RB00547445), Bahia

R.M. Harley, 54037, HUEFS (HUEFS047730), Bahia

D.B.O.S. Cardoso, 2076, HUEFS (HUEFS121370), RB, HST, BRIT, K, SP, ALCB, MBM, P, CEPEC, Bahia, **Typus****FIELD IMAGES / ILLUSTRATIONS**Figure 1: *Luetzelburgia harleyi* D.B.O.S.Cardoso, L.P.Queiroz & H.C.LimaFigure 2: *Luetzelburgia harleyi* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 3: *Luetzelburgia harleyi* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 4: *Luetzelburgia harleyi* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 5: *Luetzelburgia harleyi* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 6: *Luetzelburgia harleyi* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 7: *Luetzelburgia harleyi* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima

## REFERENCE

- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2008. Three new species of *Luetzelburgia* (Leguminosae, Papilionoideae) from the caatinga of Bahia, Brazil and an identification key to all species of the genus. *Kew Bulletin* 63: 289–300.
- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

# *Luetzelburgia neurocarpa*

D.B.O.S.Cardoso, L.P.Queiroz &  
H.C.Lima

## DESCRIPTION

**Leaf:** leaflet number 9 to 11; leaflet form widely elliptic to ovate; leaflet margin frequently entire; leaflet apex obtuse to acute; leaflet and foliar rachis indumentum densely tomentose or pubescent; leaflet pulvinus less than 6 mm long. **Inflorescence:** bracteole(s) shape ovate to elliptic; indumentum of the axis and calyx fulvous sericeous; panicle erect. **Flower:** size more than 13 mm; petal colour pinkish; standard shape spathulate; wing and keel spathulate. **Fruit:** lateral wing on the seed chamber absent.

## ADDITIONAL DESCRIPTION

**Small tree** or **shrub** up to 4 m; branchlets light brown tomentose. **Leaves** 14–16 cm long, 9–11-foliolate; petiole 2.0–4.0 cm long; leaf rachis 8.0–13 cm long, shortly tomentose, interfoliolar segments 1.5–2.0 cm long; pulvinules 1.0–2.0 mm long; leaflets 3.5–5.5 × 1.7–2.8 cm, ovate to elliptical-ovate or elliptical, apex acute to obtuse, base round to subcordate, glabrous above, sparsely pubescent beneath, tomentose along the mid-vein. **Panicles** erect, pyramidal, the main axis 11–16 cm long, composed of few flowered racemes 2.0–10 cm long, with three or four flowers grouped at the apex; axes, pedicels and bracts densely tomentose to sericeous, with straight, appressed, fulvous trichomes; bracts 3.0–3.5 × c. 2.0 mm, ovate, apex acute; pedicels 2.5–3.0 mm long; bracteoles, 1.0–2.0 mm long, ovate, inserted in the middle of the pedicel. **Flowers** 15–17 mm long; calyx 6.0–7.0 × c. 5.0 mm, densely sericeous with appressed, light brown trichomes; petals pinkish to light red; standard 15–16 × 8.0–9.0 mm long, widely spathulate, apex 2.0–3.0× wider than the base, claw 3.0–3.5 mm long, with a white median stripe surrounding the greenish spot; lateral (wing-like) and abaxial (keel-like) petals 14–15 × 7.0–9.0 mm, widely spathulate, apex c. 2.5× wider than the base, claw 4.0–5.0 mm long; stamens 6.0–10 mm long; gynoeceum 9.0–11 mm long, the ovary 3.0–4.5 mm, fulvous-sericeous, suboblong, laterally compressed, without lateral crests, stipe 0.6 mm long, style 4.0–6.0 mm long. **Samaras** 6.0–8.0 cm long, straight to slightly falcate, sericeous, with short, appressed fulvous trichomes, stipe c. 5.0 mm long, seed chamber 2.3–2.5 × 1.7–2.0 cm, with a slightly raised rib on each side, ribs 15–20 mm long, apical wing 5.0–6.0 × 1.8–2.3 cm, suboblong, apex rounded. **Seeds** seen only when not fully developed.

## COMMENTS

*Luetzelburgia neurocarpa* is distinctive in having samaras with two ribs slightly raised over the seed chamber. All other *Luetzelburgia* species have a mature samara with either a smooth seed chamber or one with a wing-like crest placed laterally on each side. This species is similar to the sympatric and phylogenetically related *L. bahiensis* (Cardoso et al. 2014), with which it shares widely spathulate petals. Nevertheless, *L. neurocarpa* is further distinguished by having leaves 9–11-foliolate leaves (vs. 1–7-foliolate in *L. bahiensis*), erect panicles (vs. usually pendent), smaller, 15–17-mm-long flowers (vs. 18–28 mm long), pinkish to light red petals (vs. white) and the absence of two strongly defined small wings over the seed chamber.

## Life Form

Tree

## Substrate

Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

## Phytogeographic Domains

Caatinga

**Vegetation Types**

Caatinga (stricto sensu)

**Geographic Distribution**Confirmed occurrences

Northeast (Bahia)

**HERBARIUM MATERIAL**D.B.O.S. Cardoso, 2045, HUEFS (HUEFS120473), Bahia, **Typus**D.B.O.S. Cardoso, 1853, SP, RB, P, NY, MBM, K, BRIT, CEPEC, HUEFS, HUEFS (HUEFS119055), Bahia, **Typus****FIELD IMAGES / ILLUSTRATIONS**Figure 1: *Luetzelburgia neurocarpa* D.B.O.S.Cardoso, L.P.Queiroz & H.C.LimaFigure 2: *Luetzelburgia neurocarpa* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 3: *Luetzelburgia neurocarpa* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 4: *Luetzelburgia neurocarpa* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 5: *Luetzelburgia neurocarpa* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 6: *Luetzelburgia neurocarpa* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima

## REFERENCE

- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2008. Three new species of *Luetzelburgia* (Leguminosae, Papilionoideae) from the caatinga of Bahia, Brazil and an identification key to all species of the genus. *Kew Bulletin* 63: 289–300.
- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

# *Luetzelburgia praecox* (Harms) Harms

## DESCRIPTION

**Leaf:** leaflet number 5 to 7; leaflet form ovate to orbicular; leaflet margin commonly denticulate; leaflet apex rounded sometimes emarginate; leaflet and foliar rachis indumentum totally glabrous or sometimes glabrescent; leaflet pulvinus up to 10 mm long. **Inflorescence:** bracteole(s) shape ovate to elliptic; indumentum of the axis and calyx white greyish sericeous; panicle erect. **Flower:** size more than 13 mm; petal colour pinkish; standard shape obovate; wing and keel oblong. **Fruit:** lateral wing on the seed chamber present.

## ADDITIONAL DESCRIPTION

**Shrub** to small **tree** of 1–8 m; branchlets glabrous to sparsely sericeous, with light brown to greyish trichomes. **Leaves** 17–18 cm long, 5–7-foliolate, entirely glabrous or occasionally glabrescent; petiole 3.0–5.0 cm long; leaf rachis 11–12.5 cm long, interfoliointerfoliolar segments 2.5–4.0 cm long; pulvinules 6.0–9.0 mm long; leaflets 4.5–7.5 × 3.2–5.5 cm; fully developed leaves on saplings up to 40 cm long and the leaflets 8.0–14.5 × 6.0–8.0 cm; leaflets ovate to orbicular, apex rounded and emarginate, rarely obtuse to acute, base rounded to subcordate, glabrous on both surfaces, or rarely sparsely glabrescent abaxially along the midvein. **Panicles** erect, the main axis 11–35 cm long, lateral panicle branches 3.0–12 cm long; axes, pedicels and bracts sericeous, covered with dense, short, appressed, greyish trichomes; bracts c. 2.0 × 1.5–2.0 mm, broadly ovate to orbicular, apex rounded to acute; pedicels 2.0–2.5 mm long; bracteoles 1.0–1.5 mm long, ovate, inserted in the middle of the pedicel or below the calyx. **Flowers** 13–18 mm long; calyx 5.0–8.0 × 6.0–9.0 mm, densely sericeous with short, appressed, greyish trichomes; petals pinkish; the standard 12–17 mm long, apex 4.5–9.0 mm wide, base 4.0–7.0 mm wide, obovate to suboblong, apex 1.1–1.7× wider than the base, claw 2.0–4.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 12–15 × 4.0–6.0 mm, oblong, claw 4.5–6.0 mm long; stamens 9.0–14 mm long; gynoeceium 9.0–13 mm long, the ovary 4.0–6.0 × 1.5–2.5 mm, covered with dense sericeous greyish to light brown trichomes, falcate, laterally compressed, with a conspicuous crest on each side, stipe 1.0–1.5 mm long, style 4.0–6.5 mm long. **Samaras** 7.0–8.0 cm long, falcate, covered with sericeous short, appressed, fulvous to greyish trichomes, stipe c. 7.0 mm long, seed chamber 2.5–3.0 × c. 1.5 cm, lateral wings 18–20 × 3.0–6.0 mm, apical wing 6.0–7.0 × 2.5–2.8 cm, oval, apex rounded. **Seeds** not seen.

## COMMENTS

*Luetzelburgia praecox* is morphologically similar to *L. auriculata*, as suggested by their petals with similar morphology. That and the similar shape of the glabrous leaflets also suggest an affinity with the Bolivian species *L. sotoi*. The differences from *L. auriculata* are as follows: glabrous leaves (vs. usually densely pubescent or tomentose in *L. auriculata*) and leaflets with longer, 6.0–9.0-mm-long pulvinules (vs. 3.0–6.0 mm long). Flowering-only specimens of *L. praecox* can be rather difficult to differentiate from *L. auriculata*, especially when the two species co-occur in the cerrado (savanna) vegetation of central Brazil. Populations of *L. auriculata* in the caatinga (dry vegetation of north-eastern Brazil) usually have smaller flowers but, when occurring in the cerrado biome, the species has flowers closer in size and petal morphology to those of *L. praecox*. We also found that the white-greyish indumentum commonly covering inflorescence axes and calyces of *L. praecox* may also be present in *L. auriculata* (e.g. *Dubs & Ratter 1611*, *Fonseca et al. 406* and *Silva et al. 3826*), although the former more often has a fulvous or brownish indumentum. Perhaps the most significant difference between the flowers of these two species is in petal colour (pinkish in *L. praecox* vs. whitish in *L. auriculata*). Sterile collections of *L. praecox* have been misidentified as *Vatairea macrocarpa* because of their similarly shaped glabrous leaflets. The mixed collection of these two species seen on the herbarium specimen *Borges 35758* (UEC) is the best example on how they are easily confounded. Nevertheless, the leaflets of *L. praecox* have much longer pulvinules and are chartaceous (vs. coriaceous in *V. macrocarpa*) and lack a distinctive marginal vein (Cardoso et al. 2014). In addition, the smooth pale bark of *L. praecox* contrasts strongly with the evidently fissured and corky bark of *V. macrocarpa*.

## Life Form

Shrub

## Substrate

Terrestrial

## DISTRIBUTION



Native, Is endemic from Brazil

### Phytogeographic Domains

Central Brazilian Savanna

### Vegetation Types

Cerrado (lato sensu)


### Geographic Distribution

#### Confirmed occurrences

North (Tocantins)


Central-west (Goiás, Mato Grosso)

### HERBARIUM MATERIAL

J.A. Ratter, 93, K, 506068,  (K000892350), Mato Grosso

Glocimar Pereira-Silva, 12175, CEN, 506068 (CEN00070054), Tocantins

J.A. Ratter, 295, K, 506068,  (K000892355), Mato Grosso

D.B.O.S. Cardoso, 2545, RB, 506068,  (RB00605917), RB, HUEFS, Goiás

O. Kuntze, s.n., NY, Mato Grosso, **Typus**

J.A. Ratter, 7948, E, K, UB, Tocantins

### FIELD IMAGES / ILLUSTRATIONS



Figure 1: *Luetzelburgia praecox* (Harms) Harms



Figure 2: *Luetzelburgia praecox* (Harms) HarmsFigure 3: *Luetzelburgia praecox* (Harms) Harms

## REFERENCE

Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

- Lima, H.C.de. 1984. Uma nova espécie de *Luetzelburgia* (Leguminosae, Papilionoideae) da Bahia, Brasil. In: *Anais do 34 Congresso Nacional de Botânica, Comunicações*, vol. 2, pp. 191-197, Sociedade Botânica do Brasil, Porto Alegre.

# *Luetzelburgia purpurea* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima

## DESCRIPTION

**Leaf:** leaflet number (1) 3 to 5; leaflet form widely elliptic to ovate; leaflet margin commonly denticulate; leaflet apex acute to strongly acuminate; leaflet and foliar rachis indumentum totally glabrous or sometimes glabrescent; leaflet pulvinus less than 6 mm long. **Inflorescence:** bracteole(s) shape ovate to elliptic; indumentum of the axis and calyx dark brown sericeous; panicle pendent. **Flower:** size less than 12 mm; petal colour reddish to dark red; standard shape sagittate; wing and keel oblong. **Fruit:** lateral wing on the seed chamber present.

## ADDITIONAL DESCRIPTION

**Tree** to 20 m, occasionally found flowering when only c. 3 m high; branchlets glabrous or sparsely sericeous, covered with short, appressed, dark brown trichomes. **Leaves** 9.0–28 cm long, (1)3–5(7)-foliolate; petiole 2.5–8.0 cm long; leaf rachis 3.0–17 cm long, glabrous or sparsely pubescent, interfoliolar segments 1.5–5.5 cm long; pulvinules 2.0–4.0 mm long; leaflets (3.5–)6.0–12 × (2.0–)3.0–7.0 cm, usually longer on young branches, elliptical to elliptical-ovate, apex acute or rarely rounded, narrowly emarginate, base obtuse to rounded, glabrous above, lower surface glabrous or sparsely dark brown pubescent, densely so along the mid-vein. **Panicles** pendent, the main axis 4.0–11 cm long, lateral panicle branches 2.0–3.0(–6.0) cm long; axes, pedicels and bracts densely dark brown sericeous; bracts c. 1.0 × 1.0 mm, broadly ovate, apex rounded to acute; pedicels 2.0–3.0 mm long; bracteoles c. 0.5 mm long, ovate to ovate-elliptical, inserted at the base of the calyx. **Flowers** 8.0–10 mm long; calyx 4.0–5.0 × 3.0–4.0 mm, sericeous, covered with short, appressed, dark brown to atropurpureous, trichomes; petals dark red, becoming white towards the base; standard 6.5–9.0 × 3.0–5.0 mm long, with a white median stripe, narrow to broadly sagittate, base 1.5–2.0× wider than the apex, claw 2.0–3.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 7.0–9.0 × 2.5–4.0 mm, oblong, occasionally oblong-obovate, apex slightly wider than the base, claw 3.0–4.0 mm long; stamens 5.0–7.0 mm long; gynoecium 5.0–7.0 mm long, the ovary 3.0–4.0 × 1.0–1.5 mm, dark brown sericeous, falcate, laterally compressed, crests conspicuous on each side, stipe c. 1.0 mm long, style 2.0–2.5 mm long. **Samaras** 5.5–9.0 cm long, falcate, sericeous, with short, appressed, dark brown trichomes, stipe 3.0–5.0 mm long, seed chamber 2.0–2.7 × 1.1–1.6 cm, lateral wings 15–25 × 2.0–4.0 mm, oval, apical wing 4.5–6.5 × 1.5–2.0 cm, apex acute. **Seeds** 13–20 mm long, 6.0–9.0 mm wide, 4.0–6.0 mm thick.

## COMMENTS

Phylogenetically, *L. purpurea* is close to *L. harleyi* (Cardoso et al. 2014), another caatinga endemic species, but the two do not share any clear morphological features. *Luetzelburgia purpurea* together with *L. andrade-limae*, *L. guaissara* and *L. trialata* are the only Brazilian species with small flowers (7–11 mm long) and reddish petals. Red flowers, however, might have evolved multiple times in *Luetzelburgia* (Cardoso et al. 2014). Specimens of *L. purpurea* have, for a long time, been identified in herbaria as either *L. andrade-limae* or *L. trialata* (Lewis 1987). Both *L. purpurea* and *L. trialata* have glabrous leaves and similar samaras, with a small wing positioned laterally on each side of the seed chamber. However, *L. purpurea* is differentiated from *L. trialata* by ovate-elliptical bracteoles (vs. linear-lanceolate in *L. trialata*), the sagittate standard (vs. pandurate to slightly oblong), samaras with a narrower apical wing (1.5–2.0 cm long vs. 2.5–3.0 cm long), a smaller seed chamber (2.0–2.7 × 1.1–1.6 vs. 3.0–3.5 × 2.0–2.2 cm) and smaller seeds (13–20 × 6.0–9.0 vs. 23–26 × 12–14 mm). In addition, leaflets in *L. purpurea* are usually obtuse to acute at the apex (vs. strongly acuminate, rarely acute in *L. trialata*). With respect to *L. andrade-limae* and *L. guaissara*, *L. purpurea* is distinguished by the fewer number of leaflets (one to seven vs. usually > 11 in *L. andrade-limae* and *L. guaissara*), the dark brown sericeous calyx (vs. light brown sericeous in *L. andrade-limae*), the sagittate standard (vs. pandurate in *L. andrade-limae* and *L. guaissara*) and the presence of lateral wings on the seed chamber. In addition to the distinctive morphological characters, the geographical range and habitat of *L. purpurea* do not overlap with those of the other three species (Cardoso et al. 2014).

## Life Form

Tree

## Substrate

Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

### Phytogeographic Domains

Caatinga, Atlantic Rainforest

### Vegetation Types

Caatinga (stricto sensu), Seasonally Deciduous Forest

### Geographic Distribution

#### Confirmed occurrences

Northeast (Bahia)

## HERBARIUM MATERIAL

G. Pereira-Silva, 3680, CEN (CEN00030353), Bahia

L.P. de Queiroz, 12931, HUEFS (HUEFS118428), Bahia, **Typus**

D.B.O.S. Cardoso, 2180, HUEFS (HUEFS128188), Bahia, **Typus**

D.B.O.S. Cardoso, 2105, HUEFS (HUEFS122125), Bahia, **Typus**

D.B.O.S. Cardoso, 2844, HUEFS (HUEFS160680), Bahia

D.B.O.S. Cardoso, 2103, P, BRIT, HUEFS (HUEFS122123), SP, RB, CEPEC, K, MBM, NY, Bahia, **Typus**

## FIELD IMAGES / ILLUSTRATIONS



Figure 1: *Luetzelburgia purpurea* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 2: *Luetzelburgia purpurea* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 3: *Luetzelburgia purpurea* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 4: *Luetzelburgia purpurea* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 5: *Luetzelburgia purpurea* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 6: *Luetzelburgia purpurea* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima



Figure 7: *Luetzelburgia purpurea* D.B.O.S.Cardoso, L.P.Queiroz & H.C.Lima

## REFERENCE

- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2008. Three new species of *Luetzelburgia* (Leguminosae, Papilionoideae) from the caatinga of Bahia, Brazil and an identification key to all species of the genus. *Kew Bulletin* 63: 289–300.
- Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.

# *Luetzelburgia trialata* (Ducke) Ducke

## Has as synonym

basionym *Vatairea trialata* Ducke

## DESCRIPTION

**Leaf:** leaflet number 3 to 9; leaflet form widely elliptic to ovate; leaflet margin commonly denticulate; leaflet apex acute to strongly acuminate; leaflet and foliar rachis indumentum totally glabrous or sometimes glabrescent; leaflet pulvinus less than 6 mm long. **Inflorescence:** bracteole(s) shape linear to lanceolate; indumentum of the axis and calyx dark brown sericeous; panicle erect. **Flower:** size less than 12 mm; petal colour reddish to dark red; standard shape panduriform; wing and keel oblong. **Fruit:** lateral wing on the seed chamber present.

## ADDITIONAL DESCRIPTION

**Tree** of 5–15 m; branchlets glabrous to sparsely dark brown sericeous. **Leaves** 19–32 cm long, 3–9-foliolate, entirely glabrous; petiole 3.5–8.0 cm long; the leaf rachis 10–28 cm long, interfoliolar segments 2.5–6.0 cm long; pulvinules 2.5–4.0 mm long; uppermost leaflets 5.5–11.5 × 2.0–5.0 cm, elliptical to broadly oval, apex acute to strongly acuminate, base rounded to obtuse, glabrous on both surfaces. **Panicles** erect, the main axis 7.0–13 cm long, lateral panicle branches 2.0–6.0 cm long; axes, pedicels and bracts densely sericeous, with short, appressed, dark brown trichomes; bracts early caducous, not seen; pedicels 1.5–3.0 mm long; bracteoles 0.8–1.3 mm long, linear-lanceolate, inserted in the middle of the pedicel. **Flowers** 9.0–11 mm long; calyx 4.0–5.0 × 3.5–4.5 mm, densely sericeous with short, appressed, dark brown trichomes; petals dark red; standard 8.0–9.5 × 3.0–4.0 mm, pandurate to suboblong, apex as wide as the base, claw c. 2.0 mm long; lateral (wing-like) and abaxial (keel-like) petals 7.0–8.5 × 2.0–2.5 mm, oblong, claw 2.0–3.0 mm long; stamens 4.5–6.8 mm long; gynoecium 6.0–8.0 mm long, the ovary 3.0–3.5 × 1.0–1.5 mm, densely dark brown sericeous, subfalcate, laterally compressed, a crest present on each side, borne on a short, 0.3–0.5-mm-long stipe, style 2.5–4.0 mm long. **Samaras** 8.0–9.0 cm long, falcate, dark brown sericeous, stipe c. 6.0 mm long, seed chamber 3.0–3.5 × 2.0–2.2 cm, lateral wings 20–25 × 4.0–5.0 mm, apical wing 6.0–7.5 × 2.5–3.0 cm, oval–elliptical, apex rounded. **Seeds** 23–26 mm long, 12–14 mm wide, c. 7.0 mm thick.

## COMMENTS

*Luetzelburgia trialata* is strongly supported as phylogenetically sister to *L. guaissara* (Cardoso et al. 2014). Morphological similarities and differences with respect to *L. guaissara* were provided in the taxonomic discussion of that species. *Luetzelburgia trialata* is also morphologically close to *L. amazonica*, but differs most notably by having much smaller flowers (9.0–11 mm long vs. 13–16 mm long). Additional distinctions are made in the taxonomic discussion of *L. amazonica*.

## Life Form

Tree

## Substrate

Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

## Phytogeographic Domains

Atlantic Rainforest

## Vegetation Types









Seasonal Evergreen Forest, Ombrophyllous Forest (Tropical Rain Forest)

## Geographic Distribution

### Confirmed occurrences

Southeast (Rio de Janeiro)

## HERBARIUM MATERIAL

A. Ducke, s.n., RB, 19280,  (RB00540443), RB, 19280,  (RB00178793), S (S-R-9604), RB, 19280,  (RB00694725), K, 19280,  (K000500798), K, 19280,  (K000500799), K, 19280,  (K000500800), **Typus**  
M.R. Moreno, 70, RB, 354069,  (RB00178754), Rio de Janeiro  
C.A.C. Oliveira, 39, NY,  (NY01551970), RB, HRB, GUA, Rio de Janeiro

### FIELD IMAGES / ILLUSTRATIONS



Figure 1: *Luetzelburgia trialata* (Ducke) Ducke



Figure 2: *Luetzelburgia trialata* (Ducke) Ducke





Figure 3: *Luetzelburgia trialata* (Ducke) Ducke



Figure 4: *Luetzelburgia trialata* (Ducke) Ducke



Figure 5: *Luetzelburgia trialata* (Ducke) Ducke



Figure 6: *Luetzelburgia trialata* (Ducke) Ducke

## REFERENCE

Cardoso, D.B.O.S.; Queiroz, L.P.de & Lima, H.C.de. 2014. A taxonomic revision of the South American papilionoid genus *Luetzelburgia* (Fabaceae). *Botanical Journal of the Linnean Society* 175: 328–375.