

***Leucospermum* R. Br. 1810**

The type species is *L. hypophyllocarpodendron*, which was first described by Linnaeus as a member of his large genus *Leucadendron*. Linnaeus later moved this to *Protea*. Various authors prior to Robert Brown proposed names for Pincushions, these being *Conocarpus* Adanson 1763, *Lepidocarpus* Adanson 1763, and *Leucadendrum* Salisb. 1807. Robert Brown's name is conserved.

There are x sections of Pincushions, and we have followed Rourke's (1972) treatment, with the exception of a new section discovered in 198* for the Hook Pincushions, and the removal of the section *Xericola* to the genus *Vexatorella*.

Leucospermum cuneiforme (Burm. f.) Rourke 1768, 1967

Wart-stemmed Pincushion

Gewoneluisiesbos

Other Common Names: Common Pincushion, Large-tufted Pincushion, Phyllanthus-leaf Leucadendrum, Stagshorn-leaf Leucadendrum, Yellow Pincushion, Yellow-flame Pincushion, *Boontjiesbos*, *Geelspeldekussing*, *Klipboom*, *Kreupelbossie*, *Luisiesboom*, *Luisiesbos*, *Mielieput*, *Wildemielie*.

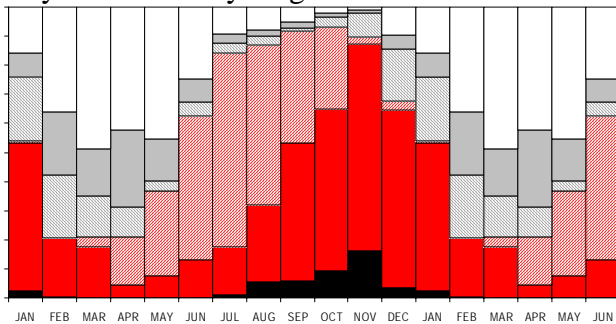
Other Scientific Names: *attenuatum* R.Br. 1810, *cervinum* (Salisb. ex Knight) 1809, *ellipticum* (Thunb.) 1781, *phyllanthifolium* (Salisb. ex Knight) 1809, *septemdentatum* Gand. & Schinz 1913, *zeyheri* Meisn. 1856.

3 612 Records

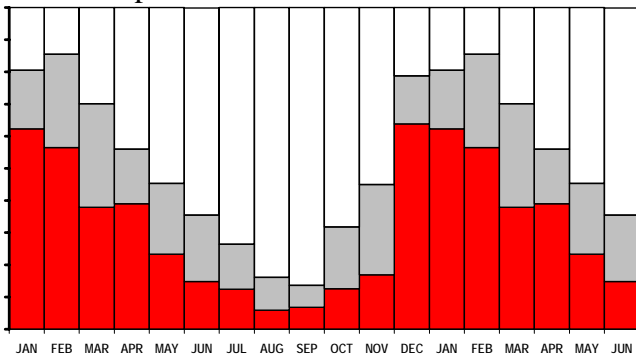
Population (3580 records): 18% Common, 63% Frequent, 19% Rare.

Dispersion (3296 records): 60% variable, 29% clumped, 9% widespread, 2% evenly distributed.

Flowering (3508 records with: Jan 220, Feb 184, Mar 438, Apr 180, May 234, Jun 139, Jul 323, Aug 258, Sep 359, Oct 489, Nov 324, Dec 360): Buds from May to Oct; Flowering from Aug to Jan; Peak Flowering not significant; Over from Jan to Feb; Fruit from Feb and Apr; Nothing from Feb to Jun. Peak levels at 98% in Nov. Historically recorded as flowering from at any time of the year but mainly Aug to Feb.



Growth (3466 records with: Jan 220, Feb 186, Mar 441, Apr 182, May 232, Jun 135, Jul 307, Aug 254, Sep 353, Oct 484, Nov 313, Dec 359): Much from Dec to May; Rare from Feb to Mar, May to Jun and Nov; None from Apr to Jan. Peak levels at 86% in Feb.

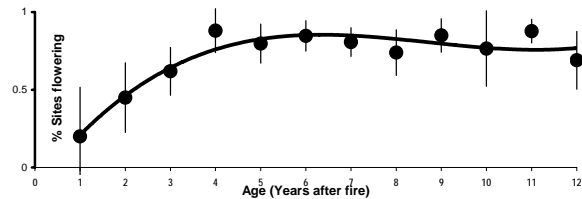


<check if variation in growth & flowering>

Seedlings (1729 records): Absent in 97%: fewer seedlings than prefire adults in 22 cases, and more in 8 cases. Seedlings found in Mar (3), Apr (4), Jun (6), Jul (4), Aug, Sep, Oct (5), Nov (3) and Dec (3).

Fire Survival (292 records): 71% resprouted from underground boles, 13% escaped fires in fire-safe areas, 13% resprouted from aerial trunks, 2% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 2-3 years, and reaching a peak of 90% at 4 years.



Height (3545 records): 2% 0-0.2 m tall, 69% 0.2-1 m tall, 28% 1-2 m tall, 1% 2-5 m tall.

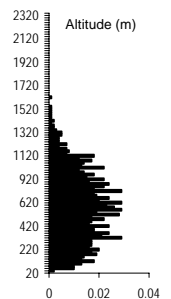
Pollinators (61 records): 69% birds, 16% beetles, 8% bees or wasps, 3% mammals, 3% none observed.

Detailed Pollinators (48 records): Cape Sugarbird (23), Orange-breasted Sunbird (9), Malachite Sunbird (5), Honey Bee (3), Greater Double-collared Sunbird (2), Great Protea Beetle (2), Snout Weevil, Scarab Beetle, Protea Seed-eater, Monkey Beetle.

Habitat:

Distance to Ocean (3424 records): 96% inland - further than 2 km from coast.

Altitude (3424 records): 20 - 1760 m; 320 *lq* - 560 *med* - 760 *uq*m.



Landform (3408 records): 71% deep soil, 25% shallow soil, 4% rocky outcrops.

Slope (3416 records): 44% gentle incline, 37% steep incline, 12% hill top, 6% platform, 1% cliff.

Aspect (2918 records): 41% South, 28% North, 16% West, 15% East.

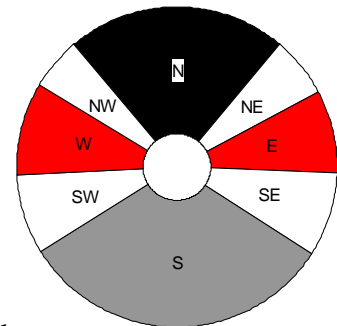
Soil Type (3379 records):

49% loamy, 35% sandy, 8% gravelly, 4% rocky, 2% clayey.

Soil Colour (3377 records):

48% grey, 42% brown, 4% black, 2% red, 1% yellow, 1% orange.

Geology (3312 records): 89% sandstone, 4% shale, 3% silcrete or ferricrete, 2% conglomerate, 1% Tertiary sands.



Vegetation (3407 records): 91% shrubland, 5% grassland, 2% plantations, 1% wooded grassland, 1% thicket.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos – excludes Transkei islands): 23 088 km² with 27% conserved and 15% lost; Occupancy: 3 651 km² with 37% conserved and 13% lost. Fragmentation index: 5%.

Nature Reserves (3424 records): 40% in nature reserves.

Habitat destruction (3328 records): 89% extensive natural habitat, 8% islands, 1% naturally linear habitats, 1% road verges.

Alien Invasive Species (3293 records): 50% none, 18% Fabaceae (chiefly alien *Acacia*), 17% *Pinus*, 12% *Hakea*, 1% other aliens, 1% Myrtaceae.

Alien Density (3289 records): 50% alien-free, 40% sparse, 7% abundant, 3% dense.

Cultivation & Utilization:

Picking (2584 records): 99% no sign of picking, 0.7% lightly picked, 0.1% severely picked.

Cultivation Status: Plantings - 10 records, Escapes - 1 record.

Atlasers Notes:

Habit:

Many plants were sprawling (DOA96100501 + 2); Sprawling form (DOA97021102); Very stunted (DFJ96081002); Common but striking as it is all "ground hugging" (DFJ97061801); Here is small stunted and confined to rock bands - is this the western limit of its comfortable range? (DFJ99032102); Low stunted form (DOA92111010); A low spreading bush here (LYM98040502); All plants on this mountain have a very flat sprawling habit (MCG97052501); Very low growing - flat on the ground (MCG98052507); Entirely of the prostrate form (NAH99051104); Totally prostrate with leaves standing vertically – secund (OUT94040905+7-9+11); Two distinct forms - prostrate and upright (OUT96100501); Prostrate type (OUT96100502+9); Creeping form (SHS93071201, SHS93081701+2); Trailing stems and secund leaves at a variety of sites in the Attakwas Kloof Nature Reserve (SHS95102101); Decumbent (trailing) form (SHS97020503); Plants taller in east part of plot - possibly deeper soil as slope become less in col? (TLE97092302); Very large bush (MCG97030901); Very large - small trees (MCG97062805, MCG97111601); Certain specimens in excess of 2 m (SMLY0121101); Large trees with warts all way up to two year old growth (AGRY1032922+23); Very large trees with trunks 500 mm in diameter (MCG97070811);

Variation:

Flowers small - < 50 mm top to stipe (AGR92122905); Strange coloured - almost white & very large flowers & teeth on leaves (OUT94061802); Quite different to the ones found at Garcia pass - the leaves are smaller, nectaries more yellow and tiny instead of big and dark, red flower heads are more clustered -

two sometimes three heads stuck together (RDF94103001);

No knobby warts on stem (AGR97010424); Specimens were in poor condition and stunted with no sign of warts on stems (DFJ95012301); All have smooth stems – i.e. no warts observed (PRG94091701); Resprouter but no warts (WMP98022801);

Recovery:

Good recovery : lots of young plants (AGR93010201); Some plants slightly sick - drought? (AGRY0070709); No deaths observed (AGRY1070702); Lots of plants dead (AGRY0122818); All very healthy plants - no sign of fires so very mature (DFJ97022301); Resprouting and reseedling (DOA93112908); Several small plants and a number of adult plants were noticeably beginning to die off (KEXY0082601); About 50% of plants killed by fire 5 yrs ago - rest are resprouting (MCG97070810); Very poor recovery after fire - especially with *P. neriifolia* - no seedlings spotted until after March 2000 (MHGY0071001); Many skeletons: why? (NGFY0122807); Some dead plants (OUT95081910); Several dead plants (WIJY0123105);

Some incredibly old - huge boles! sample: 24 dead 22 living 4 young (AGR91122901); A remarkable surviving bunch in the midst of an intensive small- holding farming area (DFJ97021802); Locality severely overgrazed by farm livestock - population under severe threat - will not survive unless livestock are withdrawn (JCM92122501);

Flowering:

No flowering despite peak flowering in nearby younger veld (RMC91120502); Second flowering this year (VCH99090812); Ants collecting seed (MHG92122702+3); Picking by rodents or baboons destroying the flowerhead - in search of the seeds? (GNI95012105); Not picked but much eaten - bits of flowerheads scattered around (SMR98112501);

Pollination:

Pollinators - small black beetles (AGRY3102808); Beetle on flowerheads with reddish tan on patch between wing casing adj. thorax and black central rim to elytra and mustard wing casings and hairy abdomen - looks scarabid (BMJ97110902); Dark brown hairless beetle (GNI93102501); Rodent droppings - probably that of Striped Mouse seen around most flowerheads (PRG94091701); Fresh droppings found at flowerheads (PRG95071802); Ants (HRK96101301, OUT98091204)

Predation:

A large caterpillar about 10cm long 2cm diameter red with yellow and green white speckled bands and black feet eating the leaves (PNR97101601); Some of the old plants appear to have been cut down to encourage new growth (KEXY0122801);

Confusing Species: Confused with a variety of unrelated species, primarily because of not noting the resprouting habit and not looking for warts on the basal stems. These included *L. pluridens*, *erubescens*, *fulgens*, and

truncatum. The creeping form had atlassers
foxed and were identified as *L. royenifolium*,
calligerum and *hamatum*.

Records of identification queries = 69.

Records of corrected identification queries = 26.

Variation and Taxonomy: A variable species
with some forms being described on the

basis of leaf length, tothing of apex and size
of flowerheads.

Distribution: Add.

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Leucospermum gerrardii Stapf. 1912
Soapstone Pincushion
Wortelstokspeldekussing

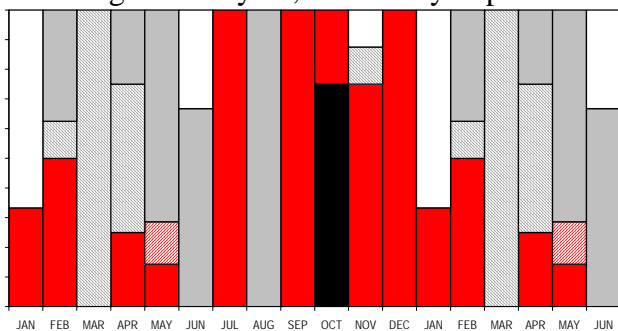
Other Common Names: Dwarf Pincushion, Soboliferous Pincushion.
Other Scientific Names: *None*.

43 Records

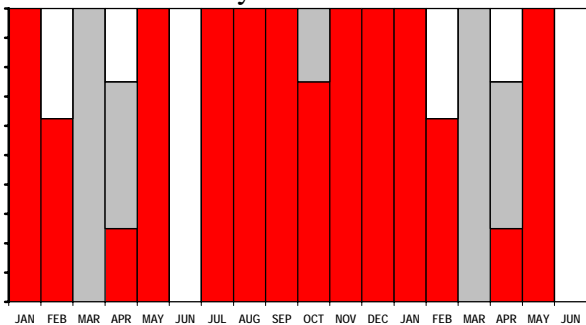
Population (42 records): 2% Abundant, 43% Common, 36% Frequent, 19% Rare.

Dispersion (40 records): 50% variable, 38% clumped, 8% evenly distributed, 5% widespread.

Flowering (43 records with: Jan 3, Feb 8, Mar 1, Apr 4, May 7, Jun 3, Jul 2, Aug 1, Sep 1, Oct 4, Nov 8, Dec 1): Buds not significant; Flowering from Sep to Feb, and Apr; Peak Flowering from Oct; Over from Mar to Apr; Fruit from Feb to Jun; Nothing from Jan and Jun. Peak levels unreliable at 100% in Oct. Historically recorded as flowering erratically throughout the year, but chiefly Sep to Nov.



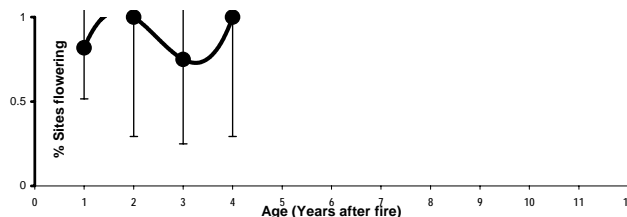
Growth (43 records with: Jan 3, Feb 8, Mar 1, Apr 4, May 7, Jun 3, Jul 2, Aug 1, Sep 1, Oct 4, Nov 8, Dec 1): Much from Jul to Feb, and Apr to May; Rare from Mar to Apr and Oct; None from Feb, Apr and Jun. Peak levels at 100% from May to Jan.



Seedlings (21 records): Absent in 90%; fewer seedlings than prefire adults in 1 case. Seedlings found in Nov.

Fire Survival (24 records): 79% resprouted from underground boles, 21% escaped fires in fire-safe areas.

Age to first flowering: A resprouter with first flowers recorded at 1 year, 50% estimated at 0-1 years, and 100% recorded at 2 years.



Height (43 records): 49% 0-0.2 m tall, 49% 0.2-1 m tall, 2% 1-2 m tall.

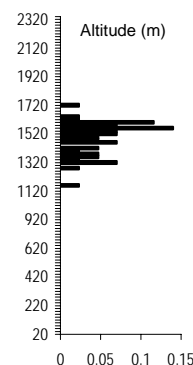
Pollinators (2 records): 50% birds, 50% none observed.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (43 records): 100% inland - further than 2 km from coast.

Altitude (43 records): 1040 - 1620 m; 1280 *lq* - 1420 *med* - 1460 *uq*m.



Landform (43 records): 47% shallow soil, 42% deep soil, 12% rocky outcrops.

Slope (43 records): 53% gentle incline, 16% steep incline, 14% hill top, 14% platform, 2% valley bottom.

Aspect (34 records): 40% South, 25% East, 21% West, 15% North.

Soil Type (42 records):

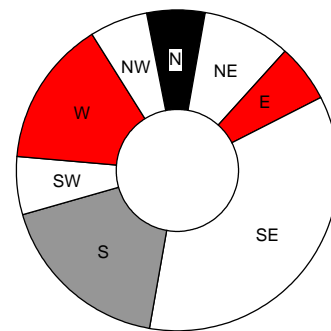
76% loamy, 17% sandy, 5% clayey, 2% rocky.

Soil Colour (42 records):

64% brown, 24% grey, 5% black, 2% yellow, 2% orange, 2% red.

Geology (13 records): 54% sandstone, 31% shale, 8% conglomerate, 8% granite.

Vegetation (43 records): 79% grassland, 14% wooded grassland, 7% shrubland.



Conservation Status and Threat:

Red Data List Status: Near Threatened A2c: in KwaZulu-Natal: Endangered B1a(i,ii)b(i,ii,iii,iv,v) +2a(i,ii)b(i,ii,iii,iv,v); in Mpumalanga: Near Threatened D2(i); in Swaziland: Near Threatened D2(i).

Occurrence (total): 1 267 km² with 0% conserved and 28% lost; Occupancy: 77 km² with 0% conserved and 11% lost.

Fragmentation index: 6%.

Nature Reserves (43 records): 74% in nature reserves - well conserved.

Habitat destruction (43 records):
77% extensive natural habitat, 14% islands,
9% naturally linear habitats.

Alien Invasive Species (38 records): 68% none,
21% *Pinus*, 5% Fabaceae (chiefly alien
Acacia), 3% Myrtaceae, 3% annual alien
grasses.

Alien Density (38 records): 68% alien-free,
26% sparse, 5% abundant.

Cultivation & Utilization:

Picking (36 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Witch's Broom Infestation: 1 record (2%).

Atlasers Notes:

Appears to occur in bands down hillside
corresponding to outcrops of soapstone (talc
schists) (KPB93053009-14).

Confusing Species: One record of confusion
with *L. saxosum*.

Records of identification queries = 4.

Records of corrected identification queries = 1.

Variation and Taxonomy: Collections from
KwaZulu-Natal have broader leaves (> 15
mm wide) and occur on sandstone. Those
from the Barberton escarpment have
narrower leaves (< 10 mm wide) and occur
on granite and quartzite. This variation is
not formally recognized as intermediate
forms occur.

Distribution: Add.

INCLUDEPICTURE

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Leucospermum innovans Rourke 1972

Pondoland Pincushion

Pondolandspeldekussing

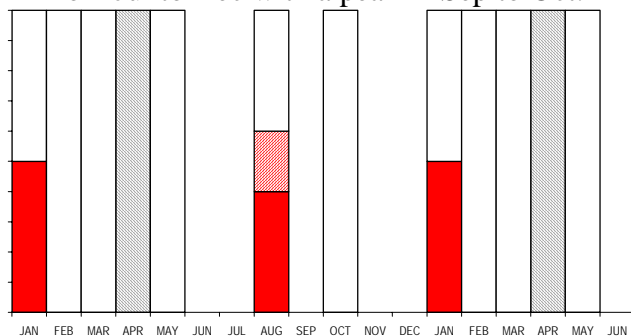
Other Common Names: Transkei Pincushion.
Other Scientific Names: *None*.

20 Records

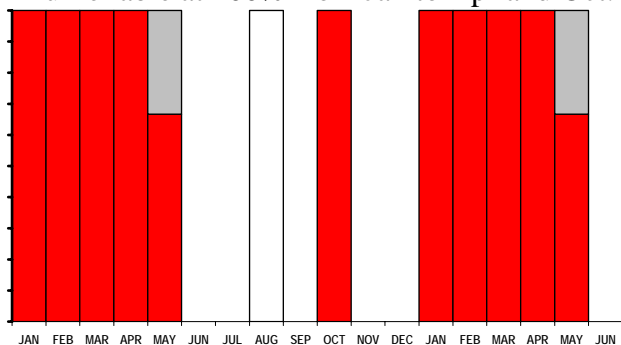
Population (20 records): 10% Common, 55% Frequent, 35% Rare.

Dispersion (18 records): 50% variable, 28% clumped, 11% evenly distributed, 11% widespread.

Flowering (19 records with: Jan 2, Feb 2, Mar 2, Apr 4, May 3, Jun 0, Jul 0, Aug 5, Sep 0, Oct 1, Nov 0, Dec 0): Buds from Aug; Flowering from Jan and Aug; Peak Flowering not recorded; Over from Apr; Fruit not recorded; Nothing from May to Mar. Peak levels unreliable at 100% in Apr. Historically recorded as flowering erratically from Jul to Dec with a peak in Sep to Oct.



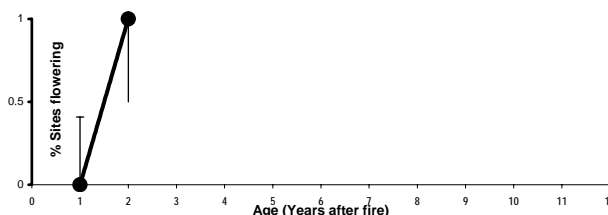
Growth (20 records with: Jan 2, Feb 2, Mar 2, Apr 4, May 3, Jun 0, Jul 0, Aug 5, Sep 0, Oct 2, Nov 0, Dec 0): Much from Oct to May; Rare from May; None from Aug. Peak levels unreliable at 100% from Jan to Apr and Oct.



Seedlings (16 records): All without any seedlings present.

Fire Survival (18 records): 100% resprouted from underground boles.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 1-2 years, and 100% recorded at 2 years.



Height (20 records): 10% 0-0.2 m tall, 85% 0.2-1 m tall, 5% 1-2 m tall.

Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

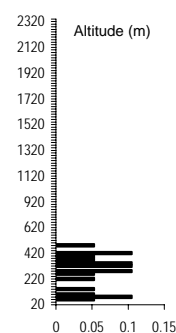
Distance to Ocean (19 records): 74% inland - further than 2 km from coast.

Altitude (19 records): 40 - 480 m; 120_{lq} - 280_{med} - 340_{uq}m.

Landform (19 records): 42% deep soil, 42% shallow soil, 11% riverine, 5% rocky outcrops.

Slope (19 records): 42% gentle incline, 26% steep incline, 26% hill top, 5% platform.

Aspect (14 records): 54% South, 21% East, 18% West, 7% North.



Soil Type (19 records): 63% sandy, 37% loamy.

Soil Colour (19 records): 68% grey, 32% brown.

Geology (19 records): 100% sandstone.

Vegetation (18 records): 94% grassland, 6% shrubland.

Conservation Status and Threat:

Red Data List Status: Endangered B1a(i)b(ii,iii,v) + 2a(i)b(ii,iii,v).

Occurrence (Total): 642 km² with 14% conserved and 20% lost; **Occupancy:** 29 km² with 0% conserved and 16% lost.

Fragmentation index: 5%.

Nature Reserves (19 records): 11% in nature reserves - inadequately conserved.

Habitat destruction (9 records): 89% extensive natural habitat, 11% islands.

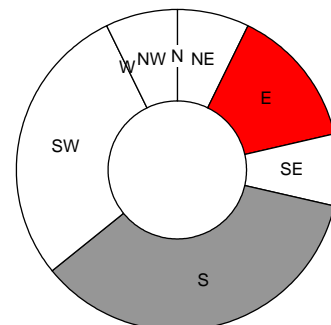
Alien Invasive Species (9 records): 78% none, 11% *Hakea*, 11% Fabaceae (chiefly alien *Acacia*).

Alien Density (9 records): 78% alien-free, 22% sparse.

Cultivation & Utilization:

Picking (18 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.



Atlassers Notes:

Resprouter - larger rootstocks tending to die off centrally and break up into smaller unit (ATA92101001).

Base of single plant is about 450 mm across - other plants in area have died. Farmer says this is the northern-most locality (WIJ96100801).

Colony vulnerable due to new dwellings in the area (ATA92101001); No other stand anywhere near this number of plants known - corrections: just heard of more near Port Grosvenor - the Mazizi maize project wiped out quite a lot a few years back (ATA99033001); Once 4 plants now down to

1 due to hot fire on recommendation of Geoff Nicars farmer. Len Rossels has plants in nursery (NSC95020601).

Confusing Species: None known.

Variation and Taxonomy: No variation known, although leaves vary considerably in size on any plant.

Distribution: Add.

INCLUDEPICTURE

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***Leucospermum saxosum* S. Moore 1911**
Escarpment Pincushion
Spitsblaarspeldekussing

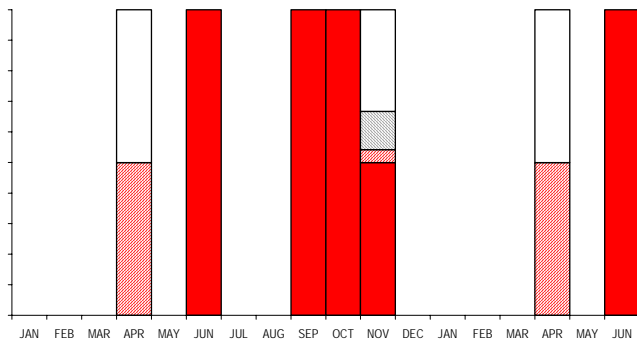
Other Common Names: Chimanimani
Pincushion, Pincushion, *Gombate* (eastern Shona), *Mardi Gras Orange*.
Other Scientific Names: *None*.

34 Records

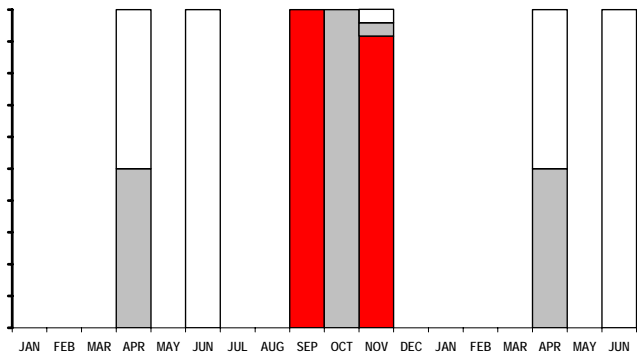
Population (34 records): 12% Common, 71% Frequent, 18% Rare.

Dispersion (30 records): 70% variable, 30% clumped.

Flowering (34 records with: Jan 0, Feb 0, Mar 0, Apr 2, May 0, Jun 4, Jul 0, Aug 0, Sep 3, Oct 1, Nov 24, Dec 0): Buds from Apr; Flowering from Jun to Nov; Peak Flowering not recorded; Over not significant; Fruit not recorded; Nothing from Apr and Nov. Peak levels unreliable at 100% in Jun and Sep. Historically recorded as flowering erratically throughout the year but peaking from Sep to Dec.



Growth (34 records with: Jan 0, Feb 0, Mar 0, Apr 2, May 0, Jun 4, Jul 0, Aug 0, Sep 3, Oct 1, Nov 24, Dec 0): Much from Sep and Nov; Rare from Apr and Oct; None from Apr to Jun. Peak levels unreliable at 100% in Sep to Oct.



Seedlings (16 records): All without any seedlings present.

Fire Survival (24 records): 92% resprouted from underground boles, 4% escaped fires in fire-safe areas, 4% resprouted from aerial trunks.

Age to first flowering: No data.

Height (34 records): 85% 0.2-1 m tall, 15% 1-2 m tall.

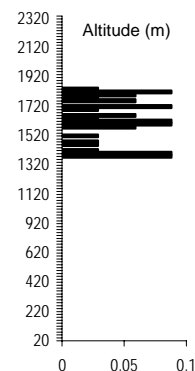
Pollinators (1 record): 100% none observed.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (34 records): 100% inland - further than 2 km from coast.

Altitude (34 records): 1260 - 1740 m; 1360_{lq} - 1520_{med} - 1600_{uq}m.



Landform (34 records): 59% deep soil, 26% shallow soil, 12% rocky outcrops, 3% riverine.

Slope (33 records): 45% gentle incline, 30% steep incline, 21% platform, 3% valley bottom.

Aspect (31 records): 52% West, 23% South, 13% North, 13% East.

Soil Type (34 records):

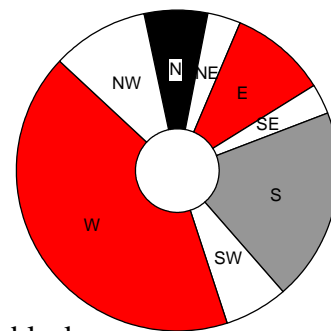
47% sandy, 38% loamy, 6% gravelly, 3% clayey, 3% peaty, 3% rocky.

Soil Colour (34 records):

41% grey, 32% brown, 12% black, 9% red, 6% white.

Geology (24 records): 83% sandstone, 13% shale, 4% silcrete or ferricrete.

Vegetation (34 records): 44% grassland, 29% wooded grassland, 18% shrubland, 9% woodland.



Conservation Status and Threat:

Red Data List Status: Near Threatened D2(ii); in South Africa: Endangered D.

Occurrence (total): 23 457 km² with 30% conserved and 91% lost; **Occupancy:** 19 km² with 0% conserved and 7% lost. **Fragmentation index:** 0%.

Nature Reserves (34 records): 65% in nature reserves - well conserved.

Habitat destruction (34 records): 91% extensive natural habitat, 6% naturally linear habitats, 3% naturally fragmented habitats.

Alien Invasive Species (34 records): 85% none, 9% Fabaceae (chiefly alien *Acacia*), 6% *Pinus*.

Alien Density (34 records): 85% alien-free, 15% sparse.

Cultivation & Utilization:

Picking (27 records): 100% no sign of picking. **Cultivation Status:** No noted cultivation.

Atlasers Notes:

Many flowerheads lying on the ground: note that there was a storm. Flowerheads appear to have an abscission layer (LOT95102101); Some plants with large (0.5m diameter) bole from which they resprout (RHEY0090909); Most plants on edge of riverine bush, some inside riverine bush. In association with *Kotschya parvifolia* (RHEY0090909);

Confusing Species: None known – geographically isolated.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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Leucospermum conocarpodendron subspecies *viridum* Rourke 1972

Green Tree Pincushion

Goudboom

Other Common Names: Cripple-tree Pincushion, Cripplewood, Gnarled Wood, Golden Pincushion, Hairless Tree Pincushion, Monkey Protea, Thick-stem Leucadendrum, Tree Pincushion, Yellow Pincushion, *Kruppelholz*, *Bobbejaanbos*, *Brandhoutboom*, *Goudblomboom*, *Goudboom*, *Goudsbrandhoutboom*, *Gouebrandhoutboom*, *Groenkreupelhout*, *Kreupelboom*, *Kreupelbrandhoutboom*, *Kreupelhout*.

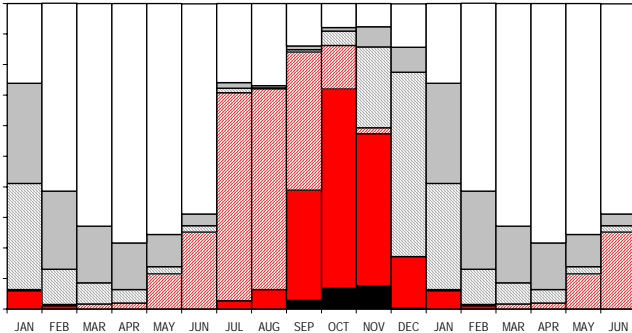
Other Scientific Names: *None*.

3 329 Records

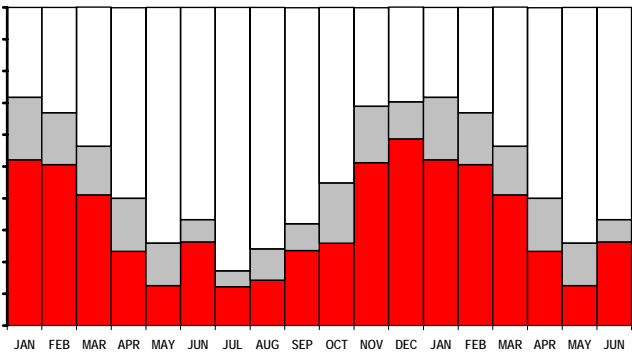
Population (3265 records): 17% Common, 64% Frequent, 19% Rare.

Dispersion (3016 records): 74% variable, 18% clumped, 8% widespread.

Flowering (3253 records with: Jan 268, Feb 262, Mar 303, Apr 296, May 287, Jun 234, Jul 332, Aug 297, Sep 252, Oct 279, Nov 211, Dec 232): Buds from Jun to Sep; Flowering from Sep to Nov; Peak Flowering not significant; Over from Nov to Jan; Fruit from Jan to Feb; Nothing from Jan to Aug. Peak levels at 91% in Oct. Historically recorded as flowering from Aug to Jan.



Growth (3140 records with: Jan 265, Feb 263, Mar 297, Apr 287, May 270, Jun 228, Jul 320, Aug 286, Sep 237, Oct 259, Nov 203, Dec 225): Much from Sep to Apr; Rare from Jan; None from all year peaking in Apr to Oct. Peak levels at 72% in Jan.

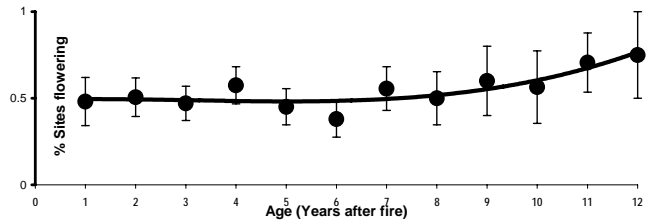


Seedlings (1033 records): Absent in 85%: fewer seedlings than prefire adults in 52 cases, and more in 26 cases. Seedlings found in Jan (5), Feb (4), Mar (6), Apr (11), May (2), Jun, Jul

(13), Aug (13), Sep (8), Oct (3), Nov (11) and Dec.

Fire Survival (465 records): 43% resprouted from aerial trunks, 40% escaped fires in fire-safe areas, 13% survived by seedlings only, 3% eliminated from the area by fires, 2% resprouted from underground boles.

Age to first flowering: First flowers recorded at 1 years – from resprouting plants, 50% estimated at 2-3 years, and 100% recorded at 17 years. Hint of start of senescence after 18 years?



Height (3302 records): 2% 0-0.2 m tall, 17% 0.2-1 m tall, 59% 1-2 m tall, 23% 2-5 m tall.

Pollinators (70 records): 74% birds, 17% beetles, 9% bees or wasps.

Detailed Pollinators (51 records): Cape Sugarbird (28), Orange-breasted Sunbird (13), Great Protea Beetle (6), Southern Double-collared Sunbird, Malachite Sunbird, Honey Bee, Carpenter Bee.

Habitat:

Distance to Ocean (3144 records): 53% coastal - less than 2 km from coast.

Altitude (3150 records): 20 - 1160 m; 100 *lq* - 180 *med* - 280 *uq*m.

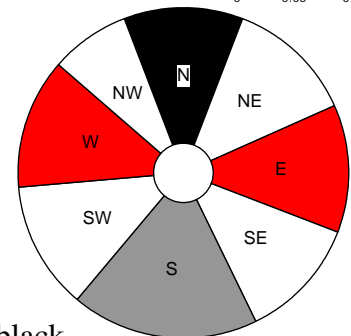
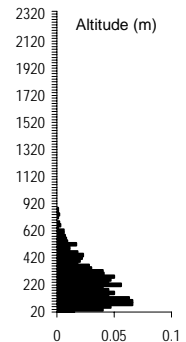
Landform (3141 records): 74% deep soil, 17% shallow soil, 9% rocky outcrops.

Slope (3133 records): 53% gentle incline, 30% steep incline, 9% platform, 5% hill top, 2% valley bottom.

Aspect (2763 records): 30% South, 25% East, 23% West, 22% North.

Soil Type (3125 records): 83% sandy, 11% loamy, 3% gravelly, 2% rocky.

Soil Colour (3110 records): 63% grey, 22% brown, 10% white, 2% orange, 2% black, 1% yellow.



Geology (3070 records): 91% sandstone, 4% granite, 2% shale, 2% Tertiary sands, 1% silcrete or ferricrete.

Vegetation (3141 records): 97% shrubland, 1% plantations, 1% thicket.

Conservation Status and Threat:

Red Data List Status: Near Threatened A2c, but off the Peninsula Endangered A4c.

Occurrence (Fynbos): 2 950 km² with 31% conserved and 41% lost; **Occupancy:** 761 km² with 40% conserved and 24% lost. **Fragmentation index:** 14%.

Nature Reserves (3150 records): 76% in nature reserves - well conserved.

Habitat destruction (3087 records): 95% extensive natural habitat, 2% islands, 2% naturally linear habitats.

Alien Invasive Species (3047 records): 39% Fabaceae (chiefly alien *Acacia*), 38% none, 17% *Pinus*, 4% *Hakea*, 2% Myrtaceae.

Alien Density (3040 records): 38% alien-free, 46% sparse, 12% abundant, 3% dense.

Cultivation & Utilization:

Picking (1934 records): 100% no sign of picking, 0.1% lightly picked, 0.1% severely picked.

Cultivation Status: Plantings - 40 records (1%), Escapes - 2 records.

Witch's Broom Infestation: 1 record (0.03%).

Atlassers Notes:

Age to flowering:

Flowered for first time in 1991 - burnt 1983: I have watched seedlings since then (YDA92060801);

Fire survival:

Vegetation moribund: very good recruitment (AGR92022604); Occasional survivors among rocks, but majority of large specimens are dead - burnt twice in last 3 years (AKS93042205); About 10% of adult plants survived (PVR92070408); Some old plants have died - senescence? (PVR93053002); Veld looks very old more dead plants (PVR93053006); Must have been a very hot fire all adults plants killed except one protected by rocks (PVR94080403); No seedlings observable yet following the fire in march 1995 (PVR95052405);

Damage:

Damage by baboons quite bad (APE93041801); Baboons eating flowers (SAS97120601); A Lot Of plants Have Recently Been Felled In A Wide Firebreak (PVR97022601);

Growth:

Much new growth on bushes that had no or few flowers (NSC94100601);

Mortality (non-fire):

Few dead (AGR99071810+11); One of two plants has died (AGRY0090201); Several dead plants (AGRY1080903); Lots of dead plants (drought deaths) (AGRY1080904); About 2/3 plants dead in some localized patches (shallower soil than the normal rocky areas they like?) no obvious difference from *M. fimbriifolius* (AGRY4041105); Many dead on lower slopes ca 30% of the population (AKS92080401); Also some dead plants (AKS93042203); Half of one dead! (AMMY0030801, NGF99081502); Many old dead plants -very few replacements noted (APE92051006); Most plants in poor shape (CVV95081302); Numerous large dead plants (CVV95121405); Showing signs of dieing back - possibly drought related (NGFY0112603); Some young plants 10-15cm high dying of drought (WIJ94040402);

Pollination:

Argentine Ants and black beetle (OGM93010101); Carpenter Bee about 20mm long with prominent yellowish thorax and abdomen (WEL94103002); Orange-breasted Sunbird sipping at plants - no flowers at all but dew on leaves (SMR99043001);

Distribution:

The plants grow on the contact of sandstone & limestone (CVV94041302); *M. fimbriifolius* more prevalent relative to *L. Cono* on higher ground (TLE94061109); *L. Cono* replaces *M. fimbriifolius* (TLE96030304);

Confusing Species: New growth caused much confusion with the type subspecies. Other than the period Nov to Jan, there were usually no problems. Inattentive persons could mistake the non-flowering plants as *M. fimbriifolius* from a distance.

Records of identification queries = 55.

Records of corrected identification queries = 43.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum conocarpodendron subspecies *conocarpodendron* (L.) Buek. 1753,
1874

Grey Tree Pincushion
Vaalkreupelhout

Other Common Names: Grey-tree Pincushion, Hairy Tree Pincushion, *Mardi Gras Ribbons*.

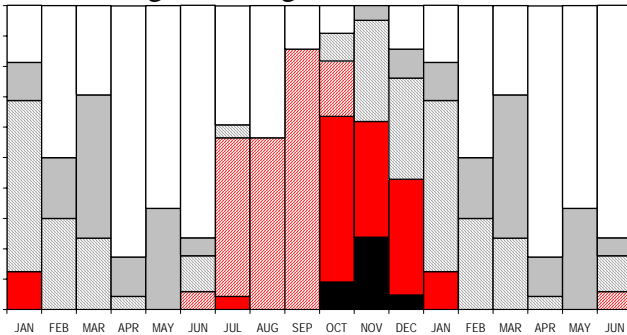
Other Scientific Names: *conocarpum* (Thunb) 1781, *crassicaule* Salisb. ex Knight 1809, *macowanii* Gand. 1901, *tortuosa* Salisb. 1796.

219 Records

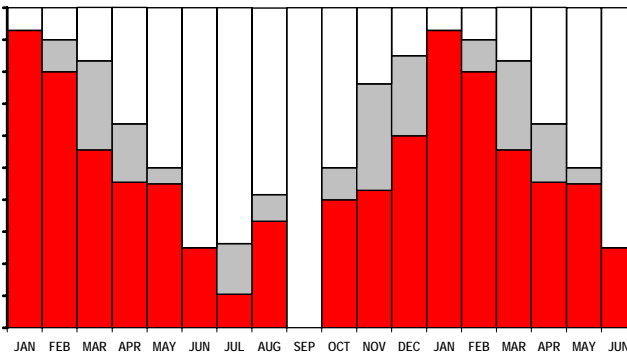
Population (215 records): 35% Common, 51% Frequent, 13% Rare.

Dispersion (197 records): 74% variable, 19% clumped, 6% widespread, 2% evenly distributed.

Flowering (210 records with: Jan 16, Feb 10, Mar 17, Apr 23, May 21, Jun 17, Jul 23, Aug 23, Sep 7, Oct 11, Nov 21, Dec 21): Buds from Jul to Sep; Flowering from Oct to Dec; Peak Flowering from Nov; Over from Nov to Mar; Fruit from Feb to Mar and May; Nothing from Feb to Aug. Peak levels at 95% in Nov. Historically recorded as flowering from Aug to Dec.



Growth (200 records with: Jan 14, Feb 10, Mar 18, Apr 22, May 20, Jun 16, Jul 19, Aug 24, Sep 6, Oct 10, Nov 21, Dec 20): Much from Oct to Jun and Aug; Rare from Mar and Nov to Dec; None from Apr to Nov. Peak levels at 93% in Jan.



Seedlings (72 records): Absent in 94%: fewer seedlings than prefire adults in 1 case, and more in 1 case. Seedlings found in Nov (2).

Fire Survival (14 records): 50% resprouted from aerial trunks, 43% escaped fires in fire-

safe areas, 7% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 4 years, 50% estimated at 3-4 years, and 100% recorded only for low sample sizes.



Height (216 records): 12% 0.2-1 m tall, 60% 1-2 m tall, 27% 2-5 m tall, 1% taller than 5 m.

Pollinators (2 records): 50% bees or wasps, 50% none observed.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (200

records): 60% coastal - less than 2 km from coast.

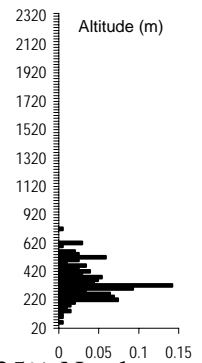
Altitude (200 records): 40 - 720 m; 240_{lq} - 320_{med} - 320_{uq}m.

Landform (198 records):

81% deep soil, 12% shallow soil, 8% rocky outcrops.

Slope (198 records): 62% steep incline, 34% gentle incline, 4% cliff.

Aspect (198 records): 43% West, 25% North, 16% East, 16% South.



Soil Type (198 records):

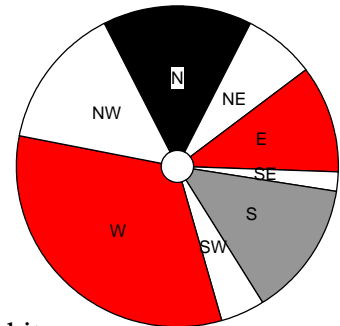
56% sandy, 20% loamy, 15% gravelly, 5% clayey, 4% rocky.

Soil Colour (197 records):

69% brown, 18% grey, 7% orange, 3% white, 2% yellow, 1% red.

Geology (194 records): 61% sandstone, 26% granite, 13% shale.

Vegetation (198 records): 97% shrubland, 1% thicket.



Conservation Status and Threat:

Red Data List Status: Vulnerable
B1a(ii)b(i,ii,iii,iv,v) + 2a(ii)b(i,ii,iii,iv,v).

Occurrence (Fynbos): 52 km² with 75% conserved and 18% lost; Occupancy: 60 km² with 56% conserved and 27% lost.

Fragmentation index: 88%.
Nature Reserves (200 records): 89% in nature reserves - well conserved.

Habitat destruction (196 records):
95% extensive natural habitat, 4% islands,
1% naturally linear habitats.

Alien Invasive Species (188 records):
34% *Pinus*, 33% Fabaceae (chiefly alien
Acacia), 19% none, 9% Myrtaceae,
5% *Hakea*.

Alien Density (188 records): 19% alien-free,
60% sparse, 16% abundant, 5% dense.

Cultivation & Utilization:

Picking (106 records): 99% no sign of picking,
0.9% lightly picked.

Cultivation Status: Plantings - 4 records (2%).

Atlassers Notes:

Cape Sugarbirds present (AKS93042901).

Confusing Species: Occasionally mistaken for
L. conocarpodendron subsp. viridum.
Records of identification queries = 34.
Records of corrected identification queries = 16.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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Leucospermum glabrum Phill. 1910
Outeniqua Pincushion

Other Common Names: Ember Pincushion, *Mardi Gras Petite*.

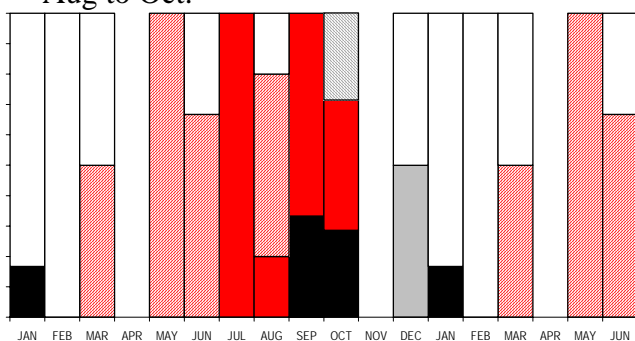
Other Scientific Names: *None*.

38 Records

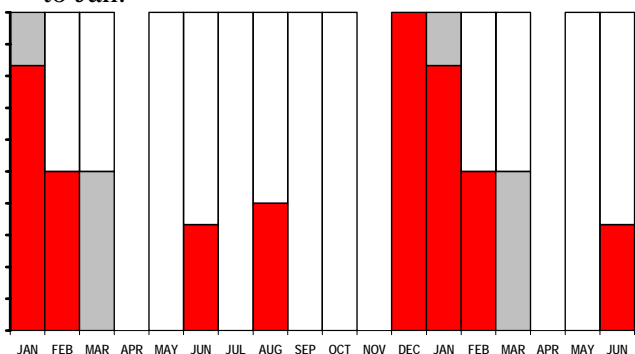
Population (30 records): 10% Common, 50% Frequent, 40% Rare.

Dispersion (24 records): 71% clumped, 25% variable, 4% evenly distributed.

Flowering (36 records with: Jan 6, Feb 2, Mar 2, Apr 0, May 2, Jun 3, Jul 1, Aug 5, Sep 6, Oct 7, Nov 0, Dec 2): Buds from Mar to Jun and Aug; Flowering from Jul to Oct; Over from Oct; Fruit from Dec; Nothing from Dec to Mar and Jun. Peak levels unreliable at 100% in Sep. Historically recorded as flowering from Aug to Oct.



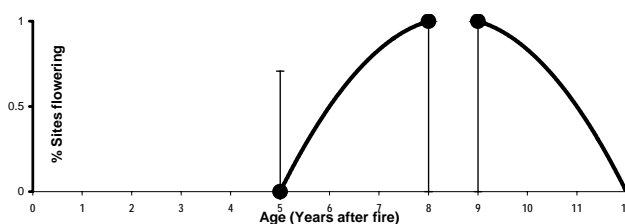
Growth (35 records with: Jan 6, Feb 2, Mar 2, Apr 0, May 1, Jun 3, Jul 1, Aug 5, Sep 6, Oct 7, Nov 0, Dec 2): Much from Dec to Feb and Jun and Aug; Rare from Mar; None from Feb to Oct. Peak levels unreliable at 100% in Dec to Jan.



Seedlings (14 records): Absent in 86%; fewer seedlings than prefire adults in 1 case. Seedlings found in Feb.

Fire Survival (4 records): 75% survived by seedlings only, 25% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 8 years, 50% estimated at 6-7 years, and 100% recorded at 8 years.



Height (37 records): 3% 0-0.2 m tall, 35% 0.2-1 m tall, 54% 1-2 m tall, 8% 2-5 m tall.

Pollinators (1 record): 100% birds.

Detailed Pollinators (1 record): Cape Sugarbird.

Habitat:

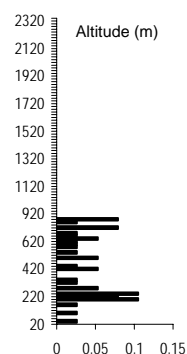
Distance to Ocean (30 records): 90% inland - further than 2 km from coast.

Altitude (30 records): 80 - 780 m; 220 *lq* - 420 *med* - 540 *uq*m.

Landform (30 records): 83% deep soil, 17% shallow soil.

Slope (30 records): 47% steep incline, 43% gentle incline, 7% hill top, 3% platform.

Aspect (30 records): 40% South, 27% North, 22% East, 12% West.

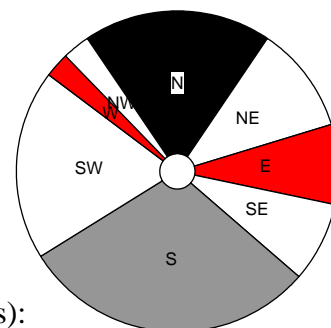


Soil Type (30 records): 47% loamy, 37% sandy, 17% peaty.

Soil Colour (30 records): 40% brown, 37% black, 23% grey.

Geology (29 records): 100% sandstone.

Vegetation (30 records): 100% shrubland.



Conservation Status and Threat:

Red Data List Status: Endangered
 B1a(i)b(iii,v)c(iv) + 2a(i)b(ii,v)c(iv), C2a(i).
 Occurrence (Fynbos): 1 005 km² with 10% conserved and 26% lost; Occupancy: 54 km² with 38% conserved and 9% lost.
 Fragmentation index: 4%.

Nature Reserves (30 records): 70% in nature reserves - well conserved.

Habitat destruction (29 records): 86% extensive natural habitat, 7% islands, 7% corridors.

Alien Invasive Species (30 records): 47% *Pinus*, 20% Fabaceae (chiefly alien *Acacia*), 20% none, 13% *Hakea*.

Alien Density (30 records): 20% alien-free, 63% sparse, 17% abundant.

Cultivation & Utilization:

Picking (24 records): 92% no sign of picking,
8% lightly picked.

Cultivation Status: Plantings - 8 records
(21%).

Atlassers Notes:

11 Plants (WIJ95032509).

Confusing Species: None noted, although
some *L. cuneiforme* were identified as *L.*
glabrum.

Records of identification queries = 4.

Variation and Taxonomy: No variation noted.

Distribution: Add.

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Leucospermum pluridens Rourke 1972 Robinson Pincushion

Other Common Names: Outeniqua Pincushion.

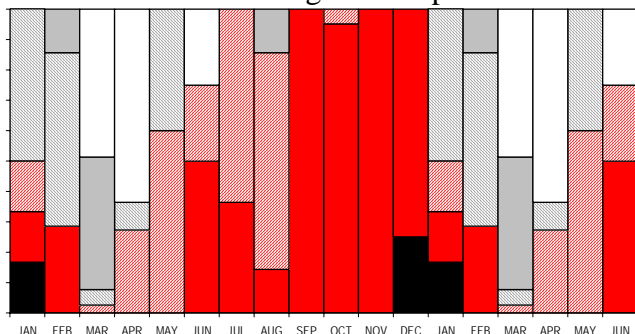
Other Scientific Names: *None*.

125 Records

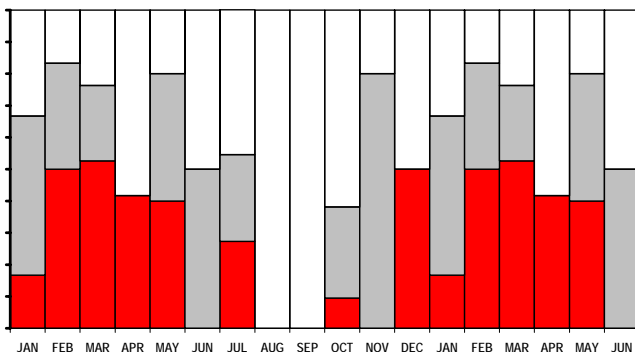
Population (124 records): 18% Common, 62% Frequent, 20% Rare.

Dispersion (118 records): 56% variable, 36% clumped, 6% evenly distributed, 3% widespread.

Flowering (123 records with: Jan 6, Feb 7, Mar 39, Apr 11, May 5, Jun 4, Jul 11, Aug 7, Sep 3, Oct 21, Nov 5, Dec 4): Buds from Apr to Aug; Flowering from Feb, Jun to Jul and Sep to Dec; Peak Flowering from Dec; Over from Jan to Feb and May; Fruit from Mar; Nothing from Mar to Apr and Jun. Peak levels at 100% in Sep to Jan. Historically recorded as flowering from Sep to Dec.



Growth (122 records with: Jan 6, Feb 6, Mar 38, Apr 12, May 5, Jun 4, Jul 11, Aug 7, Sep 3, Oct 21, Nov 5, Dec 4): Much from Feb to May, Jul and Dec; Rare from Jan to Mar and May to Jul and Oct to Nov; None from Mar to Jan. Peak levels at 83% in Feb.



Seedlings (56 records): Absent in 89%: fewer seedlings than prefire adults in 3 cases. Seedlings found in Jan, Jun and Dec.

Fire Survival (9 records): 44% escaped fires in fire-safe areas, 33% survived by seedlings only, 22% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 3 years, 50% estimated at 3 years, and 100% recorded consistently at 6 years.



Height (124 records): 27% 0.2-1 m tall, 69% 1-2 m tall, 4% 2-5 m tall.

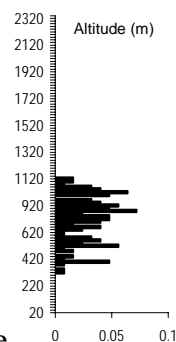
Pollinators (14 records): 71% birds, 21% bees or wasps, 7% flies.

Detailed Pollinators (9 records): Orange-breasted Sunbird (4), Cape Sugarbird (3), Malachite Sunbird (2).

Habitat:

Distance to Ocean (125 records): 100% inland - further than 2 km from coast.

Altitude (125 records): 300 - 1020 m; 560 *lq* - 740 *med* - 820 *uq*m.



Landform (125 records): 48% deep soil, 45% shallow soil, 7% rocky outcrops.

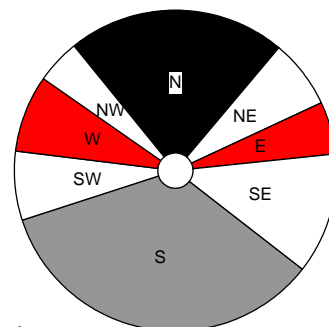
Slope (125 records): 46% gentle incline, 42% steep incline, 7% hill top, 3% platform.

Aspect (114 records): 45% South, 28% North, 14% East, 13% West.

Soil Type

(125 records): 67% sandy, 14% loamy, 13% gravelly, 4% rocky, 2% clayey.

Soil Colour (124 records): 49% grey, 42% brown, 4% orange, 3% red, 2% white.



Geology (125 records): 95% sandstone, 2% conglomerate, 2% shale.

Vegetation (125 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Near Threatened B1a(i)b(v).

Occurrence (Fynbos): 526 km² with 27% conserved and 5% lost; Occupancy: 140 km² with 34% conserved and 2% lost. Fragmentation index: 18%.

Nature Reserves (125 records): 32% in nature reserves.

Habitat destruction (124 records): 97% extensive natural habitat, 2% islands, 2% naturally linear habitats.

Alien Invasive Species (122 records):

84% none, 15% *Hakea*, 1% Fabaceae
(chiefly alien *Acacia*).

Alien Density (122 records): 84% alien-free,
15% sparse, 1% impenetrable.

Cultivation & Utilization:

Picking (103 records): 100% no sign of
picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

About 30 plants (DOA95041001);
Here it is only on the south facing slopes?
(AGR98032207); On barren gravel slope
(AWA95103105).

Confusing Species: Confused with *L.*
cuneiforme (which resprouts), *L. winteri* and
L. glabrum.

Records of identification queries = 3.

Records of corrected identification queries = 2.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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***Leucospermum erubescens* Rourke 1972**
Oudtshoorn Pincushion
Oranjevlamspeldekussing

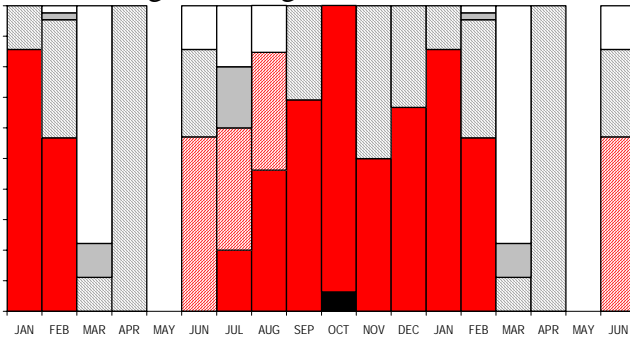
Other Common Names: Orange-flame Pincushion, *Mardi Gras Tricolor*.
Other Scientific Names: *attenuatum* var. *ambiguum* Meisn. 1856.

121 Records

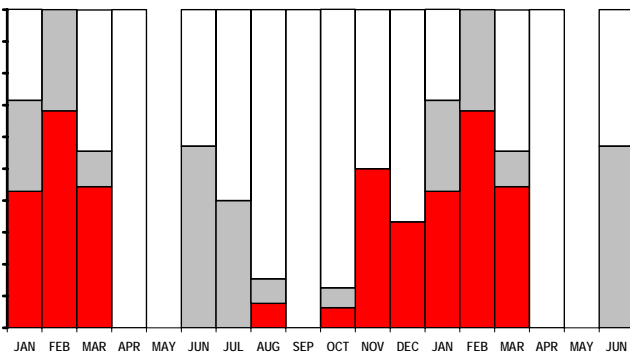
Population (119 records): 19% Common, 69% Frequent, 12% Rare.

Dispersion (114 records): 53% clumped, 45% variable, 2% widespread, 0.9% evenly distributed.

Flowering (120 records with: Jan 7, Feb 44, Mar 9, Apr 1, May 0, Jun 7, Jul 5, Aug 13, Sep 13, Oct 16, Nov 2, Dec 3): Buds from Jun to Aug; Flowering from Jul to Feb; Peak Flowering not significant; Over from Feb, Apr to Jun, Sep and Nov to Dec; Fruit from Jul; Nothing from Mar. Peak levels at 100% from Sep to Jan. Historically recorded as flowering from Aug to Jan.



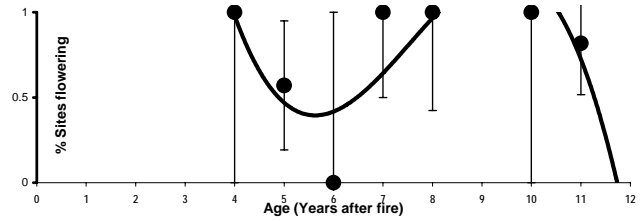
Growth (120 records with: Jan 7, Feb 44, Mar 9, Apr 1, May 0, Jun 7, Jul 5, Aug 13, Sep 13, Oct 16, Nov 2, Dec 3): Much from Nov to Mar; Rare from Jan to Feb and Jun to Jul; None from Mar to Jan. Peak levels at 100% in Feb.



Seedlings (62 records): Absent in 94%; fewer seedlings than prefire adults in 1 case, and more in 1 case. Seedlings found in Feb and Aug.

Fire Survival (3 records): 67% survived by seedlings only, 33% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 4 years, 50% estimated at 4-5 years, and 100% recorded at 7 years.



Height (118 records): 30% 0.2-1 m tall, 67% 1-2 m tall, 3% 2-5 m tall.

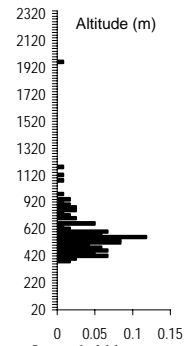
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (119 records): 100% inland - further than 2 km from coast.

Altitude (119 records): 360 - 1860 m; 460 *lq* - 540 *med* - 560 *uq*m.

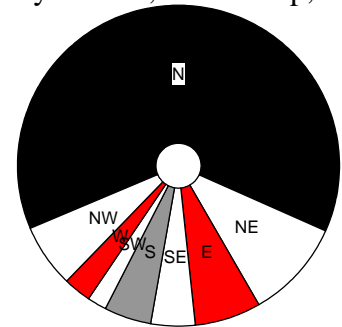


Landform (118 records): 61% deep soil, 21% shallow soil, 17% rocky outcrops.

Slope (118 records): 60% gentle incline, 25% steep incline, 7% platform, 3% valley bottom, 3% hill top, 2% cliff.

Aspect (108 records):

72% North,
 14% East,
 8% South,
 6% West.



Soil Type (117 records): 50% sandy, 19% loamy, 17% gravelly, 15% rocky.

Soil Colour (117 records): 64% grey, 23% brown, 7% white, 4% yellow, 2% orange.

Geology (117 records): 98% sandstone, 2% Tertiary sands.

Vegetation (117 records): 97% shrubland, 3% grassland.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 352 km² with 30% conserved and 3% lost; **Occupancy:** 105 km² with 18% conserved and 10% lost. **Fragmentation index:** 14%.

Nature Reserves (119 records): 15% in nature reserves - inadequately conserved.

Habitat destruction (117 records): 96% extensive natural habitat, 3% islands, 1% road verges, 1% naturally linear habitats.

Alien Invasive Species (115 records): 79% none, 10% *Hakea*, 9% Fabaceae (chiefly alien *Acacia*), 3% *Pinus*.

Alien Density (114 records): 80% alien-free,
17% sparse, 4% abundant.

Cultivation & Utilization:

Picking (81 records): 90% no sign of picking,
9% lightly picked, 1% severely picked.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Along river beds and damp spots
(VJK93022801);

Confusing Species: Misidentified in pre-
flowering plants as *L. oleifolium* – which is
out of range.

Records of identification queries = 8.

Records of corrected identification queries = 3.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSERUB_m.jpg" *

MERGEFORMAT \d

Leucospermum fulgens Rourke 1972 Potberg Pincushion

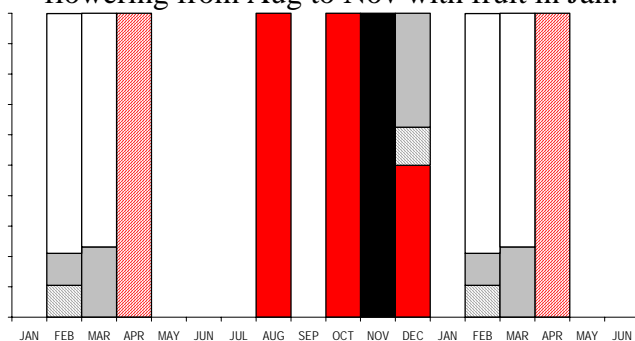
Other Common Names: None known.
Other Scientific Names: *None*.

53 Records

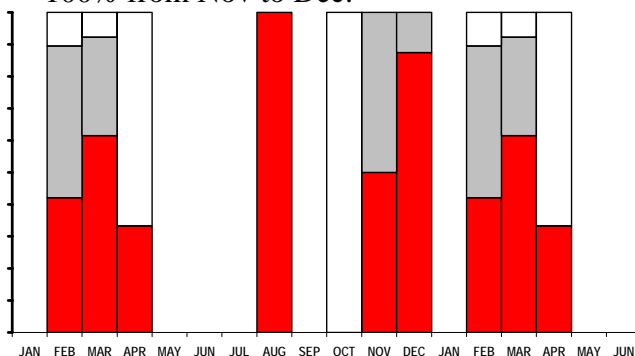
Population (53 records): 2% Abundant, 21% Common, 57% Frequent, 21% Rare.

Dispersion (49 records): 67% variable, 27% clumped, 4% evenly distributed, 2% widespread.

Flowering (53 records with: Jan 0, Feb 19, Mar 13, Apr 3, May 0, Jun 0, Jul 0, Aug 1, Sep 0, Oct 7, Nov 2, Dec 8): Buds from Apr; Flowering from Aug to Oct and Dec; Peak Flowering from Nov; Over not significant; Fruit from Mar and Dec; Nothing from Feb to Mar. Peak levels unreliable at 100% from Aug to Oct. Historically recorded as flowering from Aug to Nov with fruit in Jan.



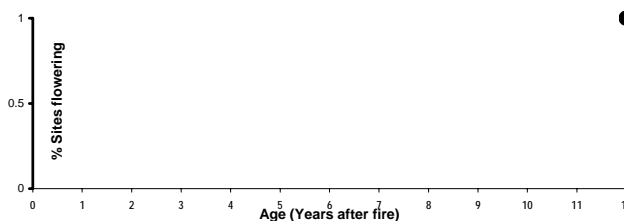
Growth (53 records with: Jan 0, Feb 19, Mar 13, Apr 3, May 0, Jun 0, Jul 0, Aug 1, Sep 0, Oct 7, Nov 2, Dec 8): Much from Nov to Apr; Rare from Feb to Mar and Nov; None from Apr to Oct. Peak levels unreliable at 100% from Nov to Dec.



Seedlings (25 records): All without any seedlings present.

Fire Survival (1 record): 100% resprouted from aerial trunks.

Age to first flowering: First flowers recorded at 100% at 12 years, no data for younger veld.



Height (52 records): 10% 0.2-1 m tall, 63% 1-2 m tall, 27% 2-5 m tall.

Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (53 records): 91% inland - further than 2 km from coast.

Altitude (53 records): 120 - 280 m; 140_{lq} - 160_{med} - 160_{uq}m.

Landform (53 records): 98% deep soil, 2% shallow soil.

Slope (53 records): 34% gentle incline, 28% valley bottom, 21% platform, 9% hill top, 8% steep incline.

Aspect (33 records):

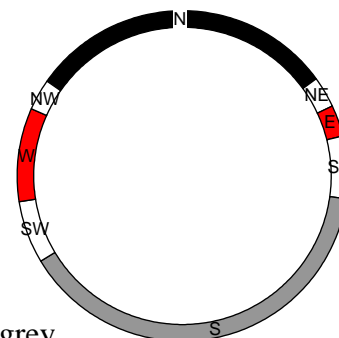
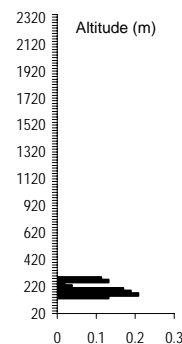
45% South,
33% North,
14% West,
8% East.

Soil Type (52 records): 90% sandy, 10% loamy.

Soil Colour (52 records): 44% brown, 37% grey, 15% white, 2% yellow, 2% orange.

Geology (47 records): 45% Tertiary sands, 26% sandstone, 26% limestone, 4% shale.

Vegetation (53 records): 98% shrubland, 2% wooded grassland.



Conservation Status and Threat:

Red Data List Status: Critically Endangered B1a(ii)b(iii)c(iv).

Occurrence (Fynbos): 19 km² with 100% conserved and 17% lost; Occupancy: 25 km² with 100% conserved and 11% lost. Fragmentation index: meaningless.

Nature Reserves (53 records): 100% in nature reserves - well conserved.

Habitat destruction (53 records): 62% extensive natural habitat, 32% naturally linear habitats, 4% road verges, 2% islands.

Alien Invasive Species (52 records): 79% Fabaceae (chiefly alien *Acacia*), 12% none, 8% Myrtaceae, 2% *Pinus*.

Alien Density (52 records): 12% alien-free, 56% sparse, 21% abundant, 12% dense.

Cultivation & Utilization:

Picking (35 records): 100% no sign of picking.
Cultivation Status: No noted cultivation.

Atlassers Notes:

Atlassed as *L. truncatum* but specimens are too big - either large form of this or a small form of *L. fulgens* - what about a small *L. praecox*? More work needed here! (AKS94122006-8); Both *L. truncatum* and *L. fulgens* (really more of an intermediate between the two) present - area should be carefully worked (IVM98022807);

Record accepted as intermediate between *L. truncatum* and *L. fulgens* - this area needs working on (JAT95100606);

Needs to be investigated further: although the plot was on limestone it was felt that the plants with their big leaves were *L. fulgens* as *L. truncatum* elsewhere on the limestone ridge had smaller leaves (NGF98022808);

Confusing Species: Plants on sandy patches within the limestone were intermediate

between *L. truncatum* and *L. fulgens*. These have been atlassed as *L. fulgens*. These approach the small form of *L. praecox* (cf).
Records of identification queries = 11.
Records of corrected identification queries = 5.

Variation and Taxonomy: Other than the small form on the sands within limestone, no variation was noted.

Distribution: Nowhere was it dense, as described by Rourke: "very dense local stands" ... "constitute the major component of the vegetation cover". It probably occurs in far greater numbers in younger veld, but as most of the veld in its range was over 12 years old it might have died back.

Add.

INCLUDEPICTURE

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MERGEFORMAT \d

***Leucospermum muirii* Phill. 1910**
Albertinia Pincushion
Bloukoolhout

Other Common Names: Baby Pincushion, Muir's Pincushion, Small Pincushion, *Bloukool*, *Dooiekoolhout*, *Droevlakteluisie*, *Luisiesboom*, *Luisiesbos*.

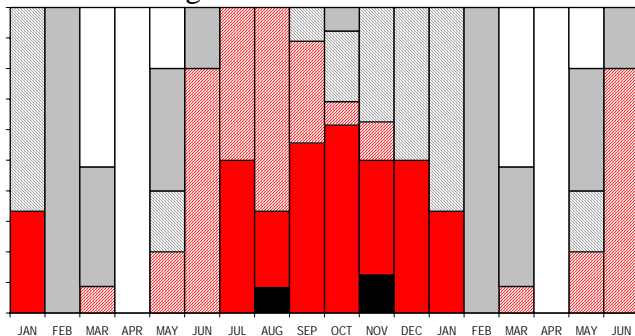
Other Scientific Names: *None*.

117 Records

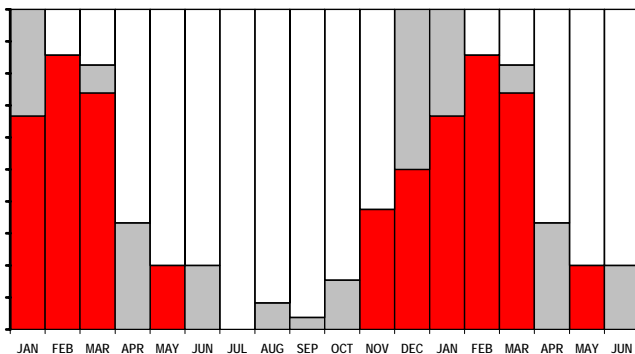
Population (110 records): 36% Common, 55% Frequent, 8% Rare.

Dispersion (105 records): 84% variable, 12% clumped, 3% widespread, 1.0% evenly distributed.

Flowering (114 records with: Jan 3, Feb 7, Mar 23, Apr 3, May 5, Jun 5, Jul 6, Aug 12, Sep 27, Oct 13, Nov 8, Dec 2): Buds from May to Sep; Flowering from Jul to Jan; Peak Flowering not significant; Over from Oct to Jan; Fruit from Feb to Mar and May to Jun; Nothing from Mar to May. Peak levels at 100% from Jul to Jan. Historically recorded as flowering from Jul to Oct.



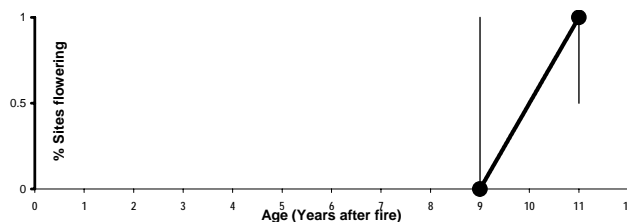
Growth (114 records with: Jan 3, Feb 7, Mar 23, Apr 3, May 5, Jun 5, Jul 6, Aug 12, Sep 27, Oct 13, Nov 8, Dec 2): Much from Nov to Mar; Rare from Dec to Jan and Apr; None from Apr to Nov. Peak levels at 100% from Dec to Jan.



Seedlings (33 records): All without any seedlings present.

Fire Survival (1 record): 100% survived by seedlings only.

Age to first flowering: First flowers recorded at 3 years, 50% estimated at 3 years, and 100% recorded at 11 years.



Height (114 records): 47% 0.2-1 m tall, 53% 1-2 m tall.

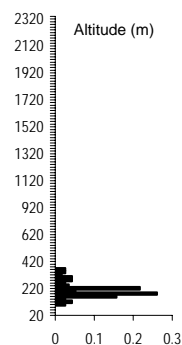
Pollinators (3 records): 67% bees or wasps, 33% beetles.

Detailed Pollinators (2 records): Monkey Beetle, Honey Bee.

Habitat:

Distance to Ocean (109 records): 99% inland - further than 2 km from coast.

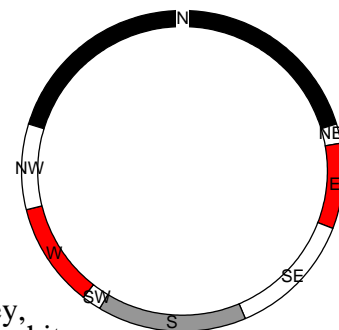
Altitude (109 records): 80 - 360 m; 140_{lq} - 180_{med} - 180_{uq} m.



Landform (109 records): 99% deep soil, 1% shallow soil.

Slope (109 records): 64% platform, 27% gentle incline, 5% hill top, 3% valley bottom, 2% dunes.

Aspect (41 records): 51% North, 22% South, 18% West, 9% East.



Soil Type (109 records): 94% sandy, 6% loamy.

Soil Colour (109 records): 41% grey, 21% brown, 21% white, 7% orange, 6% yellow, 3% red.

Geology (103 records): 69% Tertiary sands, 24% sandstone, 6% silcrete or ferricrete, 1% limestone.

Vegetation (109 records): 94% shrubland, 2% plantations, 1% grassland, 1% thicket, 1% agricultural lands, 1% suburban.

Conservation Status and Threat:

Red Data List Status: Endangered A4c.

Occurrence (Fynbos): 169 km² with 0% conserved and 22% lost; Occupancy: 99 km² with 0% conserved and 26% lost.

Fragmentation index: 49%.

Nature Reserves (109 records): 0% in nature reserves - unconserved.

Habitat destruction (107 records): 60% extensive natural habitat, 25% islands, 14% road verges.

Alien Invasive Species (109 records):

50% Fabaceae (chiefly alien *Acacia*),
31% *Pinus*, 12% none, 6% Myrtaceae.

Alien Density (109 records): 12% alien-free,
57% sparse, 14% abundant, 17% dense.

Cultivation & Utilization:

Picking (80 records): 99% no sign of picking,
1% severely picked.

Cultivation Status: Plantings - 5 records,
Escapes - 2 record.

Atlassers Notes:

This is where Tertiary Sand and Sandstone mix,
hence *L. muirii* and *L. cuneiforme* occur
together (DOAY2091517);

Confusing Species: Occasionally confused
with *L. truncatum* and *L. praecox*, but its
flowerheads are smaller than both. Incorrect
coding as *L. mundii* was also noted.

Records of identification queries = 9.

Records of corrected identification queries = 5.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

***Leucospermum praecox* Rourke 1972**
Mossel Bay Pincushion
Rooivlampspeledekussing

Other Common Names: Crimson-flame Pincushion, Large-tufted Pincushion, Still Bay Pincushion, *Luisbos*, *Suikerbos*, *Patricia*.

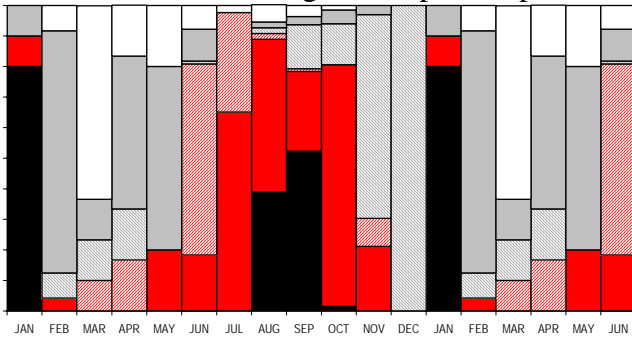
Other Scientific Names: *None*.

569 Records

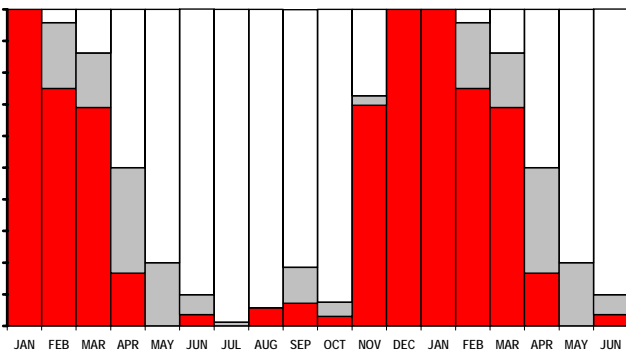
Population (562 records): 4% Abundant, 52% Common, 35% Frequent, 10% Rare.

Dispersion (523 records): 69% variable, 16% widespread, 13% clumped, 2% evenly distributed.

Flowering (543 records with: Jan 10, Feb 24, Mar 30, Apr 6, May 5, Jun 115, Jul 86, Aug 54, Sep 111, Oct 67, Nov 33, Dec 2): Buds from Jun to Jul; Flowering from May and Jul to Nov; Peak Flowering from Jan and Aug to Sep; Over from Nov to Dec; Fruit from Feb and Apr to May; Nothing from Mar and May. Peak levels at 98% in Jul. Historically recorded as flowering from Apr to Sep.



Growth (524 records with: Jan 10, Feb 24, Mar 29, Apr 6, May 5, Jun 112, Jul 86, Aug 53, Sep 97, Oct 67, Nov 33, Dec 2): Much from Nov to Mar; Rare from Feb and Apr to May; None from Apr to Nov. Peak levels at 100% from Dec to Jan.



Seedlings (201 records): Absent in 97%; more seedlings than prefire adults in 3 cases. Seedlings found in Aug (2) and Dec.

Fire Survival (7 records): 71% survived by seedlings only, 29% escaped fires in fire-safe areas.

Age at first flowering: First flowers recorded at 3 years, 50% estimated at 4-5 years, and 100% recorded at 7 years.



Height (544 records): 1% 0-0.2 m tall, 17% 0.2-1 m tall, 71% 1-2 m tall, 10% 2-5 m tall.

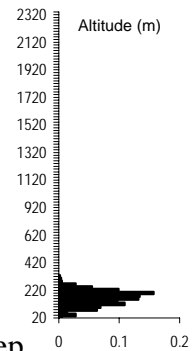
Pollinators (20 records): 85% birds, 5% mammals, 5% bees or wasps, 5% beetles.

Detailed Pollinators (20 records): Cape Sugarbird (14), Orange-breasted Sunbird (2), Malachite Sunbird (2), Great Protea Beetle, Cape Weaver.

Habitat:

Distance to Ocean (563 records): 85% inland - further than 2 km from coast.

Altitude (563 records): 20 - 320 m; 100_{lq} - 160_{med} - 160_{uq}m.



Landform (557 records): 95% deep soil, 5% shallow soil.

Slope (549 records): 49% gentle incline, 27% platform, 9% hill top, 8% valley bottom, 5% steep incline, 2% dunes.

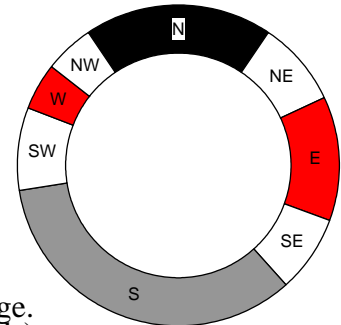
Aspect (359 records): 43% South, 26% North, 20% East, 11% West.

Soil Type (538 records): 92% sandy, 6% loamy.

Soil Colour (532 records): 37% grey, 28% brown, 11% white, 10% yellow, 8% red, 6% orange.

Geology (531 records): 52% Tertiary sands, 29% limestone, 18% sandstone, 1% shale.

Vegetation (541 records): 97% shrubland, 2% thicket, 1% agricultural lands.



Conservation Status and Threat:

Red Data List Status: Vulnerable A2c+3c. Occurrence (Fynbos): 1 855 km² with 3% conserved and 22% lost; Occupancy: 599 km² with 6% conserved and 15% lost. Fragmentation index: 22%.

Nature Reserves (563 records): 22% in nature reserves.

Habitat destruction (529 records): 76% extensive natural habitat, 14% islands, 7% road verges, 2% naturally fragmented habitats.

Alien Invasive Species (534 records):
56% Fabaceae (chiefly alien *Acacia*),
39% none, 4% *Pinus*.

Alien Density (534 records): 39% alien-free,
39% sparse, 12% abundant, 10% dense.

Cultivation & Utilization:

Picking (386 records): 100% no sign of
picking.

Cultivation Status: Plantings - 6 records (1%).

Atlassers Notes:

Absolutely spectacularly beautiful
(MEB99082503); This is *praecox* land and is
to be seen to be believed now that the whole
area is aflame - no wonder the Afrikaans folk
called it *Rooi Vlamspeldekussing*
(VJK96091901);

Locality covered densely with young plants -
estimate two years old - not flowering yet:
good rains last two years (JMS93120701);

Two magnificent plants revealed on a newly
cleared building plot and by position not
planted survivors in an urban settlement!
Fortunately recognized, appreciated and left
alone by owners (DFJ99082803);

Stressed and dying on top (WMPY0061812);
Stressed and dying (WMPY0061815); Dying
off (WMPY0061816);

Rhabdomys pumilio seen visiting flowers and
also eating ripening seed (AGR99092114);

Confusing Species: Regularly misidentified
with *L. truncatum*. Odd errors with *L. muiirii*
(which is much smaller) and *L. winterii*
(which has similar shaped leaves, but is
otherwise totally different) were noted

Records of identification queries = 14.

Records of corrected identification queries = 7.

Variation and Taxonomy: The western forms
of this species are smaller and possibly grade
with *L. truncatum*. These are treated as a
separate form and mapped separately.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum praecox (small form)
Witsand Pincushion

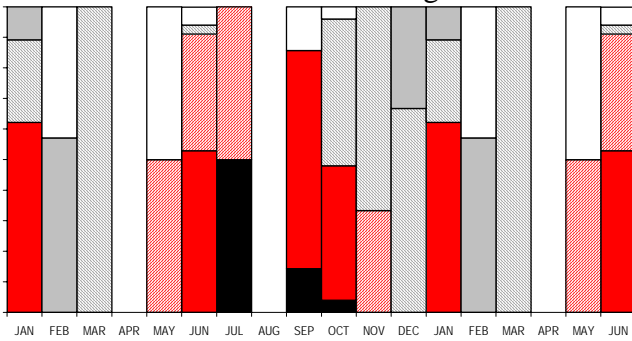
Other Common Names: None known.
Other Scientific Names: *None*.

135 Records

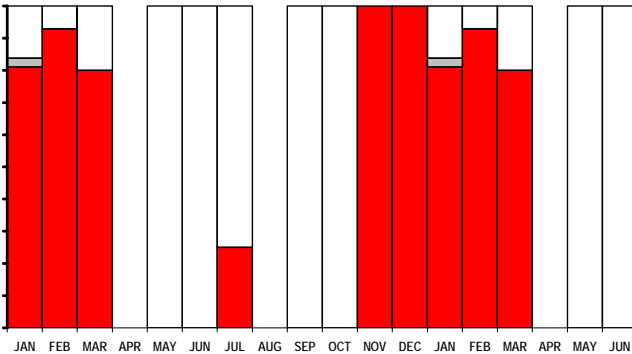
Population (135 records): 1% Abundant, 46% Common, 48% Frequent, 4% Rare.

Dispersion (133 records): 68% variable, 26% clumped, 5% widespread.

Flowering (134 records with: Jan 37, Feb 14, Mar 5, Apr 0, May 2, Jun 34, Jul 4, Aug 0, Sep 7, Oct 25, Nov 3, Dec 3): Buds from May to Jul and Nov; Flowering from Jan, Jun and Sep to Oct; Peak Flowering from Jul; Over from Oct to Jan and Mar; Fruit from Feb and Dec; Nothing from Feb and May. Peak levels unreliable at 100% in Jul. No historical data on flowering.



Growth (134 records with: Jan 37, Feb 14, Mar 5, Apr 0, May 2, Jun 34, Jul 4, Aug 0, Sep 7, Oct 25, Nov 3, Dec 3): Much from Nov to Mar; Rare not significant; None from Mar to Oct. Peak levels at 100% from Nov to Dec.



Seedlings (44 records): Absent in 95%; fewer seedlings than prefire adults in 1 case. Seedlings found in Oct.

Fire Survival (1 record): 100% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 100% at 7 years.



Height (135 records): 33% 0.2-1 m tall, 61% 1-2 m tall, 5% 2-5 m tall.

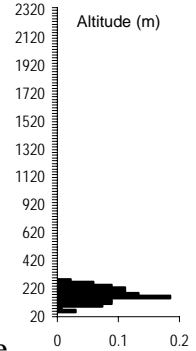
Pollinators (8 records): 88% birds, 13% bees or wasps.

Detailed Pollinators (5 records): Cape Sugarbird (3), Orange-breasted Sunbird, Honey Bee.

Habitat:

Distance to Ocean (135 records): 99% inland - further than 2 km from coast.

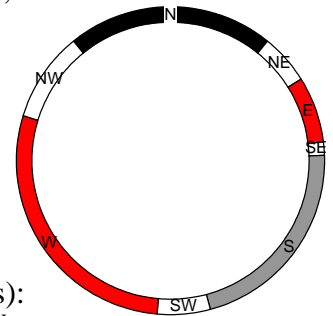
Altitude (135 records): 40 - 280 m; 120_{lq} - 160_{med} - 180_{uq} m.



Landform (135 records): 93% deep soil, 7% shallow soil.

Slope (135 records): 40% gentle incline, 35% platform, 10% dunes, 10% hill top, 3% valley bottom, 2% steep incline.

Aspect (74 records): 36% West, 29% North, 25% South, 10% East.



Soil Type (134 records): 94% sandy, 5% loamy.

Soil Colour (128 records): 53% brown, 21% grey, 8% white, 6% yellow, 6% red, 5% orange.

Geology (132 records): 73% limestone, 19% Tertiary sands, 4% silcrete or ferricrete, 3% sandstone, 2% shale.

Vegetation (134 records): 97% shrubland, 2% agricultural lands.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 397 km² with 0% conserved and 11% lost; **Occupancy:** 142 km² with 0% conserved and 9% lost. **Fragmentation index:** 33%.

Nature Reserves (135 records): 0% in nature reserves - unconserved.

Habitat destruction (130 records): 83% extensive natural habitat, 12% islands, 3% road verges, 2% naturally fragmented habitats.

Alien Invasive Species (126 records): 71% Fabaceae (chiefly alien *Acacia*), 26% none, 2% *Pinus*.

Alien Density (126 records): 26% alien-free, 47% sparse, 20% abundant, 7% dense.

Cultivation & Utilization:

Picking (89 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Witch's Broom Infestation: 1 record (0.7%).

Atlasers Notes: None.

Confusing Species: Intermediate between *L. truncatum* and *L. praecox* and was atlassed as both. A special trip delimited the eastern boundary of this form, but the western boundary might extend into the range of *L. fulgens*: this needs to be investigated further.
Records of identification queries = 11.
Records of corrected identification queries = 3.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum truncatum (Buek. ex Meisn.) Rourke 1856, 1967
Limestone Pincushion

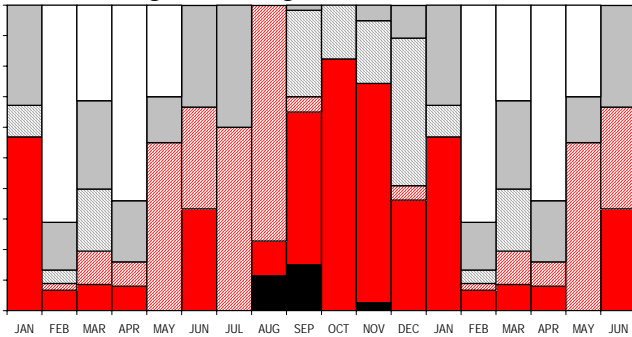
Other Common Names: *Waboom*.
Other Scientific Names: *zeyheri* var *truncatum* Buek. ex Meisn. 1856.

625 Records

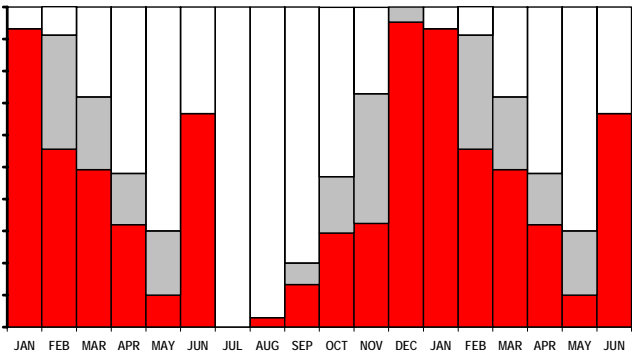
Population (621 records): 42% Common, 49% Frequent, 9% Rare.

Dispersion (572 records): 84% variable, 13% clumped, 2% widespread.

Flowering (592 records with: Jan 58, Feb 45, Mar 128, Apr 25, May 20, Jun 6, Jul 10, Aug 35, Sep 60, Oct 17, Nov 39, Dec 149): Buds from May to Aug; Flowering from Sep to Jan and Jun; Peak Flowering not significant; Over from Mar, Sep and Nov to Dec; Fruit from Jan, Mar to Apr and Jun to Jul; Nothing from Feb to May. Peak levels at 100% in Aug and Oct. Historically recorded as flowering from Aug to Dec.



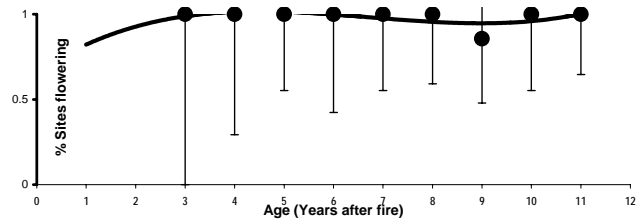
Growth (591 records with: Jan 59, Feb 45, Mar 128, Apr 25, May 20, Jun 6, Jul 10, Aug 35, Sep 60, Oct 17, Nov 37, Dec 149): Much from Oct to Apr; Rare from Feb to Mar and Nov; None from Mar to Nov. Peak levels at 100% in Dec.



Seedlings (352 records): Absent in 96%: fewer seedlings than prefire adults in 1 case, and more in 6 cases. Seedlings found in Jul and Dec (6).

Fire Survival (17 records): 82% survived by seedlings only, 6% eliminated from the area by fires, 6% escaped fires in fire-safe areas, 6% resprouted from aerial trunks.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 2-4 years, and 100% recorded at 5 years. Senescence detected after 16 years?



Height (595 records): 46% 0.2-1 m tall, 51% 1-2 m tall, 3% 2-5 m tall.

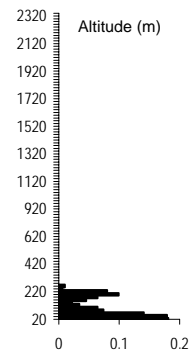
Pollinators (36 records): 86% birds, 8% bees or wasps, 3% butterflies or moths, 3% flies.

Detailed Pollinators (34 records): Cape Sugarbird (18), Orange-breasted Sunbird (10), Honey Bee (2), Southern Double-collared Sunbird, Painted Lady Butterfly, Malachite Sunbird, Greater Double-collared Sunbird.

Habitat:

Distance to Ocean (624 records): 86% inland - further than 2 km from coast.

Altitude (624 records): 20 - 260 m; 20_{lq} - 40_{med} - 60_{uq}m.

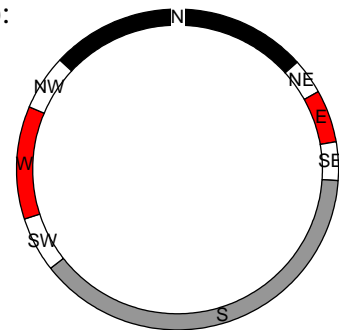


Landform (596 records): 51% deep soil, 46% shallow soil, 2% swamp, 1% rocky outcrops.

Slope (595 records): 38% platform, 32% gentle incline, 15% hill top, 8% dunes, 5% valley bottom, 3% steep incline.

Aspect (345 records):

43% South, 31% North, 17% West, 9% East.



Soil Type (594 records): 71% sandy, 17% loamy, 8% rocky, 2% gravelly, 1% clayey.

Soil Colour (588 records): 43% grey, 32% brown, 8% black, 8% white, 6% red, 3% yellow, 1% orange.

Geology (605 records): 89% limestone, 7% Tertiary sands, 2% sandstone, 1% shale.

Vegetation (624 records): 99% shrubland.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 1 129 km² with 46% conserved and 23% lost; Occupancy: 521 km² with 53% conserved and 20% lost. Fragmentation index: 23%.

Nature Reserves (624 records): 56% in nature reserves - well conserved.

Habitat destruction (585 records): 90% extensive natural habitat, 6% islands,

2% naturally linear habitats, 2% naturally fragmented habitats.

Alien Invasive Species (586 records):

77% Fabaceae (chiefly alien *Acacia*),
21% none, 1% Myrtaceae.

Alien Density (584 records): 21% alien-free,
43% sparse, 20% abundant, 12% dense,
4% impenetrable.

Cultivation & Utilization:

Picking (472 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes: None.

Confusing Species: Confused with *L. oleifolium*, *fulgens*, *muir* and *calligerum*, the intermediate population adjacent *L. fulgens* giving the most problems. Also incorrectly coded as *L. truncatulum*.

Records of identification queries = 24.

Records of corrected identification queries = 11.

Variation and Taxonomy: The specific name was first applied by Buek in 1843, but he did not validly describe it. Meisn. in 1856 used the name as a variety of *L. cuneiforme*.

Rourke noted that several variants occur, but did not formally describe any of them. This were not noted by atlassers, but are reflected in the large number of identification queries.

- Westerly populations have exceptionally long leaves (up to 90 mm long), large inflorescences and large, very densely woolly involucre bracts.
- The most easterly populations between the Breede River Mouth and Vermaaklikheid have obovate leaves suggesting an affinity with *L. praecox*. This form has been atlassed separately as *L. praecox* (small form).

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSTCTM_m.jpg" *

MERGEFORMAT \d

Leucospermum utriculosum Rourke 1972 Robertson form
Robertson Pincushion

Other Common Names: Breede River Pincushion.

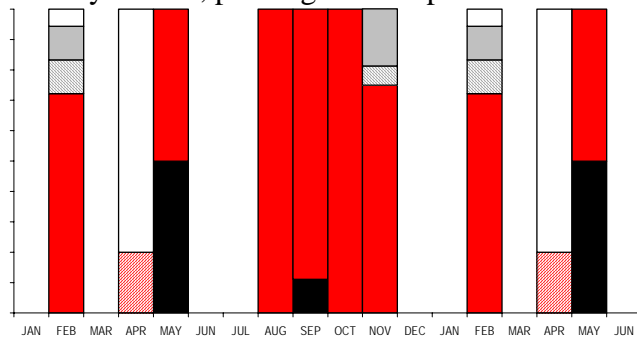
Other Scientific Names: *None*.

57 Records

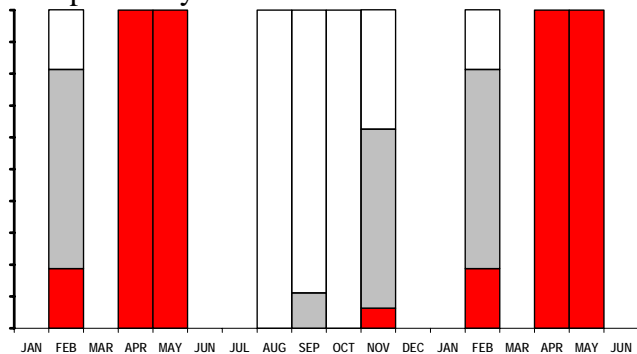
Population (55 records): 7% Common, 53% Frequent, 40% Rare.

Dispersion (44 records): 64% variable, 36% clumped.

Flowering (54 records with: Jan 0, Feb 18, Mar 0, Apr 5, May 2, Jun 0, Jul 0, Aug 2, Sep 9, Oct 2, Nov 16, Dec 0): Buds from Apr; Flowering from Feb, May and Aug to Nov; Peak Flowering from May; Over not significant; Fruit from Nov; Nothing from Apr. Peak levels unreliable at 100% from Aug to Oct. Historically recorded (for the entire species) as flowering erratically from May to Mar, peaking from Sep to Nov.



Growth (52 records with: Jan 0, Feb 16, Mar 0, Apr 5, May 2, Jun 0, Jul 0, Aug 2, Sep 9, Oct 2, Nov 16, Dec 0): Much from Apr to May; Rare from Feb and Nov; None from Aug to Oct. Peak levels unreliable at 100% from Apr to May.



Seedlings (20 records): All without any seedlings present.

Fire Survival : No data.

Age to first flowering: First flowers recorded at 100% at 19 years: no data from younger veld.

Height (55 records): 16% 0.2-1 m tall, 84% 1-2 m tall.

Pollinators (4 records): 100% birds.

Detailed Pollinators (2 records): Orange-breasted Sunbird, Malachite Sunbird.

Habitat:

Distance to Ocean (57 records): 100% inland - further than 2 km from coast.

Altitude (57 records): 260 - 740 m; 360_{lq} - 400_{med} - 480_{uq}m.

Landform (56 records): 52% deep soil, 48% shallow soil.

Slope (56 records): 66% gentle incline, 20% steep incline, 11% hill top, 2% valley bottom, 2% platform.

Aspect (52 records): 36% South, 29% North, 27% East, 9% West.

Soil Type (56 records): 48% sandy, 23% gravelly, 16% rocky, 11% loamy, 2% clayey.

Soil Colour (56 records): 45% brown, 43% grey, 9% orange, 2% yellow, 2% red.

Geology (48 records): 92% sandstone, 8% shale.

Vegetation (56 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Near Threatened D2(i,ii).

Occurrence (Fynbos): 258 km² with 9% conserved and 4% lost; **Occupancy:** 68 km² with 6% conserved and 10% lost. **Fragmentation index:** 7%.

Nature Reserves (57 records): 9% in nature reserves - inadequately conserved.

Habitat destruction (55 records): 95% extensive natural habitat, 4% naturally linear habitats, 2% islands.

Alien Invasive Species (56 records): 82% none, 5% *Hakea*, 5% Fabaceae (chiefly alien *Acacia*), 4% other aliens, 2% *Pinus*, 2% annual alien grasses.

Alien Density (56 records): 82% alien-free, 18% sparse.

Cultivation & Utilization:

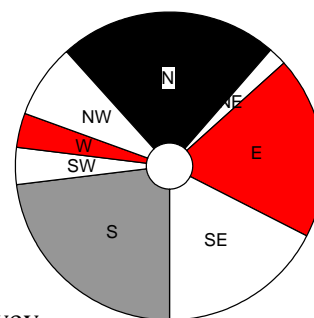
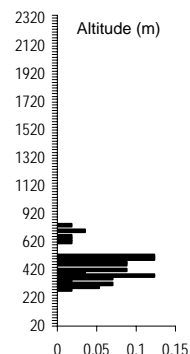
Picking (44 records): 100% no sign of picking. **Cultivation Status:** No noted cultivation.

Atlassers Notes: None.

Confusing Species: None.

Records of identification queries = 2.

Variation and Taxonomy: This form was noted by Rourke but not formally assigned a name: it has orange to copper-coloured perianth and styles, crimson pollen



presenters and rusty long hairs on the
perianth.

Distribution: Add.

INCLUDEPICTURE
"C:\\temp\\atlas\\LSUTRIR_m.jpg" *
MERGEFORMAT \d

Leucospermum utriculosum Rourke 1972 Potberg form Infante Pincushion

Other Common Names: Breede River Pincushion.

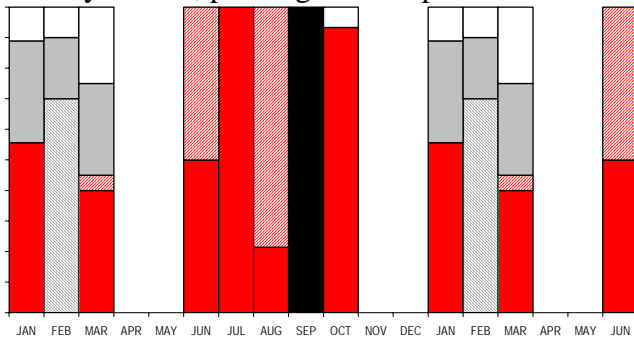
Other Scientific Names: *None*.

84 Records

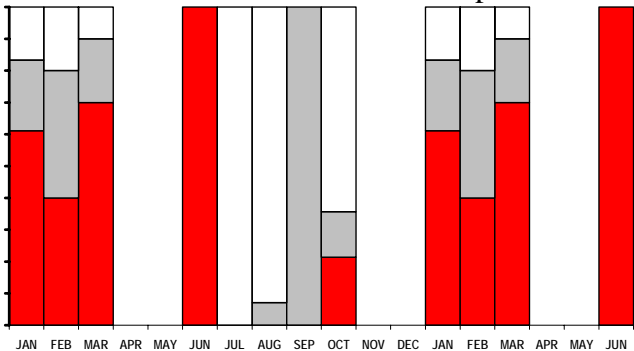
Population (83 records): 31% Common, 55% Frequent, 13% Rare.

Dispersion (77 records): 68% variable, 29% clumped, 4% widespread.

Flowering (81 records with: Jan 18, Feb 10, Mar 20, Apr 0, May 0, Jun 2, Jul 1, Aug 14, Sep 1, Oct 15, Nov 0, Dec 0): Buds from Jun and Aug; Flowering from Jan and Mar to Oct; Peak Flowering from Sep; Over from Feb; Fruit from Jan to Mar; Nothing from Mar. Peak levels unreliable at 100% from Jun to Sep. Historically recorded (for the entire species) as flowering erratically from May to Mar, peaking from Sep to Nov.



Growth (80 records with: Jan 18, Feb 10, Mar 20, Apr 0, May 0, Jun 2, Jul 1, Aug 14, Sep 1, Oct 14, Nov 0, Dec 0): Much from Oct to Jun; Rare from Jan to Mar and Sep; None from Feb and Jul to Oct. Peak levels unreliable at 100% for Jun and Sep.



Seedlings (33 records): All without any seedlings present.

Fire Survival (1 record): 100% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 3 years, 50% estimated at 3 years, and 100% recorded at 3 years.



Height (81 records): 1% 0-0.2 m tall, 78% 0.2-1 m tall, 21% 1-2 m tall.

Pollinators (2 records): 100% birds.

Detailed Pollinators (2 records): Orange-breasted Sunbird, Cape Sugarbird.

Habitat:

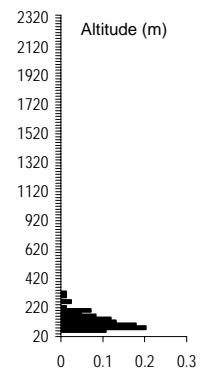
Distance to Ocean (84 records): 99% inland - further than 2 km from coast.

Altitude (84 records): 40 - 320 m; 60_{lq} - 80_{med} - 100_{uq}m.

Landform (83 records): 82% deep soil, 16% shallow soil, 1% swamp, 1% rocky outcrops.

Slope (84 records): 51% gentle incline, 36% platform, 11% steep incline, 2% hill top.

Aspect (65 records): 62% North, 28% South, 9% East.

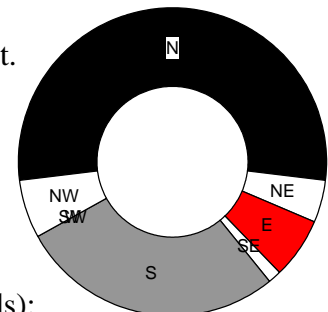


Soil Type (81 records): 46% sandy, 36% loamy, 12% gravelly, 4% rocky, 2% clayey.

Soil Colour (82 records): 59% grey, 23% brown, 16% white, 1% yellow, 1% orange.

Geology (75 records): 69% sandstone, 15% silcrete or ferricrete, 11% Tertiary sands, 5% shale.

Vegetation (84 records): 100% shrubland.



Conservation Status and Threat:

Red Data List Status: Near Threatened D2(i,ii).

Occurrence (Fynbos): 111 km² with 47% conserved and 7% lost; **Occupancy:** 62 km² with 36% conserved and 11% lost. **Fragmentation index:** 53%.

Nature Reserves (84 records): 32% in nature reserves.

Habitat destruction (82 records): 88% extensive natural habitat, 12% islands.

Alien Invasive Species (81 records): 74% Fabaceae (chiefly alien *Acacia*), 22% none, 4% *Pinus*.

Alien Density (81 records): 22% alien-free, 60% sparse, 11% abundant, 6% dense.

Cultivation & Utilization:

Picking (57 records): 100% no sign of picking.
Cultivation Status: No noted cultivation.

Atlassers Notes: None.

Confusing Species: Considerable confusion occurred on the Tertiary Sands south of Potberg at Sandhoogte, especially out of peak flowering times, where forms somewhat intermediate between *L. truncatum* and *L. utriculosum* occurred. Records of identification queries = 19.
Records of corrected identification queries = 10.

Variation and Taxonomy: This form was noted by Rourke but not formally assigned a name: it has pale yellow-coloured perianth and styles, green pollen presenters and white long hairs on the perianth.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSUTRIP_m.jpg" *

MERGEFORMAT \d

Leucospermum profugum Rourke 1972 Piketberg Pincushion

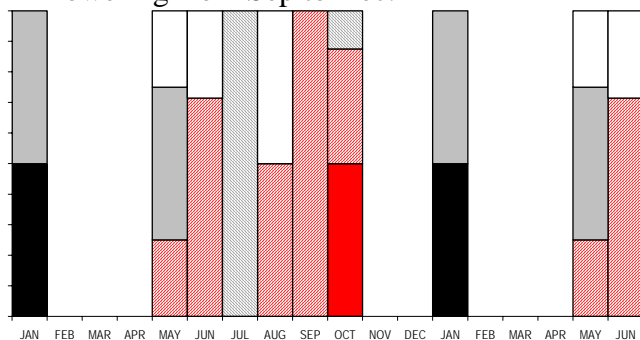
Other Common Names: None known.
Other Scientific Names: *None*.

27 Records

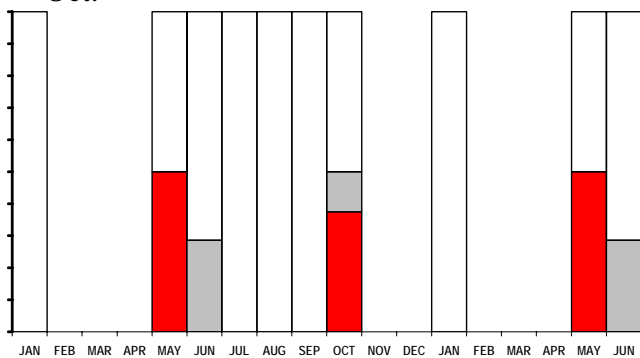
Population (27 records): 7% Common, 59% Frequent, 33% Rare.

Dispersion (23 records): 57% clumped, 43% variable.

Flowering (27 records with: Jan 2, Feb 0, Mar 0, Apr 0, May 4, Jun 7, Jul 1, Aug 2, Sep 3, Oct 8, Nov 0, Dec 0): Buds from May, Jun and Aug to Oct; Flowering from Oct; Peak Flowering from Jan; Over from Jul; Fruit from Jan and May; Nothing from May to Jun and Aug. Peak levels unreliable at 100% from Sep to Oct. Historically recorded as flowering from Sep to Dec.



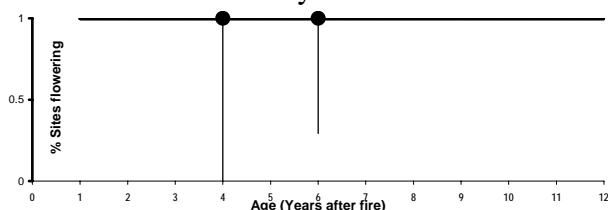
Growth (27 records with: Jan 2, Feb 0, Mar 0, Apr 0, May 4, Jun 7, Jul 1, Aug 2, Sep 3, Oct 8, Nov 0, Dec 0): Much from May and Oct; Rare from Jun; None from all year round. Peak levels unreliable at 50% in May and Oct.



Seedlings (7 records): All without any seedlings present.

Fire Survival (1 record): 100% resprouted from underground boles.

Age to first flowering: First flowers recorded at 4 years, 50% estimated at 3 years, and 100% recorded at 4 years.



Height (27 records): 89% 0-0.2 m tall, 11% 0.2-1 m tall.

Pollinators: No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (27 records): 100% inland - further than 2 km from coast.

Altitude (27 records): 500 - 800 m; 620_{lq} - 660_{med} - 660_{uq}m.

Landform (27 records): 67% deep soil, 22% shallow soil, 11% rocky outcrops.

Slope (27 records): 59% gentle incline, 26% steep incline, 11% hill top, 4% dunes.

Aspect (22 records): 32% West, 30% North, 25% East, 14% South.

Soil Type (27 records): 70% sandy, 22% loamy, 7% gravelly.

Soil Colour (27 records): 74% brown, 19% grey, 4% white, 4% red.

Geology (26 records): 100% sandstone.

Vegetation (27 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Endangered B1a(i)c(iv)+2a(i)c(iv).

Occurrence (Fynbos): 124 km² with 6% conserved and 9% lost; **Occupancy:** 29 km² with 8% conserved and 8% lost. **Fragmentation index:** 20.

Nature Reserves (27 records): 7% in nature reserves - inadequately conserved.

Habitat destruction (27 records): 100% extensive natural habitat.

Alien Invasive Species (27 records): 74% none, 19% *Pinus*, 4% Fabaceae (chiefly alien *Acacia*), 4% Myrtaceae.

Alien Density (27 records): 74% alien-free, 26% sparse.

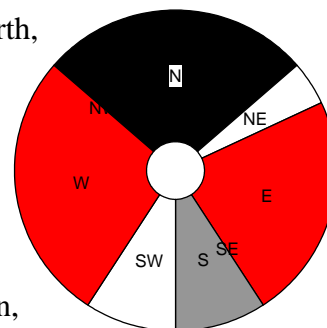
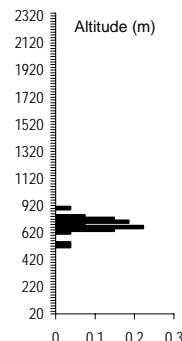
Cultivation & Utilization:

Picking (22 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

In clumps on or very near rocky outcrops - more than 40 plants found (LYM99060907); About 12 plants found (LYM99060909); Density high at N of plot to zero at S of plot: total about 85 plants (SMR99060908); About 20 plants (VCH99060909); Grows close to rock [hugs rock!] (AWA98090501); Sprawled over rocks (SHRY0052802);



Seems very local - not found on apparently
suitable rock outcrops in the area
(NAH94012302);

Confusing Species: None.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSPROF_m.jpg" *

MERGEFORMAT \d

Leucospermum spathulatum R. Br. 1810 Cedarberg form
Cedarberg Pincushion

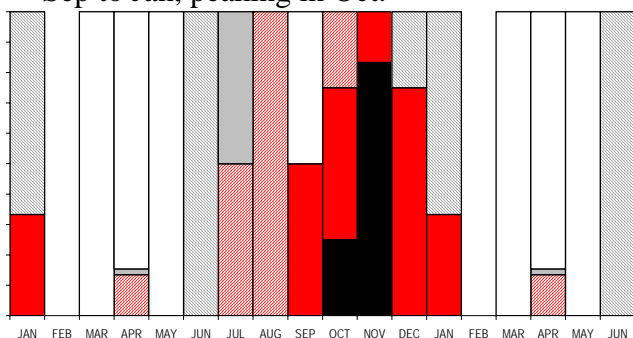
Other Common Names: *Rankluisie*.
Other Scientific Names: *bellidifolium* Salisb.
ex Kn. 1809, *cereris* Compton 1933.

86 Records

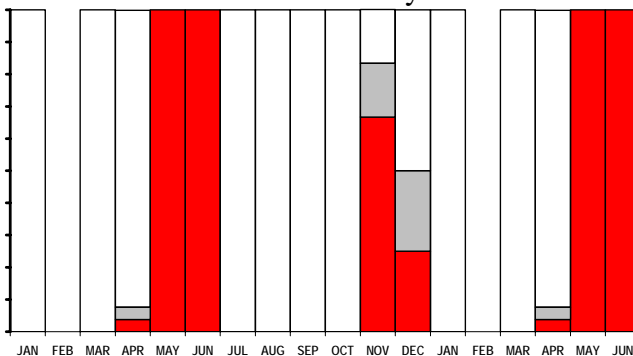
Population (86 records): 8% Common, 55% Frequent, 36% Rare, 1% Extinct.

Dispersion (71 records): 62% clumped, 35% variable, 1% evenly distributed, 1% widespread.

Flowering (85 records with: Jan 3, Feb 0, Mar 1, Apr 52, May 1, Jun 1, Jul 2, Aug 9, Sep 2, Oct 4, Nov 6, Dec 4): Buds from Jul to Aug and Oct; Flowering from Dec to Jan and Sep to Oct; Peak Flowering from Oct to Nov; Over from Dec to Jan and Jun; Fruit from Jul; Nothing from Mar to May and Sep. Peak levels unreliable at 100% from Oct to Jan. Historically recorded as flowering from Sep to Jan, peaking in Oct.



Growth (83 records with: Jan 3, Feb 0, Mar 1, Apr 52, May 1, Jun 1, Jul 1, Aug 8, Sep 2, Oct 4, Nov 6, Dec 4): Much from May to Jun and Nov to Dec; Rare from Dec; None from Dec to Apr and Jul to Oct. Peak levels unreliable at 100% from May to Jun.



Seedlings (33 records): All without any seedlings present.

Fire Survival (4 records): 75% resprouted from underground boles, 25% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 6-11 years, and 100% recorded at 12 years.



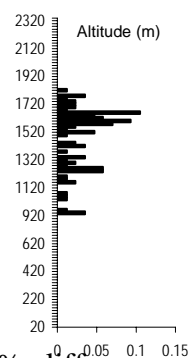
Height (85 records): 20% 0-0.2 m tall, 80% 0.2-1 m tall.

Pollinators (1 record): 100% beetles.
Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (86 records): 100% inland - further than 2 km from coast.

Altitude (86 records): 820 - 1720 m; 1160 *lq* - 1480 *med* - 1520 *uq*m.

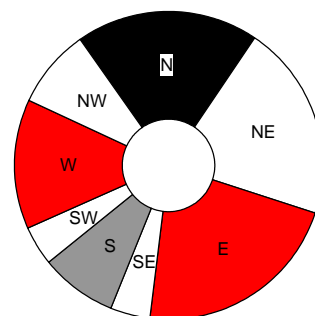


Landform (86 records): 49% deep soil, 42% shallow soil, 9% rocky outcrops.

Slope (86 records): 37% gentle incline, 34% steep incline, 17% hill top, 8% platform, 3% cliff.

Aspect (73 records):

38% East, 31% North, 21% West, 11% South.



Soil Type (84 records): 56% sandy, 20% loamy, 17% rocky, 7% gravelly.

Soil Colour (86 records): 50% grey, 24% brown, 10% white, 7% yellow, 6% orange, 2% black.

Geology (86 records): 90% sandstone, 10% shale.

Vegetation (86 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Near Threatened A4c. Occurrence (Fynbos): 566 km2 with 23% conserved and 2% lost; Occupancy: 101 km2 with 7% conserved and 1% lost. Fragmentation index: 15%.

Nature Reserves (86 records): 10% in nature reserves - inadequately conserved.

Habitat destruction (82 records): 99% extensive natural habitat, 1% islands.

Alien Invasive Species (83 records): 99% none, 1% *Pinus*.

Alien Density (83 records): 99% alien-free, 1% sparse.

Cultivation & Utilization:

Picking (65 records): 100% no sign of picking.
Cultivation Status: No noted cultivation.

Atlassers Notes:

Some 3 by 3 m across (AGR98080809); Mat over 3 m Squared MHR98072601; Sprawling over solid rock (WIJ95042107); This plant is well protected against fire (NGW94111402); Resprouter? <Not known to resprout> (OUT98092503); Some 19 Plants (NGW94111402); One plant dead (WMP98121805);

Confusing Species: None noted.
Records of identification queries = 3.

Variation and Taxonomy: Although Rourke noted that the Sawedge Peak form of this species had longer and wider leaves, he did

not separate this form as we have done here. This form has leaves up to 27 mm long and 11 mm wide.

L. bellidifolium was considered by Phillips and Stapf to be this species: however, no type is known and no location specified and Rourke considers the description too vague to be definitive.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSSPATC_m.jpg" *

MERGEFORMAT \d

Leucospermum spathulatum R. Br 1810 Keerom form

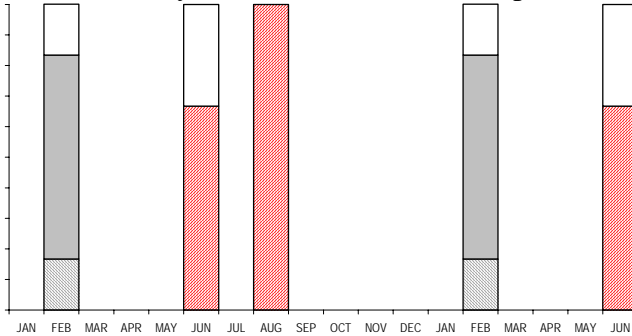
Other Common Names: None known.
Other Scientific Names: *None*.

10 Records

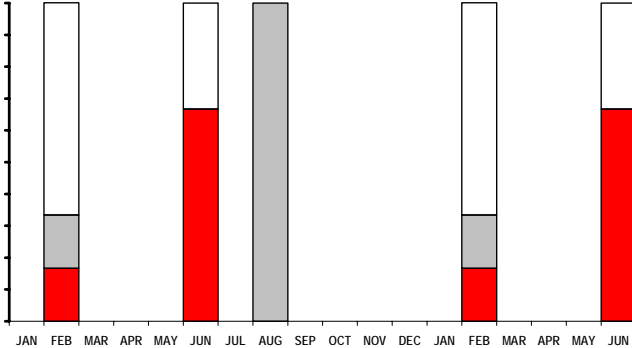
Population (10 records): 60% Frequent, 40% Rare.

Dispersion (10 records): 60% clumped, 40% variable.

Flowering (10 records with: Jan 0, Feb 6, Mar 0, Apr 0, May 0, Jun 3, Jul 0, Aug 1, Sep 0, Oct 0, Nov 0, Dec 0): Buds from Jun to Aug; Flowering and Peak Flowering not recorded; Over not significant; Fruit from Feb; Nothing from Jun. Peak levels unreliable. Historically collected in flower in Sep.



Growth (10 records with: Jan 0, Feb 6, Mar 0, Apr 0, May 0, Jun 3, Jul 0, Aug 1, Sep 0, Oct 0, Nov 0, Dec 0): Much from Jun; Rare from Aug; None from Feb and Jun.



Seedlings (6 records): All without any seedlings present.

Fire Survival: No data.

Age to first flowering: No data.

Height (10 records): 80% 0-0.2 m tall, 20% 0.2-1 m tall.

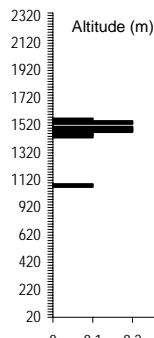
Pollinators: No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (10 records): 100% inland - further than 2 km from coast.

Altitude (10 records): 960 - 1460 m; 1340_{lq} - 1380_{med} - 1380_{uq} m.



Landform (10 records): 70% deep soil, 30% shallow soil.

Slope (10 records): 50% steep incline, 50% gentle incline.

Aspect (10 records): 40% North, 40% East, 20% South.

Soil Type (10 records):

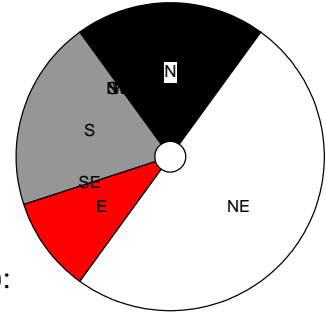
70% sandy, 20% rocky, 10% loamy.

Soil Colour (10 records):

60% grey, 40% brown.

Geology (10 records): 100% sandstone.

Vegetation (10 records): 100% shrubland.



Conservation Status and Threat:

Red Data List Status: Endangered

B1a(i,ii)c(iv)+2a(i,ii)c(iv), D.

Occurrence (Fynbos): 51 km² with 0% conserved and 1% lost; Occupancy: 17 km² with 1% conserved and 3% lost. Fragmentation index: 24%.

Nature Reserves (10 records): 0% in nature reserves - unconserved.

Habitat destruction (10 records):

100% extensive natural habitat.

Alien Invasive Species (10 records): 90% none, 10% *Pinus*.

Alien Density (10 records): 90% alien-free, 10% impenetrable.

Cultivation & Utilization:

Picking (10 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

SHR93080805 Leaves Appear Glabrous But Have Tiny Curly Hairs;
 SHR93080805 PS Plants Spotted On Cleared Strip Adjacent To Powerlines;

Confusing Species: None known.

Records of identification queries = 1.

Variation and Taxonomy: Although Rourke noted that the Sawedge Peak form of this species had longer (30 mm) and wider (13 mm) leaves than the typical form, he did not separate this form as we have done here.

Distribution: Add.

```
INCLUDEPICTURE  
  "C:\\temp\\atlas\\LSSPATL_m.jpg" \*  
MERGEFORMAT \d
```


Leucospermum cordatum Phill. 1923
Heart-leaf Pincushion

Other Common Names: Heart-leaf
Leucadendrum.

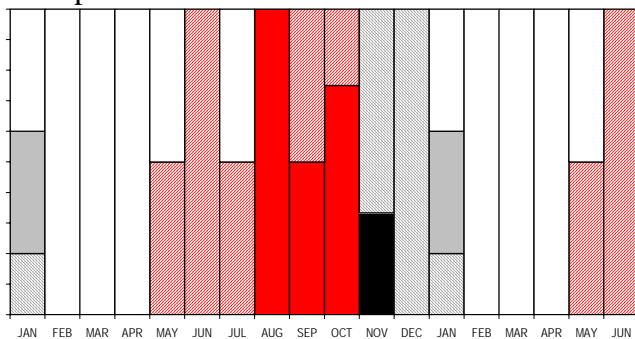
Other Scientific Names: *None.*

32 Records

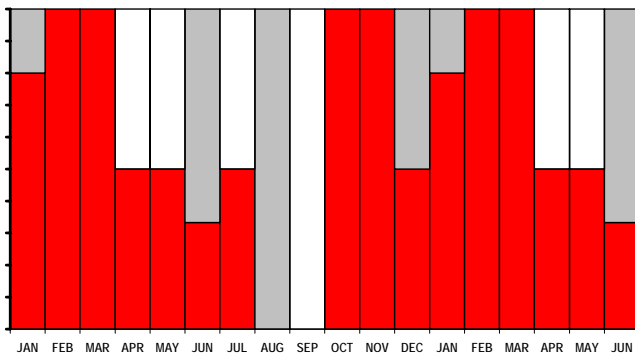
Population (32 records): 22% Common, 72% Frequent, 6% Rare.

Dispersion (30 records): 63% variable, 27% clumped, 10% widespread.

Flowering (32 records with: Jan 5, Feb 2, Mar 1, Apr 2, May 2, Jun 3, Jul 4, Aug 2, Sep 2, Oct 4, Nov 3, Dec 2): Buds from May to Jul and Sep to Oct; Flowering from Aug to Oct; Peak Flowering from Nov; Over from Nov to Jan; Fruit from Jan; Nothing from Jan to May and Jul. Peak levels at 100% from Jun and Aug to Dec. Historically recorded as flowering from Jul to Dec, but peaking in Sep to Nov.



Growth (32 records with: Jan 5, Feb 2, Mar 1, Apr 2, May 2, Jun 3, Jul 4, Aug 2, Sep 2, Oct 4, Nov 3, Dec 2): Much from Oct to Jul; Rare from Jun, Aug and Dec to Jan; None from Apr to May, Jul and Sep. Peak levels at 100% from Oct to Mar.



Seedlings (16 records): Absent in 88%: more seedlings than prefire adults in 1 case. Seedlings found in May.

Fire Survival (3 records): 100% survived by seedlings only.

Age to first flowering: First flowers recorded at 4 years, 50% estimated at 4-5 years, and 100% recorded at 7 years.



Height (32 records): 69% 0-0.2 m tall, 31% 0.2-1 m tall.

Pollinators (1 record): 100% mammals.

Detailed Pollinators: No additional data.

Habitat:

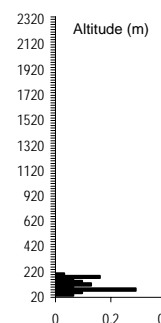
Distance to Ocean (31 records): 100% coastal - less than 2 km from coast.

Altitude (31 records): 20 - 200 m; 60_{lq} - 80_{med} - 80_{uq} m.

Landform (31 records): 45% deep soil, 45% shallow soil, 10% rocky outcrops.

Slope (31 records): 87% steep incline, 13% gentle incline.

Aspect (31 records): 69% West, 29% North, 2% South.



Soil Type (31 records): 39% sandy, 26% rocky, 23% gravelly, 13% loamy.

Soil Colour (30 records): 63% brown, 30% grey, 7% orange.

Geology (29 records): 86% sandstone, 7% conglomerate, 7% shale.

Vegetation (31 records): 97% shrubland, 3% thicket.

Conservation Status and Threat:

Red Data List Status: Endangered B1a(i)c(iv)+2a(i)c(iv).

Occurrence (Fynbos): 6 km² with 34% conserved and 0% lost; **Occupancy:** 11 km² with 21% conserved and 0% lost.

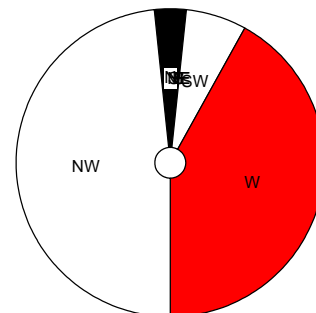
Fragmentation index meaningless.

Nature Reserves (31 records): 90% in nature reserves - well conserved.

Habitat destruction (31 records): 100% extensive natural habitat.

Alien Invasive Species (30 records): 47% Fabaceae (chiefly alien *Acacia*), 37% none, 10% *Pinus*, 7% *Hakea*.

Alien Density (30 records): 37% alien-free, 63% sparse.



Cultivation & Utilization:

Picking (26 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Interfire recruitment from inside dead plants (AGR98012203); Appears to be 3 different aged populations: old plants in protected areas, and others at about 6 and 3 years old. (MAJ92072401);

Seedlings showing prostrate growth, not erect stems (CBE92050305); A few older plants seen spreading over 1m in diam. (MAJ92072401);

It is possible that there are more than 100 plants (code C not F) but F used as a conservative estimate (MAJ92072401); The bulk of the population is above the old mine and higher

up the slope - the plants here look a lot 'healthier' than on any other location (CJL98062506);

Confusing Species: None.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum cordifolium (Salisb. ex Kn.) Fourc. 1809, 1932

The Pincushion

Bobbejaanklou

Other Common Names: Nodding Pincushion, Orange Pincushion, Ornamental Pincushion, Pincushion, Sunburst Pincushion, *Nadelkissenprotea*, *Luise*, *Luisiesboom*, *Luisiesbos*, *Speldekussing*, *Flamespike*, *Vlam*, *Yellow Bird*.

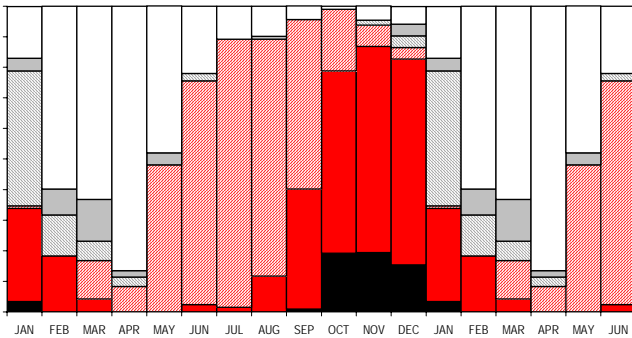
Other Scientific Names: *bolusii* Phill 1910, *integrifolium* Gand & Schin 1913, *meisneri* Gand 1913, *mixtum* Phill 1910, *nutans* R.Br. 1810.

1144 Records

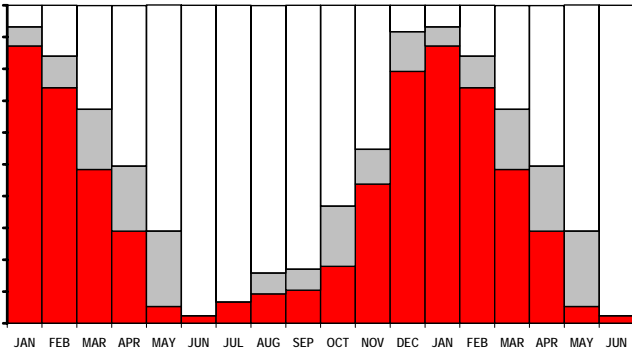
Population (941 records): 20% Common, 60% Frequent, 20% Rare.

Dispersion (801 records): 66% variable, 31% clumped, 3% widespread.

Flowering (1082 records with: Jan 118, Feb 82, Mar 95, Apr 96, May 77, Jun 41, Jul 65, Aug 111, Sep 112, Oct 104, Nov 129, Dec 52): Buds from May to Oct; Flowering from Sep to Jan; Peak Flowering from Oct to Nov; Over from Jan; Fruit not significant; Nothing from Feb to Jun. Peak levels at 99% in Oct. Historically recorded as flowering from Aug to Jan.



Growth (1047 records with: Jan 117, Feb 81, Mar 95, Apr 93, May 76, Jun 41, Jul 60, Aug 107, Sep 106, Oct 95, Nov 128, Dec 48): Much from Nov to Apr; Rare from Apr to May; None from Mar to Nov. Peak levels at 93% in Jan.

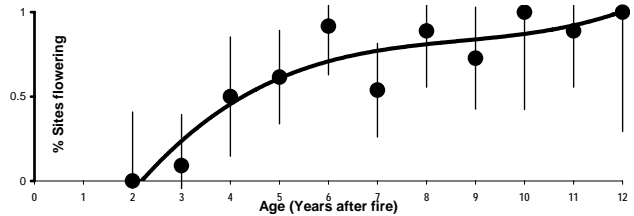


Seedlings (485 records): Absent in 96%: fewer seedlings than prefire adults in 6 cases, and more in 4 cases. Seedlings found in Feb (2), May, Jun, Aug (3) and Sep (3).

Fire Survival (40 records): 83% survived by seedlings only, 8% resprouted from

underground boles, 5% eliminated from the area by fires, 5% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 4 years, and 100% recorded at 10 years.



Height (1078 records): 2% 0-0.2 m tall, 76% 0.2-1 m tall, 22% 1-2 m tall.

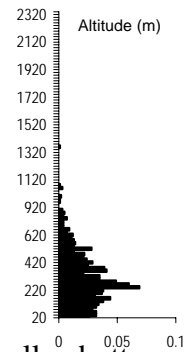
Pollinators (28 records): 89% birds, 7% bees or wasps, 4% beetles.

Detailed Pollinators (24 records): Cape Sugarbird (13), Orange-breasted Sunbird (9), Malachite Sunbird (2).

Habitat:

Distance to Ocean (937 records): 92% inland - further than 2 km from coast.

Altitude (937 records): 20 - 880 m; 140_{lq} - 240_{med} - 340_{uq}m.



Landform (887 records): 81% deep soil, 16% shallow soil, 3% rocky outcrops.

Slope (885 records): 56% gentle incline, 25% steep incline, 9% platform, 9% hill top, 1% valley bottom.

Aspect (771 records): 34% South, 31% North, 20% East, 16% West.

Soil Type (884 records):

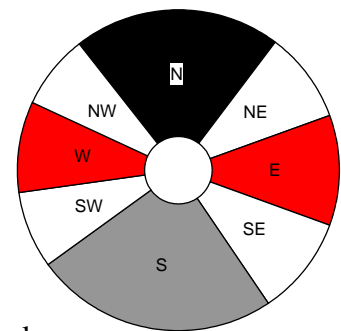
64% sandy, 21% loamy, 8% gravelly, 3% clayey, 3% rocky.

Soil Colour (879 records):

65% grey, 22% brown, 7% white, 3% black, 2% orange, 1% yellow.

Geology (893 records): 84% sandstone, 9% shale, 5% silcrete or ferricrete, 1% Tertiary sands.

Vegetation (928 records): 98% shrubland.



Conservation Status and Threat:

Red Data List Status: Near Threatened A2c+4d.

Occurrence (Fynbos): 2 956 km² with 12% conserved and 34% lost; **Occupancy:** 850 km² with 14% conserved and 29% lost. **Fragmentation index:** 17%.

Nature Reserves (937 records): 30% in nature reserves.

Habitat destruction (863 records): 93% extensive natural habitat, 5% islands, 1% naturally linear habitats.

Alien Invasive Species (865 records): 34% *Pinus*, 23% none, 22% Fabaceae (chiefly alien *Acacia*), 18% *Hakea*, 3% Myrtaceae, 0.1% other aliens.

Alien Density (863 records): 23% alien-free, 54% sparse, 18% abundant, 4% dense.

Cultivation & Utilization:

Picking (783 records): 96% no sign of picking, 3% lightly picked, 0.5% severely picked.

Cultivation Status: Plantings - 177 records (15%), Augmentations - 5 records, Escapes - 10 records.

Atlassers Notes:

Identification is tentative given the hairy character and silver-grey appearance of the leaves: based on two mature plants of this species in bud and with glabrous leaves which escaped the fire (SHR94081401);

Quite a lot of picking seen on this site and 10 pickers at work just to the north of it (PVR95010601);

All dead adjacent next plot which is a dense *Hakea* stand (AGRY0010809); Some 50% of plants dead within last year - drought hit here too? Not so much evident higher up as down here (AGRY0011403); 50% plants dead (AGRY0011412); 3 dead plants (AGRY1022810); Lots dead (AGRY2030501); Most plants dead

(AMMY1022803); One dead plant seen (LYM96092402);

About midday - pollinators very active: beetles, bees and birds (APE93103003); Cape Sugar Birds Collecting Nesting Material (FRI98101501);

Confusing Species: A few coding errors with *L. cordatum*. Odd errors by beginners with various pincushions, most when not in flower as the juvenile leaves are quite unlike the adult leaves, being both strap-shaped and densely woolly.

Records of identification queries = 18.

Records of corrected identification queries = 6.

Variation and Taxonomy: Two forms of variation have bedeviled taxonomy and identification of this species. Juvenile (pre-flowering) leaves are hairy and strap-shaped. Post flowering, on each branch there is a progression from oblong-ovate leaves with 3-6 teeth at the base to small heart-shaped leaves with a single tooth just below the flowerheads. Very old plants that produce short shoots only have the basal leaves, but generally the progression is diagnostic of the species.

Distribution: Add.

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Leucospermum lineare R. Br. 1810

Needle-leaf Pincushion

Assegaaiibosspeldekussing

Other Common Names: Assegaaiibos Pincushion, Fallacious Leucadendrum, Galaxy Pincushion, Narrow-leaf Pincushion, Tangerine Pincushion, *Luisiesbos*, *Smalblaarspeldekussing*, *Tango*.

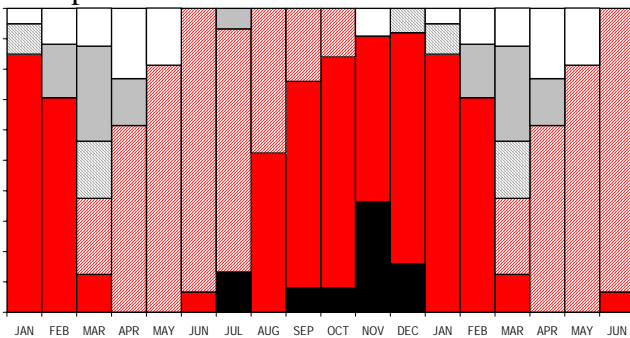
Other Scientific Names: *calocephalum* (Gand) Gand ex Schinz 1913, *fallax* Salisb. ex Knight 1809.

253 Records

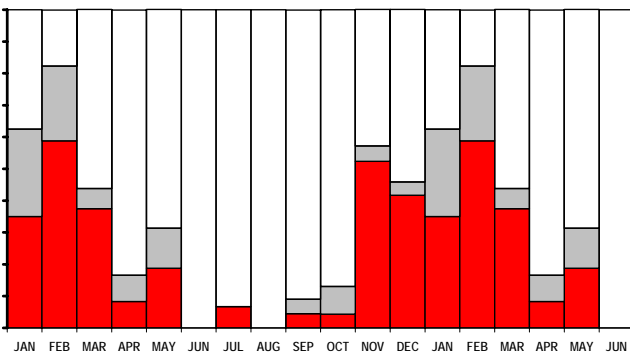
Population (247 records): 13% Common, 60% Frequent, 27% Rare.

Dispersion (215 records): 55% variable, 42% clumped, 3% widespread.

Flowering (250 records with: Jan 40, Feb 17, Mar 16, Apr 13, May 16, Jun 15, Jul 15, Aug 21, Sep 25, Oct 25, Nov 22, Dec 25): Buds from Mar to Sep; Flowering from Aug to Feb; Peak Flowering from Nov; Over from Mar; Fruit from Feb to Mar; Nothing from Apr to May. Peak levels at 100% from Jun, Aug to Oct and Dec. Historically recorded as flowering from Jul to Jan, but chiefly from Sep to Oct.



Growth (242 records with: Jan 40, Feb 17, Mar 16, Apr 12, May 16, Jun 15, Jul 15, Aug 21, Sep 22, Oct 23, Nov 21, Dec 24): Much from Nov to Mar; Rare from Jan to Feb; None from Mar to Jan. Peak levels at 82% in Feb.



Seedlings (105 records): Absent in 94%; fewer seedlings than prefire adults in 2 cases, and more in 1 case. Seedlings found in Oct and Nov (2).

Fire Survival (10 records): 80% survived by seedlings only, 20% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 3 years, 50% estimated at 2-3 years, and 100% recorded at 3 years.



Height (249 records): 2% 0-0.2 m tall, 77% 0.2-1 m tall, 21% 1-2 m tall.

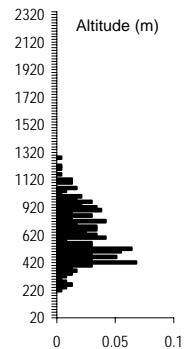
Pollinators (6 records): 50% birds, 50% bees or wasps.

Detailed Pollinators (4 records): Orange-breasted Sunbird (2), Honey Bee, Cape Sugarbird.

Habitat:

Distance to Ocean (234 records): 100% inland - further than 2 km from coast.

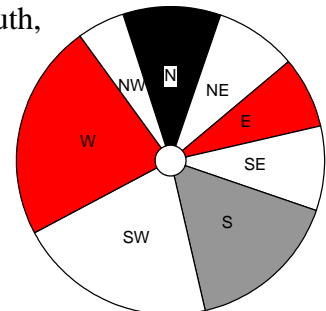
Altitude (234 records): 200 - 1180 m; 440 *lq* - 560 *med* - 720 *uq*m.



Landform (234 records): 88% deep soil, 8% shallow soil, 3% rocky outcrops.

Slope (234 records): 55% steep incline, 39% gentle incline, 3% hill top, 2% platform.

Aspect (223 records): 36% West, 31% South, 16% North, 16% East.



Soil Type (231 records): 49% loamy, 35% sandy, 8% gravelly, 6% clayey, 2% rocky.

Soil Colour (232 records): 69% brown, 15% grey, 11% orange, 4% yellow, 2% red.

Geology (223 records): 44% sandstone, 43% granite, 11% shale, 2% silcrete or ferricrete.

Vegetation (234 records): 92% shrubland, 7% plantations, 1% thicket.

Conservation Status and Threat:

Red Data List Status: Endangered A2c. Occurrence (Fynbos): 910 km² with 62% conserved and 20% lost; Occupancy: 197 km² with 52% conserved and 21% lost. Fragmentation index: 20%.

Nature Reserves (234 records): 47% in nature reserves.

Habitat destruction (224 records): 96% extensive natural habitat, 2% road verges, 1% naturally linear habitats.

Alien Invasive Species (232 records):
42% *Pinus*, 22% none, 19% *Hakea*,
16% Fabaceae (chiefly alien *Acacia*),
1% Myrtaceae.
Alien Density (231 records): 23% alien-free,
52% sparse, 21% abundant, 4% dense.

Cultivation & Utilization:

Picking (181 records): 100% no sign of
picking.

Cultivation Status: Plantings - 2 records.

Atlassers Notes:

It seems that on the granite the plants grow
more vigorously - up to 1.5 m tall with a
darker colour and leaves all grooved. On
sandstone it reaches 0.5 m with paler flowers
and some leaves flat - could the Assegaaibos
form could be an extreme example of
vigorous growth? (OGM95120104); Healthy
plants - the sprawling, yellow flower form -
approaching 1 m tall on shale-derived soils
(as distinct from the granite-derived soils
specified in Vogts) (SHR93011305); M
Vogts says this grows in weathered granite
but we did not notice the difference between
sandstone and she is correct in saying they
are sprawling, unremarkable plants -
nevertheless unique and beautiful
(VJK95072702);

Appears to be a resprouter here: needs checking
as to fire survival! (AGR91111602);

Definitely single-stemmed at base for 100-
200 mm (AGR92020401);
Some flowerheads damaged by baboons
(LYM98011802); Lower flowers frequently
snapped (bitten) off (SMR97011607);

Confusing Species: Rarely misidentified as
linear leaves distinctive. Young plants
misidentified as immature *Aulax cancellata*.
Records of identification queries = 9.
Records of corrected identification queries = 3.

Variation and Taxonomy: Thunberg's name
Protea linearis from 1781 cannot be used as
this genus and species combination was
previously used by Houtt. in 1775 for what is
now *Leucadendron brunioides*.
Two forms are known: the erect form with
orange flowerheads is treated separately ()
from the sprawling and yellow form dealt
with here.

Distribution: Add.

Leucospermum lineare var *calocephalum* –
accepted as *L. lineare* by Rourke is from
Mitchell's Pass and outside of the range of
all other herbarium or atlas records!

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Leucospermum lineare subsp. nova (undescribed)

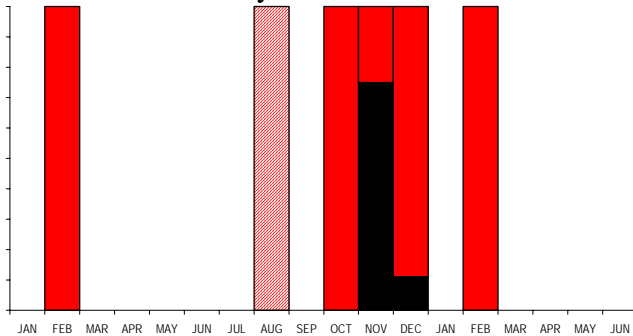
Other Common Names: None known.
Other Scientific Names: *None*.

27 Records

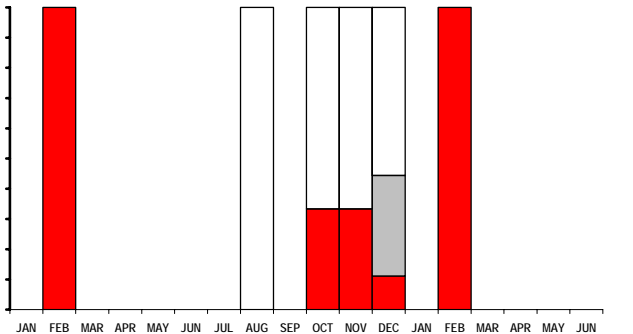
Population (27 records): 7% Common, 67% Frequent, 26% Rare.

Dispersion (24 records): 79% variable, 21% clumped.

Flowering (27 records with: Jan 0, Feb 1, Mar 0, Apr 0, May 0, Jun 0, Jul 0, Aug 1, Sep 0, Oct 4, Nov 12, Dec 9): Buds from Aug; Flowering from Oct to Feb; Peak Flowering from Nov; Over, Fruit and Nothing not recorded. Peak levels unreliable at 100% in Nov. Historically flower season not noted.



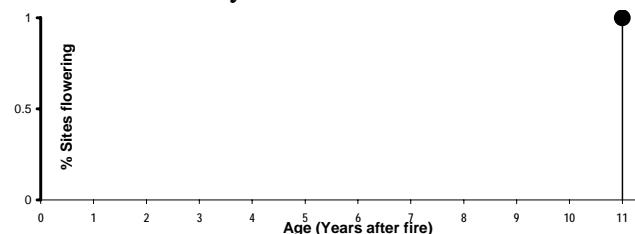
Growth (26 records with: Jan 0, Feb 1, Mar 0, Apr 0, May 0, Jun 0, Jul 0, Aug 1, Sep 0, Oct 3, Nov 12, Dec 9): Much from Feb and Oct to Nov; Rare from Dec; None from Aug to Dec. Peak levels unreliable at 100% in Feb.



Seedlings (5 records): All without any seedlings present.

Fire Survival : No data.

Age to first flowering: First flowers recorded at 100% at 11 years.



Height (27 records): 48% 0.2-1 m tall, 52% 1-2 m tall.

Pollinators (4 records): 100% birds.

Detailed Pollinators (4 records): Cape Sugarbird (2), Orange-breasted Sunbird, Malachite Sunbird.

Habitat:

Distance to Ocean (27 records): 100% inland - further than 2 km from coast.

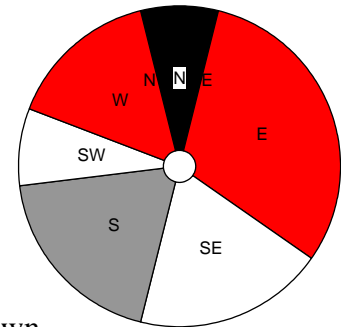
Altitude (27 records): 220 - 680 m; 280_{lq} - 380_{med} - 380_{uq}m.

Landform (27 records): 93% deep soil, 7% shallow soil.

Slope (27 records): 59% steep incline, 37% gentle incline, 4% platform.

Aspect (26 records):

37% South, 35% East, 21% West, 8% North.



Soil Type (27 records):

67% loamy, 26% gravelly, 7% sandy.

Soil Colour (27 records):

74% brown, 11% orange, 7% grey, 4% yellow, 4% red.

Geology (26 records): 73% granite, 15% shale, 12% sandstone.

Vegetation (27 records): 52% shrubland, 48% plantations.

Conservation Status and Threat:

Red Data List Status: Critically Endangered B1b(i,ii,iii,v)c(iv).

Occurrence (Fynbos): 32 km² with 24% conserved and 50% lost; Occupancy: 20 km² with 28% conserved and 40% lost. Fragmentation index: 63%.

Nature Reserves (27 records): 0% in nature reserves - unconserved.

Habitat destruction (27 records): 96% extensive natural habitat, 4% islands.

Alien Invasive Species (27 records): 93% *Pinus*, 4% Fabaceae (chiefly alien *Acacia*), 4% none.

Alien Density (27 records): 4% alien-free, 15% sparse, 78% abundant, 4% dense.

Cultivation & Utilization:

Picking (25 records): 76% no sign of picking, 20% lightly picked, 4% severely picked.

Cultivation Status: No noted cultivation.

Atlassers Notes: None.

Confusing Species: None.

Records of identification queries = 3.

Variation and Taxonomy: None noted.

Distribution: Add.

INCLUDEPICTURE

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Leucospermum patersonii Phill. 1928

Silver-edge Pincushion

Basterkreupelhout

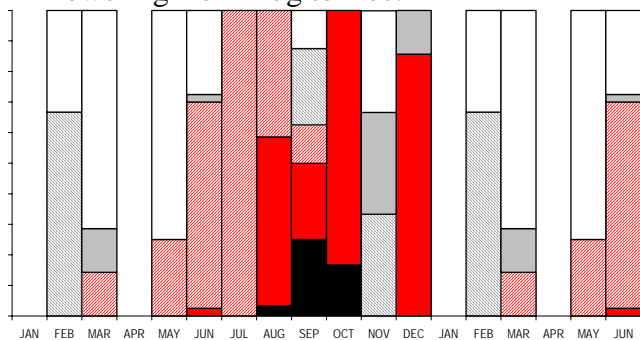
Other Common Names: Bastard Pincushion, False-tree Pincushion, Paterson's Pincushion.
Other Scientific Names: *None*.

129 Records

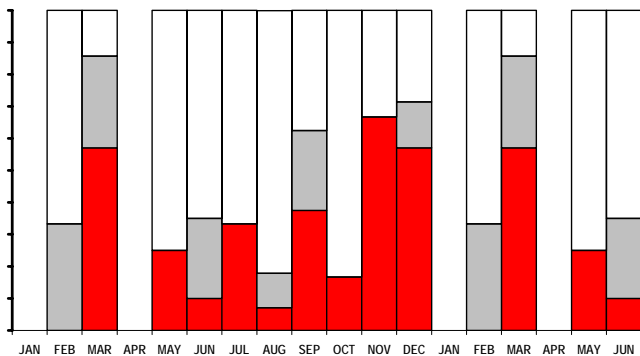
Population (120 records): 18% Common, 63% Frequent, 19% Rare.

Dispersion (94 records): 59% variable, 39% clumped, 2% evenly distributed.

Flowering (110 records with: Jan 0, Feb 3, Mar 7, Apr 0, May 4, Jun 40, Jul 3, Aug 29, Sep 8, Oct 6, Nov 3, Dec 7): Buds from May to Aug; Flowering from Aug to Oct and Dec; Peak Flowering from Sep; Over from Feb, Sep and Nov; Fruit from Nov; Nothing from Feb to Jun and Nov. Peak levels at 100% in Jul to Aug and Oct. Historically recorded as flowering from Aug to Dec.



Growth (109 records with: Jan 0, Feb 3, Mar 7, Apr 0, May 4, Jun 40, Jul 3, Aug 28, Sep 8, Oct 6, Nov 3, Dec 7): Much from Mar to May, Jul, Sep and Nov to Dec; Rare from Feb to Mar, Jun and Sep; None from May to Feb. Peak levels at 86% in Mar.



Seedlings (34 records): Absent in 94%: more seedlings than prefire adults in 1 case. Seedlings found in Sep.

Fire Survival (1 record): 100% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 2 years, 50% estimated at 4-5 years, and 100% recorded at 8 years.



Height (109 records): 38% 0.2-1 m tall, 59% 1-2 m tall, 4% 2-5 m tall.

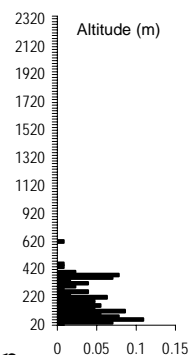
Pollinators (7 records): 100% birds.

Detailed Pollinators (7 records): Orange-breasted Sunbird (4), Cape Sugarbird (3).

Habitat:

Distance to Ocean (121 records): 93% inland - further than 2 km from coast.

Altitude (121 records): 20 - 460 m; 60 *lq* - 140 *med* - 220 *uq*m.

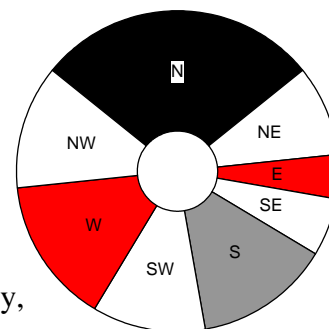


Landform (103 records): 72% deep soil, 24% shallow soil, 4% rocky outcrops.

Slope (103 records): 67% gentle incline, 13% steep incline, 10% hill top, 7% platform, 4% dunes.

Aspect (81 records):

38% North, 28% West, 21% South, 14% East.



Soil Type (100 records): 64% sandy, 27% loamy, 7% rocky, 1% clayey, 1% gravelly.

Soil Colour (100 records): 57% grey, 22% brown, 12% white, 7% black, 1% orange, 1% red.

Geology (115 records): 57% limestone, 28% sandstone, 13% Tertiary sands, 1% shale, 1% silcrete or ferricrete.

Vegetation (120 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Vulnerable A4c.

Occurrence (Fynbos): 709 km² with 9% conserved and 29% lost; Occupancy: 119 km² with 13% conserved and 24% lost. Fragmentation index: 14%.

Nature Reserves (121 records): 40% in nature reserves.

Habitat destruction (102 records): 81% extensive natural habitat, 9% road verges, 6% islands, 2% naturally fragmented habitats, 1% corridors, 1% naturally linear habitats.

Alien Invasive Species (99 records):

58% Fabaceae (chiefly alien *Acacia*),
35% none, 4% Myrtaceae, 3% *Pinus*.

Alien Density (97 records): 36% alien-free,
39% sparse, 18% abundant, 7% dense.

Cultivation & Utilization:

Picking (85 records): 94% no sign of picking,
5% lightly picked, 1% severely picked.

Cultivation Status: Plantings - 5 records,
Escapes - 2 records.

Atlassers Notes:

About 20% of plants senescent
(NAH97062001);

Certainly planted originally, but now growing
on their own - looks healthy in spite of not
being on limestone (NAH94021904);

Confusing Species: Occasionally confused
with *L. cordifolium*, but leaves do not get
smaller along the stem to below the

flowerheads, and *L. conocarpodendron* when
not in flower.

Records of identification queries = 7.

Records of corrected identification queries = 1.

Variation and Taxonomy: Although
discovered in 1697 this was only described
in 1928: specimens collected by Oldenhand –
the Dutch East India Company's master
gardener – having been filed in the Burman
and Schreber Herbaria as *L.*
conocarpodendron.

Distribution: Add.

Hermanus populations are exterminated. A
single stand at Honingklipkloof at
Kleinmond was not atlassed.

INCLUDEPICTURE

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Leucospermum tottum (L.) R.Br. 1771, 1810

Ribbon Pincushion
Oranjerooispeldekussing

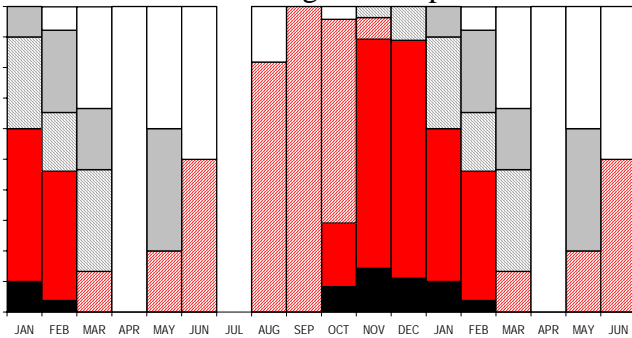
Other Common Names: Cinnamon Pincushion, Elegant Pincushion, Firewheel Pincushion, Horizontal Leucadendrum, Pinkstar Pincushion, Spreading Pincushion, Waterfall Pincushion, Worcester Ribbon Pincushion, *Kruppelluisie*, *Pienkspeldekussing*, *Tiny Tot*.
Other Scientific Names: *horizontale* Salisb. ex Knight 1809.

139 Records

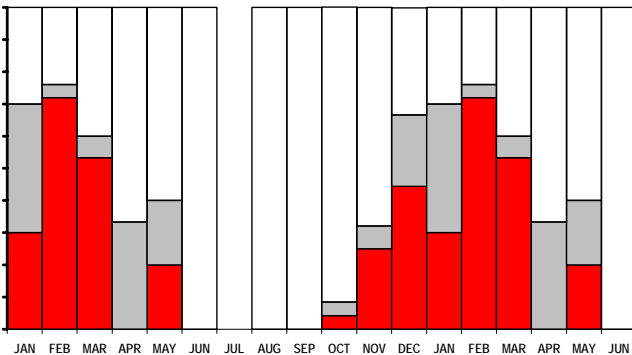
Population (130 records): 8% Common, 60% Frequent, 32% Rare.

Dispersion (115 records): 57% clumped, 43% variable, 1% widespread.

Flowering (138 records with: Jan 10, Feb 26, Mar 15, Apr 3, May 5, Jun 2, Jul 0, Aug 11, Sep 5, Oct 24, Nov 28, Dec 9): Buds from May to Oct; Flowering from Oct to Feb; Peak Flowering not significant; Over from Jan and Mar; Fruit from Feb to May; Nothing from Mar to Jun. Peak levels at 100% in Sep and Nov to Dec. Historically recorded as flowering from Sep to Jan.



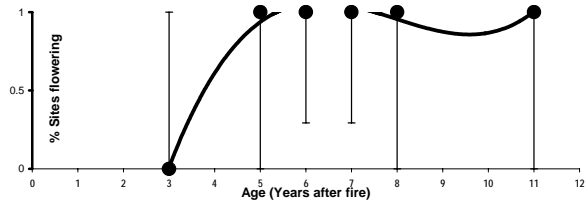
Growth (137 records with: Jan 10, Feb 25, Mar 15, Apr 3, May 5, Jun 2, Jul 0, Aug 11, Sep 5, Oct 24, Nov 28, Dec 9): Much from Nov to Mar and May; Rare from Dec to Jan and Apr to May; None from all year round. Peak levels at 76% in Feb.



Seedlings (51 records): Absent in 92%: fewer seedlings than prefire adults in 2 cases. Seedlings found in Jan and Nov.

Fire Survival (2 records): 100% survived by seedlings only.

Age to first flowering: First flowers recorded at 5 years, 50% estimated at 3-4 years, and 100% recorded at 5 years.



Height (138 records): 1% 0-0.2 m tall, 79% 0.2-1 m tall, 20% 1-2 m tall.

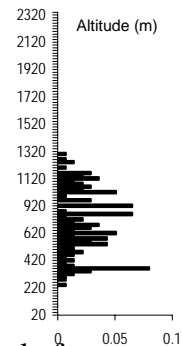
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (130 records): 100% inland - further than 2 km from coast.

Altitude (130 records): 260 - 1200 m; 520 *lq* - 680 *med* - 820 *uq*m.

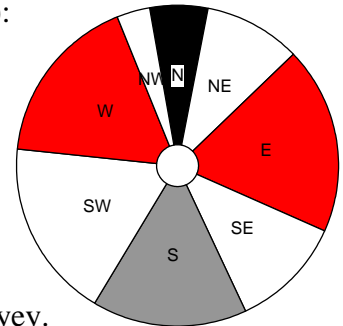


Landform (129 records): 73% deep soil, 22% shallow soil, 5% rocky outcrops.

Slope (128 records): 48% gentle incline, 39% steep incline, 7% platform, 5% hill top.

Aspect (115 records):

30% East,
30% West,
29% South,
11% North.



Soil Type (128 records):

48% sandy,
23% gravelly,
20% loamy,
7% rocky, 2% clayey.

Soil Colour (127 records): 50% brown, 31% grey, 6% yellow, 5% white, 5% orange, 4% red, 0.8% black.

Geology (126 records): 71% sandstone, 17% shale, 8% granite, 2% silcrete or ferricrete.

Vegetation (130 records): 98% shrubland, 2% plantations.

Conservation Status and Threat:

Red Data List Status: Near Threatened A2c.

Occurrence (Fynbos): 3 660 km² with 27% conserved and 17% lost; Occupancy: 224 km² with 36% conserved and 10% lost. Fragmentation index: 5%.

Nature Reserves (130 records): 35% in nature reserves.

Habitat destruction (129 records): 95% extensive natural habitat, 2% islands, 2% road verges, 2% naturally fragmented habitats.

Alien Invasive Species (128 records): 38% *Hakea*, 34% none, 22% *Pinus*,

5% Fabaceae (chiefly alien *Acacia*),
2% Myrtaceae.

Alien Density (128 records): 34% alien-free,
51% sparse, 13% abundant, 2% dense.

Cultivation & Utilization:

Picking (84 records): 100% no sign of picking.
Cultivation Status: Plantings - 8 records (6%).

Atlassers Notes:

Low sprawling plants one creeping over &
between rocks (JAT92102903); Unusual
trellised effect of plants sprawling over rocks
(MHGY5012002);

L. tottum! - whereas up to here it was definitely
L. vestitum, suddenly these look like *L.*
tottum, but not pure and somewhat
intermediate! (AGRY3112609);

About 1/6 dead recently (AGRY4031010);
Previously many more plants - about 12 dead
(APE92101707);

Confusing Species: Often mistaken for
sprawling form of *L. vestitum* when not in
flower.

Records of identification queries = 12.
Records of corrected identification queries = 1.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

***Leucospermum tottum* var. *glabrum* Phillips 1922**
DuToits Ribbon Pincushion

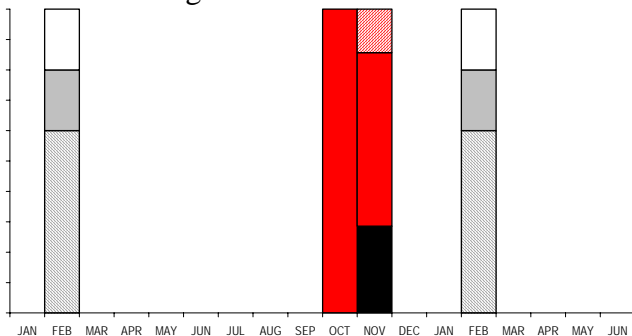
Other Common Names: None known.
Other Scientific Names: *None*.

14 Records

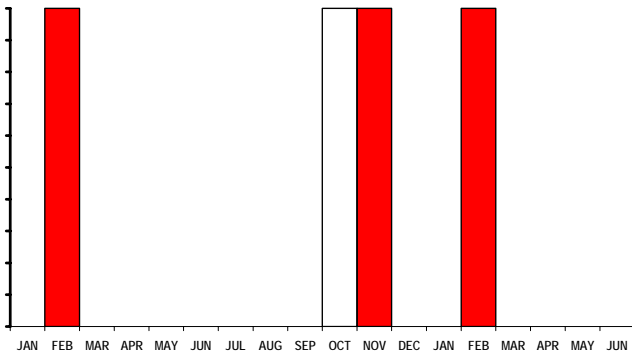
Population (13 records): 0% Common, 38% Frequent, 62% Rare.

Dispersion (11 records): 82% clumped, 18% variable.

Flowering (13 records with: Jan 0, Feb 5, Mar 0, Apr 0, May 0, Jun 0, Jul 0, Aug 0, Sep 0, Oct 1, Nov 7, Dec 0): Buds not significant; Flowering from Oct to Nov; Peak Flowering from Nov; Over from Feb; Fruit from Feb; Nothing from Feb. Peak levels unreliable at 100% in Oct to Nov. Historically recorded as flowering in Oct.



Growth (12 records with: Jan 0, Feb 5, Mar 0, Apr 0, May 0, Jun 0, Jul 0, Aug 0, Sep 0, Oct 1, Nov 6, Dec 0): Much from Nov to Feb; Rare not recorded; None from Oct. Peak levels unreliable at 100% in Nov and Feb.



Seedlings (6 records): All without any seedlings present.

Fire Survival (6 records): 100% survived by seedlings only.

Age to first flowering: First flowers recorded at 100% at 4 years.



Height (13 records): 77% 0.2-1 m tall, 23% 1-2 m tall.

Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

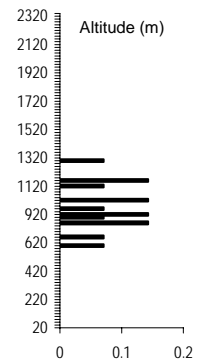
Distance to Ocean (14 records): 100% inland - further than 2 km from coast.

Altitude (14 records): 580 - 1200 m; 740_{lq} - 820_{med} - 820_{uq}m.

Landform (12 records): 100% deep soil.

Slope (13 records): 69% steep incline, 31% gentle incline.

Aspect (14 records): 64% East, 32% South, 4% West.

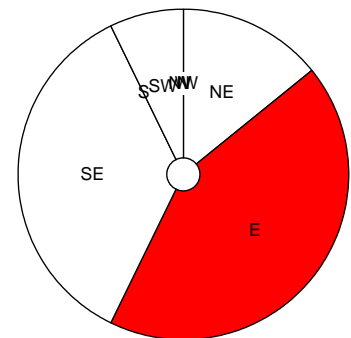


Soil Type (12 records): 50% loamy, 42% sandy, 8% gravelly.

Soil Colour (12 records): 67% brown, 33% grey.

Geology (14 records): 64% sandstone, 36% shale.

Vegetation (14 records): 100% shrubland.



Conservation Status and Threat:

Red Data List Status: Critically Endangered B1a(ii)c(iv)+2a(ii)c(iv).

Occurrence (Fynbos): 10 km² with 19% conserved and 1% lost; **Occupancy:** 17 km² with 27% conserved and 2% lost. **Fragmentation index:** meaningless.

Nature Reserves (14 records): 29% in nature reserves.

Habitat destruction (14 records): 100% extensive natural habitat.

Alien Invasive Species (12 records): 58% none, 25% *Hakea*, 17% *Pinus*.

Alien Density (12 records): 58% alien-free, 42% sparse.

Cultivation & Utilization:

Picking (7 records): 100% no sign of picking.
Cultivation Status: No noted cultivation.

Atlasers Notes:

About 35 plants, all in one patch of 10 x 5m area, with about 12 in flower for the first time (ASP92112612); At least 45 plants (SGAY1022008).

Confusing Species: None: quite distinct!
 Records of identification queries = 2.

Variation and Taxonomy: Considered by J. Rourke as a hybrid, but several populations have been discovered by atlasers, so that it deserves full recognition as either a species or subspecies.

Distribution: Add.

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Leucospermum vestitum (Lam.) Rourke 1792, 1967

Silky-hair Pincushion

Bergluisie

Other Common Names: Elliptic Leucadendrum, Meteor Pincushion, Notched Pincushion, Orange-flame Pincushion, Upright Pincushion, *Vlambos*.

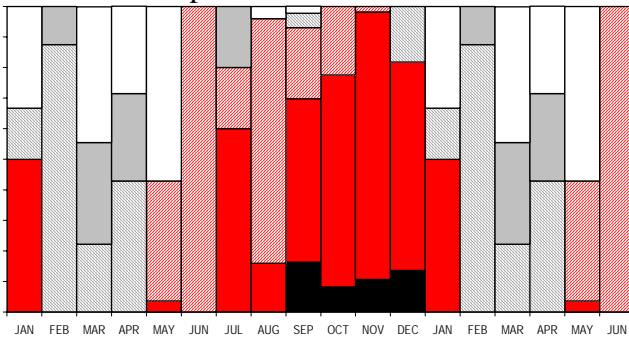
Other Scientific Names: *ellipticum* (Thunb) *Salisb. ex Knight* 1781, 1809, *incisum* Phill 1910, *medium* R. Br. 1810.

272 Records

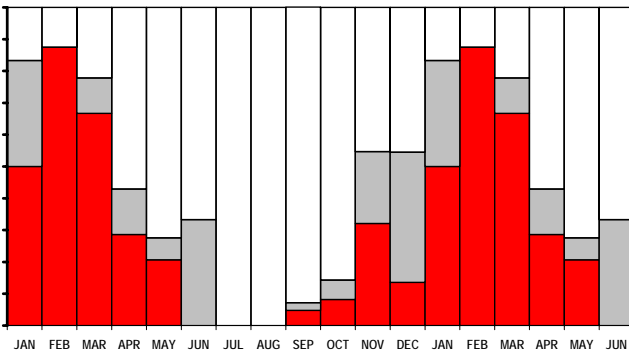
Population (271 records): 14% Common, 51% Frequent, 35% Rare.

Dispersion (228 records): 53% variable, 43% clumped, 3% widespread, 2% evenly distributed.

Flowering (270 records with: Jan 6, Feb 8, Mar 9, Apr 7, May 28, Jun 12, Jul 5, Aug 25, Sep 43, Oct 49, Nov 56, Dec 22): Buds from May to Oct; Flowering from Sep to Jan and Jul; Peak Flowering not significant; Over from Feb to Apr; Fruit from Mar to Apr; Nothing from Jan, and Mar to May. Peak levels at 100% from Oct to Dec. Historically recorded as flowering from Jul to Jan with a Oct to Nov peak.



Growth (267 records with: Jan 6, Feb 8, Mar 9, Apr 7, May 29, Jun 12, Jul 5, Aug 25, Sep 42, Oct 49, Nov 53, Dec 22): Much from Jan to May and Nov; Rare from Nov to Jan and Jun; None from Mar to Dec. Peak levels at 88% in Feb.



Seedlings (126 records): Absent in 97%: fewer seedlings than prefire adults in 1 case, and more in 1 case. Seedlings found in Jan and Nov.

Fire Survival (10 records): 60% survived by seedlings only, 30% escaped fires in fire-safe

areas, 10% resprouted from underground boles.

Age to first flowering: First flowers recorded at 4 years, 50% estimated at 3 years, and 100% recorded at 4 years.



Height (269 records): 30% 0.2-1 m tall, 63% 1-2 m tall, 7% 2-5 m tall.

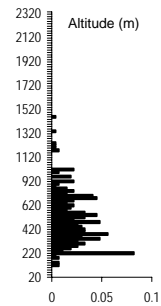
Pollinators (17 records): 88% birds, 6% flies, 6% beetles.

Detailed Pollinators (15 records): Cape Sugarbird (8), Malachite Sunbird (4), Southern Double-collared Sunbird (2), Orange-breasted Sunbird.

Habitat:

Distance to Ocean (269 records): 100% inland - further than 2 km from coast.

Altitude (269 records): 100 - 1360 m; 320 *lq* - 440 *med* - 580 *uq*m.



Landform (268 records): 73% deep soil, 23% shallow soil, 4% rocky outcrops.

Slope (269 records): 53% gentle incline, 28% steep incline, 7% platform, 7% hill top, 4% valley bottom, 1% cliff.

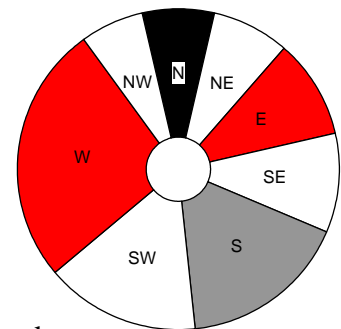
Aspect (235 records): 37% West, 30% South, 21% East, 13% North.

Soil Type (264 records):

55% sandy, 22% loamy, 10% gravelly, 8% rocky, 5% clayey.

Soil Colour (266 records):

63% brown, 21% grey, 10% orange, 3% red, 2% white, 2% yellow.



Geology (254 records): 81% sandstone, 11% shale, 5% conglomerate, 1% silcrete or ferricrete.

Vegetation (269 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Vulnerable A2c, EX on Peninsula.

Occurrence (Fynbos): 5 516 km² with 12% conserved and 26% lost; **Occupancy:**

323 km² with 11% conserved and 21% lost.
Fragmentation index: 4%.

Nature Reserves (269 records): 20% in nature reserves.

Habitat destruction (267 records):
82% extensive natural habitat, 12% islands,
3% road verges, 2% naturally fragmented
habitats, 1% naturally linear habitats.

Alien Invasive Species (257 records):
65% none, 18% *Pinus*, 9% Fabaceae (chiefly
alien *Acacia*), 4% Myrtaceae, 3% *Hakea*,
1% other aliens.

Alien Density (256 records): 65% alien-free,
30% sparse, 5% abundant.

Cultivation & Utilization:

Picking (197 records): 97% no sign of picking,
2% lightly picked, 1% severely picked.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Three teeth to leaves but these reflex like *L. tottum* only with dark purple perianth - very intermediate with *L. tottum*! (AGRY3112544); Field guide diagnostic feature: leaves hairless however at record locality distinctly with erect straight hairs on leaves (EAH96010301);

Lots dead over last few months because of drought (AGR99101706); More than 5 dead bushes (MHR90030501); Also 2 dead older plants - veld is old and probably not burnt since April '94 (WIJY0052010);

A very good demographic distribution: plants 200mm to 4m tall (AGR92051501); Definite recruitment despite absence of fire for long period - vegetation cover is not 100% what could cause seedling recruitment? (APE93110601);

Before 1989 only 2 large (3m) bushes occurred - between 1990 and 1993 no seedlings were found - burnt 1989 (MHR98031003);

These are the only 2 plants on this large farm extending to Ouberg and Waterfall in the east (data thanks to observant farmer's wife) - previous farmer grew rooibos on this area (WIJ94041306);

Confusing Species: Confused with *L. cordifolium* before the field guide was released. Without flowers was frequently confused with *L. tottum* and once with *L. catherinae*.

Records of identification queries = 21.

Records of corrected identification queries = 8.

Variation and Taxonomy: Plants from the flats at Tulbagh Valley at Honinberg have an erect, tree-like growth habit. On the mountains it is typically a sprawling shrub.

Distribution: Add.

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Leucospermum catherinae Compton 1933
Catherine-wheel Pincushion
Wielblom

Other Common Names: Catherine's Pincushion, Comb-flower Pincushion, Firewheel, Wheel-flower Pincushion, *Waterluisie, Catherine.*

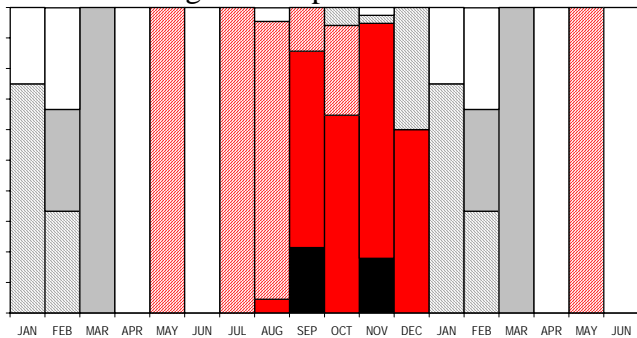
Other Scientific Names: *None.*

114 Records

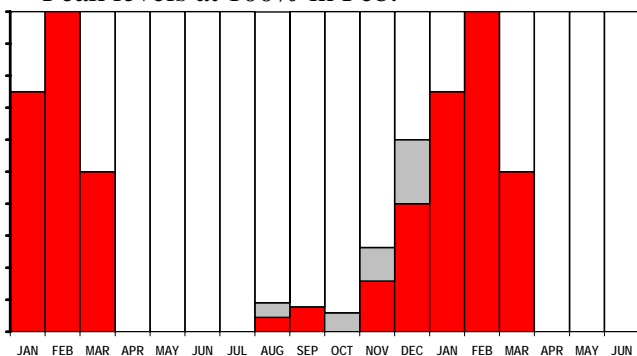
Population (102 records): 20% Common, 49% Frequent, 31% Rare.

Dispersion (88 records): 74% clumped, 22% variable, 2% evenly distributed, 2% widespread.

Flowering (113 records with: Jan 4, Feb 3, Mar 2, Apr 1, May 3, Jun 2, Jul 1, Aug 22, Sep 14, Oct 17, Nov 39, Dec 5): Buds from May to Aug and Oct; Flowering from Sep to Dec; Peak Flowering from Sep; Over from Dec to Feb; Fruit from Feb to Mar; Nothing from Jan to Feb, Apr and Jun. Peak levels at 100% from Sep to Oct. Historically recorded as flowering from Sep to Dec.



Growth (111 records with: Jan 4, Feb 3, Mar 2, Apr 1, May 3, Jun 2, Jul 1, Aug 22, Sep 13, Oct 17, Nov 38, Dec 5): Much from Dec to Mar; Rare from Dec; None from Mar to Jan. Peak levels at 100% in Feb.



Seedlings (41 records): Absent in 90%; fewer seedlings than prefire adults in 2 cases. Seedlings found in Feb and Nov.

Fire Survival (4 records): 75% survived by seedlings only, 25% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 4 years, and 100% recorded at 5 years.



Height (113 records): 1% 0-0.2 m tall, 37% 0.2-1 m tall, 61% 1-2 m tall, 1% 2-5 m tall.

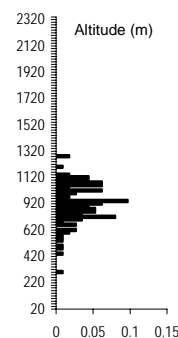
Pollinators (12 records): 92% birds, 8% bees or wasps.

Detailed Pollinators (9 records): Cape Sugarbird.

Habitat:

Distance to Ocean (101 records): 100% inland - further than 2 km from coast.

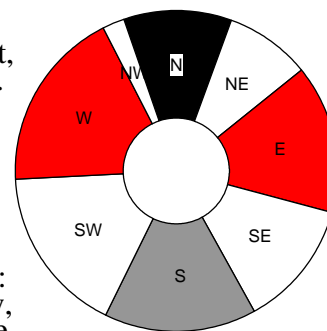
Altitude (101 records): 460 - 1180 m; 720 *lq* - 820 *med* - 900 *uq*m.



Landform (101 records): 92% deep soil, 5% shallow soil, 1% riverine, 1% swamp, 1% rocky outcrops.

Slope (101 records): 55% gentle incline, 18% steep incline, 15% platform, 12% valley bottom.

Aspect (83 records): 31% South, 28% West, 23% East, 17% North.



Soil Type (99 records): 66% sandy, 20% loamy, 11% gravelly, 3% rocky.

Soil Colour (99 records): 60% brown, 15% grey, 12% white, 7% orange, 4% yellow, 2% red.

Geology (95 records): 77% sandstone, 21% shale, 1% silcrete or ferricrete, 1% Tertiary sands.

Vegetation (101 records): 98% shrubland, 2% agricultural lands.

Conservation Status and Threat:

Red Data List Status: Endangered

B1a(i)c(iv)+2a(i)c(iv). Occurrence (Fynbos): 3 472km² with 9% conserved and 11% lost; Occupancy: 153 km² with 25% conserved and 6% lost. Fragmentation index: 4%.

Nature Reserves (101 records): 15% in nature reserves - inadequately conserved.

Habitat destruction (97 records): 79% extensive natural habitat, 15% islands, 3% naturally linear habitats, 1% road verges, 1% naturally fragmented habitats.

Alien Invasive Species (99 records): 66% none, 22% *Pinus*, 6% other aliens, 4% Fabaceae (chiefly alien *Acacia*), 2% Myrtaceae.

Alien Density (98 records): 66% alien-free, 28% sparse, 6% abundant.

Cultivation & Utilization:

Picking (71 records): 100% no sign of picking.

Cultivation Status: Plantings - 12 records (11%).

Atlassers Notes:

Previously many more plants: about 20-50 dead - needs a fire (APE92101707); Not healthy looking - plus one dead (VCH98080902);

Many young plants along firebreak path (AWA96101604);

Confusing Species: Young plants confused with *L. vestitum*.

Records of identification queries = 8.

Records of corrected identification queries = 2.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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Leucospermum formosum (Andrews) Sweet 1798, 1818
Silver-leaf Wheel Pincushion

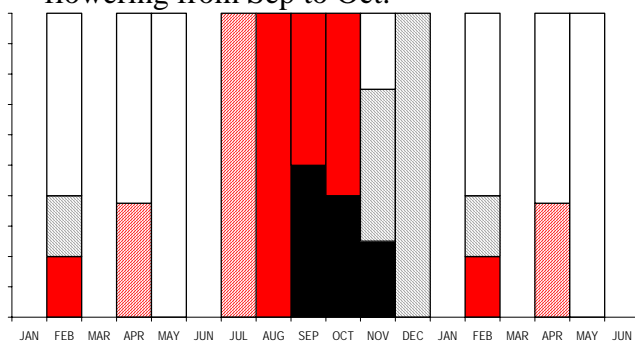
Other Common Names: Handsome Leucadendrum, Roman-candle Pincushion.
Other Scientific Names: *None*.

35 Records

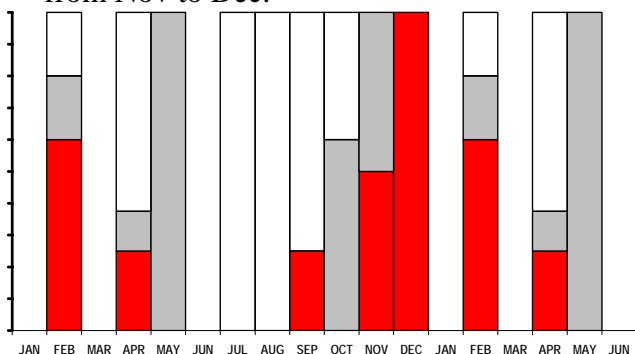
Population (34 records): 12% Common, 32% Frequent, 44% Rare, 12% Extinct.

Dispersion (26 records): 69% clumped, 23% variable, 8% evenly distributed.

Flowering (31 records with: Jan 0, Feb 5, Mar 0, Apr 8, May 1, Jun 0, Jul 1, Aug 2, Sep 4, Oct 5, Nov 4, Dec 1): Buds from Apr and Jul; Flowering from Aug to Oct; Peak Flowering from Sep to Nov; Over from Nov to Feb; Fruit not recorded; Nothing from Feb to May and Nov. Peak levels at 100% from Jul to Oct. Historically recorded as flowering from Sep to Oct.



Growth (31 records with: Jan 0, Feb 5, Mar 0, Apr 8, May 1, Jun 0, Jul 1, Aug 2, Sep 4, Oct 5, Nov 4, Dec 1): Much from Nov to Apr and Sep; Rare from Feb, May and Oct to Nov; None from Feb to Oct. Peak levels at 100% from Nov to Dec.



Seedlings (19 records): All without any seedlings present.

Fire Survival (1 record): 100% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 4 years, 50% estimated at 4-5 years, and 100% recorded at 9 years.



Height (31 records): 32% 0.2-1 m tall, 61% 1-2 m tall, 6% 2-5 m tall.

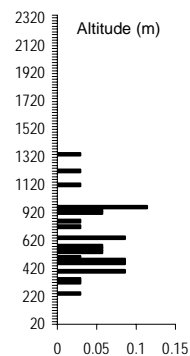
Pollinators (2 records): 100% birds.

Detailed Pollinators (3 records): Cape Sugarbird (2), Orange-breasted Sunbird.

Habitat:

Distance to Ocean (34 records): 100% inland - further than 2 km from coast.

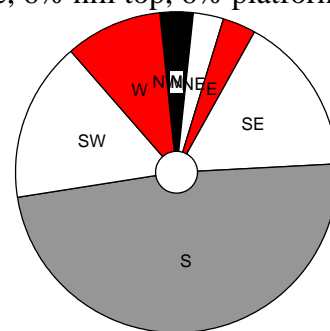
Altitude (34 records): 300 - 1240 m; 460 *lq* - 560 *med* - 640 *uq*m.



Landform (34 records): 79% deep soil, 15% shallow soil, 3% riverine, 3% rocky outcrops.

Slope (34 records): 56% steep incline, 32% gentle incline, 6% hill top, 6% platform.

Aspect (30 records): 68% South, 17% West, 10% East, 5% North.



Soil Type (34 records): 65% loamy, 21% sandy, 12% clayey, 3% rocky.

Soil Colour (34 records): 59% brown, 35% grey, 6% black.

Geology (30 records): 73% sandstone, 27% shale.

Vegetation (34 records): 94% shrubland, 6% plantations.

Conservation Status and Threat:

Red Data List Status: Endangered A4c, B1a(i)b(ii,iii,v)c(iv)+2a(i)b(ii,iii,v)c(iv).

Occurrence (Fynbos): 2 689 km² with 23% conserved and 10% lost; Occupancy: 57km² with 24% conserved and 16% lost. Fragmentation index: 1%.

Nature Reserves (34 records): 47% in nature reserves.

Habitat destruction (31 records): 97% extensive natural habitat, 3% corridors.

Alien Invasive Species (33 records): 48% *Pinus*, 36% none, 12% *Hakea*, 3% Fabaceae (chiefly alien *Acacia*).

Alien Density (33 records): 36% alien-free, 58% sparse, 6% abundant.

Cultivation & Utilization:

Picking (28 records): 93% no sign of picking,
7% lightly picked.

Cultivation Status: Plantings - 1 record.

Atlassers Notes:

Only 1 adult but it is dead (ACU96101601);

Only 2 plants with signs of cutting of which
1 is dead (ACU96101701); Population Of 10
Plants Of Which 1 Is Dead (ACU96101702);
Also 2 dead (AGRY2042103+4); Another 10
dead plants noted (WMS96100701); Only 1
dead plant (died 1 year ago) prior to 1987
there were many plants (WMS96100901);
Numbers dropped over past 4 years
(WMS96100902); Population does not exist
any longer: there were seedlings (200 mm) in
1983 Feb. Burned again in 1987 Feb. After
this second fire no seedlings or plants were
found (WMS96100903);

This colony of about 300 plants is in a Dept of
Forestry plantation of about 4 years old - we
will try to persuade forestry to exclude this
area from the plantation (DOA92111003);

About 500 plants in firebelt belonging to Eight
Bells Hotel - this section of belt is not burnt
and is cleared by clearing around the plants.
Owner is aware that it is not common
(DOA92111004); We also found 1 plant in a
garden near 8 Bells Hotel - they had got
seedlings from a nearby farm after a fire -
will follow this up! (OUT97092004);

Confusing Species: One instance of confusion
with *L. cuneiforme* when not in flower.
Records of identification queries = 2.
Records of corrected identification queries = 1.

Variation and Taxonomy: No variation noted,
but the Riviersonderend plants are more
gracile than the Langeberg plants.

Distribution: Add. Garcia's Pass population is
extinct

INCLUDEPICTURE

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Leucospermum grandiflorum (Salisb.) R.Br. 1808, 1810

Grey-leaf Fountain Pincushion

Luisiesboom

Other Common Names: Great-flower Leucadendrum, Rainbow Pincushion, *Luisiesbos*.

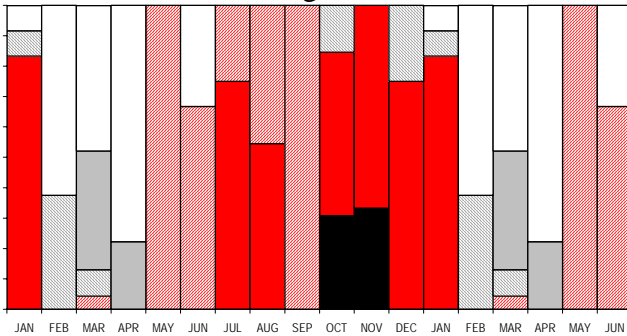
Other Scientific Names: *erosa* Licht ex Spreng. 1825, *villosa* Poir 1816, *villosiuscula* Banks ex R.Br. 1810.

101 Records

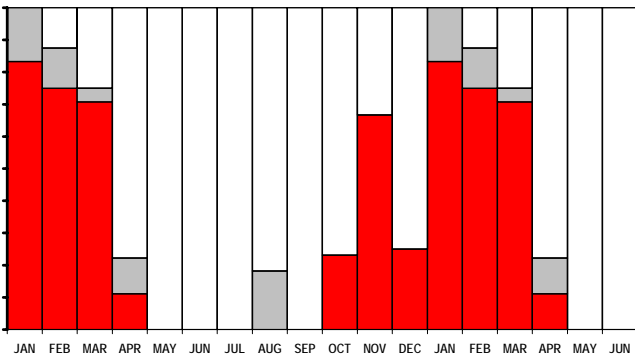
Population (96 records): 18% Common, 56% Frequent, 26% Rare.

Dispersion (88 records): 55% variable, 44% clumped, 1% evenly distributed.

Flowering (100 records with: Jan 12, Feb 8, Mar 23, Apr 9, May 3, Jun 3, Jul 4, Aug 11, Sep 7, Oct 13, Nov 3, Dec 4): Buds from May to Sep; Flowering from Oct to Jan and Jul to Aug; Peak Flowering from Oct to Nov; Over from Feb and Dec; Fruit from Mar to Apr; Nothing from Feb to Apr and Jun. Peak levels at 100% from Jul to Dec. Historically recorded as flowering from Jul to Nov.



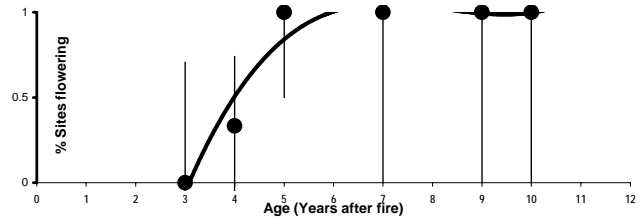
Growth (101 records with: Jan 12, Feb 8, Mar 24, Apr 9, May 3, Jun 3, Jul 4, Aug 11, Sep 7, Oct 13, Nov 3, Dec 4): Much from Oct to Mar; Rare from Aug; None from Mar to Dec. Peak levels at 100% in Jan.



Seedlings (48 records): Absent in 92%: fewer seedlings than prefire adults in 2 cases. Seedlings found in Aug and Nov.

Fire Survival (6 records): 50% escaped fires in fire-safe areas, 33% survived by seedlings only, 17% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 3 years, 50% estimated at 4-5 years, and 100% recorded at 5 years.



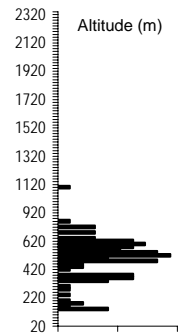
Height (101 records): 2% 0-0.2 m tall, 40% 0.2-1 m tall, 57% 1-2 m tall, 1% 2-5 m tall.

Pollinators (4 records): 75% birds, 25% flies.
Detailed Pollinators (2 records): Cape Sugarbird.

Habitat:

Distance to Ocean (92 records): 100% inland - further than 2 km from coast.

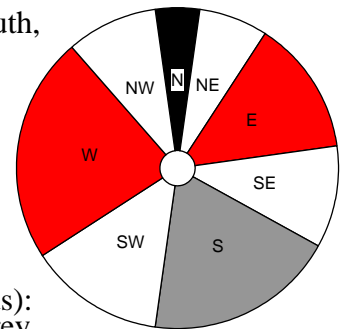
Altitude (92 records): 120 - 720 m; 360_{lq} - 500_{med} - 560_{uq} m.



Landform (90 records): 89% deep soil, 10% shallow soil, 1% riverine.

Slope (89 records): 66% gentle incline, 22% steep incline, 4% hill top, 4% platform, 2% valley bottom.

Aspect (84 records): 35% West, 30% South, 21% East, 13% North.



Soil Type (91 records): 55% loamy, 29% clayey, 15% sandy, 1% gravelly.

Soil Colour (91 records): 79% brown, 13% grey, 4% orange, 2% white, 1% yellow.

Geology (89 records): 93% granite, 4% sandstone, 1% shale, 1% silcrete or ferricrete.

Vegetation (91 records): 99% shrubland, 1% grassland.

Conservation Status and Threat:

Red Data List Status: Endangered A2c, B1a(i,ii)b(i,ii,iii,iv,v)+2a(i,ii)b(i,ii,iii,iv,v).

Occurrence (Fynbos): 221 km² with 10% conserved and 61% lost; **Occupancy:** 66 km² with 28% conserved and 25% lost. **Fragmentation index:** 12%.

Nature Reserves (92 records): 40% in nature reserves.

Habitat destruction (84 records): 86% extensive natural habitat, 10% islands, 2% road verges, 2% naturally linear habitats.

Alien Invasive Species (89 records):
43% Fabaceae (chiefly alien *Acacia*),
31% none, 16% *Pinus*, 9% *Hakea*,
1% annual alien grasses.
Alien Density (88 records): 32% alien-free,
51% sparse, 10% abundant, 3% dense,
3% impenetrable.

Cultivation & Utilization:

Picking (75 records): 97% no sign of picking,
3% lightly picked.

Cultivation Status: Plantings - 5 records.

Atlassers Notes:

Seedheads were visited for seeds by Bully
Canary - tore heads apart (AGRY0010801);

Confusing Species: Easily confused with *L.*
gueinzii, but geographically distinct.

Variation and Taxonomy: No variation
noted..

Distribution: Add.

INCLUDEPICTURE

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Leucospermum gueinzii Meisn. 1856
Kloof Fountain Pincushion

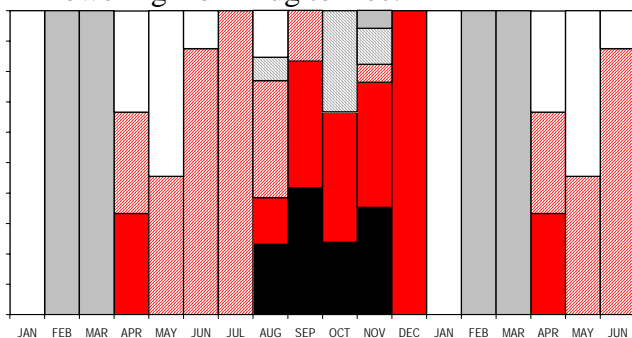
Other Common Names: None known.
Other Scientific Names: *None*.

101 Records

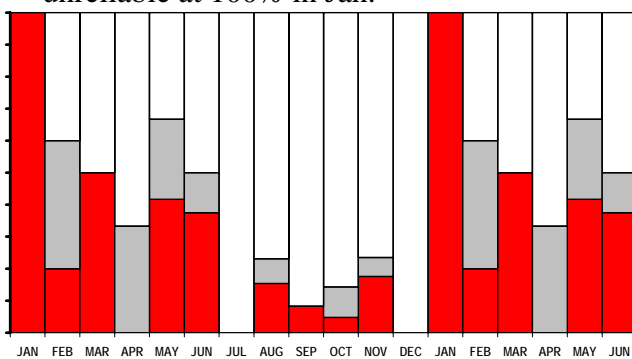
Population (100 records): 11% Common, 60% Frequent, 28% Rare, 1% Extinct.

Dispersion (80 records): 58% variable, 41% clumped, 1% evenly distributed.

Flowering (99 records with: Jan 1, Feb 5, Mar 2, Apr 3, May 11, Jun 8, Jul 4, Aug 13, Sep 12, Oct 21, Nov 17, Dec 2): Buds from Apr to Aug; Flowering from Apr and Sep to Dec; Peak Flowering from Aug to Nov; Over from Oct; Fruit from Feb to Mar; Nothing from Jan and Apr to May. Peak levels at 100% from Sep to Oct. Historically recorded as flowering from Aug to Dec.



Growth (100 records with: Jan 1, Feb 5, Mar 2, Apr 3, May 12, Jun 8, Jul 4, Aug 13, Sep 12, Oct 21, Nov 17, Dec 2): Much from Jan to Mar and May to Jun; Rare from Feb to May; None from Feb to Dec. Peak levels unreliable at 100% in Jan.



Seedlings (26 records): All without any seedlings present.

Fire Survival (10 records): 100% survived by seedlings only.

Age to first flowering: First flowers recorded at 2 years, 50% estimated at 4-5 years, and 100% recorded at 5 years.



Height (100 records): 50% 0.2-1 m tall, 49% 1-2 m tall, 1% 2-5 m tall.

Pollinators (2 records): 100% birds.

Detailed Pollinators (2 records): Cape Sugarbird.

Habitat:

Distance to Ocean (97 records): 100% inland - further than 2 km from coast.

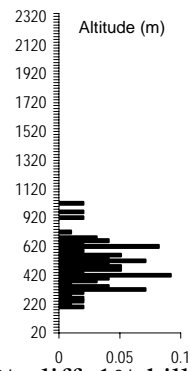
Altitude (97 records): 180 - 920 m; 380_{lq} - 480_{med} - 540_{uq} m.

Landform (97 records):

93% deep soil, 6% shallow soil, 1% rocky outcrops.

Slope (97 records): 51% gentle incline, 47% steep incline, 1% cliff, 1% hill top.

Aspect (96 records): 68% South, 17% West, 14% East, 1% North.



Soil Type (96 records):

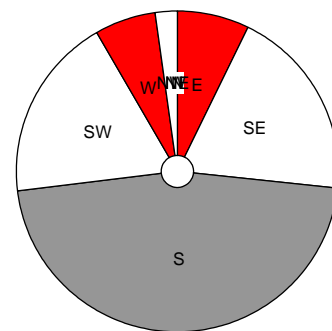
46% loamy, 31% clayey, 15% sandy, 8% gravelly.

Soil Colour (97 records):

86% brown, 9% orange, 4% grey, 1% yellow.

Geology (90 records): 37% shale, 34% sandstone, 29% granite.

Vegetation (97 records): 89% shrubland, 9% plantations, 1% thicket, 1% forest.



Conservation Status and Threat:

Red Data List Status: Endangered

B1a(ii)b(i,ii,iii,iv,v)+2a(ii)b(i,ii,iii,iv,v).

Occurrence (Fynbos): km² with % conserved and % lost; Occupancy: km² with % conserved and % lost. Fragmentation index: %.

Nature Reserves (97 records): 71% in nature reserves - well conserved.

Habitat destruction (96 records):

97% extensive natural habitat, 3% islands.

Alien Invasive Species (90 records):

40% *Pinus*, 39% none, 17% *Hakea*, 3% Myrtaceae, 1% Fabaceae (chiefly alien *Acacia*).

Alien Density (90 records): 39% alien-free, 46% sparse, 14% abundant, 1% dense.

Cultivation & Utilization:

Picking (52 records): 100% no sign of picking.

Cultivation Status: Plantings - 1 record.

Atlasers Notes: None.

Confusing Species: Easily confused with *L. grandiflorum* but geographically distinct.

Records of identification queries = 5.
Records of corrected identification queries = 1.

Variation and Taxonomy: No variation noted.

Distribution: Add.
Records from Houwhoek not relocated.

```
INCLUDEPICTURE  
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Leucospermum praemorsum (Meisn.) Phill. 1856, 1912

Nardouw Fountain Pincushion

Nardouwluisiesbos

Other Common Names: *Karkaaitjie, Kreupelhout, Luisiesboom, Luisiesbos, Tolbos.*

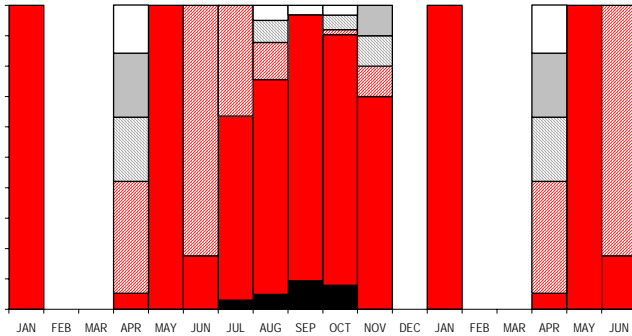
Other Scientific Names: *L. attenuatum* var. *praemorsum* Meisn. 1856.

233 Records

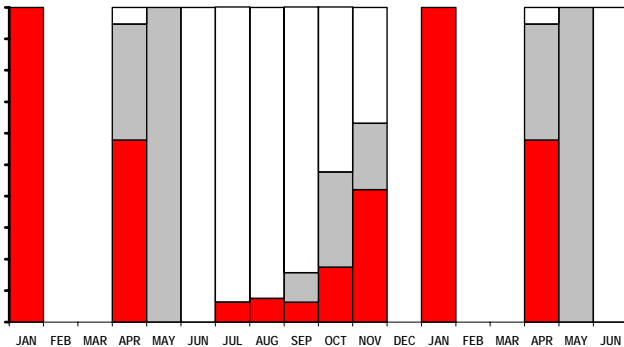
Population (233 records): 31% Common, 52% Frequent, 17% Rare.

Dispersion (210 records): 76% variable, 23% clumped, 1% evenly distributed.

Flowering (229 records with: Jan 2, Feb 0, Mar 0, Apr 19, May 2, Jun 17, Jul 33, Aug 41, Sep 32, Oct 63, Nov 20, Dec 0): Buds from Apr to Jul; Flowering from May to Jan; Peak Flowering not significant; Over from Apr; Fruit from Apr; Nothing not significant. Peak levels at 97% from Sep to Oct. Historically recorded as flowering erratically throughout the year with a peak from Jul to Dec.



Growth (226 records with: Jan 2, Feb 0, Mar 0, Apr 19, May 2, Jun 17, Jul 32, Aug 40, Sep 32, Oct 63, Nov 19, Dec 0): Much from Nov to Apr; Rare from Apr to May and Oct to Nov; None from Jun to Nov. Peak levels unreliable at 100% in Jan.



Seedlings (85 records): Absent in 98%; fewer seedlings than prefire adults in 1 case. Seedlings found in Aug.

Fire Survival (7 records): 43% survived by seedlings only, 43% escaped fires in fire-safe areas, 14% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 5 years, 50% estimated at 3-4 years, and 100% recorded at 5 years.



Height (232 records): 8% 0.2-1 m tall, 58% 1-2 m tall, 34% 2-5 m tall, 1% taller than 5 m.

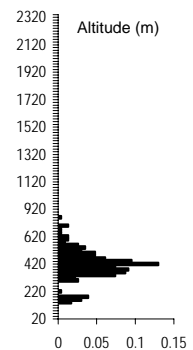
Pollinators (13 records): 69% birds, 15% bees or wasps, 15% beetles.

Detailed Pollinators (9 records): Cape Sugarbird (4), Malachite Sunbird (3), Honey Bee, Cape Weaver.

Habitat:

Distance to Ocean (231 records): 100% inland - further than 2 km from coast.

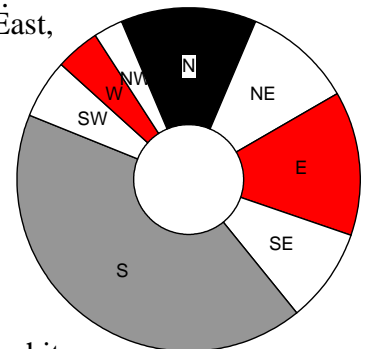
Altitude (231 records): 120 - 760 m; 340 *lq* - 400 *med* - 420 *uq*m.



Landform (231 records): 97% deep soil, 2% shallow soil, 0.4% rocky outcrops.

Slope (231 records): 73% gentle incline, 11% platform, 8% dunes, 6% hill top, 1% steep incline.

Aspect (186 records): 49% South, 23% East, 19% North, 8% West.



Soil Type (231 records): 98% sandy, 1% loamy, 1% rocky.

Soil Colour (228 records): 28% brown, 25% yellow, 17% white, 12% red, 10% grey, 7% orange.

Geology (230 records): 88% sandstone, 10% Tertiary sands, 2% silcrete or ferricrete.

Vegetation (230 records): 99% shrubland, 1% agricultural lands.

Conservation Status and Threat:

Red Data List Status: Vulnerable A2c.

Occurrence (Fynbos): 1 430 km² with 0% conserved and 20% lost; **Occupancy:** 243 km² with 0% conserved and 31% lost. **Fragmentation index:** 2%.

Nature Reserves (231 records): 0% in nature reserves - unconserved.

Habitat destruction (228 records): 54% extensive natural habitat, 43% islands, 1% naturally fragmented habitats, 1% road verges.

Alien Invasive Species (226 records): 73% none, 20% Fabaceae (chiefly alien *Acacia*), 7% *Pinus*.

Alien Density (225 records): 73% alien-free, 26% sparse, 1% abundant.

Cultivation & Utilization:

Picking (143 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Witch's Broom Infestation: 4 records (2%).

Atlassers Notes:

A giant plant 11 m across (AWA98083104);

Sprawling - some 6 m diameter (WIJ93082101); Some sprawling old trees similar to those seen in NW Namaqualand, younger trees are upright (WIJ94041203);

Yellow form (DOAY0102204); Yellow variety also found (OUTY0092406);

Some young - most of these in dune deflations and windblown areas where seeds are likely to be exposed and no competition from adults (AGRY3102136); Plants appear to be recruiting without fire as there are variously aged young plants in the population and there has not been a fire in the area for over twenty yrs (NAHY1052701);

Invading Rooibos fields! Lots of young with Witches Broom-like growth (AGR97040305); Most abundant in ploughed fields - seems to like it! (AGRY0102826); Seems resilient - coming up in fields (NAHY0050604);

Plants and flowers appear smaller than this species further south on the Nardouwsberg (NAHY1052701); Many have flat flowerheads (WIJ93082201);

Some 2/3 of plants dead (AGRY3102131); 1/2 of plants dead (AGRY3102136); About 50 plants some dead (WIJ93082101); Several

hundred plants in this site - none in neighbouring areas. A healthier population than those near Hondeklip Bay (WIJ93082201);

Confined to dune tops (AGRY3102131, 34, 36, 40-43); On dune ridges (AGRY3102201); On a dune with very sparse vegetation on it - local farmer says several other groups exist always on dunes (WIJ93082101);

Known to grow elsewhere in these hills SW of Komaggas - a healthier population than these near Hondeklip Bay. They grow on sparsely covered sand dunes on side of mountain, but not at all on nearby rocky areas that are well covered with vegetation (WIJ93082201);

Dense, woody 'cups' of dead leaves - Witches Broom? (AGR95070605); Lots of young with Witches Broom-like growth (AGR97040305);

Confusing Species: None noted.

Records of identification queries = 7.

Variation and Taxonomy: Older plants tend to sprawl more than younger plants, which might account for some populations having been noted as particularly erect or sprawling. Yellow colour forms were noted.

First described in 1844 by Buek., but invalidly, and then described as a variety of *L. cuneiforme* by Meisner.

Distribution: Add.

INCLUDEPICTURE

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Leucospermum reflexum Buek. ex Meisn. 1856

Rocket Pincushion

Perdekop

Other Common Names: Cedarberg Pincushion, Rocket, Sky Rocket Pincushion, *Raketspeldekussing*.

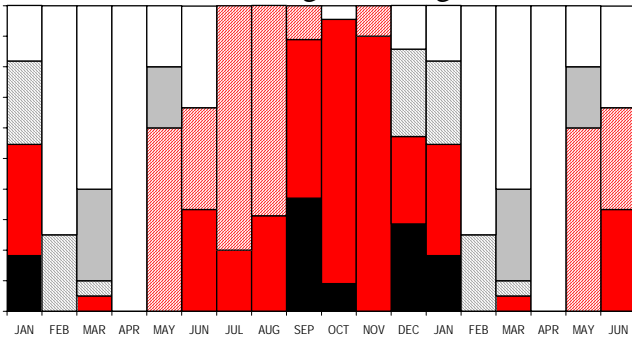
Other Scientific Names: *None*.

140 Records

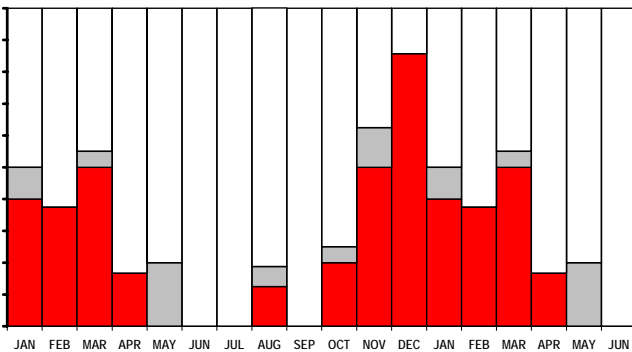
Population (57 records): 9% Common, 67% Frequent, 25% Rare.

Dispersion (51 records): 61% clumped, 31% variable, 6% widespread, 2% evenly distributed.

Flowering (140 records with: Jan 11, Feb 8, Mar 20, Apr 6, May 5, Jun 3, Jul 5, Aug 16, Sep 27, Oct 22, Nov 10, Dec 7): Buds from May to Aug; Flowering from Jun to Jan; Peak Flowering from Sep and Dec; Over from Dec to Feb; Fruit from Mar to May; Nothing from Feb to Jun. Peak levels at 100% from Jul to Sep and Nov. Historically recorded as flowering from Aug to Dec.



Growth (132 records with: Jan 10, Feb 8, Mar 20, Apr 6, May 5, Jun 3, Jul 4, Aug 16, Sep 25, Oct 20, Nov 8, Dec 7): Much from Oct to Mar; Rare from May; None from Jan to Nov. Peak levels at 86% in Dec.



Seedlings (52 records): Absent in 88%; fewer seedlings than prefire adults in 2 cases, and more in 1 case. Seedlings found in Jan and Aug (2).

Fire Survival (1 record): 100% survived by seedlings only.

Age to first flowering: First flowers recorded at 2 years, 50% estimated at 5-6 years, and 100% recorded at 7 years.



Height (138 records): 7% 0.2-1 m tall, 57% 1-2 m tall, 35% 2-5 m tall.

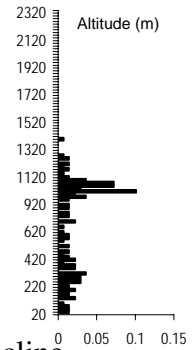
Pollinators (9 records): 89% birds, 11% bees or wasps.

Detailed Pollinators (8 records): Cape Sugarbird.

Habitat:

Distance to Ocean (57 records): 100% inland - further than 2 km from coast.

Altitude (57 records): 460 - 1300 m; 900 *lq* - 940 *med* - 980 *uq*m.



Landform (57 records): 60% deep soil, 28% shallow soil, 5% riverine, 5% swamp, 2% rocky outcrops.

Slope (57 records): 60% gentle incline, 21% platform, 11% steep incline, 9% valley bottom.

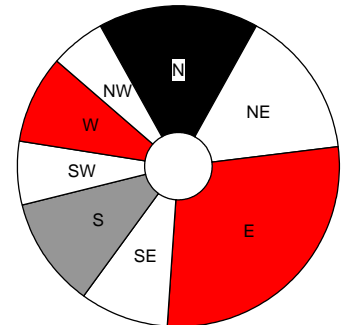
Aspect (48 records): 63% East, 33% North, 2% South, 2% West.

Soil Type (57 records): 82% sandy, 9% loamy, 5% rocky, 4% gravelly.

Soil Colour (56 records): 46% grey, 23% brown, 23% white, 5% yellow, 2% orange.

Geology (57 records): 98% sandstone, 2% shale.

Vegetation (57 records): 100% shrubland.



Conservation Status and Threat:

Red Data List Status: Near Threatened D2(i). Occurrence (Fynbos): 232 km² with 45% conserved and 3% lost; Occupancy: 67 km² with 61% conserved and 3% lost. Fragmentation index: 27%.

Nature Reserves (57 records): 79% in nature reserves - well conserved.

Habitat destruction (53 records): 79% extensive natural habitat, 9% naturally linear habitats, 8% islands, 4% naturally fragmented habitats.

Alien Invasive Species (50 records): 88% none, 6% Fabaceae (chiefly alien *Acacia*), 6% *Pinus*.

Alien Density (50 records): 88% alien-free, 10% sparse, 2% abundant.

Cultivation & Utilization:

Picking (95 records): 95% no sign of picking, 4% lightly picked, 1% severely picked.

Cultivation Status: Plantings - 80 records (57%), Escapes - 3 records (2%).

Atlassers Notes:

Many adults burnt - many seedlings but only seem to have germinated in very wet areas (NGW94081101);

About 15 plants and some dead (AGRY5122908); Some dead from clearing and disturbance of roots for Rooibos tea

plantations and a few cut off and removed (for firewood?) (AGRY5122908);

Confusing Species: Non flowering young plants have been mistaken for *L. calligerum* and *L. catherinae*.

Records of identification queries = 6.

Records of corrected identification queries = 2.

Variation and Taxonomy: A pale yellow form is known from Heuningylei and extensively grown in cultivation as var. *lutea*, but this does not appear to have been formally described as a variety.

Distribution: Add.

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Leucospermum arenarium Rycroft 1959
Redelinghuis Pincushion

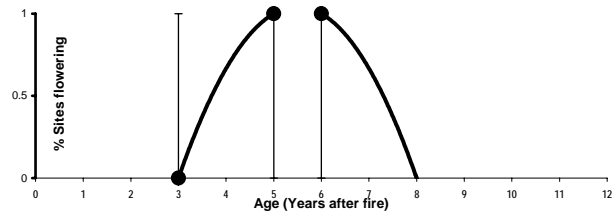
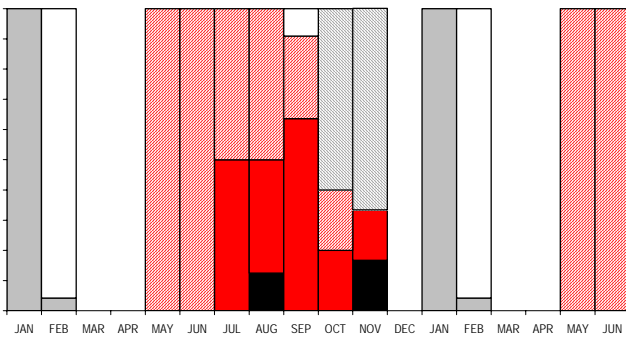
Other Common Names: None known.
Other Scientific Names: *None*.

62 Records

Population (61 records): 23% Common, 61% Frequent, 16% Rare.

Dispersion (55 records): 80% variable, 15% clumped, 5% widespread.

Flowering (62 records with: Jan 1, Feb 24, Mar 0, Apr 0, May 4, Jun 1, Jul 2, Aug 8, Sep 11, Oct 5, Nov 6, Dec 0): Buds from May to Oct; Flowering from Jul to Oct; Peak Flowering not significant; Over from Oct to Nov; Fruit from Jan; Nothing from Feb. Peak levels unreliable at 100% from May to Nov. Historically recorded as flowering from Jul to Oct.



Height (62 records): 8% 0-0.2 m tall, 90% 0.2-1 m tall, 2% 1-2 m tall.

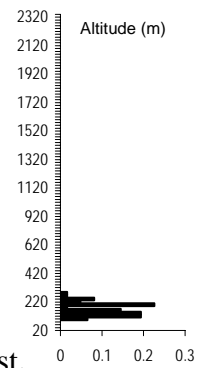
Pollinators (3 records): 33% birds, 33% bees or wasps, 33% beetles.

Detailed Pollinators (2 records): Southern Double-collared Sunbird, Honey Bee.

Habitat:

Distance to Ocean (62 records): 100% inland - further than 2 km from coast.

Altitude (62 records): 80 - 280 m; 100_{lq} - 140_{med} - 140_{uq}m.

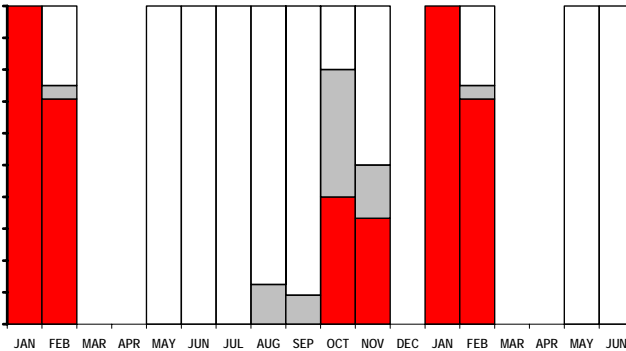


Landform (62 records): 100% deep soil.

Slope (62 records): 56% gentle incline, 35% platform, 6% valley bottom, 2% dunes.

Aspect (49 records): 37% North, 33% East, 21% South, 9% West.

Growth (62 records with: Jan 1, Feb 24, Mar 0, Apr 0, May 4, Jun 1, Jul 2, Aug 8, Sep 11, Oct 5, Nov 6, Dec 0): Much from Oct to Feb; Rare from Oct; None from Feb to Nov. Peak levels unreliable at 100% in Jan.

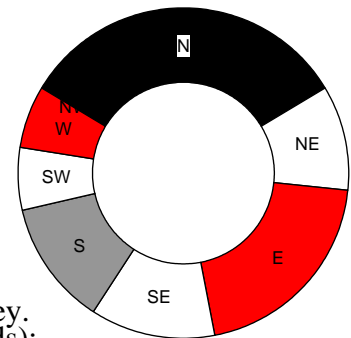


Soil Type (62 records): 98% sandy, 2% loamy.

Soil Colour (61 records): 33% yellow, 18% brown, 16% white, 13% orange, 11% red, 8% grey.

Geology (60 records): 63% Tertiary sands, 37% sandstone.

Vegetation (62 records): 97% shrubland, 3% agricultural lands.



Conservation Status and Threat:

Red Data List Status: Critically Endangered A4c.

Occurrence (Fynbos): 159 km² with 0% conserved and 48% lost; Occupancy: 75 km² with 0% conserved and 52% lost.

Fragmentation index: 47%.

Nature Reserves (62 records): 0% in nature reserves - unconserved.

Habitat destruction (62 records): 53% extensive natural habitat, 39% islands, 5% road verges, 2% corridors, 2% naturally fragmented habitats.

Alien Invasive Species (61 records): 62% Fabaceae (chiefly alien *Acacia*), 36% none, 2% Myrtaceae.

Alien Density (61 records): 36% alien-free, 61% sparse, 3% abundant.

Cultivation & Utilization:

Picking (57 records): 100% no sign of picking.

Seedlings (36 records): Absent in 94%; fewer seedlings than prefire adults in 1 case. Seedlings found in Sep.

Fire Survival (2 records): 50% survived by seedlings only, 50% resprouted from underground boles.

Age to first flowering: First flowers recorded at 5 years, 50% estimated at 4 years, and 100% recorded at 5 years.

Cultivation Status: No noted cultivation.
Witch's Broom Infestation: 1 record (2%).

Atlassers Notes:

Bushes up to 2 m in diam. (NAH92081503);
Strip farming in area potentially hazardous for
the species although it appears to enjoy
cleared areas and expands into them readily
(NAH92081501);
Appears to reach maturity quickly after fire -
the profusion of flowers on most of the
bushes would support this (NGW96110602);
Fasciation present on plants – coded as Witches
Broom (LYM96050107);

Confusing Species: One instance of
misidentification with *L.*
hypophyllocarpodendron subsp.
canaliculatum.

Records of identification queries = 2.
Records of corrected identification queries = 1.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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Leucospermum hypophyllocarpodendron subsp. *hypophyllocarpodendron* (L.)

Druce 1753, 1914

Green-snake-stem Pincushion

Groenslangbossie

Other Common Names: Hypophyllous Leucadendrum, Snake-stem Pincushion, *Luisie*, *Slangbossie*.

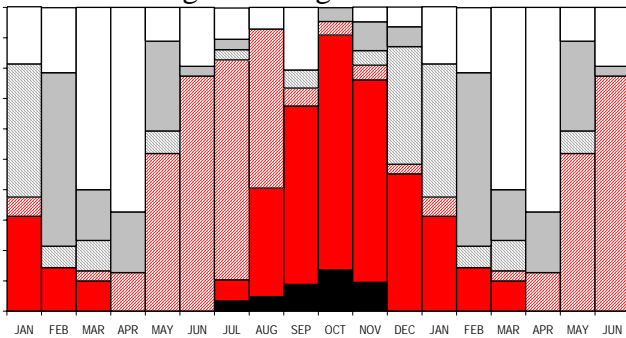
Other Scientific Names: *hypophyllum* (Thunb) 1781.

363 Records

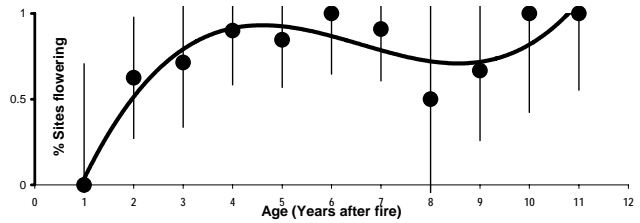
Population (360 records): 7% Common, 54% Frequent, 39% Rare.

Dispersion (297 records): 63% variable, 33% clumped, 2% widespread, 2% evenly distributed.

Flowering (352 records with: Jan 16, Feb 14, Mar 30, Apr 55, May 27, Jun 31, Jul 29, Aug 42, Sep 34, Oct 22, Nov 21, Dec 31): Buds from May to Aug; Flowering from Aug to Jan; Peak Flowering not significant; Over from Dec to Jan; Fruit from Feb to May; Nothing from Feb to Apr and Sep. Peak levels at 95% in Oct. Historically recorded as flowering from Aug to Jan.



Age to first flowering: First flowers recorded at 2 years, 50% estimated at 2 years, and 100% recorded at 6 years.



Height (352 records): 98% 0-0.2 m tall, 2% 0.2-1 m tall.

Pollinators (2 records): 50% beetles, 50% other.

Detailed Pollinators (2 records): Monkey Beetle, Earwig.

Habitat:

Distance to Ocean (356 records): 59% inland - further than 2 km from coast.

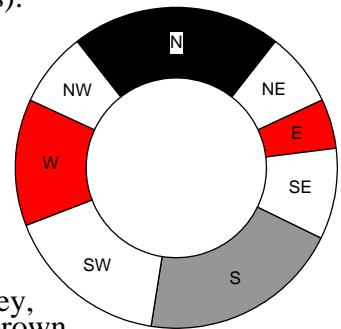
Altitude (356 records): 20 - 420 m; 40_{lq} - 80_{med} - 120_{uq}m.

Landform (346 records): 90% deep soil, 6% shallow soil, 3% rocky outcrops.

Slope (346 records): 55% gentle incline, 30% platform, 5% hill top, 5% valley bottom, 4% steep incline.

Aspect (252 records):

33% South, 29% North, 24% West, 14% East.



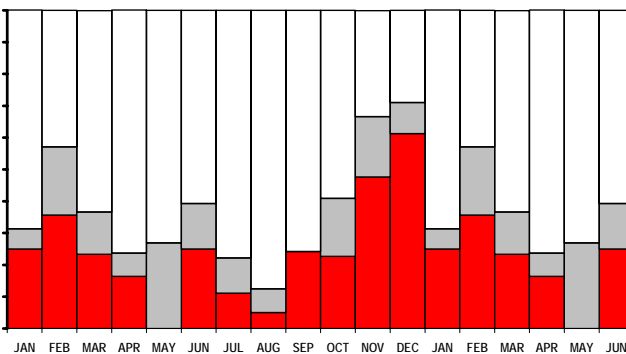
Soil Type (346 records): 95% sandy, 5% loamy.

Soil Colour (346 records): 62% grey, 27% white, 6% brown, 3% yellow, 1% black.

Geology (333 records): 77% sandstone, 17% Tertiary sands, 5% limestone, 1% shale.

Vegetation (352 records): 98% shrubland, 1% plantations.

Growth (343 records with: Jan 16, Feb 14, Mar 30, Apr 55, May 26, Jun 28, Jul 27, Aug 40, Sep 33, Oct 22, Nov 21, Dec 31): Much from Sep to Mar and Jun; Rare from Feb and May; None from all year round. Peak levels at 71% in Dec.



Seedlings (136 records): Absent in 97%: fewer seedlings than prefire adults in 1 case, and more in 1 case. Seedlings found in Apr and Nov.

Fire Survival (38 records): 76% resprouted from underground boles, 18% escaped fires in fire-safe areas, 3% survived by seedlings only, 3% resprouted from aerial trunks.

Conservation Status and Threat:

Red Data List Status: Vulnerable A2c.

Occurrence (Fynbos): 5 233 km² with 27% conserved and 37% lost; **Occupancy:** 224 km² with 43% conserved and 20% lost. **Fragmentation index:** 2%.

Nature Reserves (356 records): 65% in nature reserves - well conserved.

Habitat destruction (339 records): 92% extensive natural habitat, 4% islands, 1% naturally linear habitats, 1% road verges.

Alien Invasive Species (336 records):
48% Fabaceae (chiefly alien *Acacia*),
34% none, 16% *Pinus*, 2% Myrtaceae.
Alien Density (335 records): 34% alien-free,
49% sparse, 12% abundant, 5% dense.

Cultivation & Utilization:

Picking (257 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlasers Notes:

A small population of about 6 spreading mature plants with buds small and medium to open full flowers, bright yellow and sweetly scented (like Frangipani!) seemed to be crawling with little insects with "pincers" on back (BAW96072901); Flowers have a very heavy sweet smell (PGD93101002);

Specimens glabrous no hairs at all - therefore subspecies *hypophyllocarpodendron* under present classification (AGRY0072706, NAH96081103, NGFY1101802, SMRY0072702+5, VDW97021701); Identification queried: Atlased as subspecies *hypophyllocarpodendron* - but according to Rourke is *canaliculatum* - but is hairless and thus not this subspecies as per diagnostics! (VDW97021701);

Plants covered with Dodder *Cassytha* (JAT95120801);

Some plants have been dug out! Cuttings being propagated for planting into Rondevlei Nature Reserve about 150 m away (DAG95020601);

Confusing Species: The hairless form at Hermon to Saron posed problems as it was not clear if it should be treated as *canaliculatum* – a logical choice, or strictly as per diagnostics as the type subspecies. The latter approach was adopted here. A single case of confusion with *L. prostratum*, which has totally different leaves, was noted. Records of identification queries = 14. Records of corrected identification queries = 9.

Variation and Taxonomy: The population at Hermon to Saron is hairless, but this is probably a secondary loss and should perhaps be considered a hairless form of subspecies *canaliculatum*.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum hypophyllocarpodendron subsp. *canaliculatum* (Buek ex Meisn.)

Rourke 1856, 1972

Grey-snake-stem Pincushion

Gruisslangbossie

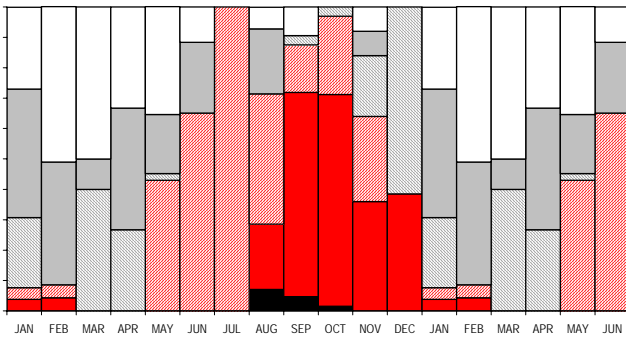
Other Common Names: *Platluisiebos*.
Other Scientific Names: *canaliculatum* Buek. 1843, *hypophyllum* var. *angustifolium* Klotzsch in Krauss 1845, *hypophyllum* var. *caanaliculatum* Beuk. ex Meisn. 1856, *hypophyllum* var. *stenophyllum* Meisn. 1856.

432 Records

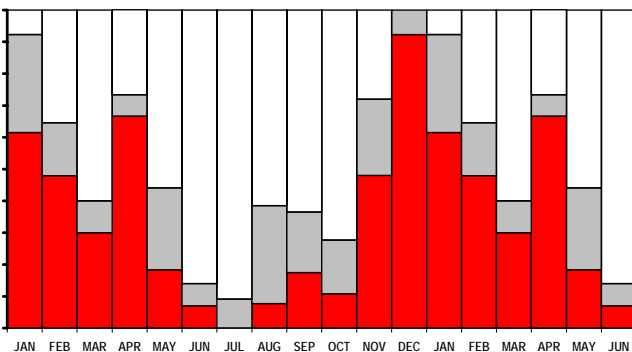
Population (429 records): 20% Common, 52% Frequent, 28% Rare.

Dispersion (372 records): 80% variable, 16% clumped, 4% widespread.

Flowering (428 records with: Jan 26, Feb 47, Mar 10, Apr 15, May 93, Jun 43, Jul 12, Aug 14, Sep 64, Oct 66, Nov 25, Dec 13): Buds from May to Nov; Flowering from Aug to Dec; Peak Flowering not significant; Over from Nov to Jan and Mar to Apr; Fruit from Jan to Feb, Apr, June and Aug; Nothing from Jan to May. Peak levels at 100% in Oct. Historically recorded as flowering from Aug to Jan.



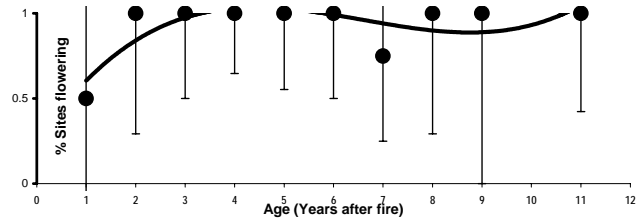
Growth (425 records with: Jan 26, Feb 48, Mar 10, Apr 15, May 93, Jun 43, Jul 11, Aug 13, Sep 63, Oct 65, Nov 25, Dec 13): Much from Nov to Apr; Rare from Jan, May, Aug and Nov; None from Feb to Nov. Peak levels at 100% in Dec.



Seedlings (166 records): Absent in 98%; fewer seedlings than prefire adults in 2 cases. Seedlings found in Jul and Aug.

Fire Survival (36 records): 97% resprouted from underground boles, 3% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 1 year, and 100% recorded at 2 years.



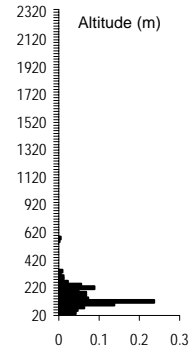
Height (430 records): 76% 0-0.2 m tall, 24% 0.2-1 m tall, 0.2% 1-2 m tall.

Pollinators (1 record): 100% beetles.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (427 records): 100% inland - further than 2 km from coast.
Altitude (427 records): 20 - 580 m; 80_{lq} - 120_{med} - 120_{uq}m.

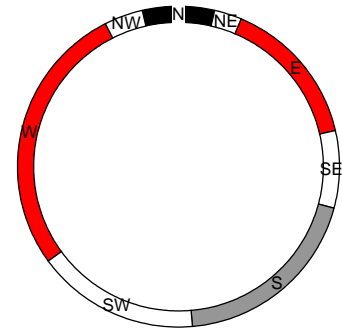


Landform (427 records): 100% deep soil.

Slope (422 records): 60% platform, 26% gentle incline, 9% valley bottom, 3% dunes, 2% hill top.

Aspect (211 records):

38% West,
 31% South,
 20% East,
 11% North.



Soil Type (426 records): 95% sandy, 4% loamy.

Soil Colour (424 records): 38% grey, 29% white, 17% brown, 8% yellow, 7% orange, 1% red.

Geology (407 records): 81% Tertiary sands, 12% sandstone, 3% shale, 2% silcrete or ferricrete, 1% granite.

Vegetation (427 records): 98% shrubland, 1% agricultural lands.

Conservation Status and Threat:

Red Data List Status: Vulnerable A2c.
Occurrence (Fynbos): 4 365 km² with 12% conserved and 40% lost; **Occupancy:** 426 km² with 4% conserved and 40% lost. **Fragmentation index:** 5%.

Nature Reserves (427 records): 19% in nature reserves - inadequately conserved.

Habitat destruction (424 records): 66% extensive natural habitat, 23% islands, 5% road verges, 4% naturally linear habitats.

Alien Invasive Species (421 records):

84% Fabaceae (chiefly alien *Acacia*),
8% none, 4% *Hakea*, 3% *Pinus*,
1% Myrtaceae.

Alien Density (420 records): 8% alien-free,
42% sparse, 26% abundant, 20% dense,
4% impenetrable.

Cultivation & Utilization:

Picking (350 records): 100% no sign of
picking.

Cultivation Status: No noted cultivation.

Witch's Broom Infestation: 15 records (3%).

Atlassers Notes:

One individual plant was 5 m in diameter!
(AKS92101401); Larger plants are 3 m
across (AKS94083101);

Second flowering this season (VCH99091706);
Young plants grow upwards then after a fire
resprout from base and creep
(AGR91092902, AGR91121203); Had burnt
round the outside but centre of plants
unburnt (SMRY0101907);

These plants had 3x bigger florets than in the
previous plot (AGR91092902); Exceptionally
big flowerheads (LYM95090303); Leaves
were 6-12 mm wide by 100mm long and not
obviously canaliculate (WIJ95042001);

Grazed (AGR96100206);

More dead plants seen than living - perhaps the
dry summer? (AGR99091703);

Good regeneration in some disturbed areas
(AGR92012301);

Collected fasciated material for Witches Broom
test - no mites found (AGR96051010);
Curious growth 'defect' On Several Plants - a
Woody Proliferation Of Short Flat Leaves -
Very Hairy (AGR92012303); Congested
Witches Broom-type growth on several
plants (SMR97051401);

Confusing Species: Mostly confused with the
type subspecies which is hairless on stems
and leaves, although in subsp. *canaliculata*
the leaves may lose their hairs when
mature. Also intermediates and confusion
with some forms of *L. tomentosum*,
especially in post-fire plants with erect stems
that only creep when too heavy to be
supported, or only after a few years of
growth.

Records of identification queries = 48.

Records of corrected identification queries = 18.

Variation and Taxonomy: Buek did not
describe *L. canaliculatum* adequately in
1843, so it is *nomen nudum*.

Rourke informally recognized four forms of this
species, of which 3 were assigned to this
subspecies. These are:

- Pubescent stems with grey-pubescent,
linear-canaliculate leaves;
- Pubescent stems becoming hairless, with
grey-pubescent becoming hairless,
linear-canaliculate leaves; and,
- Pubescent stems with pubescent,
oblanceolate to narrowly-cuneate leaves.

Rourke noted that these occurred in constant
patches, but tended to merge into one another
and that all three forms grew in close
proximity at Katsenberg. Atlassers
suggested that at Riverlands-Dassenberg the
linear forms grew preferentially on granite
soils and oblanceolate forms on deep sand,
with intermediates in shallower sand. This
should be studied more carefully.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum parile (Salisb. ex Kn.) Sweet 1809, 1912

Malmesbury Pincushion

Malmesburyluisie

Other Common Names: Matched

Leucadendrum.

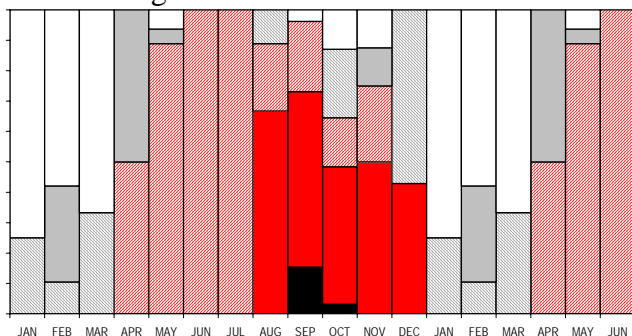
Other Scientific Names: *dregei* Phill 1910.

197 Records

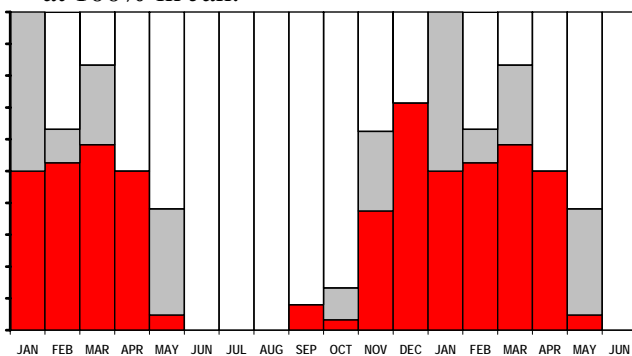
Population (194 records): 37% Common, 48% Frequent, 14% Rare.

Dispersion (175 records): 79% variable, 14% clumped, 5% widespread, 2% evenly distributed.

Flowering (196 records with: Jan 4, Feb 19, Mar 12, Apr 2, May 63, Jun 8, Jul 7, Aug 9, Sep 26, Oct 31, Nov 8, Dec 7): Buds from Apr to Nov; Flowering from Aug to Dec; Peak Flowering not significant; Over from Dec to Jan, Mar and Oct; Fruit from Feb and Apr; Nothing from Jan to Mar. Peak levels at 100% in Aug. Historically recorded as flowering from Jul to Nov.



Growth (193 records with: Jan 4, Feb 19, Mar 12, Apr 2, May 63, Jun 8, Jul 7, Aug 8, Sep 25, Oct 30, Nov 8, Dec 7): Much from Nov to Apr; Rare from Jan, Mar, May and Nov; None from Feb and Apr to Dec. Peak levels at 100% in Jan.



Seedlings (91 records): Absent in 98%; fewer seedlings than prefire adults in 1 case. Seedlings found in Dec.

Fire Survival (15 records): 80% survived by seedlings only, 13% escaped fires in fire-safe areas, 7% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 2 years, 50% estimated at 3 years, and 100% recorded at 6 years.



Height (196 records): 44% 0.2-1 m tall, 55% 1-2 m tall.

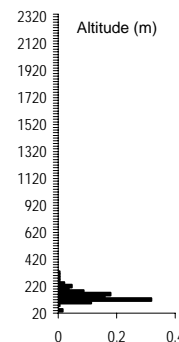
Pollinators (7 records): 43% butterflies or moths, 29% bees or wasps, 29% beetles.

Detailed Pollinators (5 records): Painted Lady Butterfly (3), Honey Bee, Carpenter Bee.

Habitat:

Distance to Ocean (192 records): 100% inland - further than 2 km from coast.

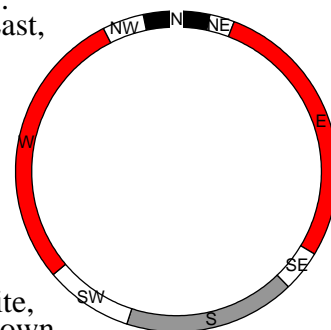
Altitude (192 records): 60 - 320 m; 100_{lq} - 120_{med} - 120_{uq}m.



Landform (192 records): 99% deep soil, 1% swamp.

Slope (189 records): 57% platform, 26% gentle incline, 9% valley bottom, 5% hill top, 2% dunes.

Aspect (121 records): 36% West, 31% East, 23% South, 10% North.



Soil Type (191 records): 95% sandy, 4% loamy, 1% clayey.

Soil Colour (188 records): 23% white, 22% grey, 20% brown, 17% yellow, 13% orange, 5% red.

Geology (185 records): 82% Tertiary sands, 11% sandstone, 3% shale, 3% silcrete or ferricrete, 2% granite.

Vegetation (192 records): 93% shrubland, 6% agricultural lands.

Conservation Status and Threat:

Red Data List Status: Endangered A2c+4c.

Occurrence (Fynbos): 231 km² with 7% conserved and 46% lost; Occupancy: 157 km² with 11% conserved and 50% lost. Fragmentation index: 40%.

Nature Reserves (192 records): 16% in nature reserves - inadequately conserved.

Habitat destruction (187 records): 55% extensive natural habitat, 24% islands, 17% road verges, 4% naturally linear habitats, 1% corridors.

Alien Invasive Species (186 records): 91% Fabaceae (chiefly alien *Acacia*), 4% none, 2% *Pinus*, 2% annual alien grasses, 1% Myrtaceae.

Alien Density (186 records): 4% alien-free, 40% sparse, 34% abundant, 19% dense, 3% impenetrable.

Cultivation & Utilization:

Picking (157 records): 100% no sign of picking.

Cultivation Status: Plantings - 3 records (2%).

Witch's Broom Infestation: 1 record (0.5%).

Atlassers Notes:

Some plants grazed! (ASP95030204); Young shoots much browsed - cattle present (SMR97112602);

Half as many again are dead (AGRY0091402); Lots of dead senescent plants in patches of very old veld (>15 years) (AGRY4102705); Lots of old plants died in flower last year - no small plants but big plants many coming

into flower for their first time!
(APE93060504);

Collected fasciated material for Witches Broom test – no mites found (AGR96051010);

Confusing Species: Was mistaken for *L. rodolentum* when not in flower, no problems when in flower as the red pointed bracts are distinctive.

Records of identification queries = 12.

Records of corrected identification queries = 6.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum rodolentum (Salisb. ex Kn.) Rourke 1809, 1969

Sandveld Pincushion

Sandveldluisiesbos

Other Common Names: Rose-scented Leucadendrum, Rose-scented Pincushion, *Beesbos*, *Klipboom*, *Knopbos*, *Kreupelbos*, *Sandluisie*, *Vaalluisbos*.

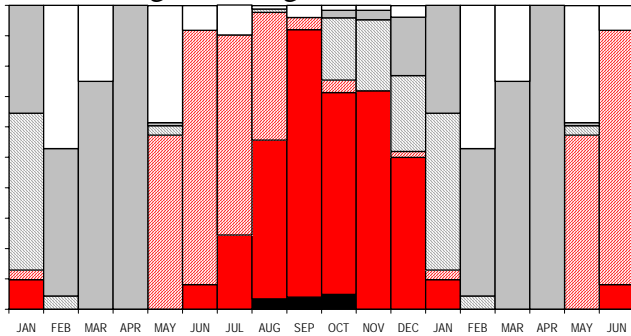
Other Scientific Names: *candicans* (Andr) 1803.

830 Records

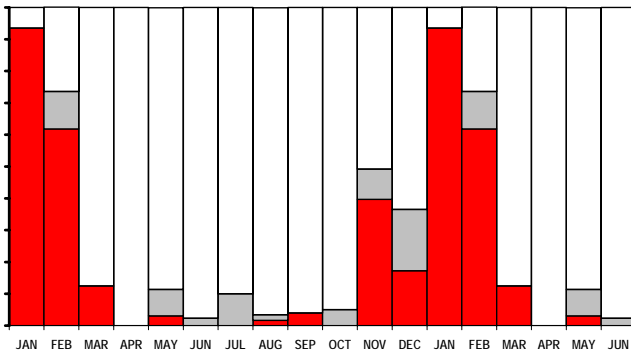
Population (826 records): 31% Common, 52% Frequent, 17% Rare.

Dispersion (763 records): 78% variable, 17% clumped, 5% widespread.

Flowering (820 records with: Jan 31, Feb 68, Mar 8, Apr 1, May 96, Jun 86, Jul 41, Aug 176, Sep 75, Oct 122, Nov 64, Dec 52): Buds from May to Aug; Flowering from Jul to Dec; Peak Flowering not significant; Over from Oct to Jan; Fruit from Jan to Apr; Nothing from Feb to May. Peak levels at 99% in Aug. Historically recorded as flowering from Aug to Nov.



Growth (813 records with: Jan 31, Feb 68, Mar 8, Apr 1, May 96, Jun 87, Jul 40, Aug 172, Sep 75, Oct 120, Nov 63, Dec 52): Much from Jan to Feb and Nov; Rare from Dec; None from Feb to Dec. Peak levels at 94% in Jan.



Seedlings (324 records): Absent in 98%; fewer seedlings than prefire adults in 1 case, and more in 2 cases. Seedlings found in Jun, Aug and Oct.

Fire Survival (14 records): 86% survived by seedlings only, 14% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 3 years, 50% estimated at 4 years, and 100% recorded at 6 years.



Height (821 records): 12% 0.2-1 m tall, 78% 1-2 m tall, 9% 2-5 m tall.

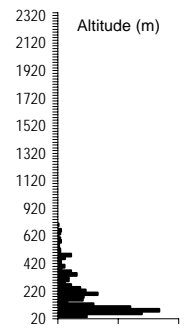
Pollinators (27 records): 33% bees or wasps, 26% flies, 22% beetles, 11% birds, 7% butterflies or moths.

Detailed Pollinators (11 records): Honey Bee (4), Monkey Beetle (3), Skipper Butterfly, Orange-breasted Sunbird, Cape Weaver, Cape Sugarbird.

Habitat:

Distance to Ocean (824 records): 100% inland - further than 2 km from coast.

Altitude (825 records): 20 - 700 m; 60_{lq} - 80_{med} - 100_{uq} m.

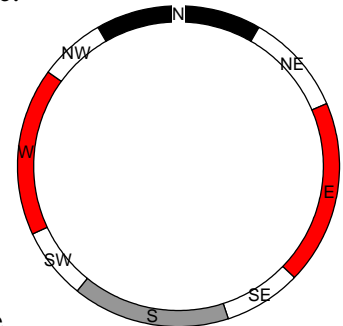


Landform (823 records): 100% deep soil.

Slope (820 records): 51% platform, 37% gentle incline, 4% dunes, 3% valley bottom, 2% hill top, 2% steep incline.

Aspect (454 records):

28% East,
25% North,
24% West,
23% South.



Soil Type (820 records): 96% sandy, 4% loamy.

Soil Colour (817 records): 26% white, 25% brown, 15% grey, 15% yellow, 12% orange, 7% red.

Geology (788 records): 60% Tertiary sands, 37% sandstone, 3% shale.

Vegetation (819 records): 99% shrubland.

Conservation Status and Threat:

Red Data List Status: Vulnerable A2c.

Occurrence (Fynbos): 11 440 km² with 8% conserved and 34% lost; **Occupancy:** 973 km² with 1% conserved and 43% lost. **Fragmentation index:** 4%.

Nature Reserves (825 records): 1% in nature reserves - unconserved.

Habitat destruction (816 records): 59% extensive natural habitat, 30% islands, 9% road verges, 1% naturally fragmented habitats.

Alien Invasive Species (812 records):
67% Fabaceae (chiefly alien *Acacia*),
25% none, 4% *Pinus*, 4% Myrtaceae.
Alien Density (811 records): 25% alien-free,
57% sparse, 13% abundant, 5% dense.

Cultivation & Utilization:

Picking (679 records): 100% no sign of picking.

Cultivation Status: Plantings - 3 records.

Witch's Broom Infestation: 1 record (0.1%).

Atlassers Notes:

Second flowering of year! (AGR96102504);

Were all in bud and flowering when they should have been in fruit in Dec - Dry autumn and wet spring? (SMR98120202);

Some old plants over 3 m with on many the bottom 20-30cm of trunk black and charred - the surrounding vegetation was below knee height so it looks as though the top of the plants had survived one or more fires (SMRY0022401);

With a very short leaf - although variable between individuals (AGRY0072717);

Had been grazed (DJLY0020906); Eaten (VCH98052007);

Over 4 dead plants of various ages (AGRY0091404); 2 dead also seen (LYMY0082402); In very poor condition

(dwarfed) and appear to be dieing (NAHY3041601); Plants stressed (SHR98120513); Many dead also (SMR99112405);
On sand dunes only (AMMY0022401); Often were associated with ant - mounds according to our physiological data neither seedlings nor adults show any signs of water stress. Seedlings of this species seem to send a root to this water source to ensure their survival - seedlings were abundant at the site (GUY88102501); In windbreaks and roadside (MHG97072703); Confined to vicinity of river course by wheat fields (SHR93081501); All over the dunes (WIJY0081203);

Confusing Species: None noted.
Records of identification queries = 12.

Variation and Taxonomy: Some short-leaved forms noted by atlassers.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum tomentosum (Thunb.) R.Br. 1781, 1810
Saldanha Pincushion
Saldanhaluisie

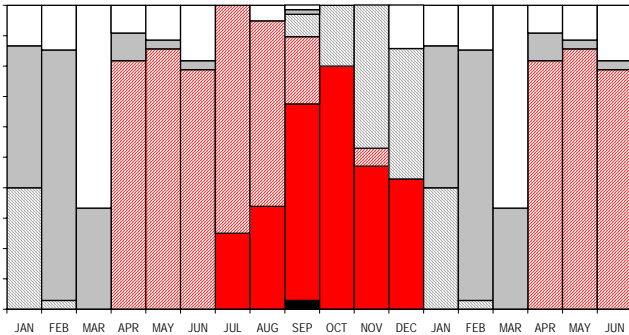
Other Common Names: Cottony
 Leucadendrum, *Vaalluisiesbos*.
Other Scientific Names: *ecklonii* Buek 1844.

311 Records

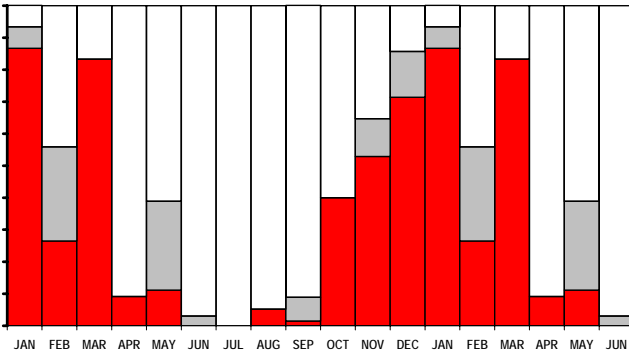
Population (309 records): 32% Common, 54% Frequent, 14% Rare.

Dispersion (287 records): 89% variable, 10% clumped, 1% widespread.

Flowering (309 records with: Jan 30, Feb 34, Mar 6, Apr 11, May 35, Jun 33, Jul 4, Aug 59, Sep 68, Oct 5, Nov 17, Dec 7): Buds from Apr to Sep; Flowering from Jul to Dec; Peak Flowering not significant; Over from Oct to Jan; Fruit from Jan to Mar; Nothing from Mar. Peak levels at 100% from Oct to Nov. Historically recorded as flowering from Jun to Nov.



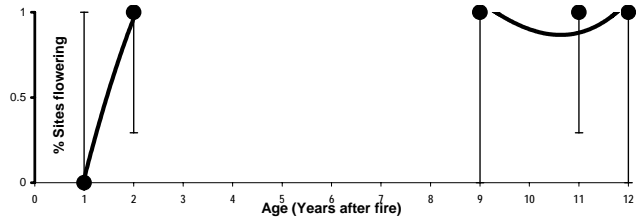
Growth (309 records with: Jan 30, Feb 34, Mar 6, Apr 11, May 36, Jun 33, Jul 4, Aug 58, Sep 68, Oct 5, Nov 17, Dec 7): Much from Oct to Mar; Rare from Feb and May; None from Feb to Nov. Peak levels at 93% in Jan.



Seedlings (152 records): All without any seedlings present.

Fire Survival (19 records): 100% resprouted from underground boles.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 1 year, and 100% recorded at 2 years.



Height (309 records): 1% 0-0.2 m tall, 90% 0.2-1 m tall, 9% 1-2 m tall.

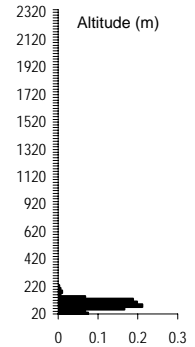
Pollinators (5 records): 80% beetles, 20% birds.

Detailed Pollinators (2 records): Monkey Beetle, Dusky Sunbird.

Habitat:

Distance to Ocean (308 records): 95% inland - further than 2 km from coast.

Altitude (308 records): 20 - 220 m; 40_{lq} - 80_{med} - 80_{uq}m.

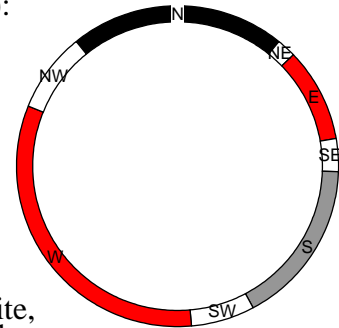


Landform (308 records): 99% deep soil.

Slope (308 records): 63% platform, 27% gentle incline, 4% hill top, 3% dunes, 3% valley bottom.

Aspect (170 records):

41% West,
 27% North,
 21% South,
 12% East.



Soil Type (308 records): 98% sandy, 2% loamy.

Soil Colour (308 records): 58% white, 31% grey, 5% yellow, 3% brown, 2% orange.

Geology (298 records): 90% Tertiary sands, 6% sandstone, 2% limestone, 1% shale, 1% granite.

Vegetation (308 records): 97% shrubland, 1% thicket.

Conservation Status and Threat:

Red Data List Status: Vulnerable A4c.

Occurrence (Fynbos): 924 km² with 6% conserved and 25% lost; **Occupancy:** 321 km² with 12% conserved and 22% lost. **Fragmentation index:** 16%.

Nature Reserves (308 records): 12% in nature reserves - inadequately conserved.

Habitat destruction (304 records): 81% extensive natural habitat, 10% islands, 8% road verges, 1% naturally linear habitats.

Alien Invasive Species (305 records): 81% Fabaceae (chiefly alien *Acacia*), 16% none, 3% *Pinus*.

Alien Density (305 records): 16% alien-free, 56% sparse, 18% abundant, 9% dense.

Cultivation & Utilization:

Picking (269 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

A small proportion about 1 in 30 are single stems not resprouters (AGRY0082504); A resprouter: on Tygerfontein there has been no fire over 50yrs according to the farmer, but bordering farms have been burnt and cultivated (ASP94121502); Quite upright bushes - several were single stemmed (SMR99112409);

Mat to 3 m wide (OUT97071001); Perfect habit, but bracts a little rounder than normal (AGRY0082504);

Browsing (SMR97012903);

Flowers very heavily scented - very sweet (PGD93101401);

Confusing Species: Confused with *L. rodolentum* which has a single basal stem, *L. parile* which has a single basal stem and pointed involucre bracts and *L. hypophyllocarpodendron* subsp. *canaliculatum* which is also multiple-stemmed, but has rounded involucre bracts. Much of the confusion is because of hybrids and the note in Rourke that this species is confined to within 5 km of the coast.

Records of identification queries = 33.

Records of corrected identification queries = 10.

Variation and Taxonomy: Buek did not validly publish his name *ecklonii*. Intermediates with *L. rodolentum* occur whenever the two species co-occur.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum calligerum (Salisb. ex Kn.) Rourke 1809, 1969

Arid Pincushion

Luisiebossie

Other Common Names: Callus-bearing Leucadendrum, Gnaphalium-leaf Leucadendrum, Pink Pincushion, Pubescent Leucadendrum, Xeranthemum-leaf Leucadendrum, *Luisies*, *Rooiluisie*.

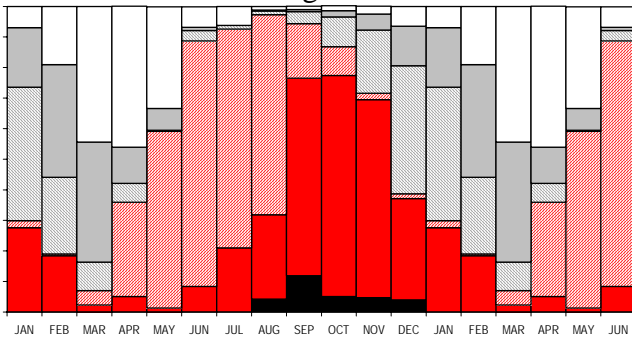
Other Scientific Names: *gnaphaliifolium* Salisb. ex Knight 1809, *puberum* (L) 1771, *xeranthemifolium* Salisb. ex Knight 1809.

2375 Records

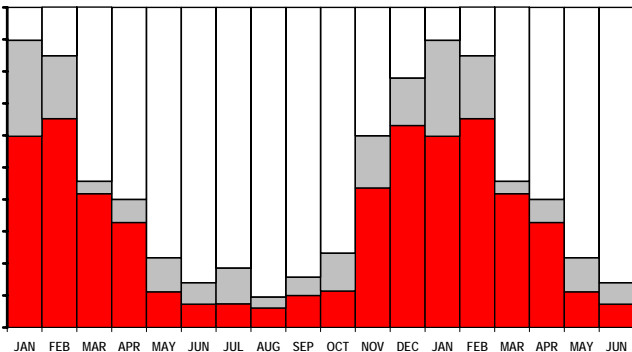
Population (2355 records): 31% Common, 51% Frequent, 16% Rare.

Dispersion (2185 records): 64% variable, 32% clumped, 3% widespread, 1% evenly distributed.

Flowering (2350 records with: Jan 87, Feb 179, Mar 214, Apr 195, May 225, Jun 178, Jul 81, Aug 333, Sep 285, Oct 256, Nov 193, Dec 124): Buds from Apr to Aug; Flowering from Jul to Jan; Peak Flowering not significant; Over from Nov to Feb; Fruit from Jan to Mar; Nothing from Mar to May. Peak levels at 99% in Aug. Historically recorded as flowering from Jul to Jan.



Growth (2314 records with: Jan 87, Feb 178, Mar 213, Apr 195, May 225, Jun 178, Jul 81, Aug 328, Sep 281, Oct 254, Nov 172, Dec 122): Much from Nov to Apr; Rare from Jan to Feb; None from Mar to Dec. Peak levels at 90% in Jan.

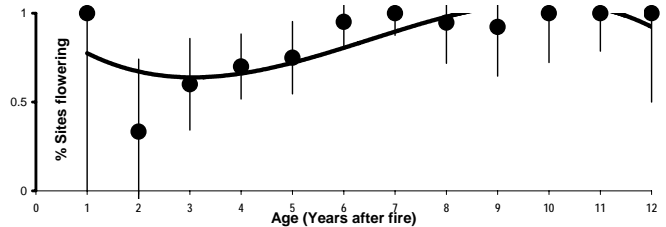


Seedlings (1028 records): Absent in 97%: fewer seedlings than prefire adults in 8 cases, and more in 8 cases. Seedlings found in Jan (3), Mar, Apr (3), Jun, Jul (4) and Oct (4).

Fire Survival (111 records): 77% survived by seedlings only, 13% escaped fires in fire-safe

areas, 5% eliminated from the area by fires, 5% resprouted from underground boles.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 2 years, and 100% recorded at 7 years.



Height (2347 records): 1% 0-0.2 m tall, 49% 0.2-1 m tall, 46% 1-2 m tall, 4% 2-5 m tall.

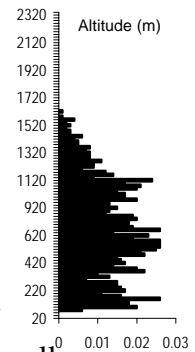
Pollinators (13 records): 38% birds, 31% beetles, 23% bees or wasps, 8% flies.

Detailed Pollinators (5 records): Orange-breasted Sunbird (3), Cape Sugarbird (2).

Habitat:

Distance to Ocean (2347 records): 100% inland - further than 2 km from coast.

Altitude (2347 records): 60 - 1860 m; 360_{lq} - 620_{med} - 880_{uq}m.

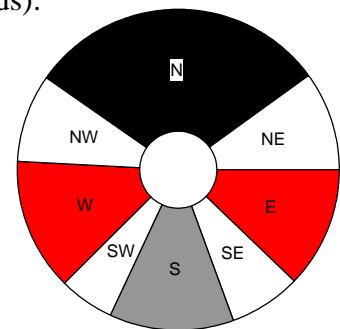


Landform (2332 records): 70% deep soil, 24% shallow soil, 6% rocky outcrops.

Slope (2336 records): 59% gentle incline, 20% steep incline, 11% platform, 8% hill top, 2% valley bottom.

Aspect (2015 records):

40% North, 21% East, 20% West, 19% South.



Soil Type (2321 records): 55% sandy, 17% loamy, 17% gravelly, 9% rocky, 2% clayey.

Soil Colour (2318 records): 39% brown, 38% grey, 8% yellow, 6% orange, 5% white, 3% red.

Geology (2247 records): 82% sandstone, 11% shale, 3% silcrete or ferricrete, 3% conglomerate, 1% Tertiary sands.

Vegetation (2331 records): 99% shrubland.

Conservation Status and Threat:

Red Data List Status: Least Concern, but Endangered A2c on West Coast Swartland and Critically Endangered A2c for the Worcester form.

Occurrence (Fynbos): 22 463 km² with 16% conserved and 19% lost; Occupancy: 2 380 km² with 18% conserved and 12% lost. Fragmentation index: 4%.

Nature Reserves (2347 records): 22% in nature reserves.

Habitat destruction (2307 records): 90% extensive natural habitat, 7% islands, 1% naturally linear habitats, 1% naturally fragmented habitats.

Alien Invasive Species (2285 records): 69% none, 12% *Pinus*, 10% Fabaceae (chiefly alien *Acacia*), 7% *Hakea*, 2% Myrtaceae.

Alien Density (2280 records): 69% alien-free, 24% sparse, 6% abundant, 1% dense.

Cultivation & Utilization:

Picking (1736 records): 100% no sign of picking.

Cultivation Status: Plantings - 3 records.

Witch's Broom Infestation: 1 record (0.04%).

Atlassers Notes:

Hoary old specimens 100m diameter of bare trunk! (AGR97061201); Some to over 4 m tall (AGRY0043029); Very tall (AWA95081703); Very big (AWA95090401); Massive (AWA96082208); Enormous (AWA98090202); Very large - some bushes measuring about 2 m X 2 m X 1.5 m high (PGD93091801); We have never seen such dense and tall plants - some over 4 m high (VJK94103001);

Multiple heads - up to 5 on one stem (ING95111201);

Peculiar flat form only occasionally reaching 1 m tall (AGR96042503); With similar growth habit to Worcester Valley at Worcester (AGR97010413); Low growing mat (LYMY0101908); A sprawling 1.5 m

diameter 200 mm high bush with flowerheads on ground (MHR98041303); Very rough leaves (SMR99060911); Grazed (AGR97061201); Only dead plants seen (AGRY3112702); Plants seem to be dying (HRKY0122601); Experiencing water stress (SHRY0070901); Many dying of drought and some resprouting from base - just above or below ground level (WIJ94041105); Many dried - up buds - due to drought? (WIJ94041106);

Confusing Species: Mostly confused with *L. wittebergense*, which is similar but has smaller flowerheads. Odd misidentifications with *L. spathulatus*, *saxatilis*, *mundii*, *lineare*, *vestitum* and *truncatum*. The populations near Napier caused confusion with *L. heterophyllum*, and show some intermediate characters. Many older specimens well exceeded the heights and diameters given in the literature.

Records of identification queries = 54.

Records of corrected identification queries = 23.

Variation and Taxonomy: Although *pubera* is the earliest name for this species, Linnaeus cited it as a synonym for *L. oleifolium* thus making this name superfluous, even though his description is for *L. calligerum*. The choice of *L. calligerum* from the three species described by Salisbury is based on only that type specimen being traced. The Breede River Valley from Breede River Station to Worcester has a peculiar creeping form.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSCALL_m.jpg" *

MERGEFORMAT \d

Leucospermum heterophyllum (Thunb.) Rourke 1781, 1967

Trident Pincushion

Rankluisie

Other Common Names: Snakebush,
Slangbossie.

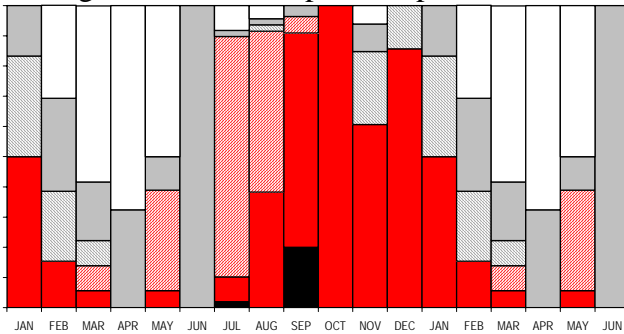
Other Scientific Names: *lemmerzianum* Schltr.
1900, *patens* R.Br. 1810, *patulum* R.Br.
1810.

391 Records

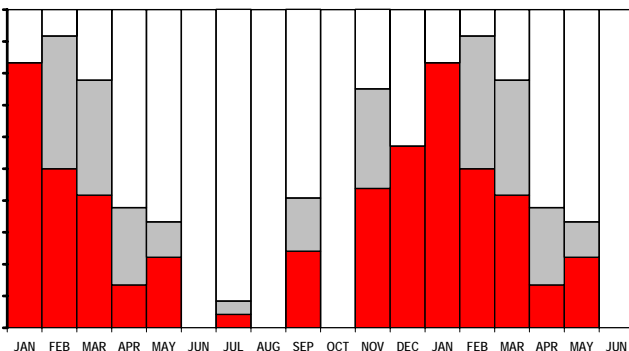
Population (384 records): 28% Common,
56% Frequent, 16% Rare.

Dispersion (281 records): 75% variable,
23% clumped, 1% widespread.

Flowering (304 records with: Jan 6, Feb 13,
Mar 36, Apr 37, May 18, Jun 2, Jul 49, Aug
47, Sep 55, Oct 1, Nov 33, Dec 7): Buds
from May to Aug; Flowering from Aug to
Jan; Peak Flowering from Sep; Over from
Nov to Feb; Fruit from Feb to Apr; Nothing
from Feb to May. Peak levels at 100% in
Oct. Historically recorded as flowering from
Aug to Jan with a Sep to Oct peak.



Growth (299 records with: Jan 6, Feb 12, Mar
36, Apr 37, May 18, Jun 2, Jul 48, Aug 46,
Sep 54, Oct 1, Nov 32, Dec 7): Much from
Nov to Mar and May and Sep; Rare from
Feb to Apr and Nov; None from Mar to Dec.
Peak levels at 92% in Feb.



Seedlings (90 records): Absent in 89%: fewer
seedlings than prefire adults in 2 cases, and
more in 3 cases. Seedlings found in Jul (4)
and Sep.

Fire Survival (15 records): 93% survived by
seedlings only, 7% resprouted from
underground boles.

Age to first flowering: First flowers recorded
at 1 year, 50% estimated at 4 years, and
100% recorded at 5 years.



Height (305 records): 66% 0-0.2 m tall,
33% 0.2-1 m tall, 2% 1-2 m tall.

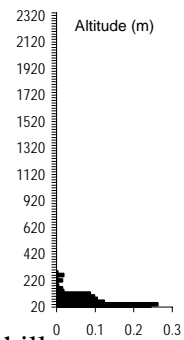
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (389
records): 100% inland -
further than 2 km from coast.

Altitude (389 records): 20 - 280
m; 20_{iq} - 40_{med} - 40_{uq}m.

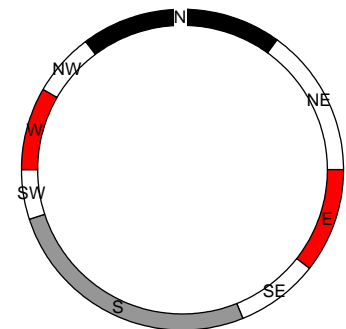


Landform (308 records):
92% deep soil, 7% shallow
soil.

Slope (307 records):
52% platform, 29% gentle
incline, 9% valley bottom, 4% hill top,
3% steep incline, 3% dunes.

Aspect (142 records):

33% South,
30% North,
23% East,
14% West.



Soil Type (306
records):

43% sandy,
31% loamy,
16% clayey,
9% gravelly.

Soil Colour (303 records): 52% brown,
35% grey, 4% orange, 4% white, 3% yellow,
1% red.

Geology (362 records): 35% silcrete or
ferricrete, 31% shale, 16% sandstone,
10% limestone, 7% Tertiary sands.

Vegetation (389 records): 98% shrubland,
2% agricultural lands.

Conservation Status and Threat:

Red Data List Status: Endangered A2c.

Occurrence (Fynbos): 999 km² with 8%
conserved and 43% lost; **Occupancy:**
404 km² with 13% conserved and 51% lost.
Fragmentation index: 30%.

Nature Reserves (389 records): 16% in nature
reserves - inadequately conserved.

Habitat destruction (305 records):
70% extensive natural habitat, 18% islands,
9% road verges, 1% naturally fragmented
habitats, 1% corridors, 1% naturally linear
habitats.

Alien Invasive Species (306 records):

67% Fabaceae (chiefly alien *Acacia*),
19% none, 7% *Pinus*, 7% Myrtaceae.

Alien Density (306 records): 19% alien-free,
52% sparse, 24% abundant, 4% dense.

Cultivation & Utilization:

Picking (227 records): 100% no sign of
picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Very large plant 1.3 m high and about 3 m
diameter (STU97011404);

Very large in features - looking somewhat like
L. calligerum – and although sprawling, far
more upright than usual (AGRY1022815,
LYM96120402, NGF97112921,
SHR98080903, SMR96120402);

Confusing Species: Mostly confused with *L.*
calligerum in north of Elim near Napier.

Also mistaken for *L. prostratum* and *L.*
pendunculatum when not in flower, but the
former has a single toothed leaf and the latter
does not resprout.

Records of identification queries = 26.

Records of corrected identification queries = 16.

Variation and Taxonomy: Add.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSHETE_m.jpg" *

MERGEFORMAT \d

Leucospermum royenifolium (Salisb. ex Kn.) Stapf 1809, 1912
Eastern Pincushion

Other Common Names: Royena-leaf
 Leucadendrum.

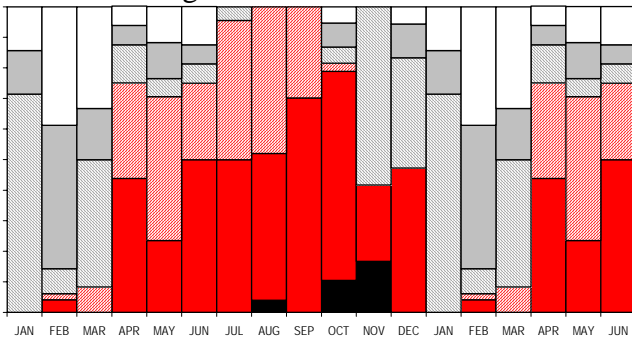
Other Scientific Names: *puberum* var. *dubium*
 Meisn 1856.

344 Records

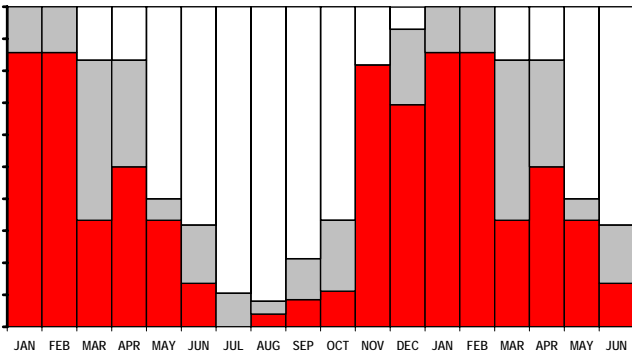
Population (341 records): 15% Common,
 67% Frequent, 17% Rare.

Dispersion (317 records): 52% variable,
 30% clumped, 13% widespread, 4% evenly
 distributed.

Flowering (333 records with: Jan 7, Feb 49,
 Mar 12, Apr 16, May 17, Jun 16, Jul 22, Aug
 25, Sep 47, Oct 38, Nov 12, Dec 72): Buds
 from Apr to Sep; Flowering from Apr to
 Dec; Peak Flowering not significant; Over
 from Nov to Jan and Mar; Fruit from Feb;
 Nothing from Feb to Mar. Peak levels at
 100% from Jul to Sep. Historically recorded
 as flowering from Jul to Dec.



Growth (327 records with: Jan 7, Feb 49, Mar
 12, Apr 12, May 15, Jun 22, Jul 19, Aug 25,
 Sep 47, Oct 36, Nov 11, Dec 72): Much from
 Nov to May; Rare from Mar to Apr, Oct and
 Dec; None from May to Oct. Peak levels at
 100% from Jan to Feb.



Seedlings (158 records): Absent in 92%; fewer
 seedlings than prefire adults in 5 cases, and
 more in 1 case. Seedlings found in Jun (3)
 and Sep (3).

Fire Survival (12 records): 25% survived by
 seedlings only, 25% escaped fires in fire-safe
 areas, 25% resprouted from underground
 boles, 17% eliminated from the area by fires,
 8% resprouted from aerial trunks.

Age to first flowering: First flowers recorded
 at 3 years, 50% estimated at 3-4 years, and
 100% recorded at 5 years.



Height (339 records): 25% 0-0.2 m tall,
 70% 0.2-1 m tall, 5% 1-2 m tall.

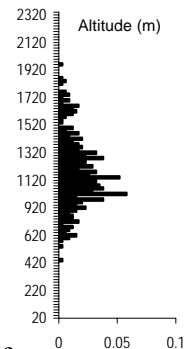
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (341
 records): 100% inland -
 further than 2 km from coast.

Altitude (341 records): 420 -
 1860 m; 900_{lq} - 1020_{med} -
 1160_{uq}m.

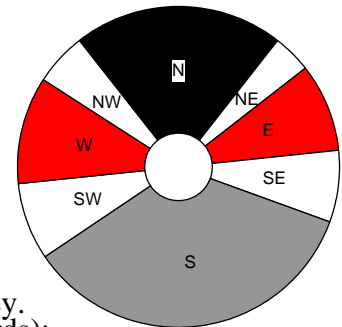


Landform (340 records):
 48% shallow soil, 44% deep
 soil, 8% rocky outcrops.

Slope (341 records): 48% gentle
 incline, 32% steep incline,
 16% hill top, 2% cliff, 2% platform.

Aspect (289 records):

43% South,
 26% North,
 17% West,
 13% East.



Soil Type (340
 records):

42% loamy,
 29% sandy,
 17% gravelly,
 9% rocky, 2% clayey.

Soil Colour (340 records):
 47% brown, 41% grey, 6% black,
 4% orange, 1% yellow.

Geology (332 records): 95% sandstone,
 5% shale.

Vegetation (340 records): 98% shrubland,
 1% grassland.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 1 873 km² with 20%
 conserved and 8% lost; Occupancy: 414 km²
 with 12% conserved and 11% lost.
 Fragmentation index: 14%.

Nature Reserves (341 records): 18% in nature
 reserves - inadequately conserved.

Habitat destruction (316 records):
 93% extensive natural habitat, 4% islands,
 2% road verges, 2% naturally fragmented
 habitats.

Alien Invasive Species (318 records):

65% none, 19% *Hakea*, 10% *Pinus*,
 4% Fabaceae (chiefly alien *Acacia*),
 2% annual alien grasses.

Alien Density (318 records): 65% alien-free,
 31% sparse, 4% abundant.

Cultivation & Utilization:

Picking (204 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Greater than 3 m wide (AWA95101013); One plant at least 7 m wide! (OUTY0102210); Many killed by fire (OUT95102804); A few escaped fire (OUT95102806); Some resprouted from bole and others apparently from base of trunk (WIJ97092401); Both resprouting & single stemmed forms present - most resprouters lower with either bright green leaves or very pale and low rounded. Hairy and hairless leaves in both forms - no clear distinction: status uncertain! (AGR99090907); Quite interesting to see *L. royenifolium* and *wittebergense* growing together (DOA94030108); Green on lower growth and grey on taller and flowering growth - very variable & sometimes looked like *L. wittebergense* (OUT94050702); Heavily eaten (AGRY0121506); Heavily grazed! (APE94081909);

Half plants dead - most on S-side!

(AGR97022604); One plant found but was dead (GAC97022604); Not well - many dead and dying (OUT96071302); Lots of die-back (OUT98040409);

Confusing Species: Considerable confusion was caused by intermediates and individuals approaching *L. wittebergense*. These may be hybrid swarms, but in some cases are just odd plants that do not resprout and are greyer than usual.

Records of identification queries = 42.

Records of corrected identification queries = 19.

Variation and Taxonomy: No variation noted, apart from intermediates with *L. wittebergense*.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSROYE_m.jpg" *

MERGEFORMAT \d

Leucospermum wittebergense Compton 1931
Swartberg Pincushion

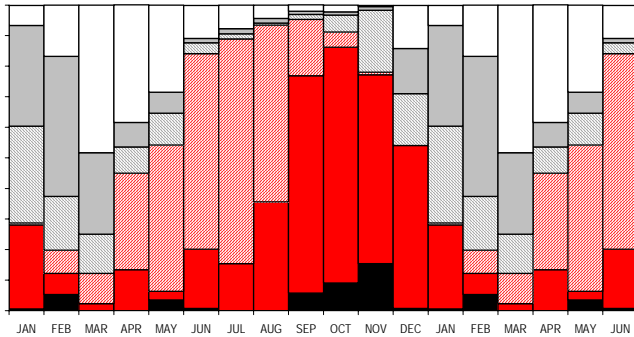
Other Common Names: None known.
Other Scientific Names: *None*.

2176 Records

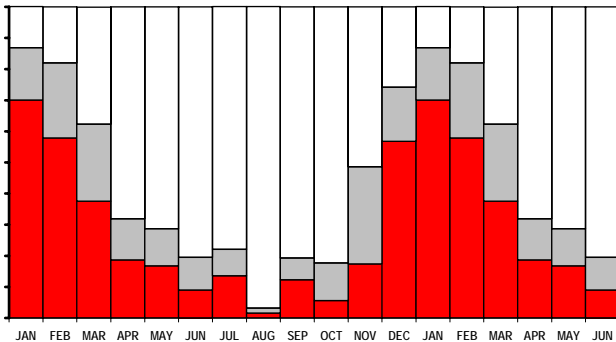
Population (2154 records): 18% Common, 68% Frequent, 14% Rare.

Dispersion (2028 records): 62% variable, 27% clumped, 9% widespread, 2% evenly distributed.

Flowering (2125 records with: Jan 167, Feb 131, Mar 172, Apr 187, May 144, Jun 139, Jul 117, Aug 135, Sep 190, Oct 362, Nov 246, Dec 135): Buds from Apr to Aug; Flowering from Aug to Jan; Peak Flowering not significant; Over from Jan and Nov; Fruit from Jan to Mar; Nothing from Mar to May. Peak levels at 98% in Nov. Historically recorded as flowering from Aug to Jan.



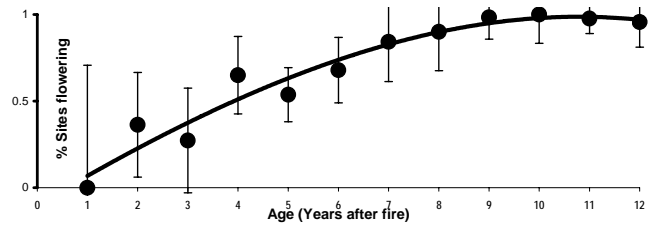
Growth (2096 records with: Jan 167, Feb 133, Mar 170, Apr 182, May 143, Jun 133, Jul 118, Aug 128, Sep 187, Oct 356, Nov 247, Dec 132): Much from Dec to Mar; Rare from Feb to Mar and Nov; None from Mar to Dec. Peak levels at 87% in Jan.



Seedlings (804 records): Absent in 94%; fewer seedlings than prefire adults in 16 cases, and more in 8 cases. Seedlings found in Jan (3), Mar (2), Apr (3), Jun (4), Jul (3), Aug (2), Sep (3), Oct (2) and Dec (2).

Fire Survival (99 records): 42% survived by seedlings only, 38% escaped fires in fire-safe areas, 11% resprouted from underground boles, 8% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 3-4 years, and 100% recorded at 10 years.



Height (2137 records): 7% 0-0.2 m tall, 78% 0.2-1 m tall, 15% 1-2 m tall.

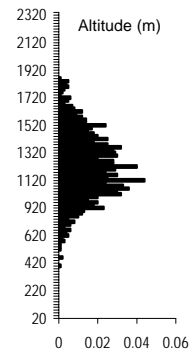
Pollinators (11 records): 27% birds, 27% beetles, 18% butterflies or moths, 18% bees or wasps, 9% none observed.

Detailed Pollinators (6 records): Orange-breasted Sunbird (3), Painted Lady Butterfly, Great Protea Beetle, African Monarch Butterfly.

Habitat:

Distance to Ocean (2168 records): 100% inland - further than 2 km from coast.

Altitude (2168 records): 200 - 1900 m; 940 *lq* - 1100 *med* - 1240 *uq*m.



Landform (2158 records): 70% shallow soil, 23% deep soil, 7% rocky outcrops.

Slope (2163 records): 53% steep incline, 35% gentle incline, 9% hill top, 2% cliff, 1% platform.

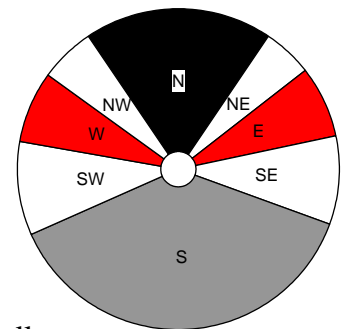
Aspect (1982 records): 47% South, 24% North, 15% West, 14% East.

Soil Type (2147 records): 53% sandy, 23% loamy, 17% rocky, 7% gravelly.

Soil Colour (2145 records): 47% brown, 43% grey, 5% black, 3% orange, 1% yellow.

Geology (2124 records): 98% sandstone, 2% shale.

Vegetation (2161 records): 99% shrubland.



Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 9 919 km² with 35% conserved and 4% lost; **Occupancy:** 1 901 km² with 50% conserved and 1% lost. **Fragmentation index:** 7%.

Nature Reserves (2168 records): 55% in nature reserves - well conserved.

Habitat destruction (2099 records): 98% extensive natural habitat.

Alien Invasive Species (2026 records): 92% none, 5% *Hakea*, 3% *Pinus*.

Alien Density (2014 records): 92% alien-free, 7% sparse.

Cultivation & Utilization:

Picking (1669 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Both resprouting and single stemmed forms present - single stems much taller but also sprawling, branched just above ground level, but with consistently grey leaves and twisted leaf base hairy and hairless leaves in both forms -no clear distinction (AGR99090907); Very large flowers - of magnitude of *L. calligerum* - but leaves smaller and silver (AGRY1020810); Some specimens in the population are 100% *L. royenifolium* in gizz! (AGRY1071912); Seems perfectly typical even though so far from the rest of the range (AGRY2102505); Quite interesting to see *L. wittebergense* and *royenifolium* growing together (DOA94030108); Leaves glabrous and dull green but plant erect shrub (MAJ92090701+2); Erect branches hairy grey leaves but appears to be a resprouter (NAH95033001); Strange country here and

this was one of the in between *L. royenifolium* and *L. wittebergense* types! (OUTY1022409)

New growth looks aborted and feels dry (AWA95022401); Many of the plants dying (OUT97052410); Occasional recruitment of plants in road - some mortality - vegetation quite old (PMR91120304); 4 dead bushes - drought? (REM99070802);

Confusing Species: Confused with *L. royenifolium* (90%) and *calligerum* (10%). Differs from the former in being single stemmed and grey-leaved, and from the latter in its smaller and more numerous flowerheads.

Records of identification queries = 69.

Records of corrected identification queries = 32.

Variation and Taxonomy: Add.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum pedunculatum Klotzsch 1845
White-trailing Pincushion

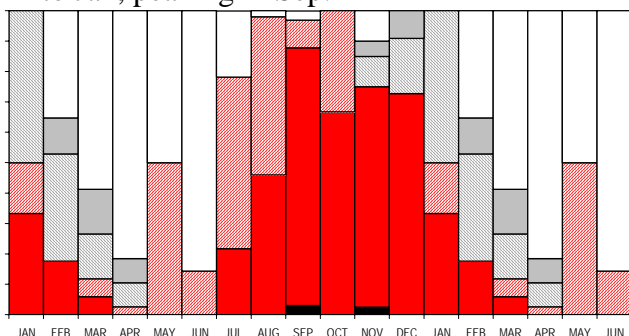
Other Common Names: None known.
Other Scientific Names: *None*.

277 Records

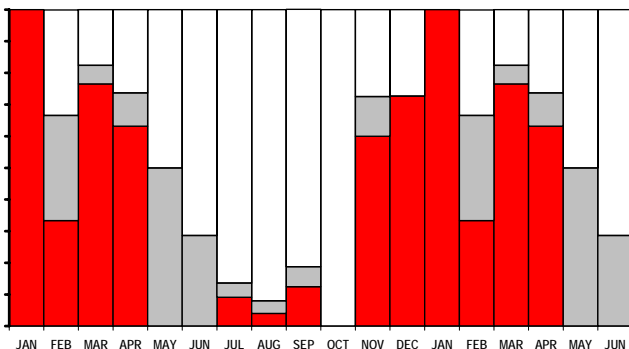
Population (275 records): 25% Common, 56% Frequent, 19% Rare.

Dispersion (242 records): 76% variable, 20% clumped, 4% widespread.

Flowering (264 records with: Jan 6, Feb 17, Mar 34, Apr 38, May 2, Jun 7, Jul 23, Aug 50, Sep 33, Oct 3, Nov 40, Dec 11): Buds from Jul to Aug; Flowering from Jul to Jan; Peak Flowering not significant; Over from Jan to Feb; Fruit not significant; Nothing from Feb to Jul. Peak levels at 100% in Oct. Historically recorded as flowering from Aug to Jan, peaking in Sep.



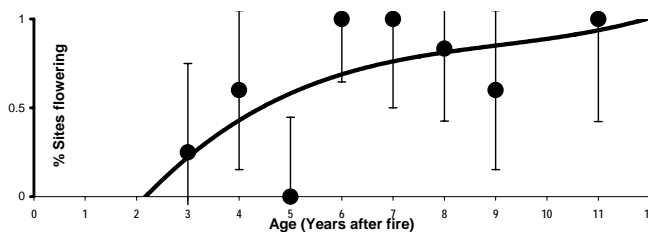
Growth (260 records with: Jan 6, Feb 15, Mar 34, Apr 38, May 2, Jun 7, Jul 22, Aug 50, Sep 32, Oct 3, Nov 40, Dec 11): Much from Nov to Apr; Rare from Feb, May to Jun; None from Feb and Apr to Dec. Peak levels unreliable at 100% in Jan.



Seedlings (108 records): All without any seedlings present.

Fire Survival (20 records): 80% survived by seedlings only, 15% eliminated from the area by fires, 5% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 3 years, 50% estimated at 4 years, and 100% recorded at 6 years.



Height (261 records): 55% 0-0.2 m tall, 44% 0.2-1 m tall.

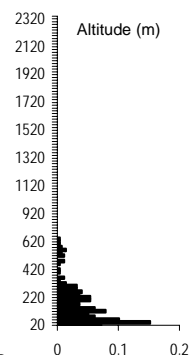
Pollinators (1 record): 100% butterflies or moths.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (277 records): 90% inland - further than 2 km from coast.

Altitude (277 records): 20 - 640 m; 40 *lq* - 100 *med* - 160 *uq*m.



Landform (264 records): 89% deep soil, 5% shallow soil, 4% swamp, 1% lake edge, 1% rocky outcrops.

Slope (263 records): 50% gentle incline, 29% platform, 11% hill top, 5% steep incline, 4% valley bottom.

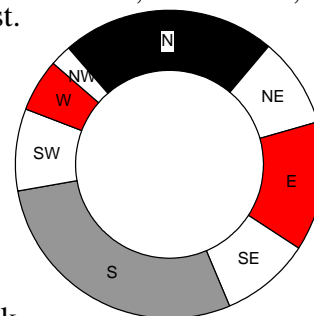
Aspect (191 records): 37% South, 28% North, 24% East, 12% West.

Soil Type (263 records): 85% sandy, 11% loamy, 2% peaty.

Soil Colour (261 records): 54% grey, 20% white, 16% brown, 6% yellow, 3% black.

Geology (241 records): 70% sandstone, 15% Tertiary sands, 7% silcrete or ferricrete, 6% limestone, 2% shale.

Vegetation (275 records): 99% shrubland.



Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 1 422 km² with 5% conserved and 34% lost; **Occupancy:** 294 km² with 11% conserved and 15% lost. **Fragmentation index:** 18%.

Nature Reserves (277 records): 20% in nature reserves.

Habitat destruction (258 records): 91% extensive natural habitat, 5% islands, 2% naturally linear habitats.

Alien Invasive Species (257 records): 37% Fabaceae (chiefly alien *Acacia*), 32% none, 23% *Pinus*, 4% Myrtaceae, 3% *Hakea*.

Alien Density (257 records): 32% alien-free, 43% sparse, 19% abundant, 5% dense.

Cultivation & Utilization:

Picking (199 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

With light green leaves in this area and plants appear to be coming from a resprouting rootstock, but are *L. pedunculatum*! (NAH94021901); Plants from the hills in this area have much darker green leaves than the plants in the Hagelkraal area (NAH94022006);

Pollinators observed on this hot day include Several Species of moth and butterflies (AGR98120921);

Confusing Species: Misidentified mainly with *L. prostratum* and *L. heterophyllum* – both of which are resprouters (but it is not easy to observe the base in the dense mat of branches). Odd misidentifications with *L.*

calligerum and *L. gracile*, from plants not in flower.

Records of identification queries = 34.

Records of corrected identification queries = 15.

Variation and Taxonomy: Some historical confusion around this species arose from its being reduced to synonymy with *L. saxatile* by Meisner in 1856, and error only rectified in 1972.

Plants from the western end of the distribution form dense mats with bright green foliage and numerous axillary branches. At the eastern end plants are sparsely branched and arise from more erect basal stem, with more olivaceous leaves. Hybrids in the area suggest that these might include some features from *L. truncatulum*.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSPEDU_m.jpg" *

MERGEFORMAT \d

Leucospermum prostratum (Thunb.) Stapf 1794, 1912

Yellow-trailing Pincushion

Geelrankspeldekussing

Other Common Names: Ball-flower
Leucadendrum, Creeping Pincushion,
Scented Pincushion, *Calypso Groundcover*.

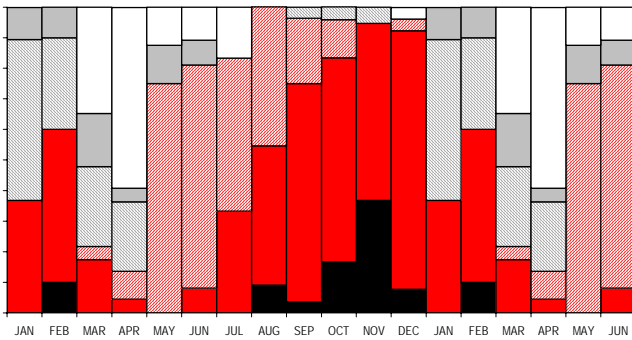
Other Scientific Names: *diffusum* R.Br. ex
Meisn 1856, *glomiflorum* (Salisb. ex Knight)
1809.

266 Records

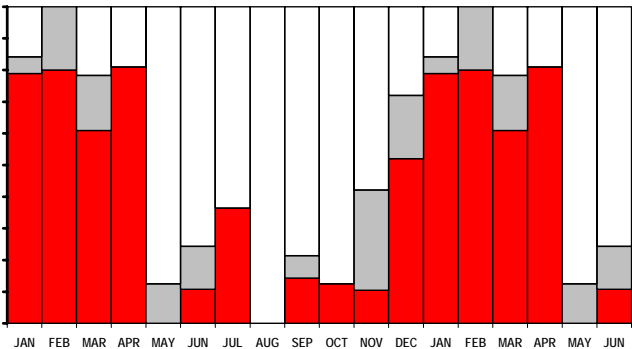
Population (265 records): 10% Common,
60% Frequent, 30% Rare.

Dispersion (225 records): 62% variable,
32% clumped, 4% widespread, 2% evenly
distributed.

Flowering (250 records with: Jan 19, Feb 10,
Mar 23, Apr 22, May 8, Jun 37, Jul 12, Aug
22, Sep 28, Oct 24, Nov 19, Dec 26): Buds
from May to Sep; Flowering from Jul to Feb;
Peak Flowering from Nov; Over from Jan to
Apr; Fruit not significant; Nothing from Mar
to Apr. Peak levels at 100% from Sep to
Nov. Historically recorded as flowering
from Jul to Dec.



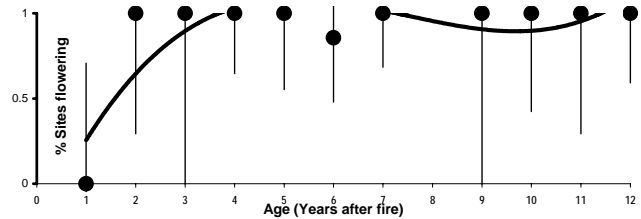
Growth (246 records with: Jan 19, Feb 10, Mar
23, Apr 21, May 8, Jun 37, Jul 11, Aug 21,
Sep 28, Oct 24, Nov 19, Dec 25): Much from
Dec to Apr and Jul; Rare from Feb and Nov
to Dec; None from Mar and May to Dec.
Peak levels at 100% in Feb.



Seedlings (93 records): Absent in 87%: fewer
seedlings than prefire adults in 5 cases, and
more in 1 case. Seedlings found in Jan (2),
Feb, Apr, Jun, and Sep.

Fire Survival (8 records): 88% resprouted from
underground boles, 13% escaped fires in
fire-safe areas.

Age to first flowering: First flowers recorded
at 1 year, 50% estimated at 2 years, and
100% recorded at 3 years.



Height (248 records): 80% 0-0.2 m tall,
20% 0.2-1 m tall.

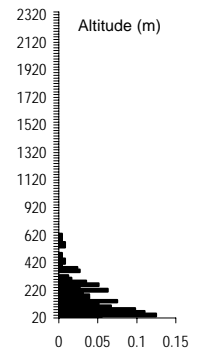
Pollinators (2 records): 50% bees or wasps,
50% beetles.

Detailed Pollinators (1 record): Honey Bee.

Habitat:

Distance to Ocean (255
records): 67% inland - further
than 2 km from coast.

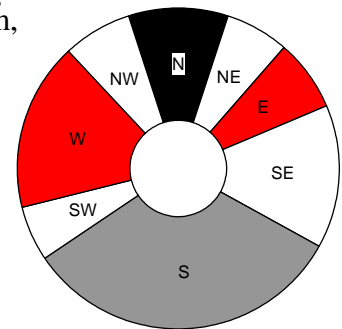
Altitude (255 records): 20 - 620
m; 40_{lq} - 100_{med} - 140_{uq}m.



Landform (239 records):
87% deep soil, 8% shallow
soil, 4% rocky outcrops.

Slope (239 records): 66% gentle
incline, 18% platform,
9% steep incline,
5% valley bottom,
2% hill top.

Aspect (200
records):
43% South,
23% West,
17% North,
17% East.



Soil Type (239
records):
78% sandy,
18% loamy, 3% gravelly, 1% rocky.

Soil Colour (238 records): 67% grey,
13% brown, 12% white, 4% yellow,
3% black, 2% orange.

Geology (232 records): 81% sandstone,
10% Tertiary sands, 4% limestone, 3% shale.

Vegetation (253 records): 98% shrubland,
1% suburban.

Conservation Status and Threat:

Red Data List Status: Vulnerable A4c.
Occurrence (Fynbos): 1 983 km² with 13%
conserved and 33% lost; Occupancy:
337 km² with 9% conserved and 24% lost.
Fragmentation index: 12%.

Nature Reserves (255 records): 22% in nature
reserves.

Habitat destruction (235 records):
87% extensive natural habitat, 10% islands,
2% naturally fragmented habitats, 1% road
verges, 1% patches.

Alien Invasive Species (230 records):

47% Fabaceae (chiefly alien *Acacia*),
23% none, 18% *Pinus*, 11% Myrtaceae,
2% *Hakea*.

Alien Density (229 records): 23% alien-free,
53% sparse, 14% abundant, 7% dense,
3% impenetrable.

Cultivation & Utilization:

Picking (190 records): 100% no sign of
picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Mainly reseeding (80%) after fire
(NAH98071601).

Confusing Species: Odd mistakes – when not
in flower - with *L. bolusii* and *pedunculatum*,
both of which are not resprouters, and
Diastella divaricata subsp. *montana* which
also does not resprout.

Records of identification queries = 8.

Records of corrected identification queries = 5.

Variation and Taxonomy: Add.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum bolusii Gand. 1901

Gordons Bay Pincushion

Witluisie

Other Common Names: Bolus's Pincushion, Fragrant Pincushion, White Pincushion, *Luisiesbos*, *Witspeldekussing*.

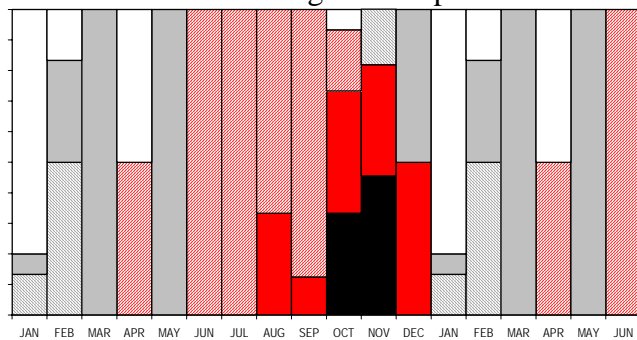
Other Scientific Names: *album* Bond 1941, *oleifolium* var. *brownii* Meisn. 1856.

71 Records

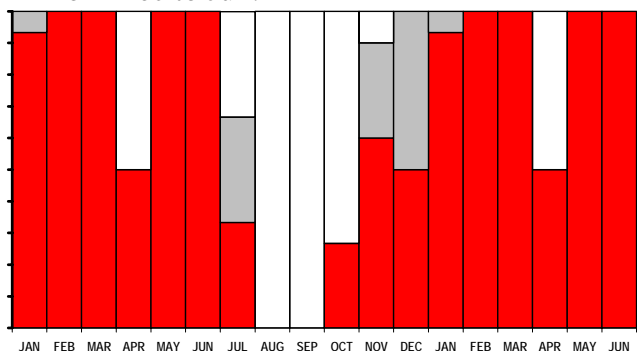
Population (70 records): 46% Common, 40% Frequent, 13% Rare, 1% Extinct.

Dispersion (66 records): 76% variable, 15% clumped, 8% widespread, 2% evenly distributed.

Flowering (70 records with: Jan 15, Feb 6, Mar 1, Apr 2, May 3, Jun 1, Jul 3, Aug 3, Sep 8, Oct 15, Nov 11, Dec 2): Buds from Apr and Jun to Oct; Flowering from Aug and Oct to Dec; Peak Flowering from Oct to Nov; Over from Feb; Fruit from Feb to Mar and May; Nothing from Jan, and Apr. Peak levels at 100% from Jun to Sep and Nov. Historically recorded as flowering from Sep to Dec.



Growth (69 records with: Jan 15, Feb 6, Mar 1, Apr 2, May 3, Jun 1, Jul 3, Aug 3, Sep 8, Oct 15, Nov 10, Dec 2): Much from Oct to Jul; Rare from Jul and Nov to Dec; None from Apr and Jul to Oct. Peak levels at 100% from Dec to Jun.



Seedlings (32 records): All without any seedlings present.

Fire Survival (4 records): 75% survived by seedlings only, 25% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 2 years, 50% estimated at 4-5 years, and 100% recorded at 7 years.



Height (70 records): 1% 0-0.2 m tall, 89% 0.2-1 m tall, 10% 1-2 m tall.

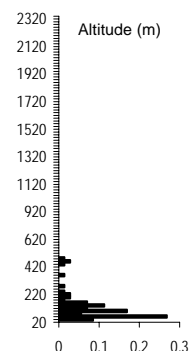
Pollinators (1 record): 100% beetles.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (70 records): 99% coastal - less than 2 km from coast.

Altitude (70 records): 20 - 480 m; 40_{lq} - 60_{med} - 60_{uq} m.



Landform (69 records): 61% deep soil, 29% shallow soil, 10% rocky outcrops.

Slope (70 records): 54% steep incline, 46% gentle incline.

Aspect (67 records):

70% West,
16% South,
14% North.

Soil Type (67

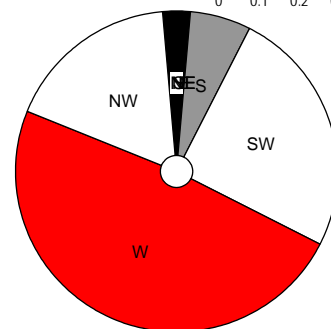
records):
54% sandy,
25% loamy,
16% gravelly,
4% rocky.

Soil Colour (66

records): 56% brown, 24% grey,
14% orange, 5% white, 2% red.

Geology (68 records): 94% sandstone,
3% conglomerate, 3% shale.

Vegetation (70 records): 100% shrubland.



Conservation Status and Threat:

Red Data List Status: Near Threatened D2(i)

Occurrence (Fynbos): 36 km² with 0% conserved and 36% lost; **Occupancy:** 34 km² with 0% conserved and 11% lost. **Fragmentation index:** 81%.

Nature Reserves (70 records): 0% in nature reserves - unconserved.

Habitat destruction (69 records):

97% extensive natural habitat, 1% islands,
1% naturally fragmented habitats.

Alien Invasive Species (66 records):

48% Fabaceae (chiefly alien *Acacia*),
20% none, 17% *Pinus*, 9% Myrtaceae,
6% *Hakea*.

Alien Density (66 records): 20% alien-free,
76% sparse, 3% abundant, 2% dense.

Cultivation & Utilization:

Picking (46 records): 100% no sign of picking.

Cultivation Status: Plantings - 1 record (1%).

Atlassers Notes: None.

Confusing Species: None noted.
Records of identification queries = 1.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum truncatum (Salisb. ex Kn.) Rourke 1809, 1967

Oval-leaf Pincushion

Patrysbos

Other Common Names: Buxifolia, Buxy, Mini Pincushion, Trunculated Leucadendrum, *Kleinkospeldekussing*.

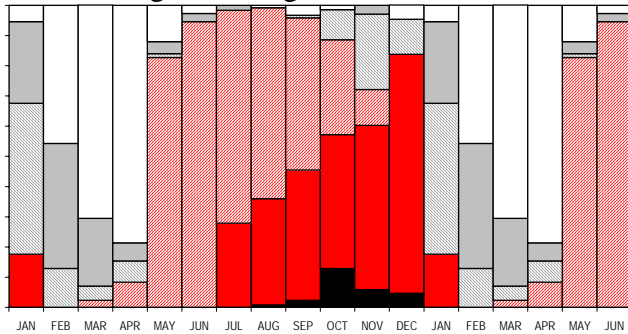
Other Scientific Names: *buxifolium* R.Br. 1810, *buxifolium* var. *epacridea* (Gand) 1901, *villosa* (Willd) 1825.

981 Records

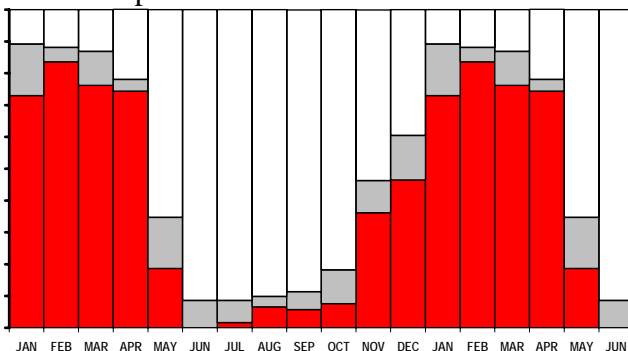
Population (968 records): 26% Common, 61% Frequent, 12% Rare.

Dispersion (858 records): 70% variable, 25% clumped, 4% widespread.

Flowering (915 records with: Jan 74, Feb 70, Mar 85, Apr 84, May 75, Jun 37, Jul 61, Aug 125, Sep 123, Oct 70, Nov 68, Dec 43): Buds from May to Oct; Flowering from Jul to Dec; Peak Flowering not significant; Over from Jan and Nov; Fruit from Jan to Mar; Nothing from Feb to Apr. Peak levels misleading at 99% in Aug. Historically recorded as flowering from Aug to Dec.



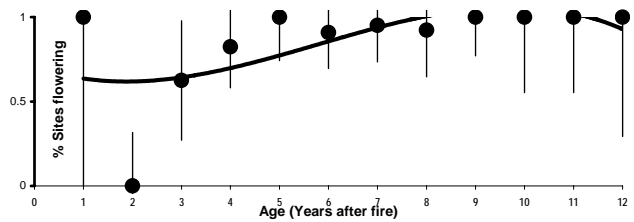
Growth (896 records with: Jan 74, Feb 67, Mar 84, Apr 82, May 75, Jun 35, Jul 58, Aug 121, Sep 122, Oct 66, Nov 69, Dec 43): Much from Nov to Apr; Rare not significant; None from Apr to Dec. Peak levels at 89% in Jan.



Seedlings (405 records): Absent in 97%: fewer seedlings than prefire adults in 4 cases, and more in 2 cases. Seedlings found in Feb, Aug (3) and Sep (2).

Fire Survival (48 records): 81% survived by seedlings only, 13% eliminated from the area by fires, 6% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 1 year, 50% estimated at 3 years, and 100% recorded at 5 years.



Height (911 records): 2% 0-0.2 m tall, 57% 0.2-1 m tall, 41% 1-2 m tall.

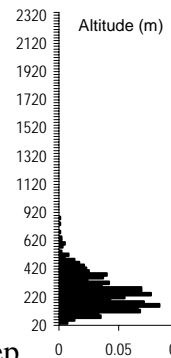
Pollinators (1 record): 100% bees or wasps.

Detailed Pollinators (1 record): Honey Bee.

Habitat:

Distance to Ocean (968 records): 91% inland - further than 2 km from coast.

Altitude (968 records): 20 - 780 m; 140_{lq} - 200_{med} - 280_{uq} m.

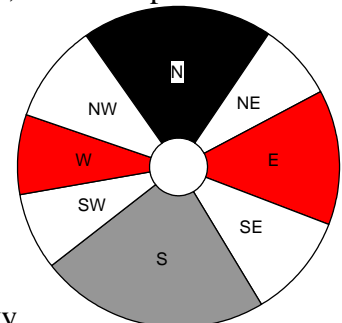


Landform (904 records): 89% deep soil, 9% shallow soil, 1% rocky outcrops.

Slope (904 records): 70% gentle incline, 14% steep incline, 8% platform, 7% hill top.

Aspect (803 records):

33% South,
29% North,
22% East,
16% West.



Soil Type (901 records): 71% sandy, 19% loamy, 6% gravelly, 3% clayey, 1% rocky.

Soil Colour (898 records): 60% grey, 24% brown, 8% white, 3% yellow, 3% orange, 2% black.

Geology (900 records): 84% sandstone, 9% shale, 5% silcrete or ferricrete, 1% limestone.

Vegetation (959 records): 98% shrubland.

Conservation Status and Threat:

Red Data List Status: Near Threatened A2c.

Occurrence (Fynbos): 2 540 km² with 10% conserved and 36% lost; **Occupancy:** 804 km² with 12% conserved and 27% lost. **Fragmentation index:** 23%.

Nature Reserves (968 records): 27% in nature reserves.

Habitat destruction (877 records): 93% extensive natural habitat, 5% islands, 1% naturally linear habitats.

Alien Invasive Species (881 records): 38% *Pinus*, 23% Fabaceae (chiefly alien *Acacia*), 20% none, 15% *Hakea*, 4% Myrtaceae.

Alien Density (878 records): 20% alien-free, 57% sparse, 18% abundant, 5% dense.

Cultivation & Utilization:

Picking (666 records): 98% no sign of picking, 2% lightly picked, 0.5% severely picked.

Cultivation Status: Plantings - 1 record.

Atlassers Notes:

Flowers open from the centre of the inflorescence outwards (SHR93112702); Plus 5 dead (AGRY1022810); All dead (AGRY3111211); Just 2 standing dead – HC 2 - and no live ones seen (SMR99040806); Dead plants - looks like it has been very dry (VCH99040805);

Confusing Species: Mainly misidentified with *Diastella thymifolium subsp. thymifolium* when not in flower. Several incorrect codings as *L. truncatum*. One instance of *L. calligerum* which has a lax growth habit.

Records of identification queries = 11.

Records of corrected identification queries = 6.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucospermum hamatum Rourke 1983
Ruitersbos Pincushion

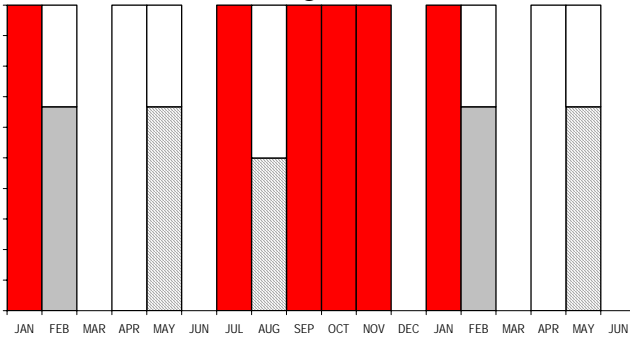
Other Common Names: Hook Pincushion, Ruitersbos Dwarf Pincushion.
Other Scientific Names: *None*.

27 Records

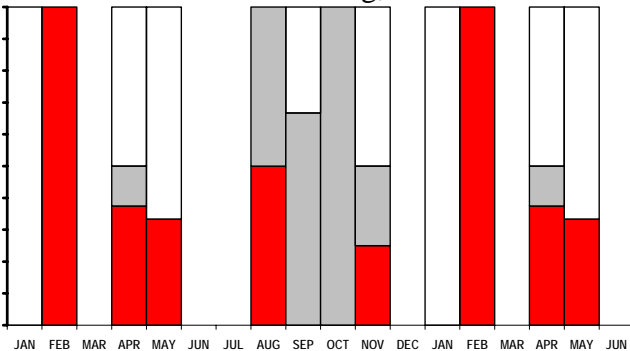
Population (27 records): 7% Common, 78% Frequent, 15% Rare.

Dispersion (25 records): 48% variable, 36% clumped, 12% evenly distributed, 4% widespread.

Flowering (27 records with: Jan 1, Feb 3, Mar 0, Apr 8, May 3, Jun 0, Jul 2, Aug 2, Sep 3, Oct 1, Nov 4, Dec 0): Buds not recorded; Flowering from Jan, Jul and Sep to Nov; Peak Flowering not recorded; Over from May and Aug; Fruit from Feb; Nothing from Feb to May and Aug. Peak levels unreliable at 100% from Sept to Jan. Historically recorded as flowering from Jul to Nov.



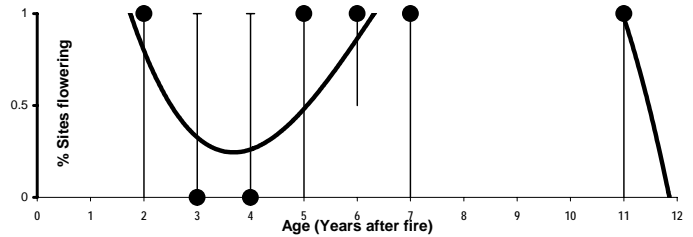
Growth (25 records with: Jan 1, Feb 3, Mar 0, Apr 8, May 3, Jun 0, Jul 0, Aug 2, Sep 3, Oct 1, Nov 4, Dec 0): Much from Feb to Aug and Nov; Rare from Aug to Nov; None from Nov to Jan and Apr to May and Sep. Peak levels unreliable at 100% in Aug, Oct and Feb.



Seedlings (8 records): Absent in 75%: more seedlings than prefire adults in 1 case. Seedlings found in Aug.

Fire Survival (3 records): 67% survived by seedlings only, 33% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 2 years, 50% estimated at 4-5 years, and 100% recorded at 5 years.



Height (27 records): 93% 0-0.2 m tall, 7% 0.2-1 m tall.

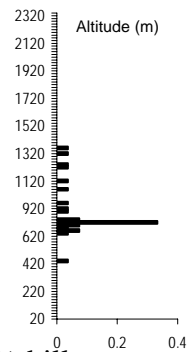
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (27 records): 100% inland - further than 2 km from coast.

Altitude (27 records): 420 - 1260 m; 680 *lq* - 720 *med* - 720 *uq*m.



Landform (27 records): 85% deep soil, 11% shallow soil, 4% rocky outcrops.

Slope (27 records): 70% gentle incline, 22% steep incline, 4% hill top, 4% platform.

Aspect (26 records): 62% North, 21% South, 12% East, 6% West.

Soil Type (27 records):

59% sandy, 22% loamy, 7% clayey, 7% gravelly, 4% peaty.

Soil Colour (27 records):

41% grey, 33% brown, 11% orange, 7% black, 7% yellow.

Geology (27 records): 81% sandstone, 19% shale.

Vegetation (27 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Endangered

B1a(ii)c(iv)+2a(ii)c(iv).

Occurrence (Fynbos): 22 km² with 96% conserved and 28% lost; Occupancy: 20 km² with 81% conserved and 28% lost. Fragmentation index: 91%.

Nature Reserves (27 records): 96% in nature reserves - well conserved.

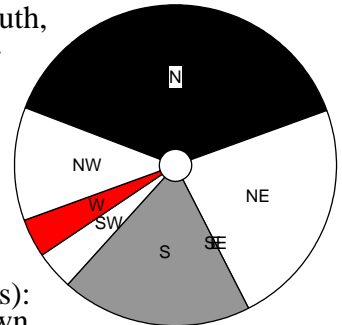
Habitat destruction (27 records): 96% extensive natural habitat, 4% islands.

Alien Invasive Species (27 records):

78% *Hakea*, 11% none, 7% *Pinus*, 4% Fabaceae (chiefly alien *Acacia*).

Alien Density (27 records): 11% alien-free, 85% sparse, 4% abundant.

Cultivation & Utilization:



Picking (18 records): 100% no sign of picking.
Cultivation Status: No noted cultivation.

Atlassers Notes: None.

Confusing Species: None noted.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSHAMA_m.jpg" *

MERGEFORMAT \d

***Leucospermum harpagonatum* Rourke 1994**
McGregor Pincushion

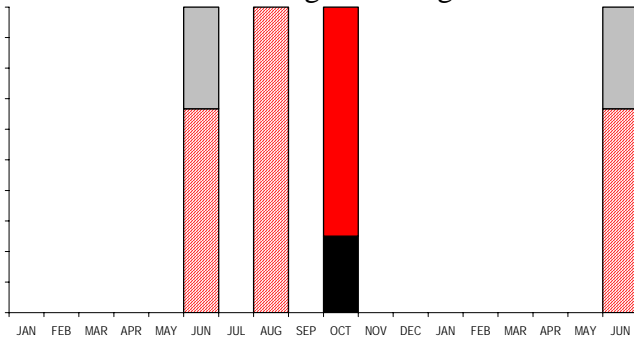
Other Common Names: None known.
Other Scientific Names: *None*.

8 Records

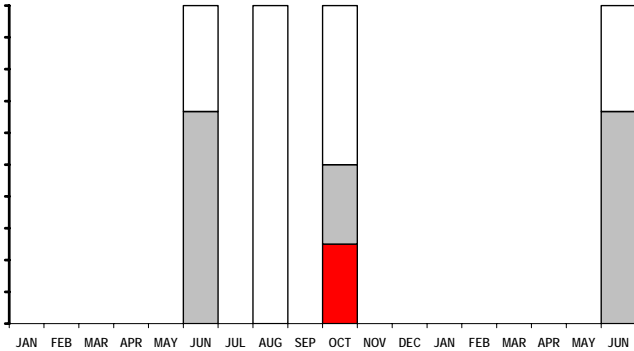
Population (8 records): 50% Frequent, 50% Rare.

Dispersion (8 records): 75% clumped, 25% variable.

Flowering (8 records with: Jan 0, Feb 0, Mar 0, Apr 0, May 0, Jun 3, Jul 0, Aug 1, Sep 0, Oct 4, Nov 0, Dec 0): Buds from Jun to Aug; Flowering from Oct; Peak Flowering from Oct; Over not recorded; Fruit from Jun; Nothing not recorded. Peak levels unreliable at 100% in Aug and Oct. Historically recorded as flowering from Aug to Nov.



Growth (8 records with: Jan 0, Feb 0, Mar 0, Apr 0, May 0, Jun 3, Jul 0, Aug 1, Sep 0, Oct 4, Nov 0, Dec 0): Much from Oct; Rare from Jun and Oct; None from all year round. Peak levels unreliable at 75% in Jun.



Seedlings (4 records): All without any seedlings present.

Fire Survival : No data.

Age to first flowering: No data.

Height (8 records): 100% 0-0.2 m tall.

Pollinators (1 record): 100% mammals.

Detailed Pollinators: No additional data.

Habitat:

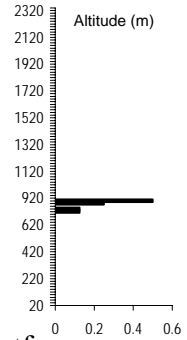
Distance to Ocean (8 records): 100% inland - further than 2 km from coast.

Altitude (8 records): 700 - 800 m; 760_{lq} - 780_{med} - 780_{uq} m.

Landform (8 records): 63% deep soil, 25% shallow soil, 13% rocky outcrops.

Slope (8 records): 75% gentle incline, 13% hill top, 13% platform.

Aspect (7 records): 64% North, 21% West, 14% East.



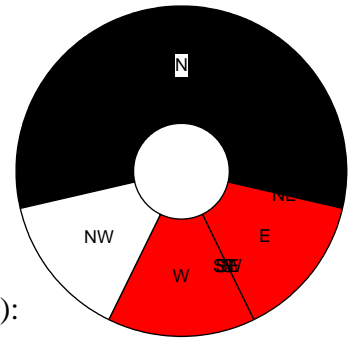
Soil Type (8 records): 38% sandy, 25% loamy, 25% gravelly, 13% rocky.

Soil Colour (8 records): 63% grey, 38% brown.

Soil Colour (8 records): 63% grey, 38% brown.

Geology (8 records): 100% sandstone.

Vegetation (8 records): 100% shrubland.



Conservation Status and Threat:
Red Data List Status: Critically Endangered B1a(ii)c(iv)+2a(ii)c(iv), C2a(i,ii)b.

Occurrence (Fynbos): 2 km² with 0% conserved and 0% lost; Occupancy: 6 km² with 0% conserved and 0% lost. Fragmentation index invalid.

Nature Reserves (8 records): 0% in nature reserves - unconserved.

Habitat destruction (8 records): 100% extensive natural habitat.

Alien Invasive Species (8 records): 88% none, 13% *Pinus*.

Alien Density (8 records): 88% alien-free, 13% sparse.

Cultivation & Utilization:

Picking (8 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

New! (AGR93081212);

Appears to be a new population some 500 m NW of others. Partly lost to building of a new cottage but owners very keen to rehabilitate parking area and conserve about 40 plants (NAHY4060501); Cuttings taken By Fiona Powrie (SHR97101602);

Confusing Species: None known.

Records of identification queries = 1.

Variation and Taxonomy: No variation known.

Distribution: Add.

```
INCLUDEPICTURE  
"C:\\temp\\atlas\\LSHARP_m.jpg" \*  
MERGEFORMAT \d
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Leucospermum secundifolium Rourke 1972 Stalked Pincushion

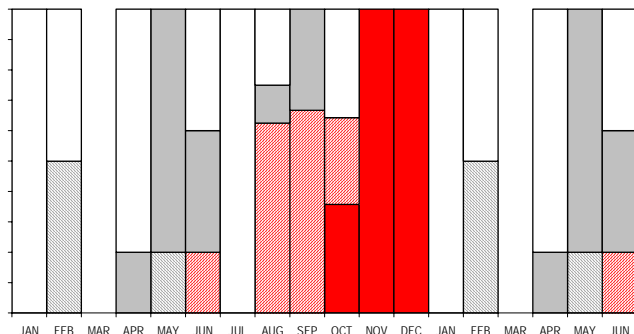
Other Common Names: None known.
Other Scientific Names: *None*.

66 Records

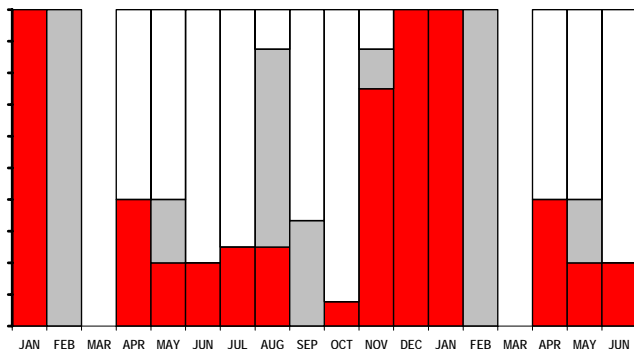
Population (65 records): 3% Common, 66% Frequent, 31% Rare.

Dispersion (59 records): 61% clumped, 32% variable, 5% evenly distributed, 2% widespread.

Flowering (66 records with: Jan 1, Feb 2, Mar 0, Apr 10, May 5, Jun 5, Jul 8, Aug 8, Sep 3, Oct 14, Nov 8, Dec 2): Buds from Jun and Aug to Oct; Flowering from Oct to Dec; Peak Flowering not recorded; Over from Feb and May; Fruit from Apr and May to Jun and Sep; Nothing from Jan to Apr, Jun to Aug and Oct. Peak levels at 100% in Nov to Dec. Historically recorded as flowering in early Dec.



Growth (65 records with: Jan 1, Feb 2, Mar 0, Apr 10, May 5, Jun 5, Jul 8, Aug 8, Sep 3, Oct 13, Nov 8, Dec 2): Much from Nov to Jan and Apr to Aug; Rare from Feb, May and Aug to Sep; None from Apr to Jul and Sep to Oct 92. Peak levels unreliable at 100% from Dec to Feb.



Seedlings (7 records): All without any seedlings present.

Fire Survival (4 records): 50% resprouted from underground boles, 25% survived by seedlings only, 25% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 3 years, 50% estimated at 7-8 years, and 100% recorded at 10 years.



Height (66 records): 85% 0-0.2 m tall, 15% 0.2-1 m tall.

Pollinators: No data.

Detailed Pollinators: No additional data.

Habitat:

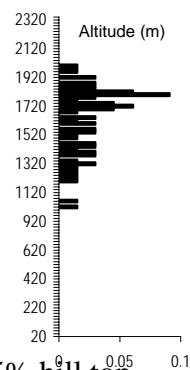
Distance to Ocean (66 records): 100% inland - further than 2 km from coast.

Altitude (66 records): 900 - 1900 m; 1320 *lq* - 1580 *med* - 1700 *uq* m.

Landform (66 records): 86% shallow soil, 9% deep soil, 5% rocky outcrops.

Slope (66 records): 64% steep incline, 27% gentle incline, 5% hill top, 5% platform.

Aspect (61 records): 43% South, 27% North, 25% West, 6% East.



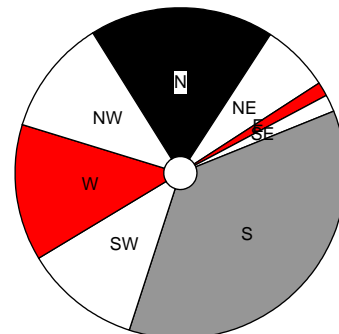
Soil Type (65 records):

72% sandy, 14% rocky, 9% loamy, 5% gravelly.

Soil Colour (64 records): 50% brown, 39% grey, 9% black, 2% white.

Geology (66 records): 100% sandstone.

Vegetation (66 records): 100% shrubland.



Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 232 km² with 39% conserved and 0% lost; **Occupancy:** 95 km² with 35% conserved and 0% lost. **Fragmentation index:** 39%.

Nature Reserves (66 records): 48% in nature reserves.

Habitat destruction (65 records): 97% extensive natural habitat, 2% islands, 2% naturally linear habitats.

Alien Invasive Species (64 records): 100% none.

Alien Density (64 records): 100% alien-free.

Cultivation & Utilization:

Picking (47 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Found a plant that had a spread of about 1 m by
just over 4 m long - it was dead
(DOA93071904);
Some 2 dead (AGR97042611);

Confusing Species: None noted.
Records of identification queries = 3

Variation and Taxonomy: No variation
known.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSSECU_m.jpg" *

MERGEFORMAT \d

Leucospermum gracile (Salisb. ex Kn.) Rourke 1809, 1967
Hermanus Pincushion

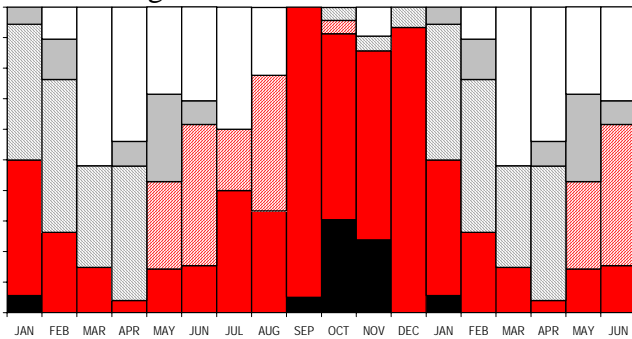
Other Common Names: None known.
Other Scientific Names: *stenanthum* Schlecht. 1900.

244 Records

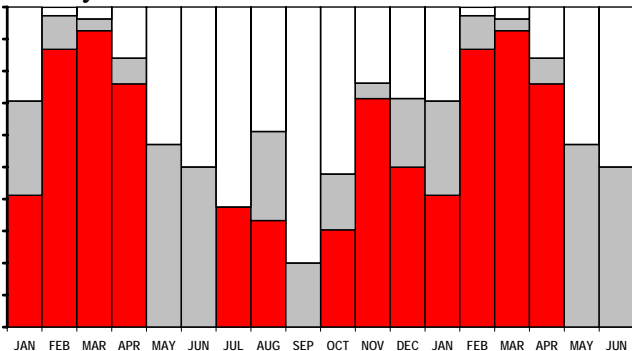
Population (242 records): 26% Common, 61% Frequent, 13% Rare.

Dispersion (230 records): 58% variable, 38% clumped, 3% widespread, 1% evenly distributed.

Flowering (242 records with: Jan 18, Feb 38, Mar 27, Apr 25, May 14, Jun 13, Jul 10, Aug 18, Sep 20, Oct 23, Nov 21, Dec 15): Buds from May to Aug; Flowering from Jul to Feb; Peak Flowering from Oct to Nov; Over from Jan to Apr; Fruit from May; Nothing from Mar to Aug. Peak levels at 100% from Sep to Oct and Dec. Historically recorded as flowering from Jul to Dec.



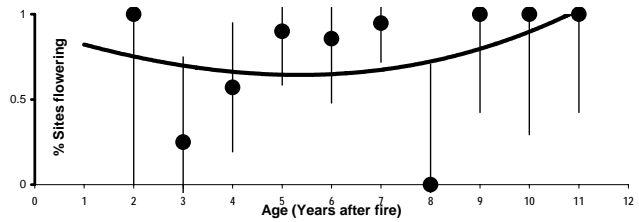
Growth (237 records with: Jan 17, Feb 38, Mar 27, Apr 25, May 14, Jun 12, Jul 8, Aug 18, Sep 20, Oct 23, Nov 21, Dec 14): Much from Oct to Apr and Jul to Aug; Rare from Dec to Jan, May to Jun and Aug to Sep; None from May to Jan. Peak levels at 97% in Feb.



Seedlings (112 records): All without any seedlings present.

Fire Survival (7 records): 57% survived by seedlings only, 29% escaped fires in fire-safe areas, 14% resprouted from underground boles.

Age to first flowering: First flowers recorded at 2 years, 50% estimated at 3-4 years, and 100% recorded at 9 years.



Height (242 records): 48% 0-0.2 m tall, 52% 0.2-1 m tall.

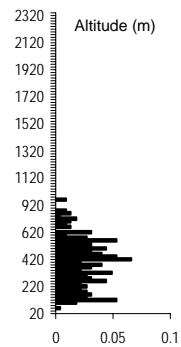
Pollinators: No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (226 records): 75% inland - further than 2 km from coast.

Altitude (226 records): 40 - 860 m; 240_{lq} - 380_{med} - 480_{uq} m.

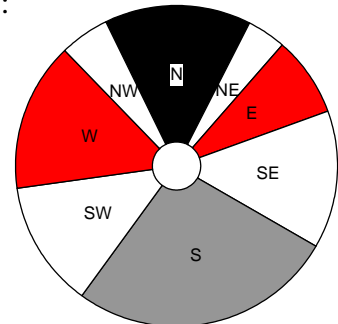


Landform (226 records): 69% deep soil, 26% shallow soil, 5% rocky outcrops.

Slope (226 records): 50% steep incline, 36% gentle incline, 12% hill top.

Aspect (205 records):

40% South,
 25% West,
 20% North,
 15% East.



Soil Type (225 records):

57% sandy,
 13% loamy,
 13% rocky,
 8% gravelly,
 7% peaty, 1% clayey.

Soil Colour (224 records): 74% grey, 11% black, 10% brown, 4% white.

Geology (224 records): 98% sandstone, 1% shale.

Vegetation (226 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Near Threatened A2c.

Occurrence (Fynbos): 747 km² with 7% conserved and 30% lost; **Occupancy:** 187 km² with 14% conserved and 20% lost. **Fragmentation index:** 22%.

Nature Reserves (226 records): 39% in nature reserves.

Habitat destruction (219 records): 98% extensive natural habitat, 1% naturally linear habitats.

Alien Invasive Species (221 records): 48% *Pinus*, 36% none, 10% Fabaceae (chiefly alien *Acacia*), 5% *Hakea*, 1% Myrtaceae.

Alien Density (221 records): 36% alien-free, 56% sparse, 7% abundant, 1% dense.

Cultivation & Utilization:

Picking (150 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Show perfect centrifugal flowering (SHRY2092902);

Tends to be in rockier areas (AGR92021806-11); *L. gracile* and *prostratum* side-by-side: I have never seen this before (PAP94111201);

Confusing Species: Confused with *L. saxatile* which is similar but does not overlap in distribution at all. When not flowering it is often mistaken for *L. prostratum* (a

resprouter) and rarely *L. oleifolium* (an erect plant). Possible mistakes for *Diastella divaricata subsp. montana* were anticipated but not detected.

Records of identification queries = 11.

Records of corrected identification queries = 6.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSGRAC_m.jpg" *

MERGEFORMAT \d

Leucospermum saxatile (Salisb. ex Kn.) Rourke 1809, 1967
Karoo Pincushion

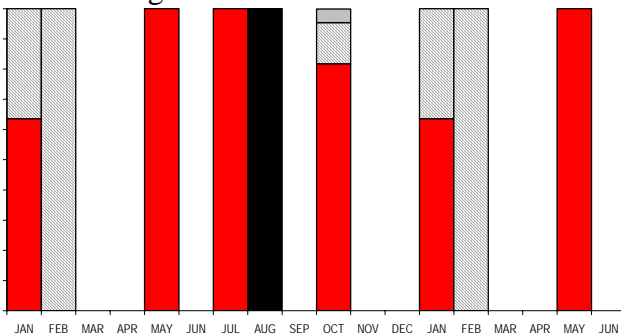
Other Common Names: Rock Leucadendrum.
Other Scientific Names: *diffusum* R.Br. 1810.

51 Records

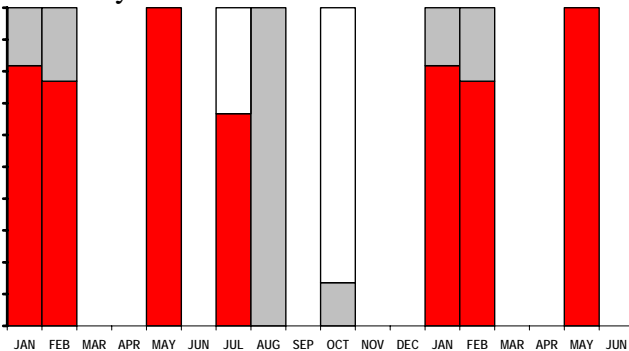
Population (51 records): 63% Common, 33% Frequent, 4% Rare.

Dispersion (49 records): 76% variable, 16% widespread, 8% clumped.

Flowering (51 records with: Jan 11, Feb 13, Mar 0, Apr 0, May 1, Jun 0, Jul 3, Aug 1, Sep 0, Oct 22, Nov 0, Dec 0): Buds not recorded; Flowering from Jan and May to Oct; Peak Flowering from Aug; Over from Jan to Feb; Fruit not significant; Nothing not recorded. Peak levels unreliable at 100% from May to Aug. Historically recorded as flowering from Jul to Feb.



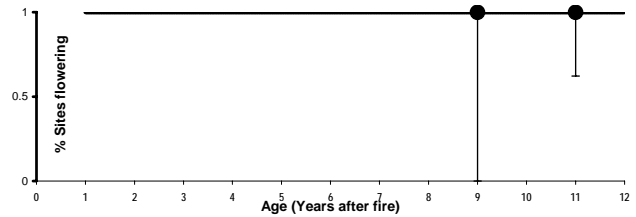
Growth (51 records with: Jan 11, Feb 13, Mar 0, Apr 0, May 1, Jun 0, Jul 3, Aug 1, Sep 0, Oct 22, Nov 0, Dec 0): Much from Jan to Jul; Rare from Feb and Aug; None from Jul to Oct. Peak levels unreliable at 100% from Jan to May.



Seedlings (26 records): Absent in 85%; fewer seedlings than prefire adults in 1 case, and more in 1 case. Seedlings found in Jul (2).

Fire Survival (1 record): 100% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 100% at 9 years, no data from younger veld.



Height (51 records): 4% 0-0.2 m tall, 90% 0.2-1 m tall, 6% 1-2 m tall.

Pollinators (3 records): 67% bees or wasps, 33% beetles.

Detailed Pollinators (1 record): Monkey Beetle.

Habitat:

Distance to Ocean (51 records): 100% inland - further than 2 km from coast.

Altitude (51 records): 260 - 820 m; 440_{lq} - 520_{med} - 560_{uq}m.

Landform (51 records):

53% deep soil, 25% shallow soil, 22% rocky outcrops.

Slope (51 records): 51% gentle incline, 37% steep incline, 6% hill top, 4% platform, 2% valley bottom.

Aspect (47 records): 99% North, 1% East.

Soil Type (51 records):

49% sandy, 25% rocky, 16% loamy, 10% gravelly.

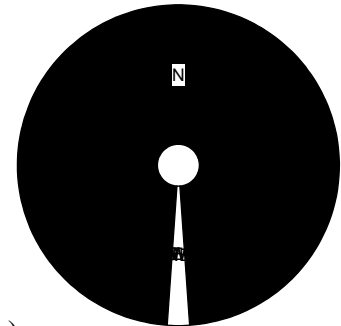
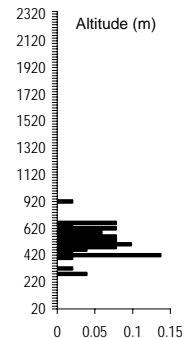
Soil Colour (51 records):

76% grey, 14% brown, 10% white.

Geology (51 records):

94% sandstone, 6% conglomerate.

Vegetation (51 records): 96% shrubland, 4% grassland.



Conservation Status and Threat:

Red Data List Status: Near Threatened A2c.

Occurrence (Fynbos): 50 km² with 11% conserved and 4% lost; Occupancy: 43 km² with 8% conserved and 17% lost. Fragmentation index: 74%.

Nature Reserves (51 records): 2% in nature reserves - unconserved.

Habitat destruction (50 records):

100% extensive natural habitat.

Alien Invasive Species (51 records): 94% none, 6% *Pinus*.

Alien Density (51 records): 94% alien-free, 6% sparse.

Cultivation & Utilization:

Picking (33 records): 91% no sign of picking, 9% lightly picked.

Cultivation Status: No noted cultivation.

Atlassers Notes: None.

Confusing Species: Confused with *L. gracile* which is similar but does not overlap in distribution at all. Also with *L. wittebergense* (which is not a creeper) when not in flower.

Records of identification queries = 4.

Records of corrected identification queries = 3.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSSAXA_m.jpg" *

MERGEFORMAT \d

Leucospermum mundii Meisn. 1856
Langeberg Pincushion

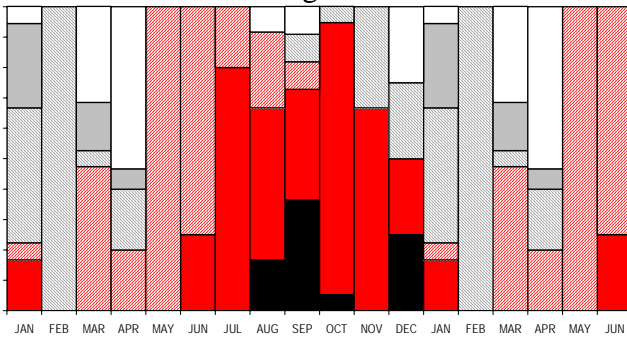
Other Common Names: Golden-tufted Pincushion, *Calypso Orange*.
Other Scientific Names: *purpureum* Mund ex Meisn 1856.

142 Records

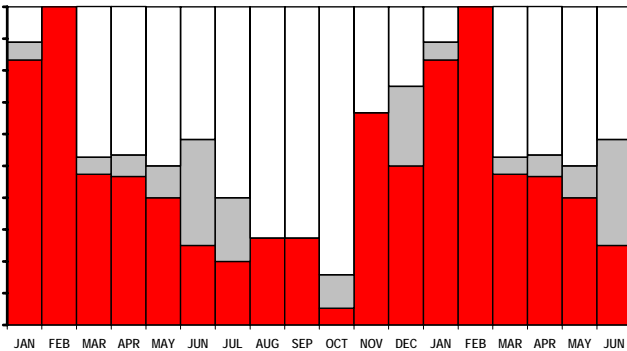
Population (141 records): 38% Common, 54% Frequent, 7% Rare.

Dispersion (134 records): 49% variable, 36% clumped, 10% widespread, 5% evenly distributed.

Flowering (141 records with: Jan 18, Feb 1, Mar 19, Apr 15, May 10, Jun 12, Jul 5, Aug 12, Sep 11, Oct 19, Nov 15, Dec 4): Buds from Mar to Aug; Flowering from Jun to Dec; Peak Flowering from Sep and Dec; Over from Nov to Feb; Fruit from Jan; Nothing from Mar to Apr and Dec. Peak levels at 100% from May to Jul. Historically recorded as flowering from Jul to Nov.



Growth (140 records with: Jan 18, Feb 1, Mar 19, Apr 15, May 10, Jun 12, Jul 5, Aug 11, Sep 11, Oct 19, Nov 15, Dec 4): Much from Nov to Sep; Rare from Jun to Jul and Dec; None from Mar to Dec. Peak levels unreliable at 100% in Feb.



Seedlings (57 records): Absent in 75%: fewer seedlings than prefire adults in 5 cases, and more in 2 cases. Seedlings found in Apr (2), Jun (2), Jul (2) and Nov.

Fire Survival (3 records): 33% eliminated from the area by fires, 33% survived by seedlings only, 33% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 5 years, 50% estimated at 5-6 years, and 100% recorded at 10 years.



Height (140 records): 2% 0-0.2 m tall, 93% 0.2-1 m tall, 5% 1-2 m tall.

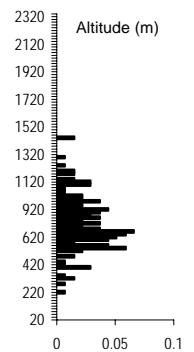
Pollinators (7 records): 57% birds, 29% beetles, 14% mites.

Detailed Pollinators (4 records): Orange-breasted Sunbird (3), Cape Sugarbird.

Habitat:

Distance to Ocean (136 records): 100% inland - further than 2 km from coast.

Altitude (136 records): 200 - 1340 m; 580_{lq} - 680_{med} - 800_{uq}m.

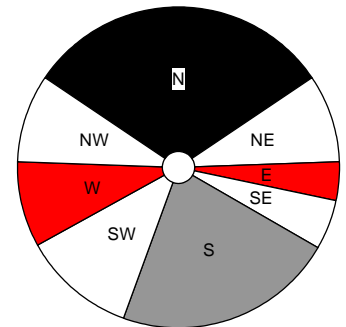


Landform (136 records): 57% deep soil, 23% shallow soil, 20% rocky outcrops.

Slope (136 records): 52% steep incline, 38% gentle incline, 5% hill top, 4% cliff.

Aspect (125 records):

41% North, 31% South, 18% West, 10% East.



Soil Type (134 records): 50% sandy, 31% loamy, 12% rocky, 4% gravelly, 1% clayey.

Soil Colour (134 records): 60% grey, 29% brown, 4% black, 4% yellow, 1% white, 1% orange.

Geology (130 records): 94% sandstone, 6% shale.

Vegetation (134 records): 98% shrubland, 2% grassland.

Conservation Status and Threat:

Red Data List Status: Least Concern. Occurrence (Fynbos): 531 km² with 38% conserved and 4% lost; Occupancy: 94 km² with 48% conserved and 1% lost. Fragmentation index: 15%.

Nature Reserves (136 records): 66% in nature reserves - well conserved.

Habitat destruction (134 records): 96% extensive natural habitat, 4% naturally linear habitats.

Alien Invasive Species (129 records): 78% none, 13% *Pinus*, 9% *Hakea*.

Alien Density (128 records): 78% alien-free, 21% sparse, 1% impenetrable.

Cultivation & Utilization:

Picking (93 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

One skeleton found died in flower
(AGRY1020111); Only one plant alive
(AMMY1013104).

Confusing Species: Confused by one team with *L. winteri* (which has rounded, not flat, flowerheads). Less frequently confused with *L. calligerum* and *erubescens* when not in flower. Once confused (wishful thinking? at Garcia's Pass) with *L. formosum*! Many typographical errors with *L. muirii*.

Records of identification queries = 24.

Records of corrected identification queries = 15.

Variation and Taxonomy: Rourke noted two forms of this species

- A narrow (15-40 mm, but mainly 20-35 mm), short (40-71 mm) leaf, with grey,

pubescence and a cuneiform shape occurs at Garcia's Pass in the east.

- At Tradouw's Pass in the east the leaves are bright green and hairless, broadly cuneate to obovate and broader (30-60 mm, but mainly 35-55 mm) and longer (5-88 mm).

These characters were maintained *ex situ*.

However, he rejected formally describing these as separate as the western form passes through a juvenile phase in which it is identical to the eastern form, and the characters – apart from the hairiness – overlapped too much. It was hoped that atlassers would map the forms in the intermediate region and determine if these intergraded or remained distinct to a gap or overlap, but atlassers did not provide notes on these attributes.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSMUND_m.jpg" *

MERGEFORMAT \d

Leucospermum oleifolium (Bergius) R.Br. 1766, 1810
Overberg Pincushion

Other Common Names: Flame Pincushion, Hair-flower Leucadendrum, Mix, Small-tufted Pincushion, Tufted Pincushion, *Luisies*, *Calypso Red*.

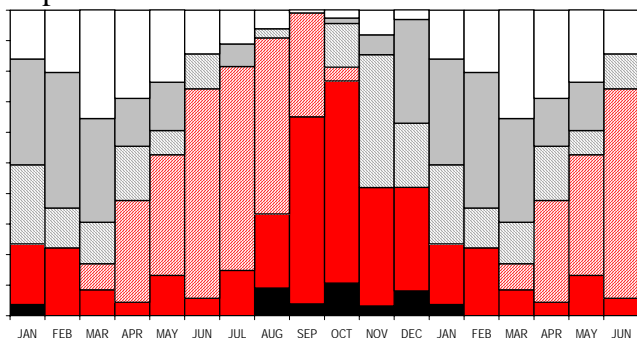
Other Scientific Names: *criniflora* (L. f.) 1781, *crinitum* (Thunb.) 1781, *cryptanthum* Buek 1843, *molle* R.Br. 1810, *penicillatum* Buek ex Meisn 1856, *schinzianum* Gand 1913, *venosa* (Lam) 1792.

718 Records

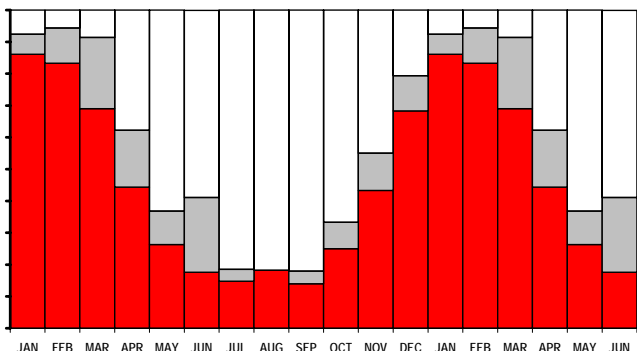
Population (709 records): 20% Common, 65% Frequent, 15% Rare.

Dispersion (667 records): 58% variable, 37% clumped, 4% widespread.

Flowering (711 records with: Jan 81, Feb 54, Mar 59, Apr 45, May 38, Jun 35, Jul 27, Aug 33, Sep 103, Oct 112, Nov 62, Dec 62): Buds from Apr to Sep; Flowering from Aug to Feb; Peak Flowering not significant; Over from Nov to Jan; Fruit from Dec to Mar; Nothing from Feb to May. Peak levels at 99% in Sep. Historically recorded as flowering from Aug to Jan with a Sep to Oct peak.



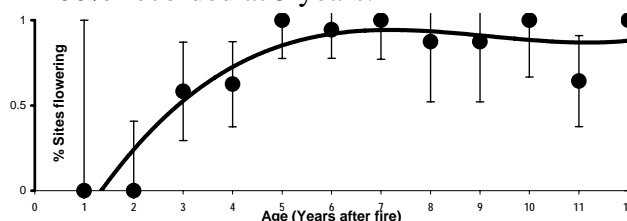
Growth (699 records with: Jan 79, Feb 54, Mar 58, Apr 45, May 38, Jun 34, Jul 27, Aug 33, Sep 100, Oct 108, Nov 60, Dec 63): Much from Oct to May; Rare from Mar and Jun; None from Apr to Dec. Peak levels at 94% in Feb.



Seedlings (304 records): Absent in 92%; fewer seedlings than prefire adults in 7 cases, and more in 5 cases. Seedlings found in Jan (3), May (2), Oct, Nov (2) and Dec (4).

Fire Survival (24 records): 92% survived by seedlings only, 8% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 2 years, 50% estimated at 2-3 years, and 100% recorded at 5 years.



Height (714 records): 2% 0-0.2 m tall, 88% 0.2-1 m tall, 10% 1-2 m tall.

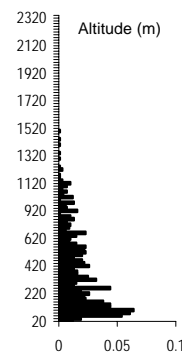
Pollinators (20 records): 55% birds, 25% bees or wasps, 10% beetles, 5% butterflies or moths, 5% flies.

Detailed Pollinators (11 records): Orange-breasted Sunbird (7), Honey Bee (2), Solitary Bee, Ladybird Beetle.

Habitat:

Distance to Ocean (683 records): 58% inland - further than 2 km from coast.

Altitude (683 records): 20 - 1400 m; 100_{lq} - 260_{med} - 460_{uq}m.



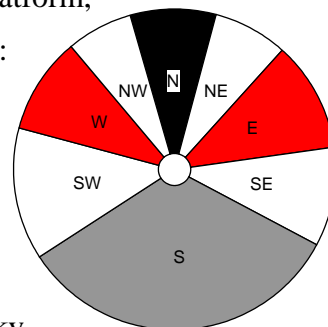
Landform (679 records): 67% deep soil, 24% shallow soil, 8% rocky outcrops.

Slope (679 records): 48% steep incline, 45% gentle incline,

3% hill top, 3% platform, 1% valley bottom.

Aspect (640 records):

45% South, 20% West, 20% East, 15% North.



Soil Type (678 records):

66% sandy, 14% loamy, 7% peaty, 6% rocky, 6% gravelly.

Soil Colour (677 records): 71% grey, 14% brown, 10% black, 4% white, 1% orange.

Geology (669 records): 93% sandstone, 5% shale, 1% conglomerate.

Vegetation (678 records): 99% shrubland.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 4 505 km² with 33% conserved and 24% lost; Occupancy: 517 km² with 58% conserved and 8% lost. Fragmentation index: 8%.

Nature Reserves (683 records): 64% in nature reserves - well conserved.

Habitat destruction (673 records):
97% extensive natural habitat, 2% naturally linear habitats.

Alien Invasive Species (669 records):
61% none, 25% *Pinus*, 10% Fabaceae (chiefly alien *Acacia*), 2% Myrtaceae, 1% *Hakea*.

Alien Density (668 records): 61% alien-free, 33% sparse, 4% abundant, 1% dense.

Cultivation & Utilization:

Picking (432 records): 100% no sign of picking, 0.5% lightly picked.

Cultivation Status: Plantings - 5 records.

Atlassers Notes:

Very-small flowered (*Mimetes*-like) form (AGRY1111206); Difficult to tell from *Mimetes hirtus* - found some buds! (AGRY4031602); Looks like it is a hybrid with a *Mimetes* as there are flowerheads developing between the upper leaves (HCE96052506); Riviersonderend type - very small flowerheads: looks like *M. cucullatus* (JIDY1032202);

An amazing form with big round heads orange in colour - quite a splendid flowerhead deserving subspecies/variety status! (AGRY3111305);

Hairy-leaf form (TLE95010603); Soft hairy-leaf form (TLE95010605); Two distinct forms present. One had soft and hairy leaves overall - these in cone. The other form has harder glabrous leaves with only the new growth soft and hairy these were over (TLE95010802); Both soft and hard leaf forms present (TLE95011101);

Present previously but not for last few years - veld in this part too old (AGR98053114); Some of the plants stressed and dying (LYM99041301);

Confusing Species: When not flowering spuriously and illogically confused with *L. calligerum*, *parile* and *truncatum*.

Records of identification queries = 18.

Records of corrected identification queries = 3.

Variation and Taxonomy: Rourke suggested that the variation in this species was clinal: he sampled 3 populations and noted that involucre bract length increased with increasing altitude as follows:

Altitude	20 m:	9-16 mm long
	200 m:	15-25 mm
	600 m:	16-39 mm.

- At 20 m the plants were compact, rounded, with densely villous indumentum on the leaves. The involucre bracts had ciliate margins.
- At 200 m the plants are more open, and mature leaves are partly hairless.
- At 600 m the plants were open and the leaves always hairless. The involucre bracts were prominently crinite on the apex.

These characters were maintained *ex situ*.

Because of the continuous nature of the variation between the 3 samples, no formal varieties or forms were described.

Many atlassers refute this and suggest that more detailed studies are required. However, apart from that mentioned below, atlassers did not provide any useful information on the variation on this species.

- A small flowered form occurs on the Riviersonderend Mountains, which even at 5 m away is a perfect mimic of *Mimetes cucullatus* as the flowers are almost hidden in the leaves to form a "conflorescence";
- A population with very large, rounded, showy heads was noted on Caledon Swartberg.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSOLEI_m.jpg" *

MERGEFORMAT \d

Leucospermum winteri Rourke 1974 Riversdale Pincushion

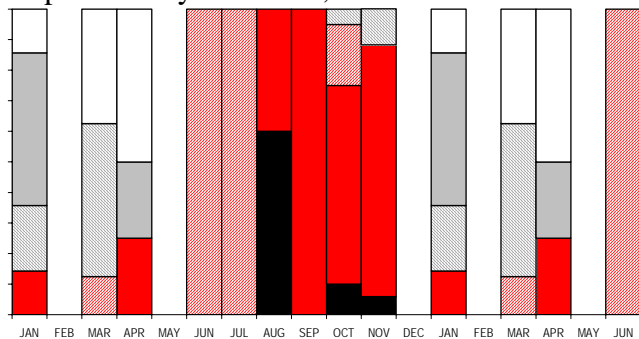
Other Common Names: None known.
Other Scientific Names: *None*.

77 Records

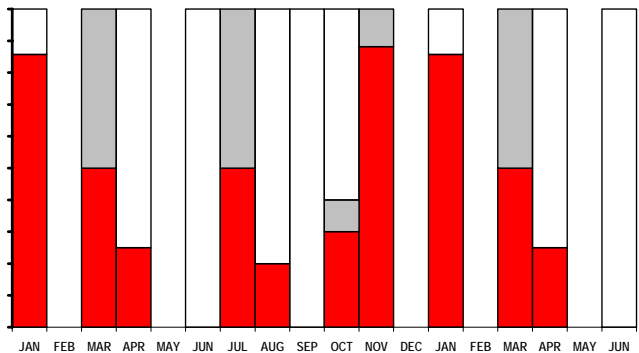
Population (75 records): 41% Common, 51% Frequent, 8% Rare.

Dispersion (72 records): 43% variable, 35% clumped, 17% widespread, 6% evenly distributed.

Flowering (75 records with: Jan 14, Feb 0, Mar 8, Apr 4, May 0, Jun 1, Jul 4, Aug 5, Sep 2, Oct 20, Nov 17, Dec 0): Buds from Jun to Jul; Flowering from Apr and Aug to Nov; Peak Flowering from Aug; Over from Jan to Mar; Fruit from Jan and Apr; Nothing from Mar to Apr. Peak levels unreliable at 100% from Aug to Sep. Historically recorded as flowering from spring, or based on preliminary atlas data, from Jul to Dec.



Growth (75 records with: Jan 14, Feb 0, Mar 8, Apr 4, May 0, Jun 1, Jul 4, Aug 5, Sep 2, Oct 20, Nov 17, Dec 0): Much from Jul to Aug and Oct to Apr; Rare from Mar and Jul; None from Apr to Jun and Aug to Oct. Peak levels unreliable at 100% in Nov.



Seedlings (40 records): Absent in 85%: fewer seedlings than prefire adults in 2 cases, and more in 1 case. Seedlings found in Apr (3).

Fire Survival (2 records): 50% survived by seedlings only, 50% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 4 years, 50% estimated at 3 years, and 100% recorded at 4 years.



Height (75 records): 5% 0-0.2 m tall, 67% 0.2-1 m tall, 28% 1-2 m tall.

Pollinators (18 records): 61% bees or wasps, 22% flies, 17% beetles.

Detailed Pollinators (3 records): Honey Bee (2), Solitary Bee.

Habitat:

Distance to Ocean (77 records): 100% inland - further than 2 km from coast.

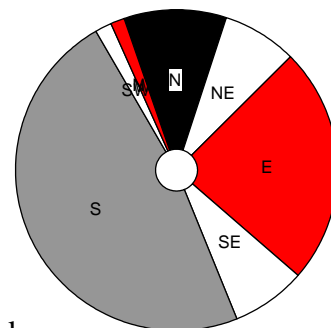
Altitude (77 records): 320 - 1220 m; 440 *lq* - 520 *med* - 600 *uq*m.

Landform (75 records): 56% deep soil, 39% shallow soil, 5% rocky outcrops.

Slope (77 records): 49% steep incline, 39% gentle incline, 10% hill top, 1% platform.

Aspect (67 records):

52% South,
31% East,
14% North,
2% West.



Soil Type (75 records): 43% sandy, 39% loamy, 9% peaty, 5% gravelly, 3% clayey, 1% rocky.

Soil Colour (74 records): 55% grey, 24% black, 20% brown.

Geology (75 records): 97% sandstone, 1% shale, 1% granite.

Vegetation (75 records): 99% shrubland, 1% grassland.

Conservation Status and Threat:

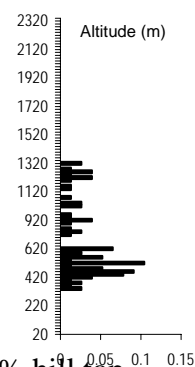
Red Data List Status: Near Threatened D2(i,ii).

Occurrence (Fynbos): 168 km² with 32% conserved and 1% lost; Occupancy: 68 km² with 24% conserved and 2% lost. Fragmentation index: 39%.

Nature Reserves (77 records): 44% in nature reserves.

Habitat destruction (75 records): 100% extensive natural habitat.

Alien Invasive Species (75 records): 59% none, 33% *Pinus*, 7% Fabaceae (chiefly alien *Acacia*), 1% Myrtaceae.



Alien Density (74 records): 59% alien-free,
41% sparse.

Cultivation & Utilization:

Picking (39 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Pollinators: orange elongated ladybird beetle
with 2 black spots on back (OUT96110206);
Bees (TLE98103104); Bees, flies and ants on
flowers (TLE98110103);

Confusing Species: Confused by one team
with *L. mundii* (which has flat, not rounded,
flowerheads). Less frequently confused with
L. calligerum and (wishful thinking? at
Garcia's Pass) with *L. formosum*!

Records of identification queries = 12.

Records of corrected identification queries = 4.

Variation and Taxonomy: No variation
known.

Distribution: Add.

INCLUDEPICTURE

"C:\\temp\\atlas\\LSWINT_m.jpg" *

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