



Fig. 186. *Opuntia ficus-indica* (L.) Mill. growing on a cliff ledge. (Picture by Neil R. Crouch)



Fig. 187. Invasion by spiny form of *Opuntia ficus-indica* (L.) Mill.
(Picture by Helmuth G. Zimmermann)



Fig. 188. *Opuntia ficus-indica* (L.) Mill. infected with the cochineal *Dactylopius opuntiae*.
(Picture by Helmuth G. Zimmermann)

5. *Opuntia humifusa* (Raf.) Raf.

In: *Medical Flora* 2: 247 (1830).

Common names: creeping prickly pear, large-flowered prickly pear (English).

Procumbent herb, forming clumps or mats 10-30 cm × 2 m or more; cladodes procumbent, elliptic to obovate or orbicular, 5–12.5 × 4–10 cm, pale green, often tinged purple; areoles with dense glochidia. Spines usually absent, sometimes 1–2, especially on marginal areoles in the upper half of the cladode, up to 2.5 cm long, acicular, not flattened. **Leaves** subulate, 4–7 mm long, caducous. **Flowers** from Oct. to Dec., 4–6 × 4–6 cm, yellow, often with red centre. **Fruit** narrowly clavate or obovoid, purple or red, 2.5–4 × 2–3 cm, fleshy, purple inside. **Seed** fertile. **Distribution:** N, S, SA. (Fig. 189)

References: Britton & Rose (1963), Anderson (2001), Henderson (2001), Partiff & Gibson (2003), Hunt *et al.* (2006).

Opuntia humifusa (Fig. 190, 191, 192, 193) is probably the most widespread of North American *Opuntia* species (Majure, 2010), occurring in Ontario (Canada) and from the Mississippi catchment, throughout the entire eastern part of the USA (Pinkava, 2003a).

In South Africa it occurs throughout the drier western part of the grassland biome (Henderson, 2007), extending from there into more arid areas to the south (Free State, Great Karoo and Camdeboo) and west (southeastern Botswana; Griekwastad; De Aar). It is also naturalised in Namibia and in Australia (Telford, 1984).

This garden escapee has been known to be naturalised since the early 1980s (L. Henderson, *pers. comm.*) and is now spreading rapidly due to bird dispersal of the seeds. It is a declared weed that is a potential transformer of dry grassland, savanna and karoo. It is easily controlled with herbicides (Anonymous, 2004). Except for the cactus moth, which is not a very effective biocontrol agent, there are no other natural enemies that can keep the weed under control.

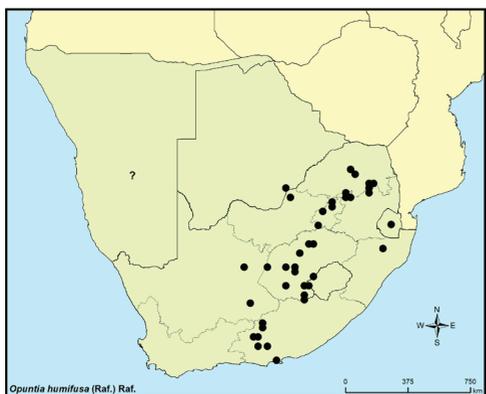


Fig. 189. Distribution map of *Opuntia humifusa* (Raf.) Raf. Gross undersampling is suspected, particularly in the rest of South Africa's Great Karoo.



Fig. 190. *Opuntia humifusa* (Raf.) Raf. (Picture by Neil R. Crouch)



Fig. 191. Flower of *Opuntia humifusa* (Raf.) Raf. (Picture by Neil R. Crouch)



Fig. 192. *Opuntia humifusa* (Raf.) Raf. growing on a rock ledge.
(Picture by Gideon F. Smith)



Fig. 193. Fruit of *Opuntia humifusa* (Raf.) Raf. (Picture by Neil R. Crouch)

6. *Opuntia leucotricha* DC.

In: *Mémoires du Muséum d'Histoire Naturelle* 17: 119 (1828b).

Common names: Aaron's beard prickly pear (English).

Large shrub or small tree 3–4 m tall; cladodes oblong to broadly ovate, up to 25 × 12 cm, c. 1 cm thick, velvety; areoles less than 2 cm apart, spines 1–6, 1–2 cm long, becoming longer (up to 7.5 cm) and appearing more dense on older segments, sebaceous or filiform, white, almost covering the stem, particularly in young plants. **Leaves** small, subulate, aristate, velvety, caducous, red, later green and arista white. **Flowers** c. 5 × 5 cm, yellow. **Fruit** yellowish green, spineless to clothed with long, wispy, filiform spines (particularly during the early stages of development); spines or even complete areoles caducous to varying degrees. **Distribution:** N, SA. (Fig. 194)

References: Britton & Rose (1963), Anderson (2001), Hunt *et al.* (2006), Scheinvar *et al.* (2009).

The shrubby to tree-like *Opuntia leucotricha* (Fig. 195) is characterised by a velvety cladode surface (Fig. 196), combined with the presence of yellow radiate spines (Fig. 197) and a flexuose deflexed white central spine that continues growing to a considerable length (up to 7.5 cm), lending the older cladodes a white bearded appearance (Fig. 198). Flowers are yellow (Fig. 199) sometimes with a orange hue in old flowers, and fruits are yellowish green (Fig. 200).

Opuntia leucotricha in its natural situation is distributed across the Altiplano of central Mexico (Durango, Zacatecas, San Luis Potosí, southern extreme of Nuevo León, western Tamaulipas, northeastern Jalisco, Guanajuato, Querétaro, Hidalgo, Tlaxcala, Puebla) at (839–)1 680–2 100(–2 700) m above sea level (Anderson, 2001; Hunt, 2006; Scheinvar *et al.*, 2009). It is a very popular ornamental plant in Mexico and the USA and is often used by landscape architects. This species was also one of the main exports from a nursery in the Dominican Republic to Miami and possibly served as a vector for the cactus moth, *Cactoblastis cactorum*, to mainland America (Zimmermann *et al.*, 2007).

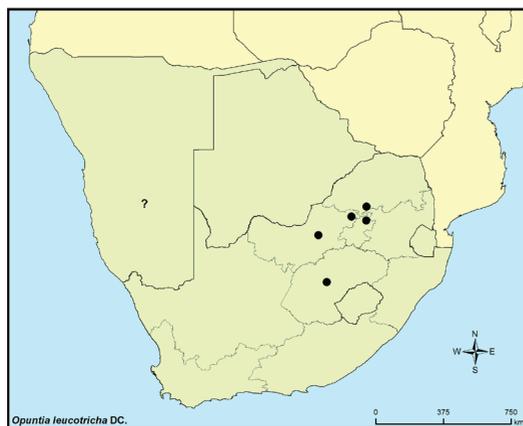


Fig. 194. Distribution map of *Opuntia leucotricha* DC.

Even though it is not a declared weed in South Africa, it is considered an emerging invasive plant, particularly since it tends to persist where planted or discarded. It has been recorded from the Rust de Winter area, Hammanskraal, Brits area, Pretoria outskirts, Klerksdorp and outskirts of Bloemfontein. It is also naturalised in Namibia. It was recorded as an invader in Australia.

Fruit from what is most likely a single clone on the outskirts of Pretoria was sterile or had up to three seeds. Another possible clone was recorded 51 km toward Rustenburg along the N4 Platinum highway, and was confined to a single bushclump. The trunk shows the vestiture of long, white, flexible bristles, yet the fruit lacked (or had already shed) the similar 'vestiture' shown in Anderson's (2001) figure. In fire-prone savanna habitat in South Africa, the trunk vestiture is often burnt off, complicating the correct identification of specimens.

Scheinvar *et al.* (2009) treated this taxon as *Opuntia spinulifera*, and applied the name *O. leucotricha* only to plants lacking the long, bristly 'vestiture' on fruit and trunk. However, intermediate plants found in South Africa do not fit that distinction, therefore the name *O. leucotricha* is here applied in a broader concept. Further research is needed on this group of Mexican species.



Fig. 195. *Opuntia leucotricha* DC. (Picture by Pieter J.D. Winter)



Fig. 196. Velvety cladode surface of *Opuntia leucotricha* DC.
(Picture by Pieter J.D. Winter)

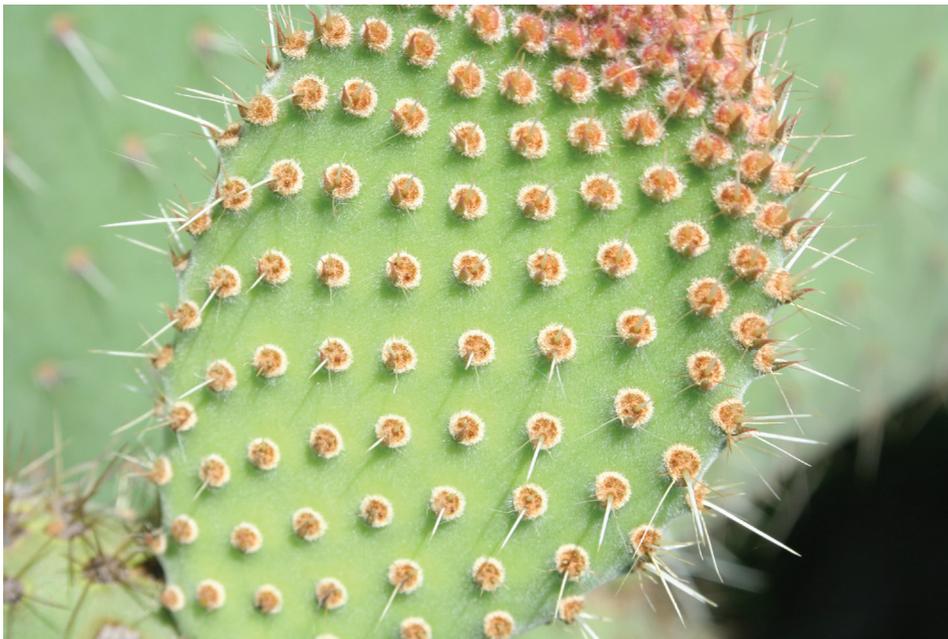


Fig. 197. Young cladode of *Opuntia leucotricha* DC. with small, subulate leaves and reddish glochidia. (Picture by Pieter J.D. Winter)



Fig. 198. Old bearded cladode of *Opuntia leucotricha* DC.
(Picture by Pieter J.D. Winter)



Fig. 199. Flower of *Opuntia leucotricha* DC. (Picture by Pieter J.D. Winter)



Fig. 200. Fruit of *Opuntia leucotricha* DC. (Picture by Pieter J.D. Winter)

7. *Opuntia microdasys* (Lehm.) Pfeiff.

In: *Enumeratio Diagnostica Cactearum hucusque Cognitarum*: 154 (1837).

=*Opuntia rufida* Engelm.

Common names: angel's wings, bunny-ear prickly pear, teddy bear cactus, yellow teddy-bear cactus (English).

Shrub, forming thickets 0.4–0.6 m or more tall; cladodes oblong, obovate or suborbicular, 6–15 × 6–12 cm, green, velvety; areoles prominent, 8–13(–16) per diagonal row across midstem section; glochidia many, typically yellow, reddish brown (in the form previously known as *O. rufida*) or white. Spines absent, rarely 1, very short **Flowers** numerous on each cladode, c. 4 × 4 cm, yellow, ageing apricot to orange (in the form previously known as *O. rufida*); outer tepals often tinged red. **Pericarpel** densely glochidiate. **Fruit** nearly globose, c. 3 cm in diameter, fleshy, red or purple-red. **Distribution:** N, SA. (Fig. 201)

References: Britton & Rose (1963), Anderson (2001), Parfitt & Gibson (2003), Hunt *et al.* (2006).

Opuntia microdasys is widespread throughout the Chihuahuan Desert of central and northern Mexico, at 600–1300 m (*O. rufida* extending into Texas), or 1 700–2 100 m above sea level (Pinkava, 2003a). It cannot be confused with any other species, with its low habit (Fig. 202), velvety epidermis, and numerous spineless areoles packed with short glochidia (Fig. 203). *Opuntia rufida* is here included in this species as a northern form (but see Pinkava, 2003b). It differs from the typical form by its reddish glochidia (Fig. 204). A population that appears to fit this description has been recorded in the Northern Cape Province, on the Victoria West townlands, invading natural Karoo vegetation. The tepal colour was a dirty salmon-pink, and the possibility of hybridization needs to be considered.

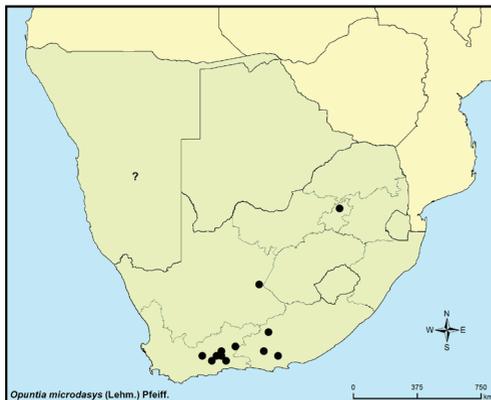


Fig. 201. Distribution map of *Opuntia microdasys* (Lehm.) Pfeiff.



Fig. 202. *Opuntia microdasys* (Lehm.) Pfeiff. (Picture by PPRI)



Fig. 203. Cladodes of *Opuntia microdasys* (Lehm.) Pfeiff. have numerous areoles with glochidia. (Picture by PPRI)



Fig. 204. Form of *Opuntia microdasys* (Lehm.) Pfeiff. with reddish glochidia.
(Picture by Pieter J.D. Winter)

In South Africa *Opuntia microdasys* is a common horticultural specimen, especially during the juvenile phase when it displays its characteristic bunny-ear-like pads. It is commonly cultivated as a rockery ornamental in the drier parts of South Africa (Smith *et al.*, 2011) because of its pads and flowers (Fig. 205). It forms large clumps, often escaping from gardens or growing near rubbish dumps where plant parts have been disposed of. It has thus naturalised in very localised areas, usually close to habitation, since it does not spread by seeds. To date, it has been recorded (SAPIA data) from northern Gauteng, Northern Cape (near Hopetown), Western Cape (throughout the Great Karoo) and Eastern Cape (Sundays River basin and near Steytlerville). It is naturalised in Namibia. Collectors and the nursery trade are probably the main causes for its dispersal. It is a very popular garden ornamental almost throughout the world and is listed as an invader in Australia.

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



Fig. 205. Flowers of *Opuntia microdasys* (Lehm.) Pfeiff. (Picture by Debbie Sharp).

8. *Opuntia monacantha* Haw.

In: *Supplementum Plantarum Succulentarum*: 81 (1819).

=*Opuntia vulgaris* sensu auct. non Mill. (misapplied name)

Common names: cochineal prickly pear, drooping prickly pear (English); Engelse turksvy, luisiesturksvy, suurturksvy (Afrikaans).

Erect shrub up to 2(–3) m high, sometimes with a short trunk; cladodes oblong to obovate, 10–30 × 7.5–10(–12.5) cm, tapered towards the base, fairly thin, bright green when young. Spines 1 or 2, unequal, the longer 2–4 cm long, brown towards tip and base, off-white between, more numerous on trunk. **Flowers** from Oct. to Apr., 5–7.5 × 7.5–10 cm, yellow or orange-yellow; outer tepals tinged red. **Fruit** pyriform, 5–7.5 × 4–5 cm, green with red-purple shades, edible. **Distribution:** S, SA. (Fig. 206)

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

Opuntia monacantha is best identified by its large, attractive and edible pear-shaped fruit (Fig. 207), drooping appearance (Fig. 208), thin, shiny cladodes (Fig. 209) with often only one or two rigid thorns per areole (Fig. 210) and large attractive flowers (Fig. 211).

It is originally from eastern coastal South America (southern Brazil to northern Argentina) (Leuenberger, 2002). In South Africa, this cactus prefers sandy soils in coastal bush and moist savanna. It is found mainly on the coastal plain from Maputaland to the Eastern Cape, but also occurs sporadically in thicket communities in the Western Cape, and occasionally elsewhere (SAPIA data). It is naturalised in Swaziland.

It was also a serious invader in Australia, India, Sri Lanka, Madagascar and Mauritius before the introduction of a cochineal species, *Dactylopius ceylonicus* (Zimmermann *et al.*, 2009). There are claims that the destruction of this species could have contributed to the severe famine in southern Madagascar in the 1920's, as a result of the collapse of vast populations of the cactus that were used for fodder and human consumption (Middleton, 1999).

This was a common and aggressive invader in South Africa during the late 19th century forming dense thickets along the coast between Mossel Bay and Durban. Though a declared weed, it was brought under full and sustainable biocontrol by *Dactylopius ceylonicus* that was released in 1913, so that it is now considered a minor weed. There are occasionally flare-ups of populations, often along the Eastern Cape coast. No other control measures, besides biological control, are necessary. The cactus moth, *Cactoblastis cactorum*, is also effective in reducing regrowth by killing young plants.

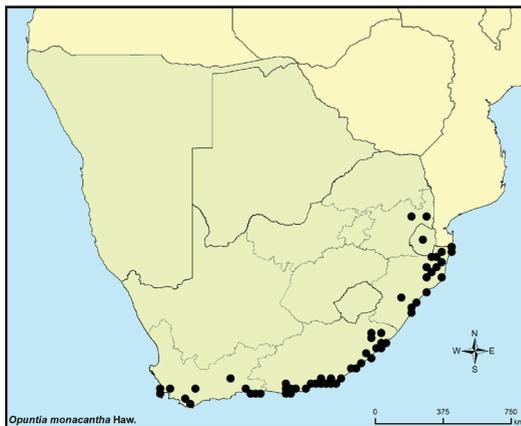


Fig. 206. Distribution map of *Opuntia monacantha* Haw.



Fig. 207. Fruits of *Opuntia monacantha* Haw. are pear-shaped and edible.
(Picture by PPRI)



Fig. 208. *Opuntia monacantha* Haw. plants have a characteristic drooping appearance. (Picture by Helmuth G. Zimmermann)



Fig. 209. Shiny young cladodes of *Opuntia monacantha* Haw. Note the tiny, subulate, red leaves. (Picture by Neil R. Crouch)



Fig. 210. *Opuntia monacantha* Haw. with one or two rigid thorns per areole and uniformly red pericarpel scales and outer tepals. (Picture by Neil R.Crouch)



Fig. 211. Flower of *Opuntia monacantha* Haw. (Picture by Geoff R. Nichols)

9. *Opuntia robusta* Pfeiff.

In: *Enumeratio Diagnostica Cactearum hucusque Cognitarum*: 165–166 (1837).

Common names: blue-leaf cactus, robusta, robusta blue-leaf opuntia (English); bloublad, robusta, robusta turksvy, turksvy (Afrikaans).

Shrub or tree, usually 2–5 m high; cladodes more or less orbicular, massive, c. 40 × 40 × 4–5 cm, waxy pale blue; areoles sparse, impressed and often sunken. Spines absent (in some cultivars) or 2–12, unequal, filiform, up to 5 cm long, white, pale brown or yellow below. **Flowers** 5 × 5–7 cm, yellow. **Fruit** globose to ellipsoid, 7–8 cm long, long-tuberculate while still green, areoles with a few long glochidia (c. 1 cm) in addition to numerous short glochidia, deep red to purple; pulp purple, sour. **Seeds** numerous, fertile. **Distribution:** B, SA. (Fig. 212)

References: Britton & Rose (1963), Hunt *et al.* (2006).

Opuntia robusta has characteristic large, orbicular, bluish green cladodes with areoles widely scattered (Fig. 213), and yellow flowers (Fig. 214).

This cactus is widely distributed to the north of the Sierra Volcánica Transversal range in central Mexico (Hunt, 2006). In South Africa it is naturalised in a few localities, mainly in the semi-arid interior (SAPIA data) (Fig. 215). It is cultivated by farmers for use as an emergency feed for livestock during drought and not for its edible fruit, which is sour (Fig. 216). It is naturalised in Botswana. It is also sporadically naturalised in Australia where it is known as the wagon wheel cactus (Telford, 1984).

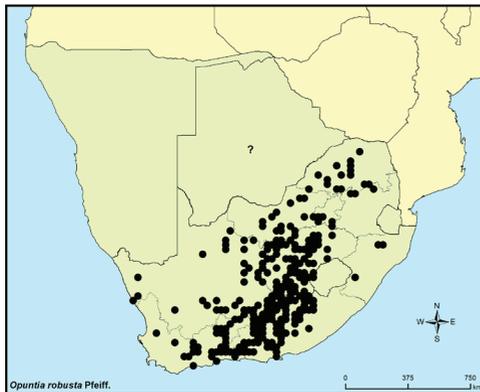


Fig. 212. Distribution map of *Opuntia robusta* Pfeiff. Most of these data reflect cultivated plants or casual aliens. Actual invasions are estimated at less than 3% of records.



Fig. 213. Cladodes of *Opuntia robusta* Pfeiff. are large, orbicular and a typical bluish green colour. (Picture by Gideon F. Smith)



Fig. 214. Flowers of *Opuntia robusta* Pfeiff. (Picture by Neil R. Crouch)