

### ***Pereskia aculeata* Mill.**

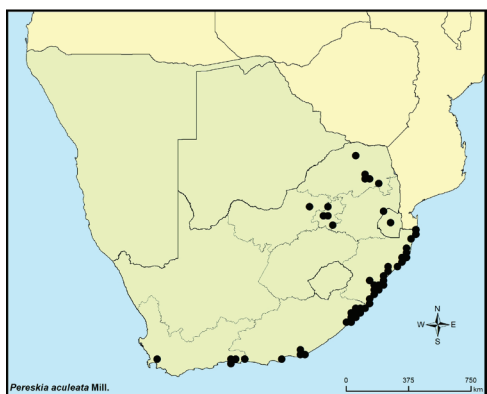
In: *Gardeners Dictionary*, Edition 8 [unpag] (1768).

**Common names:** Barbados gooseberry, leaf cactus, lemon vine, pereskia (English); pereskia, Barbadosstekelbessie, bougainvilleakaktus (Afrikaans).

Climbing shrubs 3–15 m tall; basal branches cane-like, 2–3 cm thick; distal branches c. 4 mm thick, green, terete. **Leaves** lanceolate to elliptic or ovate, up to 7–11 × 4 cm, shortly petiolate, usually subtended by a pair of small, persistent claw-like spines, 4–8 mm long. Normal spines 1–3, charcoal-grey, developing at areoles on older growth only, numerous on trunk, straight. **Flowers** numerous, in panicles, 2.5–5 cm in diameter, scented. Pericarpel areole with hairs and often small spines; scales few, elongated, foliaceous; outer tepals 4–7, greenish; inner tepals 7–12, white or nearly so, apices obtuse. **Stamens** of mature flower oblique. **Ovary** more or less inferior, surface with spines, a hollow at the style base, dark green. **Fruit** c. 2 cm in diameter, skin smooth, sometimes spiny, fleshy, pale yellow to orange (ripe). **Seed** black-brown (virtually black). **Distribution:** S, SA. (Fig. 241).

**References:** Obermeyer (1976), Leuenberger (1986), Anderson (2001), Henderson (2001), Taylor & Zappi (2004), Hunt *et al.* (2006).

This species is readily distinguished from other invasive cacti by its generic features (see above), and by the paired recurved spines, specially adapted for climbing, on the more vigorous shoots. It is the most widespread of the *Pereskia* species, from Mexico, the West Indies and Florida (USA), south to northern and eastern South America as far as Argentina (Anderson, 2001; Taylor & Zappi, 2004; Hunt, 2006). The fruit (Fig. 242) has been used to make jam. Flowers are in panicles (Fig. 243) and the trunk has numerous, straight spines (Fig. 244).



**Fig. 241.** Distribution map of *Pereskia aculeata* Mill.



**Fig. 242.** Fruits of *Pereskia aculeata* Mill. (Picture by Geoff R. Nichols)

*Pereskia aculeata* is a garden escape, and has become a serious pest in KwaZulu-Natal coastal forests, as well as the Port St. Johns and Port Alfred areas (Eastern Cape) in South Africa. Isolated infestations also occur in the Limpopo and Mpumalanga Provinces. In South Africa it is a declared category 1 invader, and a registered herbicide is available for its control (Anonymous, 2004). One biological control agent, a chrysomelid beetle (*Phenrica guerini*) has been released against this plant, but has proved to be ineffective (Klein, 1999). It is also listed as naturalised in Swaziland. It is considered an invader in Australia (Telford, 1984). A golden-leaved horticultural cultivar is widely grown and has the potential to escape, although it has not been documented yet (Fig. 245).



**Fig. 243.** Panicles of flowers of *Pereskia aculeata* Mill. (Picture by Geoff R. Nichols)



**Fig. 244.** Trunk of *Pereskia aculeata* Mill. with spines. Note the pair of short, stout, recurved spines at the base of the upper left node. (picture by Geoff R. Nicholls)



**Fig. 245.** Golden leaved cultivar of *Pereskia aculeata* Mill. (Picture by Geoff R. Nichols)

## ***Tephrocactus Lem.***

Shrubs; branching moniliform; branch segments globose, cylindric or obovoid, easily detached; roots fibrous. **Leaves** tiny, cylindric, caducous; areoles  $\pm$  immersed, with hairs and glochidia, spines 0–4. **Flowers** apical. **Stamens** usually numerous, sensitive. **Fruit** dry, dehiscent; pulp none. **Seed** highly specialised, extremely variable in shape, laterally compressed, 2.5–9.5 mm long, yellowish white to brown; aril (funicular envelope) glabrous, girdle strongly protruding, spongy.

**References:** Anderson (2001), Hunt *et al.* (2006).

The characteristic growth pattern with globose, easily detached segments, usually spineless but with conspicuous glochidia, the dry, dehiscent fruits and the unique seed structure are diagnostic for this genus of seven species endemic to western Argentina in South America.

### ***Tephrocactus articulatus* (Pfeiff.) Backeb.**

In: *Cactus (Paris)* 8(38): 249 (1953).

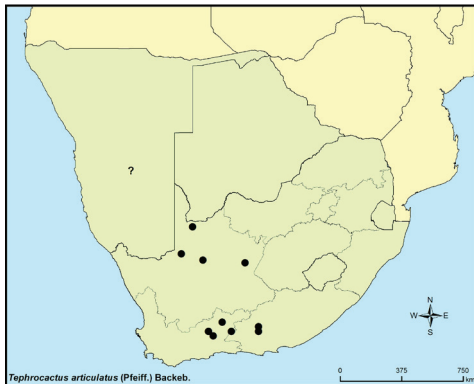
=*Opuntia glomerata* sensu auct. non Haw.

**Common names:** paper-spine cholla, pine cone cactus (English); papierdoringkaktus (Afrikaans).

Dwarf shrub, erect, up to 20–30 cm long; branch segments globose to oblong, usually 2.5–5 × 2.5–5 cm, easily detached; glochidia dark brown or maroon, conspicuous. Spines lacking or 1–4, up to or more than 50 × 7 mm, flat, papery or raffia-like, pale brown or white. **Flowers** 3–4 cm in diameter, white or pale pink. **Fruit** 1–1.5 cm long, terminal, persistent, often sterile. **Seed** winged and corky. **Distribution:** N, SA. (Fig. 246).

**References:** Anderson (2001), Hunt *et al.* (2006).

*Tephrocactus articulatus* is widely distributed across the dry north-central and northwestern parts of Argentina, from Catamarca and Santiago del Estero, south to Mendoza and San Luis (Hunt, 2006).



**Fig. 246.** Distribution map of *Tephrocactus articulatus* (Pfeiff.) Backeb.

It is thought to have been introduced into South Africa as a horticultural specimen especially for succulent gardens (Fig. 247). It has been recorded sporadically from Askham and Upington in the Northern Cape, the Great Karoo of the Western Cape, and around Jansenville in the Eastern Cape (Fig. 248). It is also widely distributed as an ornamental and garden escape in Namibia. Dispersal is by segments that are easily detached (Fig. 249). Elsewhere it produces winged and corky seeds (L. Henderson, *pers. comm.*) that are easily dispersed by wind and water.

This species is currently not a declared weed in South Africa, however it has been recommended for classification as a category 1a invasive species under NEMBA and CARA (Anonymous, 2009).

*Tephrocactus articulatus* spreads by dislocated cladodes that root and grow, forming dense thickets. Some cladodes, although fairly heavy, may be washed away longer distances. It is not spread by animals. The main cause for long-distance dispersal is humans who find it an attractive rockery plant.



**Fig. 247.** *Tephrocactus articulatus* (Pfeiff.) Backeb. is common in succulent gardens.  
(Picture by Barbara K. Mashope)



**Fig. 248.** *Tephrocactus articulatus* (Pfeiff.) Backeb. invading karoo.  
(Picture by Pieter J.D. Winter)



**Fig. 249.** Stem segments of *Tephrocactus articulatus* (Pfeiff.) Backeb. are easily detached. (Picture by Pieter J.D. Winter)

## COMMELINACEAE Mirb.

(Spiderwort family; *Wandelende jood-familie*)

by

*N.R. Crouch*

Perennials or annuals, often somewhat succulent; the perennials of diverse habits, sometimes rhizomatous or stoloniferous, very rarely forming a small bulb; roots adventitious, fibrous, thin or tuberous; stems with prominent nodes and internodes. **Leaves** basal and/or cauline, alternate, distichous or spirally arranged, with a basal, usually closed sheath enveloping stem, often ciliate at mouth; blade simple, entire, often petiolate. **Inflorescence** terminal, terminal and axillary or rarely all axillary, composed of cymes which may be few, or many and aggregated into thyrses, sometimes subtended by or enclosed in spathaceous bracts. **Flowers** bisexual or bisexual and male, actinomorphic or zygomorphic, occasionally cleistogamous. **Sepals** 3, free or united at base, usually  $\pm$  equal and sepeloid, occasionally petaloid, often boat-shaped and keeled, persistent. **Petals** (2–)3, free or basally connate to form a tube, equal or unequal, caducous. **Stamens** in 2 whorls, 3 + 3, all fertile or 1–4 modified into staminodes and bearing variously shaped antherodes, hypogynous or united with corolla; filaments glabrous or bearded; anthers basifixed, dorsifixed or versatile, opening with longitudinal slits or rarely by basal or apical pores. **Ovary** superior, 2–3-locular with 1–many axile ovules in each locule; ovules uniseriate or biseriate; style simple, usually slender; stigma apical, simple or rarely 3-lobed, small or capitate, rarely enlarged. **Fruit** a 2–3-valved capsule, loculicidal, rarely indehiscent, or a berry. **Seeds** 1–many per cell, hilum dot-like or elongate, embryotega circular, dorsal to lateral, rarely terminal, endosperm copious.

**References:** Obermeyer & Faden (1985), Faden (1998), Fish (2000), Hong & DeFilipps (2010).

The family comprises c. 650 species in c. 40 genera. It is predominantly distributed in tropical regions, with far fewer species known from subtropical and temperate zones (Hong & DeFilipps, 2010).

Four species from two genera of the Commelinaceae are naturalised in southern Africa.

### **Key to naturalised genera [based on Hunt (1984) and Faden (2010)]:**

1. Leaves very succulent; involucre bracts inconspicuous, spreading or sheathlike, never spathaceous; capsule 2-valved ..... ***Callisia***
- 1'. Leaves semi-succulent; involucre bracts conspicuous, spathaceous, paired; capsule 3-valved ..... ***Tradescantia***

### ***Callisia* Loefl.**

Herbs, perennial or rarely annual; roots thin, rarely tuberous, rhizomes absent. **Leaves** spirally arranged or distichous (2-ranked); blade sessile. **Inflorescence**



terminal and/or axillary, composed of sessile cymes in pairs (often aggregated into larger spike-like or panicle-like units), umbel-like, contracted, subtended by bracts; bracts inconspicuous, less than 1 cm long; spathaceous bracts absent; bracteoles persistent. **Flowers** bisexual (bisexual or male in *C. repens*), actinomorphic; pedicels very short or well developed; sepals 2–3, free, subequal; petals 2–3, free, equal, not clawed, lanceolate, white or pink to rose (rarely blue). **Stamens** 6 or 3, all fertile, 1 or more becoming staminodes, subequal; filaments glabrous or bearded; anther locules rounded, longitudinally dehiscent, connectives broad and square, triangular or oblong, rarely narrow. **Ovary** oblong, subtrigonal, 2–3-locular; ovules (1–)2 per locule, 1-seriate. **Fruit** a capsule, 2–3-valved, 2–3-locular. **Seeds** 1–2 per locule, minute, with dot-like hilum.

**References:** Hunt (2001), Faden (2010), Hong & DeFilipps (2010).

This genus is closely related to *Tradescantia* but generally lacks the paired bracts subtending the inflorescence, and differs in seed characters (Hunt, 2001).

### ***Callisia repens* (Jacq.) L.**

In: *Species plantarum* ed. 2: 62 (1762).

=*Hapalanthus repens* Jacq.

=*Spironema robbinsii* C. Wright

=*Tradescantia callisia* Sw.

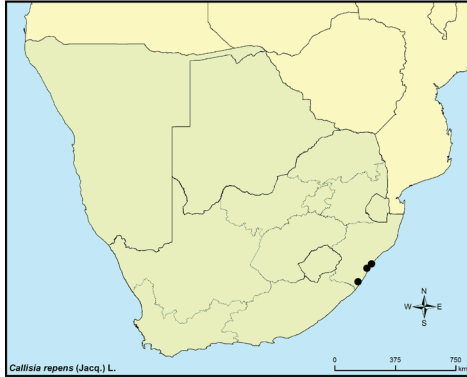
**Common names:** creeping inch plant (English).

Herbs, perennial, mat-forming; stems prostrate, much branched, rooting at nodes, flowering stems ascending. **Leaves** distichous, gradually becoming smaller distally along flowering shoots; blade ovate to lanceolate or lanceolate-oblong, 1–4 × 0.6–1.2 cm (distal leaf blades much narrower than sheaths when sheaths opened, flattened), base clasping, subcordate or obtuse, apex acuminate, glabrous except for scabrid margins and apex. **Inflorescence** ascending, sessile in axils of distal leaves of flowering stems, composed of pairs of sessile cymes (sometimes reduced to single cymes). **Flowers** bisexual or male, odorless, subsessile. **Sepals** green, linear-oblong, 3–4 mm long, hirsute along midvein, margin scarious. **Petals** inconspicuous, lanceolate, 3–6 mm long, white. **Stamens** 3; filaments glabrous and long-exserted; connectives broadly deltoid. **Ovary** oblong, subtrigonal, 2-locular, apex pilose; ovules 2 per locule; style filiform; stigma penicillate. **Fruit** an oblong capsule, 2-valved, c. 1.5 mm long; seeds 2 per valve, 1 mm long, rugose, brown. **Seeds** 1–2 per locule, minute, with dot-like hilum. **Distribution:** SA. (Fig. 250).

**References:** Hunt (2001); Faden (2010); Hong & DePhilipps (2010).

*Callisia* comprises c. 20 species from the USA through to tropical America, with a major centre of diversity in Mexico (Faden, 2010). The compactness of plants of *C. repens* (Fig. 251) and the relatively small size of its thickly fleshy and broadly pointed leaves (Fig. 252) should prevent its confusion with any other member of the Commelinaceae in southern Africa, whether native or naturalised.

*Callisia repens* is grown as a horticultural subject, particularly in hanging baskets where under water-stressed conditions the leaves turn an attractive purple colour. It spreads vegetatively from the smallest of cuttings, making it extremely difficult to eradicate once introduced (Fig. 253). *Callisia repens* displays a wide range of ecological tolerances for it will grow in the shade of forest floors (Fig. 254), or in full sun. The clone commonly cultivated appears to rarely flower in southern Africa (Fig. 255), and in Europe is reportedly non-flowering (Hunt, 1984).



**Fig. 250.** Distribution map of *Callisia repens* (Jacq.) L.



**Fig. 251.** *Callisia repens* (Jacq.) L. has a compact habit. (Picture by Neil R. Crouch)



**Fig. 252.** Leaves of *Callisia repens* (Jacq.) L. are broadly pointed.  
(Picture by Geoff R. Nichols)



**Fig. 253.** *Callisia repens* (Jacq.) L. invasion.  
(Picture by Geoff R. Nichols)



**Fig. 254.** Shade form of *Callisia repens* (Jacq.) L.  
(Picture by Neil R. Crouch)



**Fig. 255.** Inflorescence of *Callisia repens* (Jacq.) L. (Picture by Geoff R. Nichols)

## ***Tradescantia* L.**

Perennial herbs; stems simple to diffusely branched, erect or trailing, sometimes rooting at nodes; roots thin or tuberous. **Leaves** distichous or spirally arranged, oblong-ovate to linear, sessile or rarely petiolate. **Inflorescence** terminal and/or axillary, of paired, sessile cymes, each pair subtended by foliaceous or spathaceous bracts; bracteoles persistent. **Flowers** few to many, bisexual, actinomorphic, pedicels very short or well developed. **Sepals** free, subequal, rarely basally connate (in *T. zebrina*), green or coloured. **Petals** free, equal, rarely clawed, rarely basally connate, obovate to orbicular, white to pink, blue or violet. **Stamens** 6, equal, all fertile; filaments bearded or smooth. **Ovary** 3-locular, with 2(–1) superposed ovules in each cell. **Fruit** a loculicidally dehiscent 3-valved capsule. **Seeds** variable; hilum oblong to linear; embryotega dorsal.

**References:** Obermeyer & Faden (1985), Fish (2000), Faden (2010).

**Common names:** spider-lily, spiderwort, wandering-jew (English); wandelende jood (Afrikaans).

*Tradescantia* is a genus of c. 70 species occurring in North, Central and South America (Obermeyer & Faden, 1985; Faden, 2010). The various species tend to hybridise freely when growing together which has resulted in some taxonomic confusion. Much early taxonomic literature and even current horticultural works reflect the exclusion of *Zebrina* Schnizl. and *Setcreasea* K.Schum. & Sydow from *Tradescantia*, a situation that has since changed (Hunt, 1975, 1986). Several tradescantias are grown as pot plants, and as ground covers given their rapid growth and mat-forming tendencies. The three species naturalised in South Africa have escaped from cultivation, with *T. fluminensis* the most widespread and abundant. In moist regions of the subtropical East Coast such as Kloof and Hillcrest this species may be found occupying many hectares of forest undergrowth, where it displaces the native flora.

### **Key to the species of *Tradescantia* naturalised in southern Africa [based on Hunt (1984) and Faden (2010)]:**

1. Flowers subsessile; petals clawed, claws connate at least basally; stamens epipetalous . . . . . **2**
- 1'. Flowers distinctly pedicellate; petals neither clawed nor connate; stamens free . . . . . **1. *Tradescantia fluminensis***
2. Leaves 2-ranked, bases oblique; blade usually variegated; sepals connate basally into a slender tube . . . . . **3. *Tradescantia zebrina***
- 2'. Leaves spirally arranged, bases symmetric, blade not variegated but usually purplish violet; sepals distinct . . . . . **2. *Tradescantia pallida***

### **1. *Tradescantia fluminensis* Vell.**

In: *Fl. Flumin*: 140 (1829).

=*Tradescantia albiflora* Kunth

**Common names:** small leaf spiderwort, white-flowered wandering jew (English).

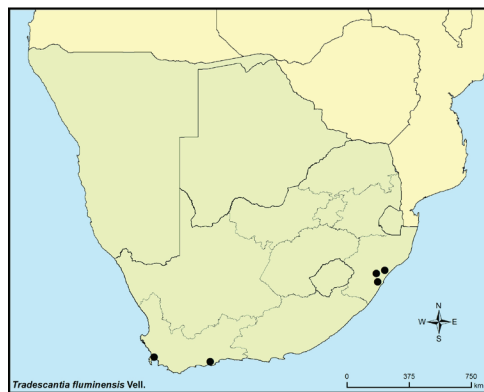
Glabrescent herb with decumbent, slender, leafy stems, rooting at nodes. **Leaves** distichous, blade lanceolate-elliptic to ovate-acuminate, 2.5–5 × 1–2 cm, abruptly narrowed at base into a short, broad, open, ciliate sheath, apex acute, margins ciliate, green above, green or purplish beneath. **Inflorescence** composed of few-flowered cymes, terminal and/or terminating abbreviated side branches, each pair of cymes subtended by 2 foliaceous subequal bracts. **Flowers** distinctly pedicellate, pedicels 1–1.5 cm, glandular-pilose. **Sepals** ovate-acuminate, with a ciliate keel, 5–7 mm long, green. **Petals** free, ovate, not clawed, 8–9 mm long, white. **Stamens** 6; filaments 8 mm long, white, bearing long beaded hairs in lower half; anthers with an obtriangular connective, locules spreading outwards towards apex. **Ovary** 3-locular, oblong-globose, with 2 ovules per locule; style terete or somewhat swollen in middle; stigma capitate. **Fruit** a capsule, 2 mm long, chartaceous. **Seed** reticular, hilum linear. **Distribution:** L, S, SA. (Fig. 256).

**References:** Obermeyer & Faden (1985), Hunt (2001), Faden (2010).

This species belongs to section *Austrotradescantia*, a wholly South American section centred in southeastern Brazil (Hunt 1980). It is native to South America, from Argentina through to central Brazil (Obermeyer and Faden 1985).

The uniformly green adaxial leaf blades (Fig. 257) of this species separate it from other *Tradescantia* species occurring in southern Africa, all of which are exotic. It should be noted though that several clones are cultivated, including some variegated ones (Hunt 1984) that are not yet known to have escaped in South Africa.

South Africa is not the only country in which this favoured pot plant has escaped; in New Zealand it is reportedly a common weed (Obermeyer and Faden 1985), and it has also been reported from Australia and the USA (Faden 2010). Although this species prefers the shade of moist forest floors (Fig. 258) it may also be found in more xeric environments such as the banks of seasonally dry streams in Valley Bushveld. In such situations the plants lose most of their leaves over the dry period, perennating as a succulent stem at soil level. Although attractive the feathery white flowers are quite small (Fig. 259).



**Fig. 256.** Distribution map of *Tradescantia fluminensis* Vell.



**Fig. 257.** Leaf blades of *Tradescantia fluminensis* Vell. are uniformly green adaxially. (Picture by Neil R. Crouch)



**Fig. 258.** *Tradescantia fluminensis* Vell. invades moist forest floor. (Picture by Neil R. Crouch)



Fig. 259. *Tradescantia fluminensis* Vell. – A. Feathery white flowers; B. Flower close-up. (Pictures by Neil R. Crouch)



## 2. *Tradescantia pallida* (Rose) D.R.Hunt

In: *Kew Bull.* 30: 452 (1975).

=*Setcreasea pallida* Rose

=*Setcreasea purpurea* Boom

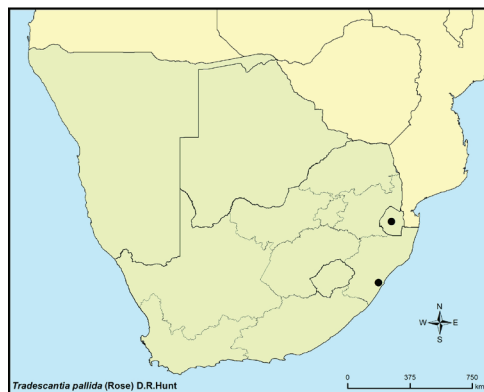
**Common names:** purple heart, purple queen (English).

Perennial herb with succulent stems up to 40 cm long, ascending or decumbent, suffused with purplish violet. **Leaves** spirally arranged; blade trough-shaped, lanceolate-oblong to oblong-elliptic, (4–)7–15 × 1.5–3 cm (distal leaf blades wider or narrower than sheaths when sheaths opened, flattened), base symmetric, rounded to broadly cuneate, apex acute, margins ciliate or ciliolate, not variegated, suffused with purplish violet, glabrous or glabrescent. **Inflorescence** terminal, often becoming leaf-opposed, pedunculate; peduncles (3.5–)4–13 cm long; bracts similar to leaves (also folded and keeled) but usually greatly reduced. **Flowers** subsessile; pedicels 4–9 mm long, densely white-pilose at summit. **Sepals** distinct, 7–10 mm long, pilose basally. **Petals** ± connate at base, clawed, 1.5–2 cm long, pink. **Stamens** slightly epipetalous; filaments very sparsely bearded. **Fruit** a capsule, c. 3.5 mm long, glabrous. **Seed** 2.5–3 mm long. **Distribution:** S, SA. (Fig. 260).

**References:** Hunt (2001), Faden (2010).

This species belongs to section *Setcreasea*, which is distributed from Mexico to Texas in the USA (Hunt, 1980).

The widely grown form with dark purple stems and leaves ('Purple Heart' or 'Purpurea') (Fig. 261) and pink flowers (Fig. 262) is that which has escaped on occasion in South Africa. It was an introduction to horticulture from Mexico, but like *Tradescantia zebrina*, it is not known in the wild (Hunt, 1984, but see Faden, 2008).



**Fig. 260.** Distribution map of *Tradescantia pallida* (Rose) D.R.Hunt.



**Fig. 261.** *Tradescantia pallida* (Rose) D.R.Hunt. (Picture by Geoff R. Nichols)



**Fig. 262.** Flower of *Tradescantia pallida* (Rose) D.R.Hunt. (Picture by Neil R. Crouch)

### 3. *Tradescantia zebrina* Heynh. ex Bosse

In: *Vollst. Handb. Bl.-gartn.*, ed. 2, 4: 655 (1849).

=*Zebrina flocculosa* G.Brückn.

=*Zebrina pendula* Schnizlein

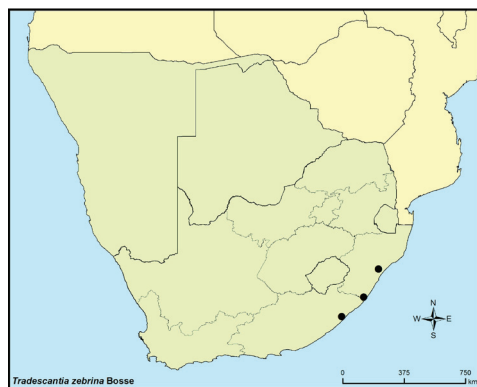
=*Zebrina purpusii* G.Brückn.

**Common names:** wandering jew (English); wandelende jood (Afrikaans).

Perennial herb with decumbent or prostrate, slender, leafy stems rooting at nodes, often forming dense mats or colonies. **Leaves** distichous, sessile; blade lanceolate-elliptic to ovate-elliptic, 3–10 × 1.5–3.2 cm, fleshy, base oblique, cuneate, apex acute to acuminate, adaxially variegated, silver/white-striped green, occasionally with additional dark red stripes, abaxially reddish purple, glabrous or sparsely pilose on both surfaces, leaf sheath 8–12 × 5–8 mm, membranous, long-ciliate at mouth (distal leaf blades wider or narrower than sheaths when sheaths opened, flattened). **Inflorescence** terminal, consisting of pairs of sessile cymes enclosed in sheaths of spathaceous bracts, pedunculate; spathaceous bracts foliaceous, reduced, ciliate. **Flowers** subsessile. **Sepals** lanceolate to oblong-lanceolate, basally connate, 4–8 × 1.5 mm, hyaline. **Petals** clawed, claws basally connate forming slender white tube to 10 × 1.3 mm, lobes free, ovate, apex obtuse, 5–10 × 3–7 mm, pink. **Stamens** 6; filaments epipetalous, white, bearded below. **Fruit** a capsule, 3-locular, locules 2-seeded. **Seed** rugulose. **Distribution:** SA. (Fig. 263).

**References:** Faden (2010), Hong & DeFilipps (2010).

This species belongs to section *Zebrina*, which is represented in southern Africa by only this species. Although *Tradescantia zebrina* has been reported by some authors (e.g. Hunt, 2001) to not definitely be known in the wild state, it has more recently (Faden, 2008) been described as widespread and common in its native range within Mexico.



**Fig. 263.** Distribution map of *Tradescantia zebrina* Heynh. ex Bosse.

The flowers (Fig. 264) appear at irregular intervals throughout the year. With its prominently striped leaves (Fig. 265) and mat-forming habit (Fig. 266) it is unlikely that this species could be confused with any indigenous species. This species has naturalised in many warm countries—including China and Taiwan (Hong & DeFilipps, 2010)—on account of it being cultivated for its decorative leaves (Hunt, 2001). Several clones are cultivated, including 'Purpusii' with unstriped dark-red or red-green leaves and 'Quadricolor' with leaves metallic-green, striped with red, green and white (Bailey & Bailey, 1976; Hunt, 1984).



**Fig. 264.** Flowers of *Tradescantia zebrina* Heynh. ex Bosse. (Picture by Geoff R. Nichols)