

Leucadendron R. Br. 1810

The type species for the genus *Protea* is the Silver Tree which Linnaeus named *Protea argentea* in 1753. Linnaeus in fact split the Protea Family into two, unaccountably placing the Silvertree in *Protea* and the King Protea into *Leucadendron*, an error (never acknowledged as such) which he later solved by sinking all the species into the genus *Protea*. *Leucadendron* as understood today, was first used in 1766 by Bergius.

Richard Salisbury in his 1807 work, followed the same formula as he did for the rest of the family – namely that the genera should be determined by fruit and flower morphology – and recognized 7 groups in 4 genera, including:

- *Chasme* (all the Needle-leaf Conebushes),
- *Euryspermum* (with flat seeds in 3 groups: 1: all the Clay and Sunshine Conebushes; 2: all the Delta-seed Conebushes; and 3: all the Crown Conebushes),
- *Gissonia* (with pointed base seeds: the Ridgeseed, Pauciflor and some of the Silver Conebushes), and
- *Protea* (with round nuts in 2 groups: 1: the Silvertree - following on Linnaeus's original concept, and Arid, and Oilbract, and Sun Conebushes; and, 2: all the Fusebract and Sandveld Conebushes).

Robert Brown in 1810 upheld the genus *Leucadendron* which is now conserved. He recognized four sections (given names of sub-generic status by Endl. in 1847) determined by fruit and flower morphology:

- *Argyrodendron* (Silver, Arid and Sun Conebushes),
- *Levisanus* (Pauciflor, Fusebract and Sandveld Conebushes),
- *Euryspermum* (Sunshine, Delta-seed, Clay and Crown Conebushes), and
- *Strobilanthus* (Needle-leaf Conebushes).

Thus with *Chasme* = *Strobilanthus*, *Euryspermum* = *Euryspermum*, *Gissonia* (not worked by Brown) and *Protea** = *Levisanus* and *Protea*** = *Argyrodendron*.

There are 14 groups (with sub-section status) within the genus, in two sections.

There are five leaf forms in many species. Juvenile (pre reproductive) leaves are usually more twisted, narrower and often hairier than adult leaves, being entirely needle-like in the Needle-leaf Conebushes. These leaves are often similar within the sections and it is often not possible to identify species within sections from seedlings. In species with corymbose growth habit (*L. ericifolium*, Fuse-bract and Delta-seed Conebushes) the basal dense branches retain juvenile leaves and only the erect reproductive stems bear adult ("stem") leaves. Stem leaves, which are often much smaller in males, usually appear just before reproduction and last throughout the life of the plant, although resprouters often revert to juvenile foliage in the year or two following a fire. Below the flowerheads are the involucre leaves, these are usually smaller in male plants: these turn bright yellow, ivory, pink or red during flowering in many species.

Identifying Conebushes is further complicated by seasonal differences in leaves. Thus during flowering the plants are often brightly coloured and extremely conspicuous. After flowering the new growth has hairy, often red or silver, leaves, which renders the bushes noticeable. When the leaves mature they turn dull green and are often hairless, so that the bushes are relatively inconspicuous. These three faces are often confusing to beginners wrestling with the identification of species in the genus.

Leucadendron coriaceum Phill. & Hutch. 1912
Rosette Conebush

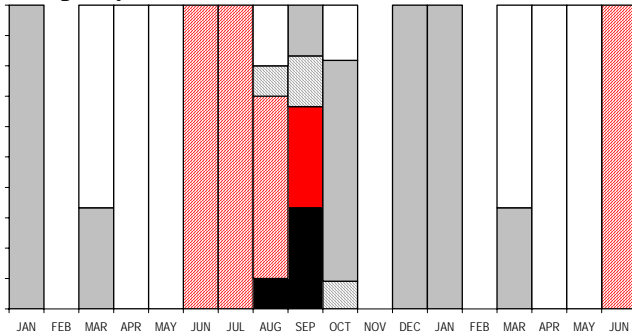
Other Common Names: None known.
Other Scientific Names: *angustatum* var. *latifolium* Meisn. 1856.

37 Records

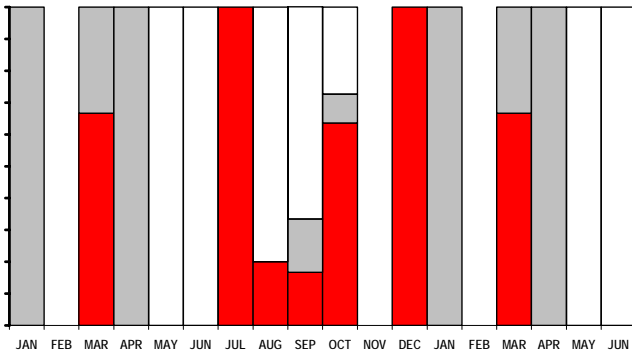
Population (37 records): 32% Common, 59% Frequent, 8% Rare.

Dispersion (36 records): 47% variable, 47% clumped, 3% evenly distributed, 3% widespread.

Flowering (37 records with: Jan 1, Feb 0, Mar 3, Apr 1, May 1, Jun 1, Jul 2, Aug 10, Sep 6, Oct 11, Nov 0, Dec 1): Buds from Jun to Aug; Flowering from Sep; Peak Flowering from Sep; Over not significant; Fruit from Oct to Mar; Nothing from Mar to May. Peak levels unreliable at 83% in Sep. Historically recorded as flowering from Sep, with fruit ripe by December and shed.



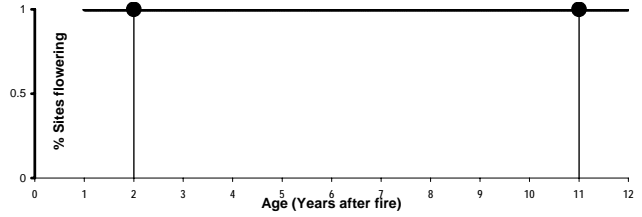
Growth (37 records with: Jan 1, Feb 0, Mar 3, Apr 1, May 1, Jun 1, Jul 2, Aug 10, Sep 6, Oct 11, Nov 0, Dec 1): Much from Mar and Jul to Aug and Oct to Dec; Rare from Jan to Apr; None from May to Oct. Peak levels unreliable at 73% in Oct.



Seedlings (21 records): Absent in 81%: fewer seedlings than prefire adults in 2 cases. Seedlings found in Jul (2).

Fire Survival (6 records): 83% resprouted from underground boles, 17% escaped fires in fire-safe areas.

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



Height (37 records): 3% 0-0.2 m tall, 92% 0.2-1 m tall, 5% 1-2 m tall.

Pollinators (4 records): 75% beetles, 25% flies.
Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (32 records): 100% inland - further than 2 km from coast.

Altitude (32 records): 40 - 300 m; 80_{lq} - 100_{med} - 100_{uq}m.

Landform (32 records):

78% deep soil, 16% shallow soil, 6% rocky outcrops.

Slope (32 records): 66% gentle incline, 19% steep incline, 6% hill top, 6% platform, 3% valley bottom.

Aspect (28 records):

38% South, 29% North, 21% West, 13% East.

Soil Type (31 records):

42% loamy, 29% gravelly, 19% clayey, 10% sandy.

Soil Colour (32 records): 53% brown, 34% grey, 6% other, 3% white, 3% orange.

Geology (31 records): 55% silcrete or ferricrete, 29% shale, 16% sandstone.

Vegetation (32 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Endangered A2c, B1a(i)b(i,ii,iii,iv,v) + 2a(i)b(i,ii,iii,iv,v).

Occurrence (Total and Fynbos): 2 222 and 241 km² with 4,35% conserved and 80,13% lost; Occupancy: 45 km² with 2% conserved and 51% lost. Fragmentation index: 2%.

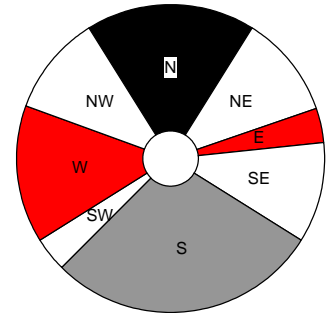
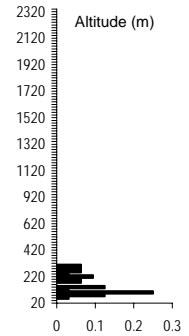
Nature Reserves (32 records): 0% in Nature Reserves - unconserved.

Habitat destruction (32 records): 59% extensive natural habitat, 25% islands, 9% naturally fragmented habitats, 6% naturally linear habitats.

Alien Invasive Species (32 records): 47% Fabaceae (chiefly alien *Acacia*), 34% none, 16% *Pinus*, 3% *Hakea*.

Alien Density (32 records): 34% alien-free, 53% sparse, 13% abundant.

Cultivation & Utilization:



Picking (31 records): 100% no sign of picking.
Cultivation Status: No noted cultivation.

Atlassers Notes:

Cattle grazing area but no new shoots yet
(CBE93031801);

All males (AGRY0090810);

Some 20 plants (CVWY5071001); 30 plants
(CVWY5071002); Another smaller
population (still code F) 0.4 km NNW of this
one on a N-facing slope (EGHY0090701);
Some 32 plants (IEBY4091301); About 30
plants - this appears to be an unatlassed

population previously known from old
herbarium records (NAH96091303);

Confusing Species: No similar species noted.
Records of identification queries = 2.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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Leucadendron brunioides var. *brunioides* Meisn. 1856

Foetid Conebush

Tolletjies

Other Common Names: Tortum, Duineknoppiesbos, Geeltolbos, Kraaltolbos, Langbeentjie.

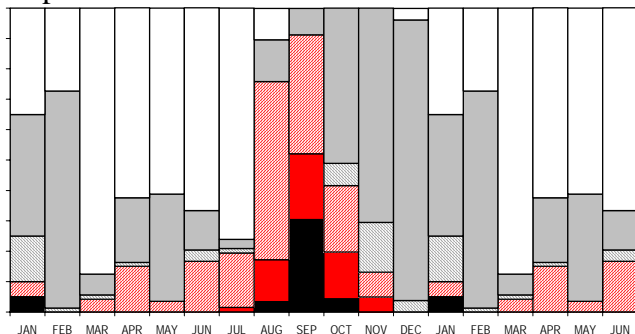
Other Scientific Names: *canaliculatum* E.Mey. 1844, *fusciflora* Phill. & Hutch. 1912, *imbricatum* E.Mey. 1844, *inflexum* Link 1821, *lineare* (Houtt.) 1775, *tenuifolium* (Thunb.) 1803, *thunbergii* (Steud.) 1840, *torta* (Thunb.) 1781, *tortum* var. *inflexum* Meisn. 1856.

743 Records

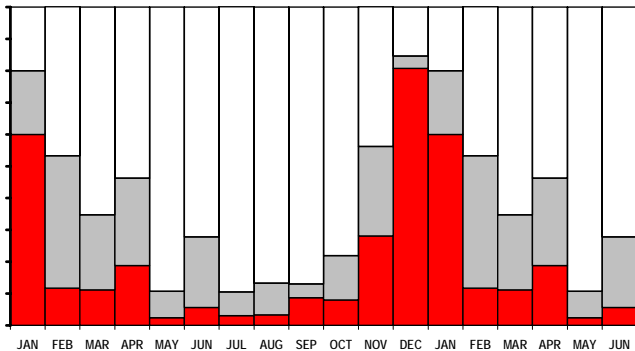
Population (736 records): 0.3% Abundant, 43% Common, 47% Frequent, 10% Rare.

Dispersion (706 records): 71% variable, 28% clumped, 0.8% widespread, 0.1% evenly distributed.

Flowering (731 records with: Jan 20, Feb 77, Mar 72, Apr 80, May 85, Jun 54, Jul 67, Aug 29, Sep 23, Oct 137, Nov 61, Dec 26): Buds from Aug to Oct; Flowering from Sep; Peak Flowering from Sep; Over not significant; Fruit from Oct to Feb and Apr to May; Nothing from Jan to Jul. Peak levels at 91% in Sep. Historically recorded as flowering from late Oct and early Nov, fruit ripen in Dec in the north to Jan in the south and persist for a month.



Growth (727 records with: Jan 20, Feb 77, Mar 72, Apr 80, May 84, Jun 54, Jul 67, Aug 30, Sep 23, Oct 137, Nov 57, Dec 26): Much from Nov to Jan; Rare from Jan to Apr, Jun and Nov; None from Jan to Nov. Peak levels at 85% in Dec.



Seedlings (322 records): Absent in 99%; fewer seedlings than prefire adults in 1 case. Seedlings found in Nov.

Fire Survival (50 records): 98% resprouted from underground boles, 2% eliminated from the area by fires.

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



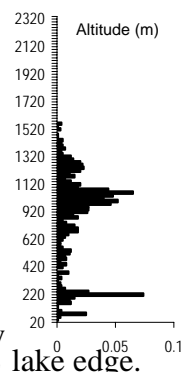
Height (737 records): 0.5% 0-0.2 m tall, 49% 0.2-1 m tall, 48% 1-2 m tall, 2% 2-5 m tall.

Pollinators (6 records): 67% flies, 33% beetles. **Detailed Pollinators** (1 record): Monkey Beetle.

Habitat:

Distance to Ocean (732 records): 100% inland - further than 2 km from coast.

Altitude (732 records): 20 - 1460 m; 520 *lq* - 880 *med* - 960 *uq*m.

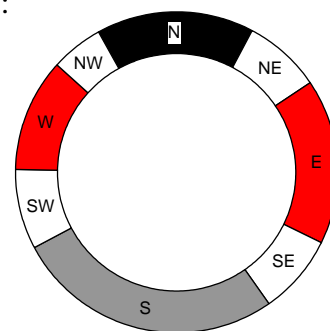


Landform (725 records): 82% deep soil, 15% shallow soil, 2% riverine, 0.6% rocky outcrops, 0.3% swamp, 0.1% lake edge.

Slope (729 records): 45% gentle incline, 30% platform, 12% valley bottom, 6% hill top, 5% steep incline, 2% dunes, 0.1% cliff.

Aspect (496 records):

35% South,
25% East,
22% North,
18% West.



Soil Type (721 records): 70% sandy, 12% loamy, 12% gravelly, 3% rocky, 2% clayey.

Soil Colour (719 records): 36% brown, 24% yellow, 17% grey, 9% orange, 8% red, 5% white, 0.1% black.

Geology (671 records): 69% sandstone, 13% shale, 10% Tertiary sands, 4% silcrete or ferricrete, 2% conglomerate, 0.3% granite.

Vegetation (728 records): 98% shrubland, 1% agricultural lands, 0.1% grassland, 0.1% wooded grassland.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 15 868 km² with 11% conserved and 17% lost; Occupancy: 959 km² with 9% conserved and 13% lost. Fragmentation index: 2%.

Nature Reserves (732 records): 14% in Nature Reserves - inadequately conserved.

Habitat destruction (725 records): 77% extensive natural habitat, 18% islands, 4% naturally linear habitats, 0.7% naturally fragmented habitats, 0.4% road verges, 0.3% corridors.

Alien Invasive Species (705 records): 79% none, 12% Fabaceae (chiefly alien *Acacia*), 3% *Pinus*, 2% Myrtaceae, 2% *Hakea*, 1.0% other aliens, 0.1% annual alien grasses.

Alien Density (705 records): 79% alien-free, 17% sparse, 4% abundant, 0.9% dense, 0.1% impenetrable.

Cultivation & Utilization:

Picking (516 records): 100% no sign of picking, 0.2% lightly picked.

Cultivation Status: Plantings - 1 record (0.1%).

Witch's Broom Infestation: 1 record (0.1%).

Atlassers Notes:

Two slightly different form growing together 1: a lighter green with leaves about 1.0-1.2 mm wide and 2: a darker blue-green leaf 1.6-2.0 mm side - both sexes of each form so affected (WIJ94041211);

Grazed off (AGR96042503); Heavy grazing pressure ! cattle appear to enjoy the younger shoots (NAH92061701);

Probably used as firewood (AMMY2110602); 30% of plants are senescing often dying back in the middle spreading outwards (NAH94032701); In very poor condition (dwarfed) (NAHY3041601);

No female plants in this population (PMR96111501); Both plants were male (SMRY0083024);

Obviously seed washed down river and far below normal colonies (AGRY0013001);

Confusing Species: Mistaken for *L. linifolium* and *meyerianum*, but neither of these resprout. More usually varieties not noted. Records of identification queries = 19. Records of corrected identification queries = 5.

Variation and Taxonomy: No variation noted by atlasers. Plants from the far north have hairless fruit, whereas the Breede River populations have hairy fruit. In cultivation may produce stalked male flowerheads (a feature of *L. galpini* and *linifolium*), but only noted for Nardouw collections. The plants from Nardouw have broader leaves, those from Bo-Langvlei (Williams 107) are herein regarded as var. *flumenlupinum*.

The combination *L. tortum* cannot be made from Thunberg's *Protea torta* (1781) as this name was used by Brown in 1810 for *L. linifolium*. The same applies to *Protea tenuifolia* Thunb. 1803 – Salisbury used it in 1796 for *L. levisanus*. The names *canaliculatum*, *imbricatum* and *inflexa* are with adequate types (*nomen nudum*). The name *L. lineare* was first used by Burm. f. in 1768, but is also a *nomen nudum*. Mund annotated a specimen as *pruinatum*, but this has never been published.

Given the geographical separation of the two varieties, these should be of subspecific status.

Distribution: Add.

Check phenology for north and south.

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Leucadendron brunioides var. *flumenlupinum* Williams 1972
Graafwater Conebush

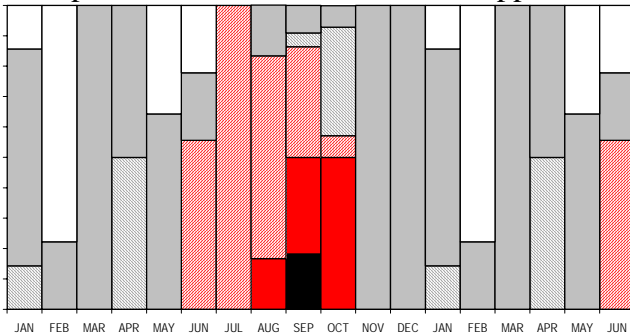
Other Common Names: None known.
Other Scientific Names: *None*.

105 Records

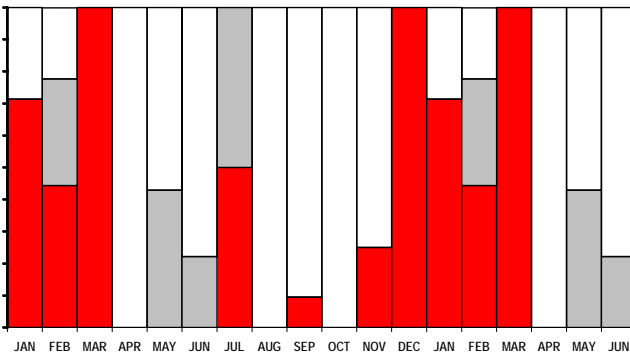
Population (104 records): 8% Common, 64% Frequent, 28% Rare.

Dispersion (95 records): 52% variable, 45% clumped, 2% widespread, 1% evenly distributed.

Flowering (103 records with: Jan 7, Feb 9, Mar 1, Apr 2, May 14, Jun 9, Jul 2, Aug 12, Sep 22, Oct 14, Nov 5, Dec 6): Buds from Jun to Sep; Flowering from Sep to Oct; Peak Flowering from Sep; Over from Apr and Oct; Fruit from Nov to Jun; Nothing from Jan Feb and May to Jun. Peak levels at 93% in Oct. Historically recorded as flowering in Sep with fruit in Dec, thereafter dropped.



Growth (101 records with: Jan 7, Feb 9, Mar 1, Apr 2, May 14, Jun 9, Jul 2, Aug 12, Sep 21, Oct 14, Nov 4, Dec 6): Much from Nov to Mar; Rare from Feb, May to Jul; None from Jan to Feb, Apr to Nov. Peak levels unreliable at 100 in Mar and Dec.



Seedlings (46 records): All without any seedlings present.

Fire Survival (4 records): 100% resprouted from underground boles.

Age to first flowering: First flowers recorded at 100% at 13 years, no data for younger veld.

Height (102 records): 1.0% 0-0.2 m tall, 19% 0.2-1 m tall, 60% 1-2 m tall, 21% 2-5 m tall.

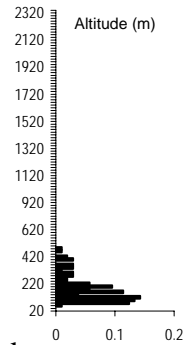
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (105 records): 100% inland - further than 2 km from coast.

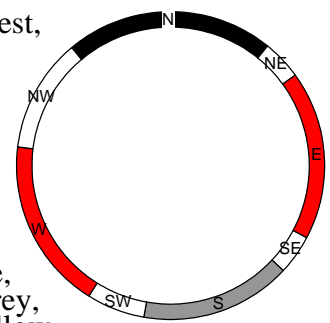
Altitude (105 records): 40 - 480 m; 80_{lq} - 120_{med} - 160_{uq}m.



Landform (104 records): 95% deep soil, 2% swamp, 2% shallow soil, 1.0% riverine.

Slope (101 records): 55% platform, 33% gentle incline, 9% valley bottom, 2% dunes, 1.0% steep incline.

Aspect (50 records): 32% North, 26% West, 21% East, 21% South.



Soil Type (104 records): 95% sandy, 5% loamy.

Soil Colour (100 records): 30% white, 26% brown, 16% grey, 12% orange, 9% yellow, 7% red.

Geology (99 records): 52% Tertiary sands, 45% sandstone, 2% shale, 1% silcrete or ferricrete.

Vegetation (102 records): 98% shrubland, 2% agricultural lands.

Conservation Status and Threat:

Red Data List Status: Critically Endangered A4c.

Occurrence (Fynbos): 2 614 km² with 0% conserved and 35% lost; **Occupancy:** 168 km² with 0% conserved and 55% lost. **Fragmentation index:** 6%.

Nature Reserves (105 records): 1% in Nature Reserves - unconserved.

Habitat destruction (101 records): 48% islands, 30% extensive natural habitat, 19% road verges, 4% naturally fragmented habitats.

Alien Invasive Species (99 records): 74% Fabaceae (chiefly alien *Acacia*), 19% none, 3% *Pinus*, 2% Myrtaceae, 1% annual alien grasses, 1% other aliens.

Alien Density (98 records): 19% alien-free, 57% sparse, 18% abundant, 5% dense.

Cultivation & Utilization:

Picking (79 records): 100% no sign of picking.
Cultivation Status: No noted cultivation.

Atlasers Notes:

Old - approaching senescent (NGW96112202); Only one plant seen on roadside this side of farmers fence (DEB94041101); 2 female plants (NAHY0062701); Single female plant on road verge (NGW96112201); Bushes - 2 males + 2 females (NGW96112202); Plants

on narrow verge - almost single row
(NSC95083112);

Confusing Species: This species was found to be common in the Sandveld in wet areas. Initially much confusion was caused by plants near Aurora (see Williams 1972), until these were found to be nearly contiguous with other populations. These were assigned to oblong-leaved *L. stellare* by Williams. The following specimens were assigned to this variety: *var. brunoides* from Bo Langvlei: Williams 221, 607 (NBG); *stellare* from Aurora: Williams 500, 1365: NBG). The plants at De Lille (Williams 1141, 1252: NBG) are not as broad and considered to be *var. brunoides*.

Records of identification queries = 45.
Records of corrected identification queries = 39.

Variation and Taxonomy: No variation has been noted. Plants from the upper Olifants Valley and at Nardouw are somewhat intermediate between the two forms. Given the geographical separation of the two varieties, these should be of subspecific status.

Distribution: Add.

INCLUDEPICTURE

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Leucadendron cinereum (Sol. ex Ait.) R.Br. 1789, 1810

Scraggly Conebush

Vaalknopbos

Other Common Names: Aster-leaf Protea, Gray Protea, *Tolbos*, *Vaaltolbos*.

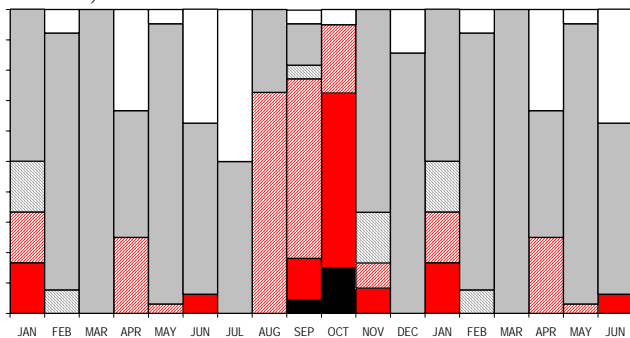
Other Scientific Names: *asterifolia* (Salisb. ex Knight) 1809, *cinereum* var. *glabrum* Phill. 1913, *globularia* (Lam) 1791, *truncatum* (Thunb) 1806.

233 Records

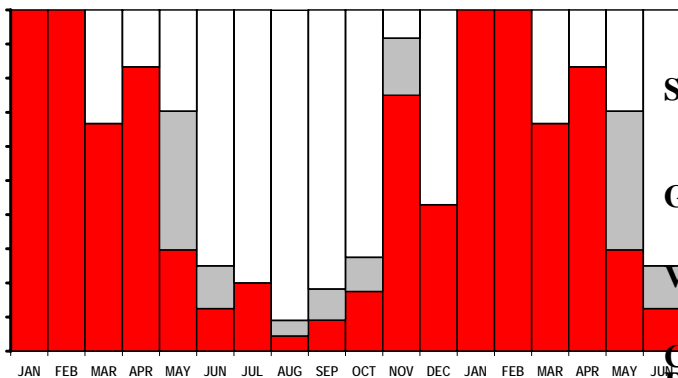
Population (227 records): 19% Common, 52% Frequent, 28% Rare, 2% Extinct.

Dispersion (210 records): 61% variable, 39% clumped.

Flowering (224 records with: Jan 6, Feb 13, Mar 6, Apr 12, May 64, Jun 16, Jul 4, Aug 22, Sep 22, Oct 40, Nov 12, Dec 7): Buds from Apr and Aug to Oct; Flowering from Oct; Peak Flowering and Over not significant; Fruit from Nov to Aug; Nothing from Apr and Jun to Jul. Peak levels at 95% in Oct. Historically recorded as flowering in Oct, fruit serotinous.



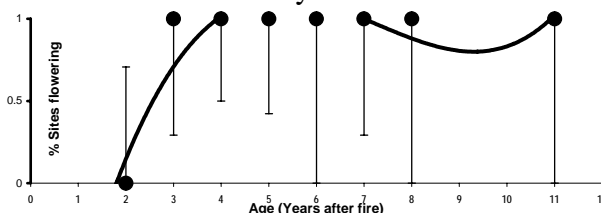
Growth (225 records with: Jan 6, Feb 13, Mar 6, Apr 12, May 64, Jun 16, Jul 5, Aug 22, Sep 22, Oct 40, Nov 12, Dec 7): Much from Nov to May; Rare from May; None from Mar and May to Oct and Dec 57. Peak levels at 100% from Jan to Feb.



Seedlings (85 records): Absent in 95%: fewer seedlings than prefire adults in 1 case, and more in 1 case. Seedlings found in Jun and Oct.

Fire Survival (13 records): 62% survived by seedlings only, 15% resprouted from underground boles, 15% resprouted from aerial trunks, 8% eliminated from the area by fires.

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



Height (226 records): 0.9% 0-0.2 m tall, 38% 0.2-1 m tall, 54% 1-2 m tall, 8% 2-5 m tall.

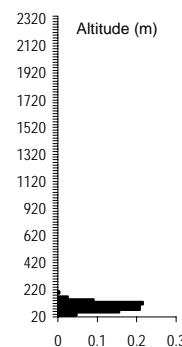
Pollinators (4 records): 100% beetles.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (229 records): 100% inland - further than 2 km from coast.

Altitude (229 records): 20 - 160 m; 60_{lq} - 80_{med} - 80_{uq}m.

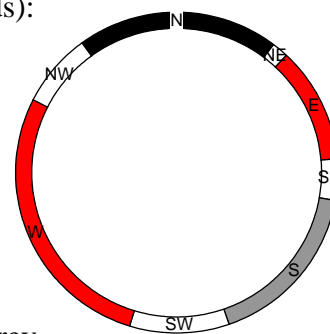


Landform (229 records): 98% deep soil, 0.9% swamp, 0.4% riverine, 0.4% lake edge, 0.4% rocky outcrops.

Slope (226 records): 72% platform, 15% gentle incline, 7% valley bottom, 4% hill top, 3% dunes, 0.4% steep incline.

Aspect (117 records):

36% West,
25% North,
24% South,
15% East.



Soil Type (227 records): 92% sandy, 5% clayey, 3% loamy.

Soil Colour (226 records): 38% grey, 31% white, 17% brown, 7% orange, 6% yellow, 0.9% red.

Geology (218 records): 83% Tertiary sands, 10% sandstone, 6% shale, 0.9% granite, 0.5% conglomerate.

Vegetation (229 records): 99% shrubland, 0.9% thicket, 0.4% suburban.

Conservation Status and Threat:

Red Data List Status: Vulnerable A2c + 3c + 4c.

Occurrence (Fynbos): 1 661 km² with 4% conserved and 37% lost; **Occupancy:** 235 km² with 7% conserved and 39% lost. **Fragmentation index:** 6%.

Nature Reserves (229 records): 15% in Nature Reserves - inadequately conserved.

Habitat destruction (225 records): 72% extensive natural habitat, 15% islands, 8% road verges, 3% naturally linear habitats,

1% naturally fragmented habitats,
0.4% corridors.

Alien Invasive Species (225 records):
93% Fabaceae (chiefly alien *Acacia*),
4% none, 2% *Pinus*, 0.4% annual alien
grasses, 0.4% other aliens.

Alien Density (225 records): 4% alien-free,
34% sparse, 32% abundant, 25% dense,
4% impenetrable.

Cultivation & Utilization:

Picking (179 records): 100% no sign of
picking.

Cultivation Status: Plantings - 2 records
(0.9%).

Atlassers Notes:

Plants were 1.5-2 m high which exceeds the
figure of 1 m given by Williams
(SHR94090301);

There were an incredible number (100's) of
young plants in the part of this site that was
burnt (NGF95090303);

Originally atlassed as *L. linifolium* - but all
plants were dead - surprising in retrospect:
one would have expected *L. levisanus*!

Williams noted that this was a small-leaf
form! (AGR92030502 + 3);

Males only (AGR99112403); Both plants were
male (LYM98052007); 1 male and 1 female
plant (NAH92052202); Both males
(SMR97111902); Only one female - dead of
natural causes (SMR99091702);

Horse pasture? - grazed (GYC95100407);
Browsed (SMR97012903); Very disturbing
that the plant had been bushcut
(IEB99082602);

In wetter soils in depressions - lots of cattle
marks (AGR91101305); In a quasi-natural
Watsonia patch: not know if planted but
unlikely (AGR92111401);

Confusing Species: Confused with *L.*
brunioides var. *brunioides* and *L. stellare*
which both resprout. Also with *L. linifolium*
(heads with stalks) and *levisanus* (narrower
leaves). Williams notes misidentifications
with *L. verticillatum*, which has a different
fruit and flower structure.

Records of identification queries = 15.

Records of corrected identification queries = 8.

Variation and Taxonomy: The forms used for
the description in Williams and SASOL
Proteas occur from Malmesbury, Mamre and
Philadelphia.

To the south near Kraaifontein are the forms
with smaller leaves described by Phillips
(1913) as var. *glabrum*. This form is
virtually extinct.

To the north of Darling populations have more
pubescent leaves - this is the type population
(Masson sn) but the exact locality is
unknown - probably near Saldanha.

Distribution: Add.

The locality Brittan Bay (Acocks 15222)
doubted by Williams could not be located.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron levisanus (L.) Bergius 1753, 1766
Cape Flats Conebush
Sandknoppiesbos

Other Common Names: Spatula-leaf Protea,
 Three-coloured Protea.

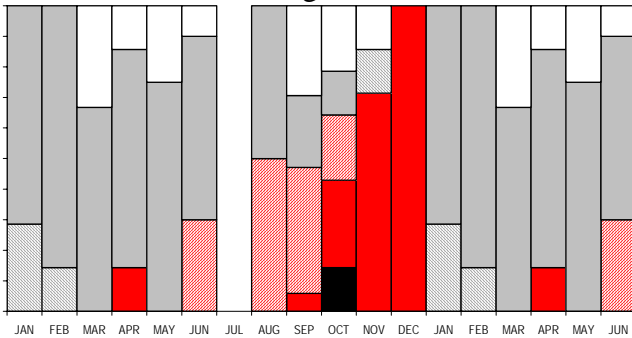
Other Scientific Names: *fusca* (L) 1753,
spatulaefolia (Salisb. ex Knight) 1809,
tenuifolia (Salisb) 1796.

90 Records

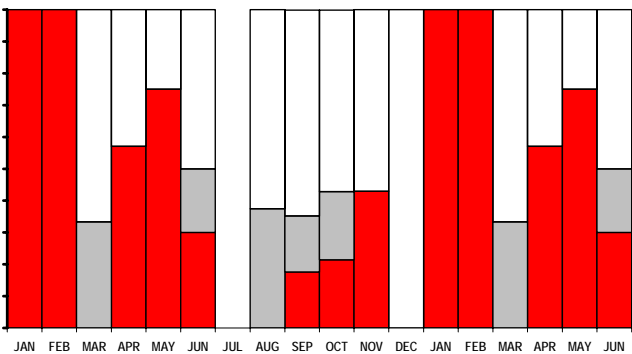
Population (76 records): 4% Common,
 50% Frequent, 42% Rare, 4% Extinct.

Dispersion (64 records): 66% clumped,
 30% variable, 5% evenly distributed.

Flowering (85 records with: Jan 7, Feb 7, Mar 3, Apr 7, May 4, Jun 10, Jul 0, Aug 8, Sep 17, Oct 14, Nov 7, Dec 1): Buds from Jun and Aug to Oct; Flowering from Oct to Dec; Peak Flowering not significant; Over from Jan; Fruit from Jan to Sep; Nothing from Mar, May and Sep to Oct. Peak levels unreliable at 86% in Nov. Historically recorded as flowering in Oct, fruit retained.



Growth (84 records with: Jan 7, Feb 6, Mar 3, Apr 7, May 4, Jun 10, Jul 0, Aug 8, Sep 17, Oct 14, Nov 7, Dec 1): Much from Jan to Feb, Apr to Jun and Oct to Nov; Rare from Mar, Jun to Aug and Oct; None from Mar to Dec. Peak levels at 100% from Jan to Feb.



Seedlings (40 records): Absent in 80%: fewer seedlings than prefire adults in 1 case, and more in 3 cases. Seedlings found in Feb, Apr and Sep (2).

Fire Survival (3 records): 67% escaped fires in fire-safe areas, 33% resprouted from underground boles.

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



Height (85 records): 5% 0-0.2 m tall, 47% 0.2-1 m tall, 48% 1-2 m tall.

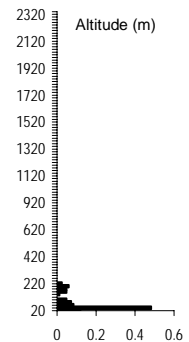
Pollinators (1 record): 100% beetles.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (71 records): 100% inland - further than 2 km from coast.

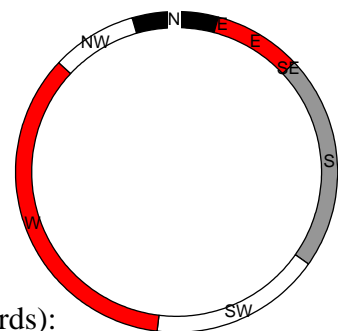
Altitude (71 records): 20 - 220 m; 20_{lq} - 40_{med} - 40_{uq}m.



Landform (70 records): 96% deep soil, 4% swamp.

Slope (69 records): 61% platform, 19% gentle incline, 16% valley bottom, 4% dunes.

Aspect (21 records): 52% West, 31% South, 10% East, 7% North.



Soil Type (70 records): 91% sandy, 6% loamy, 3% clayey.

Soil Colour (68 records): 56% grey, 29% white, 13% brown, 1% yellow.

Geology (67 records): 64% Tertiary sands, 27% sandstone, 6% shale, 1% granite, 1% silcrete or ferricrete.

Vegetation (70 records): 93% shrubland, 7% suburban.

Conservation Status and Threat:

Red Data List Status: Critically Endangered A4c.

Occurrence (Fynbos): 435 km² with 6% conserved and 70% lost; **Occupancy:** 74 km² with 6% conserved and 66% lost. **Fragmentation index:** 10%.

Nature Reserves (71 records): 20% in Nature Reserves - inadequately conserved.

Habitat destruction (70 records): 40% islands, 31% road verges, 14% extensive natural habitat, 6% corridors, 4% patches, 4% naturally fragmented habitats.

Alien Invasive Species (69 records): 87% Fabaceae (chiefly alien *Acacia*), 7% Myrtaceae, 4% annual alien grasses, 1% *Pinus*.

Alien Density (69 records): 52% sparse, 33% abundant, 14% dense.

Cultivation & Utilization:

Picking (68 records): 99% no sign of picking, 1% lightly picked.

Cultivation Status: Plantings - 13 records (14%).

Atlassers Notes:

With no cones! (ASP94090121); Both males (AGR92021203); One male plant only seen (AGR92102802); 28 flourishing plants in a small *Restio* area (CHE97061804); Only one individual found! a female - urban encroachment has led to eradication of most plants (CRS93042701); 2 male plants (CRS93061101, LYM98052101); Previously seen dead on this site but no plants were seen (CVV97090201); Area searched well - single clump of ca 15 plants (GED99062201); 1 plant dead (GED99103003); About 10 plants of varying ages male and female on the road verge (JES95012101); A healthy population of about 60-80 plants (NAH96021709); About 17 plants under fence and in ditch - rest of area bushcut (NAHY0081701); There are 18 plants in 2 clumps about 10m apart once clump is fenced the other is not (NGF95112501);

Rondevlei:

All planted : source: Fish Hoek (AGR94101202 + 3); All have been planted according to Mr Dalton Gibbs - presumed to have been here previously - plants are from the Fish Hoek population (WIJ95010601 + 2); Planted in two clumps near the second watch tower (PVR90092001);

Plattekloof:

Bushcut! 1/10 of prebushcut population remains - about 15 plants: Escom 2001 mowing fiasco (AGRY1062601); 50 young plants planted from plot #8 to augment historical

colony and counteract mowing (AGRY1092309); Although we moved some seed around here after the bushcutting there has been good regeneration from the female bushes as well. Some areas have dense mats of seedlings where females were cut down - quite a bit of dispersal was visible (AGRY2042602); These were plants established as seedlings from block E of about 30 plants planted only 4 could be found: the area was flooded by a sewerage leak and many of the other plants have died con/subsequently. This area reputedly had plants according to Macdowell's records (AGRY2042605); More exciting a female plant we missed next to the prison fence has good recruitment! (AGRY2042602);

Confusing Species: Confused the *L. thymifolium* which has rounded leaves and is not serotinous. Young plants have much longer leaves than mature plants and at this stage are indistinct from *L. cinereum*: the only area where mature plants of these species were confused was near Mamre, Rondeberg and Segarevlei - known intermediate populations (Williams).
Records of identification queries = 4.
Records of corrected identification queries = 1.

Variation and Taxonomy: Not a variable species, apart from the intermediate populations with *L. cinereum* north of Mamre.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron stellare (Sims) Sweet 1805, 1827

Star Conebush

Stertolbos

Other Common Names: Gnidia-leaf Protea, Sweet Star Conebush.

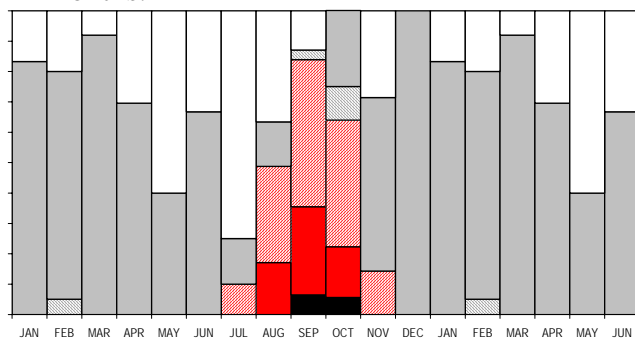
Other Scientific Names: *angustatum* E.Mey. 1844, *empetrifolium* Gand. 1901, *gnidiifolia* (Salisb. ex Knight) 1809, *imbricatum* Wend. 1796, *imbricatum* R.Br. 1810, *imbricatum* var. *canaliculatum* Meisn 1856, *imbricatum* var. *dregeanum* Meisn 1856, *laeve* (Thunb.) 1818, *polygaloides* Link 1821.

263 Records

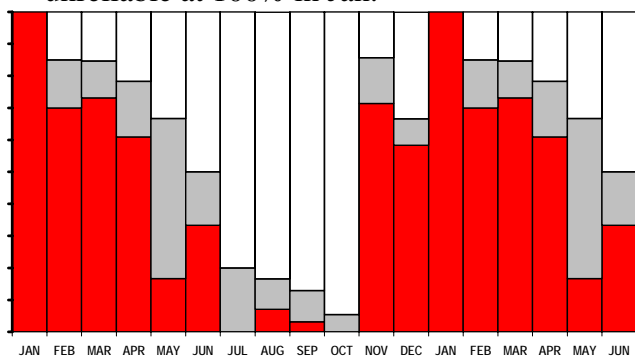
Population (261 records): 1% Abundant, 25% Common, 51% Frequent, 23% Rare.

Dispersion (242 records): 67% variable, 31% clumped, 1% evenly distributed, 0.8% widespread.

Flowering (257 records with: Jan 6, Feb 20, Mar 25, Apr 23, May 30, Jun 6, Jul 20, Aug 41, Sep 31, Oct 36, Nov 7, Dec 12): Buds from Aug to Oct; Flowering from Sep; Peak Flowering and Over not significant; Fruit from Oct to Jun; Nothing from Apr to Aug and Nov. Peak levels at 87% in Sep. Historically recorded as flowering from Sep to Oct, fruits ripening and dropping after 4 months.



Growth (260 records with: Jan 6, Feb 20, Mar 26, Apr 23, May 30, Jun 6, Jul 20, Aug 42, Sep 31, Oct 37, Nov 7, Dec 12): Much from Nov to Apr and Jun; Rare from May; None from Apr to Oct and Dec. Peak levels unreliable at 100% in Jan.



Seedlings (124 records): Absent in 98%; fewer seedlings than prefire adults in 1 case. Seedlings found in Jul.

Fire Survival (10 records): 100% resprouted from underground boles.

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



Height (262 records): 40% 0.2-1 m tall, 48% 1-2 m tall, 11% 2-5 m tall.

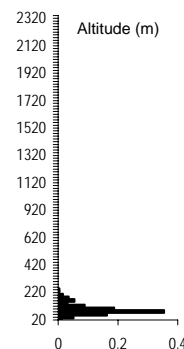
Pollinators (10 records): 50% flies, 30% beetles, 20% butterflies or moths.

Detailed Pollinators (2 records): Monkey Beetle, Longhorn Beetle.

Habitat:

Distance to Ocean (256 records): 100% inland - further than 2 km from coast.

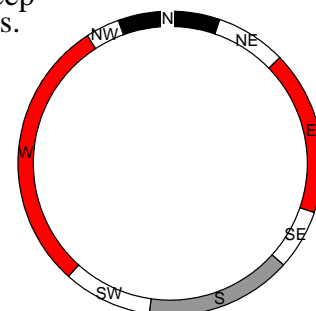
Altitude (256 records): 20 - 220 m; 60_{lq} - 80_{med} - 80_{uq}m.



Landform (256 records): 98% deep soil, 2% swamp, 0.8% shallow soil.

Slope (254 records): 67% platform, 19% gentle incline, 9% valley bottom, 3% hill top, 1% steep incline, 0.8% dunes.

Aspect (136 records): 36% West, 25% East, 22% South, 17% North.



Soil Type (252 records): 57% sandy, 26% loamy, 11% clayey, 7% gravelly.

Soil Colour (251 records): 40% brown, 22% orange, 14% grey, 9% white, 9% yellow, 7% red.

Geology (236 records): 49% shale, 34% Tertiary sands, 14% sandstone, 3% silcrete or ferricrete, 0.4% conglomerate.

Vegetation (254 records): 94% shrubland, 4% agricultural lands, 1% grassland, 0.4% thicket.

Conservation Status and Threat:

Red Data List Status: Critically Endangered A2c.

Occurrence (Total and Fynbos): 4 727 and 1 518 km² with 1,3% conserved and 81,59% lost; **Occupancy:** 290 km² with 6% conserved and 66% lost. **Fragmentation index:** 6%.

Nature Reserves (256 records): 22% in Nature Reserves.

Habitat destruction (254 records):
52% extensive natural habitat, 26% islands,
20% road verges, 1% naturally linear
habitats, 0.4% patches, 0.4% corridors,
0.4% naturally fragmented habitats.

Alien Invasive Species (251 records):
57% Fabaceae (chiefly alien *Acacia*),
32% none, 5% annual alien grasses,
4% *Pinus*, 2% Myrtaceae, 0.4% *Hakea*.

Alien Density (250 records): 32% alien-free,
40% sparse, 19% abundant, 9% dense,
0.4% impenetrable.

Cultivation & Utilization:

Picking (215 records): 100% no sign of
picking.

Cultivation Status: Plantings - 1 record
(0.4%).

Witch's Broom Infestation: 1 record (0.4%).

Atlassers Notes:

Cones busy releasing seeds (AGR92051708);
Old seadheads still with a few odd seeds
(AGRY0072703); Much of the seed had
been dropped but enough was still in the
cone to warrant a flowering code of ' in cone'
(NGF96051903);

Big leaf female form - males normal - is this
female a hybrid or a leakage from *L.*
brunioides var. *flumenlupinum* a few km to

the north? (AGR96102518); Large-leaved
form (WIJ94081904); Big leaf form
(WIJ95101505);

Plants Heavily Grazed By Cattle
(NAH98082501);

Many Plants On The Verge Had Been
Bulldozed Out! (SMRY0020902);

One plant was found with witches broom which
I considered to be unusual (NGF96051903);

Confusing Species: Confused with *L.*
cinereum, *levisanus* and *thymifolium*, which
do not resprout. Northern-most populations
confused with *brunioides* var. *flumenlupinum*
which has broader more oblong leaves,
although a few intermediate populations
were found.

Records of identification queries = 15.

Records of corrected identification queries = 6.

Variation and Taxonomy: The earliest name
is *Protea imbricata* Wend. 1796, but it is
invalid as Thunberg used the name in 1781
(for what is now *Sorocephalus*).

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron thymifolium (Salisb. ex Kn.) William 1809, 1972

Malmesbury Conebush

Swartveldknoppiesbos

Other Common Names: Thyme-leaf Protea, *Katstertolbos*.

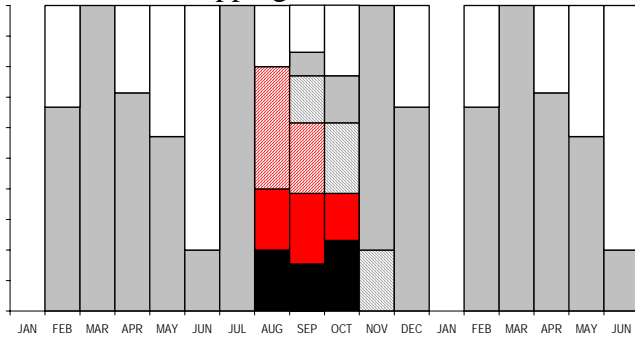
Other Scientific Names: *buxifolium* R.Br. 1810, *wendlandi* Poir 1816.

79 Records

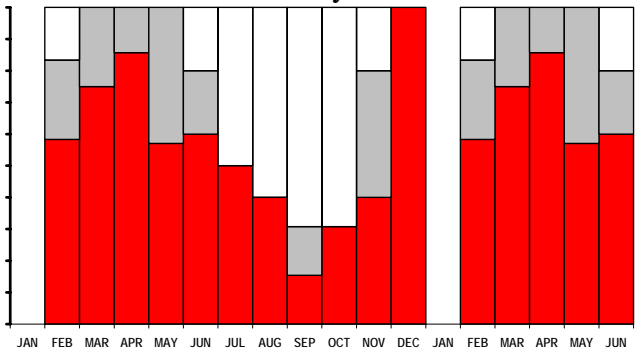
Population (74 records): 1% Abundant, 28% Common, 51% Frequent, 16% Rare, 3% Extinct.

Dispersion (69 records): 62% variable, 36% clumped, 1% evenly distributed.

Flowering (76 records with: Jan 0, Feb 12, Mar 4, Apr 7, May 7, Jun 5, Jul 2, Aug 5, Sep 13, Oct 13, Nov 5, Dec 3): Buds from Aug to Sep; Flowering from Aug to Sep; Peak Flowering from Aug and Oct; Over from Oct to Nov; Fruit from Nov to Jul; Nothing from Dec to Feb and Apr to Jun and Oct. Peak levels at 80% in Aug. Historically recorded as flowering from Aug to Sep, with fruit until Feb, dropping after 5 months.



Growth (76 records with: Jan 0, Feb 12, Mar 4, Apr 7, May 7, Jun 5, Jul 2, Aug 5, Sep 13, Oct 13, Nov 5, Dec 3): Much from Oct to Aug; Rare from Feb to Mar, May to Jun and Nov; None from Jun to Nov. Peak levels at 100% from Mar to May and Dec.



Seedlings (24 records): Absent in 75%: more seedlings than prefire adults in 3 cases. Seedlings found in Mar, Jun and Oct.

Fire Survival (8 records): 88% survived by seedlings only, 13% resprouted from aerial trunks.

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



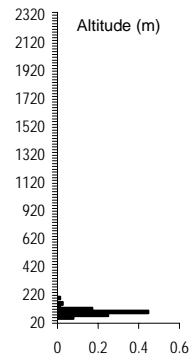
Height (76 records): 5% 0-0.2 m tall, 25% 0.2-1 m tall, 55% 1-2 m tall, 14% 2-5 m tall.

Pollinators (5 records): 60% beetles, 40% flies.
Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (75 records): 100% inland - further than 2 km from coast.

Altitude (75 records): 40 - 160 m; 60_{lq} - 80_{med} - 80_{uq}m.



Landform (75 records): 100% deep soil.

Slope (75 records): 69% platform, 23% gentle incline, 4% hill top, 4% valley bottom.

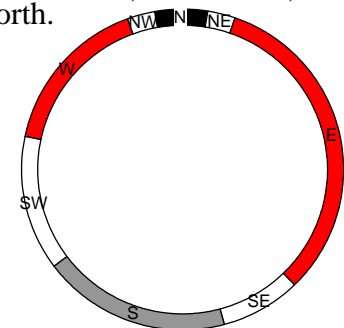
Aspect (36 records): 39% East, 29% South, 25% West, 7% North.

Soil Type (73 records): 47% sandy, 30% clayey, 21% loamy, 1% peaty, 1% gravelly.

Soil Colour (72 records): 39% brown, 38% grey, 14% white, 4% orange, 3% yellow, 3% red.

Geology (72 records): 49% shale, 31% Tertiary sands, 11% sandstone, 6% granite, 3% silcrete or ferricrete, 1% conglomerate.

Vegetation (75 records): 99% shrubland, 1% agricultural lands.



Conservation Status and Threat:

Red Data List Status: Critically Endangered A2c + 4c.

Occurrence (Fynbos): 65 km² with 1% conserved and 65% lost; Occupancy: 71 km² with 1% conserved and 68% lost. Fragmentation index: 24%.

Nature Reserves (75 records): 15% in Nature Reserves - inadequately conserved.

Habitat destruction (75 records): 37% road verges, 37% extensive natural habitat, 15% islands, 4% corridors, 4% naturally fragmented habitats, 3% naturally linear habitats.

Alien Invasive Species (73 records):
78% Fabaceae (chiefly alien *Acacia*),
11% none, 5% annual alien grasses,
4% Myrtaceae, 1% *Pinus*.

Alien Density (73 records): 11% alien-free,
36% sparse, 25% abundant, 25% dense,
4% impenetrable.

Cultivation & Utilization:

Picking (49 records): 100% no sign of picking.

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

Atlasers Notes:

Spreading into abandoned lands and also in
disturbed areas on the road verge
(AGRY2021502); Seedlings well beyond
parents: all dead on south side
(APE93060502); Appear all killed with no
seedlings (ASP94072109);

Horse pasture? Grazed, some heavily
(GYC95100407);
There were 50 plants at this site
(NGFY2021503);

Confusing Species: Confused with *L. stellare*,
which resprouts. Also with *L. cinereum* and
levisanus, which are serotinous.

Records of identification queries = 7.

Records of corrected identification queries = 3.

Variation and Taxonomy: No variation noted.

Distribution: Add.

Find herb specimens vdMerwe and Bachmann
that Williams refers to.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron galpinii Phill. & Hutch. 1912

Hairless Conebush

Droevlaktetolbos

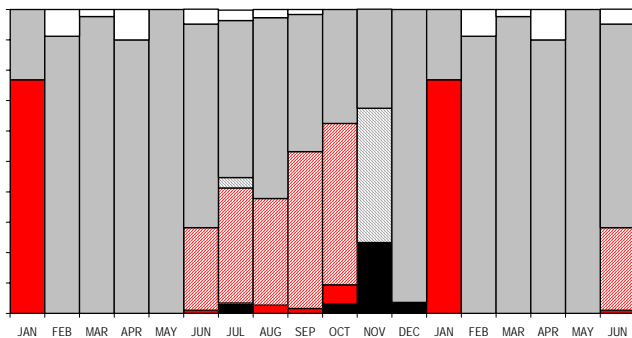
Other Common Names: Galpin's Conebush, Scythe-leaf Protea, Silver-cone Conebush, Silver-tops Conebush, *Silwertol*, *Vaalbos*.
Other Scientific Names: *None*.

478 Records

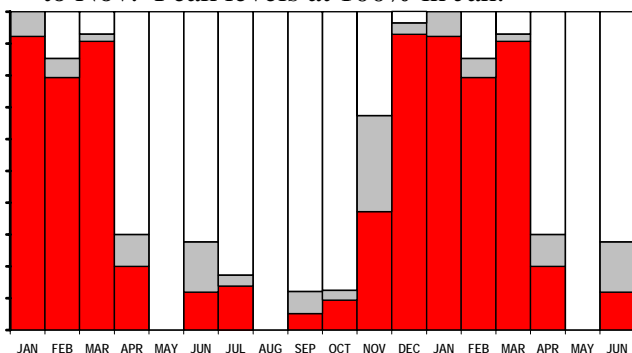
Population (475 records): 0.4% Abundant, 35% Common, 55% Frequent, 10% Rare.

Dispersion (440 records): 72% variable, 22% clumped, 5% widespread, 2% evenly distributed.

Flowering (447 records with: Jan 13, Feb 34, Mar 44, Apr 10, May 12, Jun 103, Jul 29, Aug 37, Sep 62, Oct 32, Nov 43, Dec 28): Buds from Jun to Oct; Flowering from Jan; Peak Flowering from Nov; Over from Nov; Fruit from all year round; Nothing not significant. Peak levels suspect: probably at 68% in Nov. Historically recorded as flowering from late Oct to early Nov, serotinous.



Growth (438 records with: Jan 13, Feb 34, Mar 43, Apr 10, May 12, Jun 101, Jul 29, Aug 35, Sep 58, Oct 32, Nov 43, Dec 28): Much from Nov to Apr; Rare from Nov; None from Apr to Nov. Peak levels at 100% in Jan.



Seedlings (183 records): Absent in 99%; fewer seedlings than prefire adults in 1 case. Seedlings found in Jul.

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

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



Height (456 records): 0.2% 0-0.2 m tall, 18% 0.2-1 m tall, 64% 1-2 m tall, 17% 2-5 m tall, 0.2% taller than 5 m.

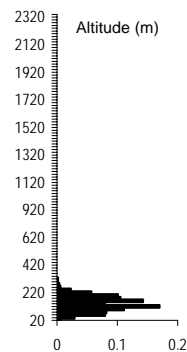
Pollinators (5 records): 80% flies, 20% bees or wasps.

Detailed Pollinators (2 records): Wasp (unspecified), Honey Bee.

Habitat:

Distance to Ocean (474 records): 94% inland - further than 2 km from coast.

Altitude (474 records): 20 - 300 m; 80_{lq} - 120_{med} - 120_{uq} m.

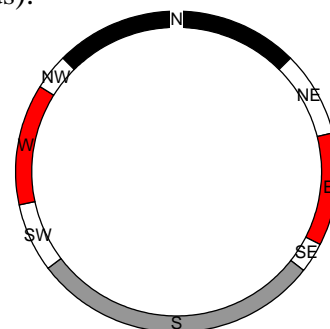


Landform (472 records): 92% deep soil, 8% shallow soil, 0.2% swamp.

Slope (470 records): 39% platform, 31% gentle incline, 16% valley bottom, 6% dunes, 6% hill top, 2% steep incline.

Aspect (224 records):

35% South,
31% North,
17% West,
16% East.



Soil Type (464 records): 90% sandy, 8% loamy, 1% clayey, 0.2% gravelly, 0.2% rocky.

Soil Colour (459 records): 34% brown, 26% grey, 15% red, 11% orange, 9% white, 6% yellow.

Geology (445 records): 52% Tertiary sands, 29% limestone, 12% sandstone, 6% silcrete or ferricrete, 0.9% shale.

Vegetation (466 records): 96% shrubland, 2% thicket, 2% agricultural lands, 0.4% suburban, 0.2% grassland.

Conservation Status and Threat:

Red Data List Status: Vulnerable A4c.

Occurrence (Fynbos): 2 057 km² with 11% conserved and 21% lost; Occupancy: 491 km² with 14% conserved and 24% lost. Fragmentation index: 17%.

Nature Reserves (474 records): 17% in Nature Reserves - inadequately conserved.

Habitat destruction (453 records):
63% extensive natural habitat, 20% islands,
10% road verges, 4% naturally linear
habitats, 3% naturally fragmented habitats.

Alien Invasive Species (455 records):
69% Fabaceae (chiefly alien *Acacia*),
22% none, 7% *Pinus*, 2% Myrtaceae,
0.7% other aliens.

Alien Density (455 records): 22% alien-free,
47% sparse, 16% abundant, 14% dense,
0.4% impenetrable.

Cultivation & Utilization:

Picking (314 records): 100% no sign of
picking.

Cultivation Status: Plantings - 2 records
(0.4%).

Witch's Broom Infestation: 1 records (0.2%).

Atlassers Notes:

Lots of damage - Eland? (APE92080118);
Male (AGRY0061615); Female
(AGRY0061616);

Plus 4 Dead (CFRY0061704); I wonder how
long these will survive! only thing in their
favour is a road reserve (VJK97100102);
Occurring on farm land and on road verges
(WMPY0061614);

Confusing Species: Confused with *L.*
linifolium which has grey (not silver) smaller
leaves.

Records of identification queries = 8.

Records of corrected identification queries = 3.

Variation and Taxonomy: No variation noted.

Distribution: Add.

Great Brak River 1894 (Schlechter 5761)

Sandberg near Robertson 1910 (Pearson 3747)

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron linifolium (Jacq.) R.Br. 1797, 1810

Line-leaf Conebush

Duineknoppiesbos

Other Common Names: Globularia-leaf Protea, Long-stem Protea, Silvertops, Tortum, *Knoppiesbos*, *Kraaltolbos*, *Vleirosie*, *Vleitolbos*, *Waterbossie*.

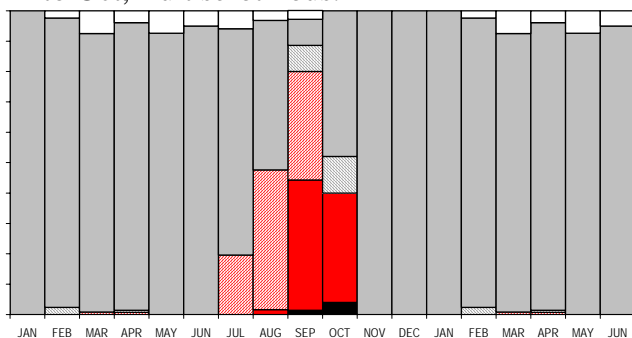
Other Scientific Names: *cinerea* (Willd.) 1798, *densa* (Willd.) 1813, *fusciflora* (Jacq.) 1797, *globulariaefolia* (Salisb. ex Knight) 1809, *longicaule* (Salisb. ex Knight) 1809, *pedunculatum* Meisn 1856, *tortum* R.Br. 1810.

900 Records

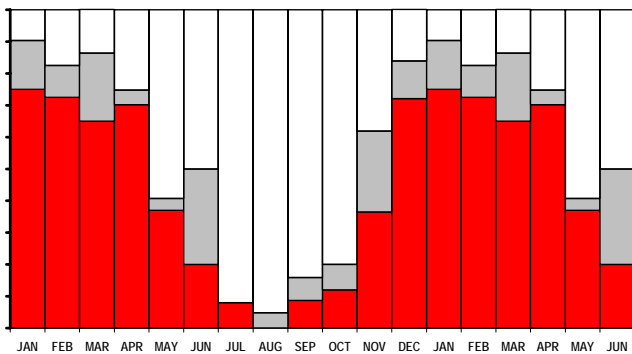
Population (860 records): 3% Abundant, 45% Common, 42% Frequent, 10% Rare.

Dispersion (695 records): 81% variable, 16% clumped, 2% widespread, 1% evenly distributed.

Flowering (753 records with: Jan 52, Feb 42, Mar 120, Apr 152, May 27, Jun 20, Jul 51, Aug 63, Sep 70, Oct 25, Nov 63, Dec 68): Buds from Jul to Sep; Flowering from Sep to Oct; Peak Flowering and Over not significant; Fruit from Oct to Aug; Nothing not significant. Peak levels at 89% in Sep. Historically recorded as flowering from Sep to Oct, fruit serotinous.



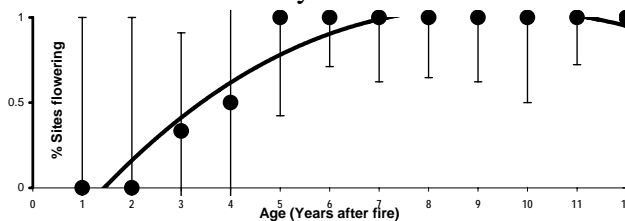
Growth (744 records with: Jan 52, Feb 40, Mar 117, Apr 151, May 27, Jun 20, Jul 50, Aug 62, Sep 69, Oct 25, Nov 63, Dec 68): Much from Nov to Jun; Rare from Mar, Jun and Nov; None from Apr to Nov. Peak levels at 90% in Jan.



Seedlings (316 records): Absent in 95%; fewer seedlings than prefire adults in 5 cases, and more in 3 cases. Seedlings found in Jan (2), Feb, Jul, Aug (2), Sep and Dec.

Fire Survival (26 records): 92% survived by seedlings only, 8% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 1 years, 50% estimated at 3-4 years, and 100% recorded at 5 years.



Height (751 records): 1% 0-0.2 m tall, 64% 0.2-1 m tall, 32% 1-2 m tall, 3% 2-5 m tall.

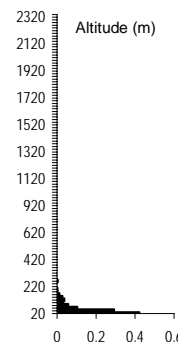
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (890 records): 91% inland - further than 2 km from coast.

Altitude (890 records): 20 - 340 m; 0_{lq} - 20_{med} - 20_{uq}m.



Landform (756 records): 83% deep soil, 9% swamp, 6% shallow soil, 1% lake edge, 0.4% riverine, 0.3% rocky outcrops.

Slope (751 records): 64% platform, 18% gentle incline, 12% valley bottom, 4% dunes, 2% hill top, 0.1% steep incline.

Aspect (301 records): 43% South, 27% North, 18% West, 13% East.

Soil Type (731 records):

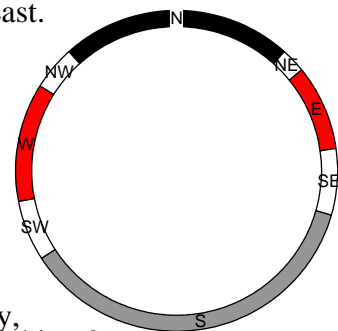
60% sandy, 21% loamy, 12% clayey, 5% gravelly, 0.5% peaty, 0.4% rocky.

Soil Colour (729 records):

47% grey, 34% brown, 10% white, 3% orange, 3% yellow, 2% black, 0.5% red.

Geology (742 records): 24% sandstone, 23% limestone, 22% shale, 18% silcrete or ferricrete, 13% Tertiary sands, 0.1% conglomerate.

Vegetation (881 records): 98% shrubland, 2% agricultural lands, 0.5% thicket, 0.2% plantations, 0.1% wooded grassland, 0.1% suburban.



Conservation Status and Threat:

Red Data List Status: Vulnerable A2c.

Occurrence (Fynbos): 4 502 km² with 19% conserved and 34% lost; Occupancy: 854 km² with 24% conserved and 43% lost. Fragmentation index: 8%.

Nature Reserves (890 records): 24% in Nature Reserves.

Habitat destruction (743 records): 66% extensive natural habitat, 17% islands, 14% road verges, 2% naturally linear habitats, 1% naturally fragmented habitats, 0.5% corridors, 0.1% patches.

Alien Invasive Species (738 records): 82% Fabaceae (chiefly alien *Acacia*), 10% none, 4% Myrtaceae, 3% *Pinus*, 0.5% other aliens, 0.4% annual alien grasses, 0.1% *Hakea*.

Alien Density (736 records): 10% alien-free, 42% sparse, 29% abundant, 14% dense, 5% impenetrable.

Cultivation & Utilization:

Picking (532 records): 99% no sign of picking, 0.8% severely picked, 0.4% lightly picked.

Cultivation Status: Plantings - 5 records (0.6%), Escapes - 3 records (0.3%).

Atlassers Notes:

Cones to 8 mm diameter (OGM97031504); Very poor specimens (AJT95042812); Lots of chopping off of branches by a rodent in several places - piles of branches found (AGRY0072001); Invading fallow lands (AGRY1012101); On shaley soil at roadside : the others across a field on limestone ridge (SMR99052008); A

clump near the track didn't look planted but could have spread from another orchard or got there accidentally in seed (SMRY0041201); Magic! Plot mostly limestone pavement with round pot plant size holes colonized by plants (SMRY1031411); 1 female seen (AGRY2092614); Proteas in clear zones around water – *L. linifolium* outside of wetland area (AGR98060619);

Confusing Species: A single inexplicable case of misidentification with *L. spissifolium*. Records of identification queries = 9. Records of corrected identification queries = 1.

Variation and Taxonomy: A manuscript name is *passerina* Hort, it has never been published. Jacq described the male as *Protea linifolia* and female as *P. fusciflora* – Williams chose the former as the type as the latter has been applied in error to *L. brunoides*.

Populations with the largest leaves and floral parts occur at Onrus to Hermanus, with those to the east and west being smaller in these features. However, atlassers did not note these differences.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron concavum Williams 1969
Pakhuis Conebush

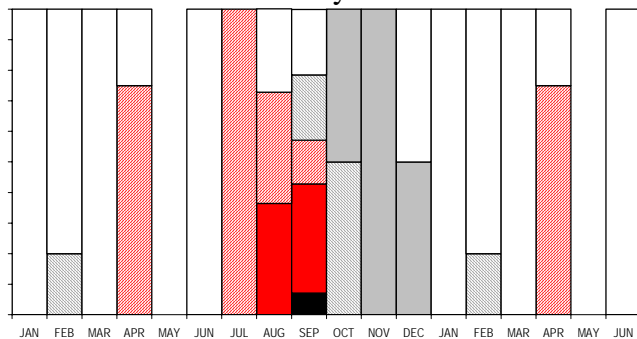
Other Common Names: None known.
Other Scientific Names: *None*.

59 Records

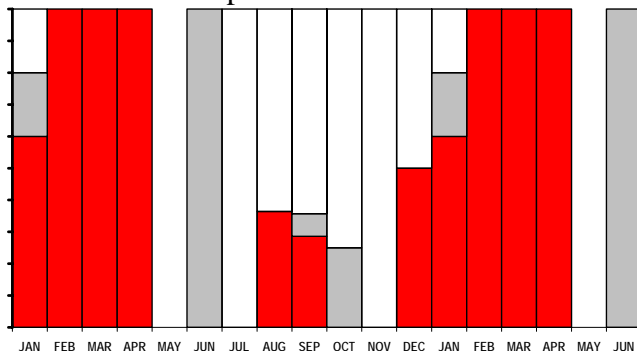
Population (59 records): 2% Abundant, 61% Common, 32% Frequent, 5% Rare.

Dispersion (59 records): 64% variable, 24% clumped, 8% widespread, 3% evenly distributed.

Flowering (59 records with: Jan 5, Feb 5, Mar 7, Apr 4, May 0, Jun 1, Jul 3, Aug 11, Sep 14, Oct 4, Nov 1, Dec 4): Buds from Apr and Jul to Aug; Flowering from Aug to Sep; Peak Flowering not significant; Over from Feb and Sep to Oct; Fruit from Oct to Dec; Nothing from Dec to Sep. Peak levels unreliable at 79% in Sep. Historically recorded as flowering in Sep, fruits retained to Nov after which they are released.



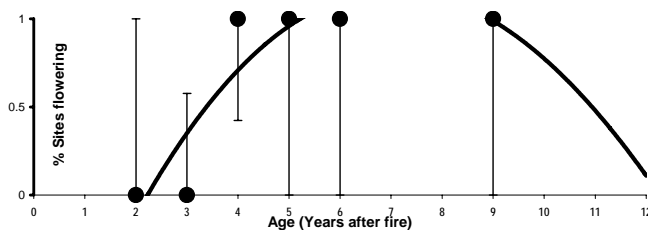
Growth (59 records with: Jan 5, Feb 5, Mar 7, Apr 4, May 0, Jun 1, Jul 3, Aug 11, Sep 14, Oct 4, Nov 1, Dec 4): Much from Dec to Apr and Aug to Sep; Rare from Oct; None from Jul to Jan. Peak levels unreliable at 100% from Feb to Apr.



Seedlings (32 records): Absent in 81%: fewer seedlings than prefire adults in 2 cases, and more in 1 case. Seedlings found in Jan, Sep and Oct.

Fire Survival (11 records): 100% survived by seedlings only.

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



Height (59 records): 7% 0-0.2 m tall, 47% 0.2-1 m tall, 46% 1-2 m tall.

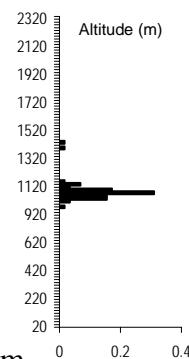
Pollinators (1 record): 100% beetles.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (58 records): 100% inland - further than 2 km from coast.

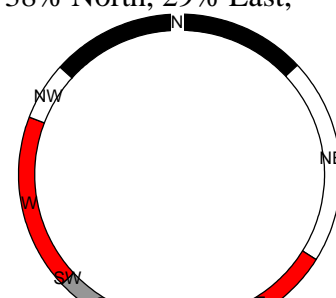
Altitude (58 records): 860 - 1340 m; 940 *lq* - 960 *med* - 980 *uq*m.



Landform (57 records): 89% deep soil, 9% shallow soil, 2% rocky outcrops.

Slope (57 records): 46% gentle incline, 28% platform, 16% hill top, 11% valley bottom.

Aspect (34 records): 38% North, 29% East, 21% West, 12% South.



Soil Type (57 records): 95% sandy, 4% gravelly, 2% loamy.

Soil Colour (57 records): 40% grey, 37% brown, 12% white, 5% yellow, 5% orange.

Geology (57 records): 100% sandstone.

Vegetation (57 records): 100% shrubland.

Conservation Status and Threat:

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

Occurrence (Fynbos): 19 km² with 98% conserved and 1% lost; **Occupancy:** 20 km² with 96% conserved and 0% lost. **Fragmentation index:** 95%.

Nature Reserves (58 records): 100% in Nature Reserves - well conserved.

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

Alien Invasive Species (51 records): 100% none.

Alien Density (51 records): 100% alien-free.

Cultivation & Utilization:

Picking (45 records): 100% no sign of picking.
Cultivation Status: No noted cultivation.

Atlasers Notes:

More females than males (LKAY4112101);
About 20 plants seen (LKAY4112101);

Confusing Species: Misidentified with *L. dubium* (which has smaller leaves), *L. glaberrimum* (which is an entirely different looking plant) and *L. calligerum* when not in flower.

Records of identification queries = 6.

Records of corrected identification queries = 4.

Variation and Taxonomy: No variation noted.

Distribution:

Thought to be wind pollinated. Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron dubium Buek. ex Phill. & Hutch 1912
Cedarberg Conebush
Vuurslaambos

Other Common Names: Beater-bush
 Conebush.

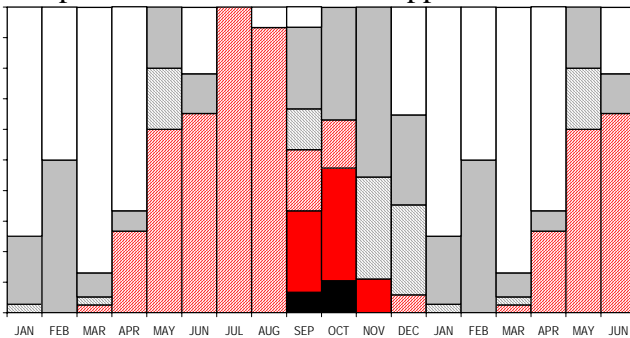
Other Scientific Names: *buxifolium* var.
dubium Meisn. 1856, *dubium* Buek in Drege
 1844.

209 Records

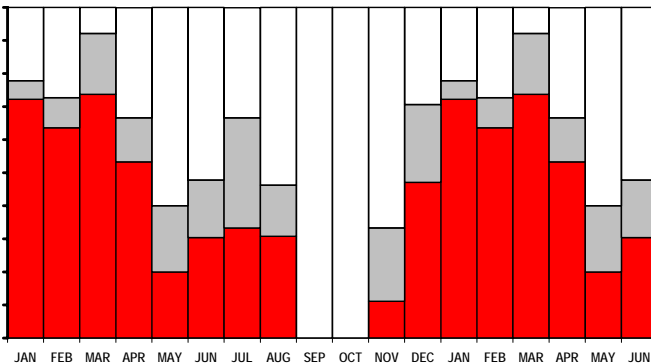
Population (205 records): 31% Common,
 59% Frequent, 10% Rare.

Dispersion (198 records): 55% variable,
 33% clumped, 8% widespread, 4% evenly
 distributed.

Flowering (207 records with: Jan 36, Feb 12,
 Mar 38, Apr 15, May 5, Jun 23, Jul 3, Aug
 15, Sep 15, Oct 19, Nov 9, Dec 17): Buds
 from Apr to Sep; Flowering from Sep to Oct;
 Peak Flowering not significant; Over from
 Nov to Dec; Fruit from Sep to Feb; Nothing
 from Dec to Apr and Jun. Peak levels at
 67% in Sep. Historically recorded as
 flowering from late Aug to early Sep, fruit
 ripen in late Nov and are dropped.



Growth (204 records with: Jan 36, Feb 11, Mar
 38, Apr 15, May 5, Jun 23, Jul 3, Aug 13,
 Sep 15, Oct 19, Nov 9, Dec 17): Much from
 Dec to Aug; Rare from May and Nov to Dec;
 None from Apr to Feb. Peak levels at 92%
 in Mar.



Seedlings (87 records): Absent in 84%: fewer
 seedlings than prefire adults in 5 cases, and
 more in 2 cases. Seedlings found in Jan (3),
 Mar, Jul, Oct and Nov.

Fire Survival (14 records): 93% survived by
 seedlings only, 7% eliminated from the area
 by fires.

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



Height (205 records): 3% 0-0.2 m tall,
 59% 0.2-1 m tall, 36% 1-2 m tall, 1% 2-5 m
 tall.

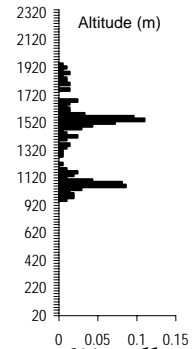
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (209
 records): 100% inland -
 further than 2 km from coast.

Altitude (209 records): 840 -
 1840 m; 960 *lq* - 1320 *med* -
 1440 *uq*m.

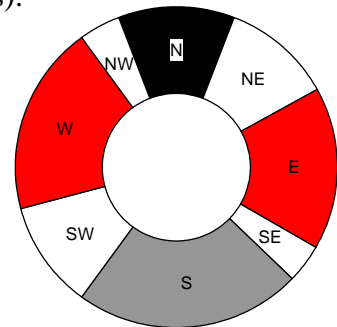


Landform (208 records):
 73% deep soil, 20% shallow
 soil, 6% rocky outcrops,
 1.0% riverine, 0.5% swamp.

Slope (208 records): 59% gentle
 incline, 24% platform, 6% hill top, 6% valley
 bottom, 5% steep incline.

Aspect (163 records):

29% South,
 28% West,
 25% East,
 18% North.



Soil Type (208
 records):

77% sandy,
 11% gravelly,
 7% rocky,
 4% loamy,
 0.5% clayey.

Soil Colour (207 records): 46% grey,
 25% brown, 15% white, 8% yellow,
 4% orange, 0.5% black, 0.5% red.

Geology (203 records): 85% sandstone,
 11% shale, 2% silcrete or ferricrete,
 2% Tertiary sands.

Vegetation (207 records): 98% shrubland,
 1% grassland, 1.0% agricultural lands.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 611 km² with 49%
 conserved and 2% lost; Occupancy: 168 km²
 with 67% conserved and 1% lost.

Fragmentation index: 22%.

Nature Reserves (209 records): 76% in Nature
 Reserves - well conserved.

Habitat destruction (198 records):
 89% extensive natural habitat, 8% islands,

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

Alien Invasive Species (196 records): 94% none, 6% *Pinus*.

Alien Density (196 records): 94% alien-free, 6% sparse.

Cultivation & Utilization:

Picking (133 records): 99% no sign of picking, 0.8% severely picked.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Old plants reach a height of 2 m (SHR95100802);

Most plants have dropped their cones: are they non-serotinous? *Yes* (NAH95012202);

Chopped out and veld bushcut for new rooibos tea plantations (AGRY5122906 + 8); Cut plants have been used to repair erosion in the track (NGF97032109);

Most of the plants growing in rooibos tea field (LYM98062709);

Only one specimen - female but there must have been more somewhere around (AKS93021801);

Confusing Species: Misidentified as *L. concavum*, which has much bigger leaves and inexplicably as *L. dregei*.

Records of identification queries = 14

Records of corrected identification queries = 6.

Variation and Taxonomy: No significant variation known or noted.

Distribution: Add.

Thought to be wind pollinated.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron arcuatum (Lam.) Williams 1791, 1967

Red-edge Conebush

Kruiptolbos

Other Common Names: Ceres Goldtips, Crassula-leaf Protea.

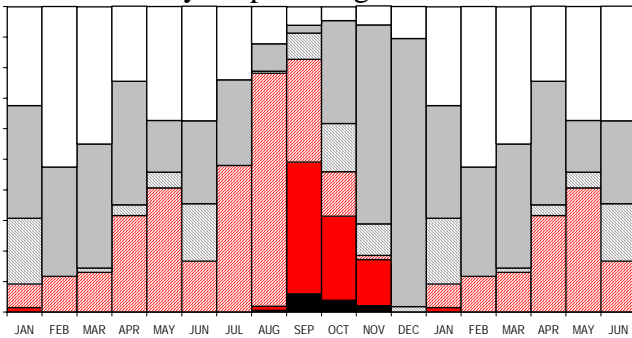
Other Scientific Names: *crassifolium* R.Br. 1810, *crassulifolium* (Salisb. ex Knight) 1809, *mutica* (Poir.) 1816, *spathulatum* R.Br. 1810, *squarrosium* R.Br. 1810.

1221 Records

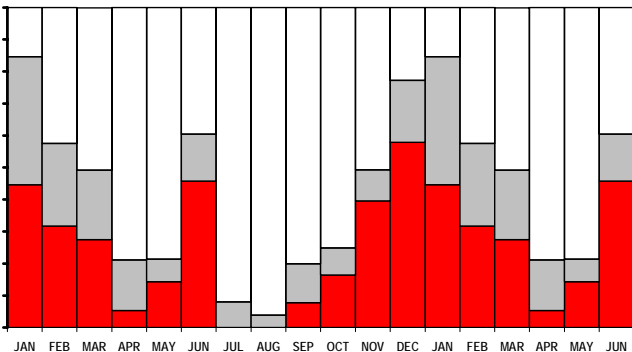
Population (1216 records): 0.1% Abundant, 20% Common, 61% Frequent, 18% Rare.

Dispersion (1118 records): 74% variable, 22% clumped, 4% widespread, 0.9% evenly distributed.

Flowering (1212 records with: Jan 65, Feb 120, Mar 69, Apr 57, May 59, Jun 48, Jul 25, Aug 156, Sep 232, Oct 178, Nov 146, Dec 57): Buds from Apr to May and Jul to Sep; Flowering from Sep to Oct; Peak Flowering not significant; Over from Jan; Fruit from Oct to Apr and Jun to Jul; Nothing from Jan to Jul. Peak levels at 91% in Sep. Historically recorded as flowering from late Sep to early Oct, fruit ripen in 4 months and immediately drop to the ground.



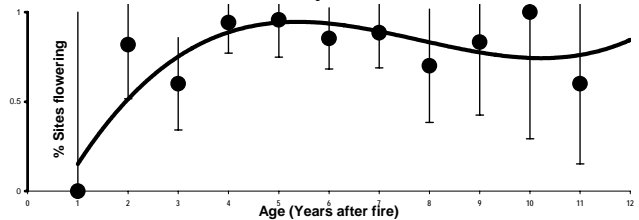
Growth (1204 records with: Jan 65, Feb 120, Mar 69, Apr 57, May 56, Jun 48, Jul 25, Aug 155, Sep 231, Oct 177, Nov 144, Dec 57): Much from Nov to Mar and Jun; Rare from Jan to Mar; None from Feb to Dec. Peak levels at 85% in Jan.



Seedlings (461 records): Absent in 95%: fewer seedlings than prefire adults in 11 cases, and more in 1 case. Seedlings found in Mar (2), Jun (6), Sep (3) and Dec.

Fire Survival (169 records): 93% resprouted from underground boles, 5% escaped fires in

fire-safe areas, 1% survived by seedlings only, 1% resprouted from aerial trunks.
Age to first flowering: First flowers recorded at 2 years, 50% estimated at 2 years, and 100% recorded at 10 years.



Height (1210 records): 20% 0-0.2 m tall, 76% 0.2-1 m tall, 3% 1-2 m tall, 0.1% 2-5 m tall.

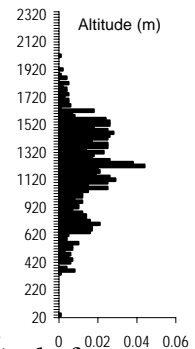
Pollinators (17 records): 59% beetles, 29% none observed, 12% flies.

Detailed Pollinators (5 records): Monkey Beetle.

Habitat:

Distance to Ocean (1215 records): 100% inland - further than 2 km from coast.

Altitude (1215 records): 320 - 1920 m; 860_{lq} - 1120_{med} - 1280_{uq}m.



Landform (1202 records): 62% deep soil, 33% shallow soil, 4% rocky outcrops, 0.7% swamp, 0.2% riverine.

Slope (1190 records): 49% gentle incline, 26% steep incline, 15% platform, 6% hill top, 3% valley bottom, 0.7% cliff.

Aspect (1008 records): 29% East, 27% West, 23% North, 20% South.

Soil Type (1197 records):

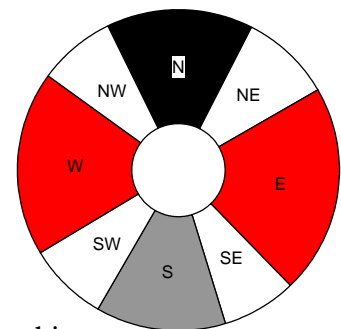
59% sandy, 16% gravelly, 12% rocky, 11% loamy, 2% clayey, 0.3% peaty.

Soil Colour (1191 records):

46% grey, 32% brown, 14% white, 3% yellow, 2% orange, 1% black, 0.8% red.

Geology (1187 records): 90% sandstone, 9% shale, 0.8% silcrete or ferricrete, 0.2% Tertiary sands.

Vegetation (1199 records): 99% shrubland, 0.3% grassland, 0.3% plantations, 0.2% agricultural lands.



Conservation Status and Threat:

Red Data List Status: Least Concern. Occurrence (Fynbos): 4 660 km² with 24% conserved and 12% lost; Occupancy:

979 km² with 36% conserved and 5% lost.
Fragmentation index: 17%.

Nature Reserves (1215 records): 55% in
Nature Reserves - well conserved.

Habitat destruction (1178 records):
93% extensive natural habitat, 3% islands,
2% naturally fragmented habitats,
2% naturally linear habitats, 0.2% road
verges, 0.1% corridors.

Alien Invasive Species (1158 records):
77% none, 18% *Pinus*, 2% Fabaceae (chiefly
alien *Acacia*), 2% *Hakea*, 0.4% Myrtaceae,
0.3% other aliens.

Alien Density (1158 records): 77% alien-free,
20% sparse, 2% abundant, 0.5% dense.

Cultivation & Utilization:

Picking (722 records): 100% no sign of
picking.

Cultivation Status: Plantings - 1 record
(0.08%).

Witch's Broom Infestation: 1 record (0.08%).

Atlassers Notes:

Single stem young plants! (AKS94091204);

Some sprawl, some semi-upright
(WIJY0102807); Very unusual creeping
form (AMMY3112620-22); Creeping
(JBB99122201); Sprawling plant

(WIJ95020404); One "baster" conebush with
growth (mat of leaves) at ground level &
single stem up (AWAY0100407);

Very broad leaf form! (AGR95020508); Leaves
20-30 mm wide - very wide

(AGRY1022119); With wide big leaves
(AGRY1022120); Narrow leaf
(WIJ96072811);

All males (APE92101807); Predominantly male
(JAT93013001);

Many young plants around dead bushes
(AWAY0102604); 2 patches have a cluster
of 4 dead plants (AGRY4110609);

Only young plants that have not bloomed yet
have new growth (AWA99092405); Many
small plants with new growth
(AWA99092701);

Second flowering this year (AGR98080803 + 5,
SAS98080806);

Strong vanilla scent (AGRY4110606);

Confusing Species: Atlassers confused with *L. glaberrimum* *susp. glaberrimum*, which is not a resprouter. Without field work it is not known if *L. crassulaefolium* has any distinctive features other than its growth habit.

Records of identification queries = 39.

Records of corrected identification queries = 6.

Variation and Taxonomy: The fact that Robert Brown considered this to be 3 species is testament to its variation. We have excluded non-resprouting forms as *L. crassulifolium*.

Leaf size is variable. First leaves postfire are narrower and somewhat falcate, borne on decumbent stems, with older leaves wider and more succulent.

Flowerheads and fruit vary in size, but other features are not variable.

Williams notes that there may be a dwarf form on Saronsberg, but material is inadequate.

Williams mentions that if unburnt for long periods the shrubs might become erect.

However, this appears to be what we have called *L. crassulifolium*.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron bonum Williams 1967
Gideonskop Conebush

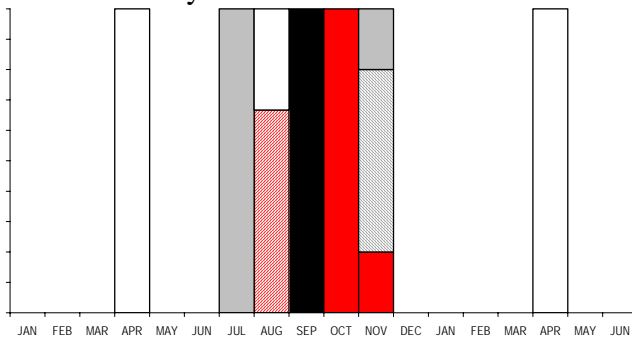
Other Common Names: None known.
Other Scientific Names: *None*.

13 Records

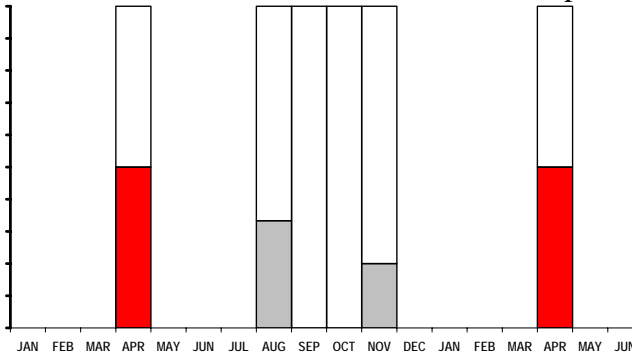
Population (13 records): 0% Common, 54% Frequent, 46% Rare.

Dispersion (12 records): 83% clumped, 8% evenly distributed, 8% variable.

Flowering (13 records with: Jan 0, Feb 0, Mar 0, Apr 2, May 0, Jun 0, Jul 1, Aug 3, Sep 1, Oct 1, Nov 5, Dec 0): Buds from Aug; Flowering from Oct to Nov; Peak Flowering from Sep; Over from Nov; Fruit from Jul and Nov; Nothing from Apr and Aug. Peak levels unreliable at 100% from Sep to Oct. Historically recorded as flowering from Oct, fruit in early Jan and is shed.



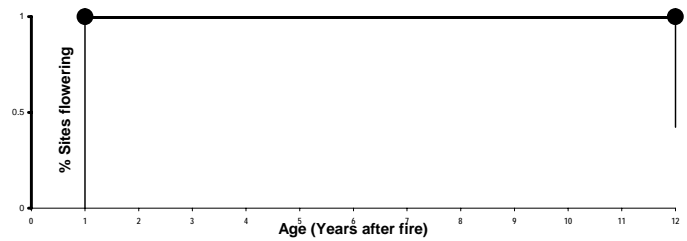
Growth (12 records with: Jan 0, Feb 0, Mar 0, Apr 2, May 0, Jun 0, Jul 0, Aug 3, Sep 1, Oct 1, Nov 5, Dec 0): Much from Apr; Rare from Aug and Nov; None from Apr and Aug to Nov. Peak levels unreliable at 50% in Apr.



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

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

Age to first flowering: First flowers recorded at 1 years (dubious), and 100% recorded at 12 years, but no data for younger veld.



Height (13 records): 85% 0.2-1 m tall, 15% 1-2 m tall.

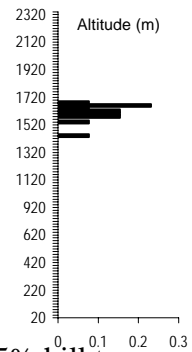
Pollinators (1 record): 100% beetles.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (13 records): 100% inland - further than 2 km from coast.

Altitude (13 records): 1320 - 1580 m; 1460 *lq* - 1500 *med* - 1500 *uq*m.

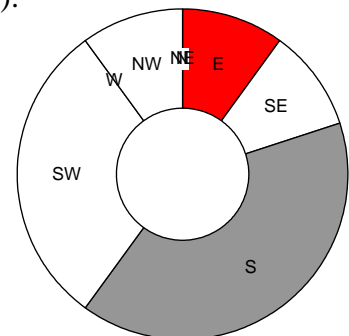


Landform (13 records): 62% deep soil, 31% shallow soil, 8% rocky outcrops.

Slope (13 records): 46% gentle incline, 23% steep incline, 15% hill top, 15% platform.

Aspect (10 records):

60% South,
 20% West,
 15% East,
 5% North.



Soil Type (13 records): 69% sandy, 15% loamy, 8% gravelly, 8% rocky.

Soil Colour (13 records): 92% grey, 8% yellow.

Geology (13 records): 100% sandstone.

Vegetation (13 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Critically Endangered C2a(i)b.

Occurrence (Fynbos): 8 km² with 0% conserved and 0% lost; **Occupancy:** 14 km² with 0% conserved and 0% lost. Fragmentation index meaningless.

Nature Reserves (13 records): 0% in Nature Reserves - unconserved.

Habitat destruction (10 records): 80% extensive natural habitat, 20% islands.

Alien Invasive Species (11 records): 100% none.

Alien Density (11 records): 100% alien-free.

Cultivation & Utilization:

Picking (8 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Plants still recognizable by their silvery leaves which in many cases did not burn off: possible inter-fire recruitment of plants judging by the some small (0.6 m) skeletons present- or were these just very stunted adults? (NAHY1072302);

36 live + 2 dead plants seen in this location: no male seen here plants sampled all female (APE93110705); One female (APE93110708); 2 females flowering and 2 females cones 4 flowerheads (LKAY0101404); Population comprised all female plants (NGFY0093002); 54 plants (NGW94111001); Found just s of neck; 3 female plants not sure if others are males

(PMRY0042806); 23 alive & 6 dead (WMP98080903);

Confusing Species: None noted.

Variation and Taxonomy: No variation noted.

Distribution: Add.

Unusual in that involucre bracts open and close with weather.

INCLUDEPICTURE

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Leucadendron crassulifolium (Salisb. ex Kn.) William 1809, 1967
Erect Red-edge Conebush

This name is temporary. The specimen has not been looked at (it does not have a detailed locality). It may merely be a broad-leaf specimen of L. arcuatum.

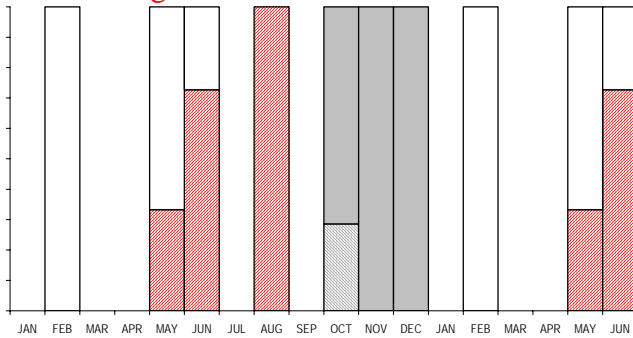
Other Common Names: None known.
Other Scientific Names: None.

42 Records

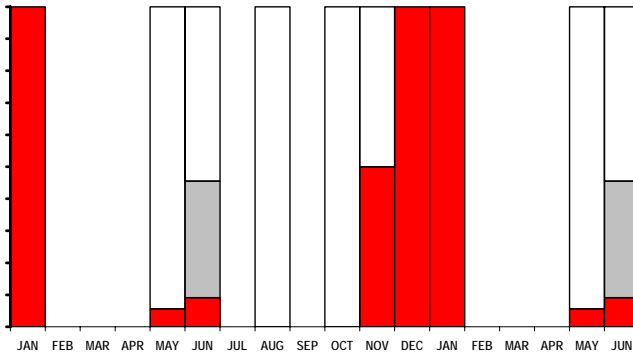
Population (42 records): 38% Common, 43% Frequent, 19% Rare.

Dispersion (38 records): 63% variable, 37% clumped.

Flowering (40 records with: Jan 0, Feb 1, Mar 0, Apr 0, May 18, Jun 11, Jul 0, Aug 1, Sep 0, Oct 7, Nov 1, Dec 1): Buds from May to Aug; Flowering and Peak Flowering not recorded; Over from Oct; Fruit from Oct to Dec; Nothing from Feb to Jun. Peak levels unreliable. **Historically recorded as flowering from check Williams 1967.**



Growth (41 records with: Jan 1, Feb 0, Mar 0, Apr 0, May 18, Jun 11, Jul 0, Aug 1, Sep 0, Oct 7, Nov 2, Dec 1): Much from Nov to Jan; Rare from Jun; None from May to Nov. Peak levels unreliable at 100% from Dec to Jan.



Seedlings (23 records): Absent in 91%: fewer seedlings than prefire adults in 1 case. Seedlings found in Jan.

Fire Survival (17 records): 100% survived by seedlings only.

Age to first flowering: No data.

Height (42 records): 2% 0-0.2 m tall, 38% 0.2-1 m tall, 55% 1-2 m tall, 5% 2-5 m tall.

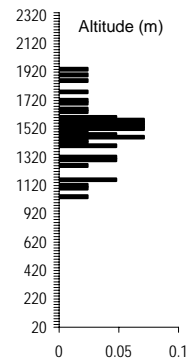
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (42 records): 100% inland - further than 2 km from coast.

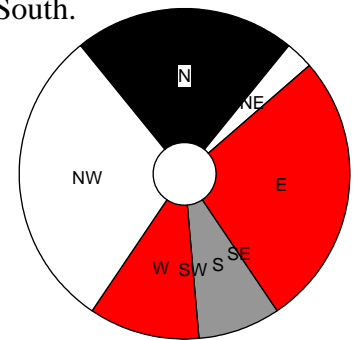
Altitude (42 records): 920 - 1840 m; 1280_{lq} - 1400_{med} - 1460_{uq}m.



Landform (41 records): 76% shallow soil, 24% deep soil.

Slope (41 records): 54% gentle incline, 29% steep incline, 12% hill top, 5% platform.

Aspect (37 records): 46% North, 28% East, 18% West, 8% South.



Soil Type (41 records): 46% sandy, 39% rocky, 15% loamy.

Soil Colour (41 records): 68% grey, 24% brown, 5% white, 2% yellow.

Geology (40 records): 100% sandstone.

Vegetation (40 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Near Threatened D2(i). Occurrence (Fynbos): 644 km² with 15% conserved and 8% lost; Occupancy: 49 km² with 22% conserved and 2% lost. Fragmentation index: 7%.

Nature Reserves (42 records): 19% in Nature Reserves - inadequately conserved.

Habitat destruction (40 records): 100% extensive natural habitat.

Alien Invasive Species (40 records): 93% none, 8% *Pinus*.

Alien Density (40 records): 93% alien-free, 8% sparse.

Cultivation & Utilization:

Picking (37 records): 100% no sign of picking.
Cultivation Status: No noted cultivation.

Atlassers Notes:

1 escaped 6 killed 6 seedlings 1 possible resprout (AGR95052404); 4 Seedlings 30 escape 3 killed : 1 resprout (agr95052406); 0 resprouting 15 seedlings : 1 killed 1 escape AGR95052407; Single-stemmed bushes (WIJ95123010);

What I am calling *L. crassulaefolium* is a large tree with a thick trunk and therefore single stemmed the large spatulate leaves bigger than those of *L. arcuatum* all this gives credence to the belief that this is a separate species (NGF99060502); Particularly large leaves (80 x 40 mm) and an erect habit - resprouting is not obvious although plants were spotted adjacent to cleared strip parallel

to powerlines (SHR93080806);Habit reminiscent of that of *Leucospermum conocarpodendron* (SHR99060601); Leaves spatulate, thick hairy young looking plants: erect HC3 (WMP95010120)

Cape Sugarbird nest with eggs in plant (LYM99060602);

Confusing Species: Only *L. arcuatum* caused a problem with this species: all queries are prior to confirmation of the erect form following queries by Steven Richardson. Records of identification queries = 8.

Records of corrected identification queries = 3.

Variation and Taxonomy: No variation noted. The following herbarium specimens are of this species: Taylor 6452 (PRE).

Distribution: Add.

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Leucadendron pubescens R.Br. 1810

Grey Conebush

Syhaartolbos

Other Common Names: Emulous Protea, Galpinii, Grey-mat Conebush, Silky Conebush, *Knokkerbos*, *Knokkers*, *Knopbos*, *Pitjebos*, *Pitjeknopbos*.

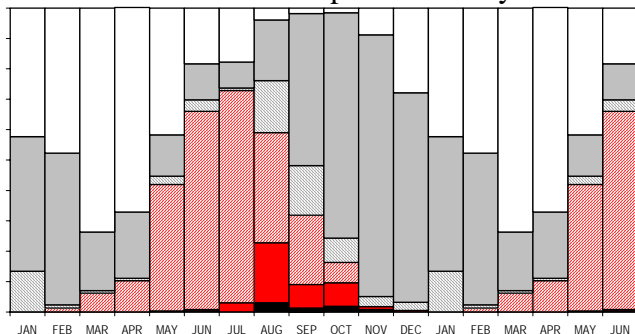
Other Scientific Names: *acutum* Meisn 1856, *aemula* Salisb. ex Knight 1809, *elatum* Buek ex Meisn 1856, *pillansii* Phill. 1917, *retusum* R.Br. 1810, *sericocephalum* Schlechter 1900, *virgata* (Thunb.) 1806.

4065 Records

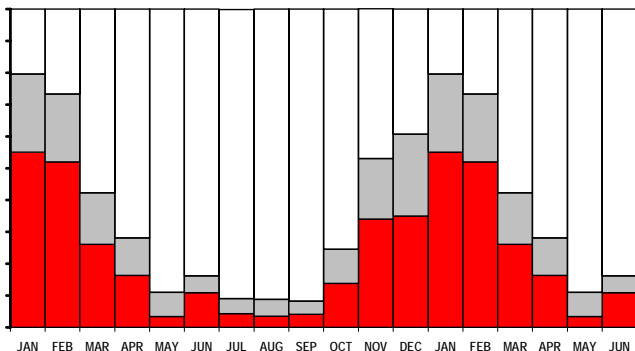
Population (4047 records): 0.3% Abundant, 38% Common, 52% Frequent, 10% Rare, 0.1% Extinct.

Dispersion (3874 records): 82% variable, 13% clumped, 4% widespread, 0.6% evenly distributed.

Flowering (3971 records with: Jan 97, Feb 308, Mar 373, Apr 400, May 295, Jun 394, Jul 236, Aug 434, Sep 390, Oct 465, Nov 396, Dec 183): Buds from May to Sep; Flowering from Aug; Peak Flowering and Over not significant; Fruit from Aug to Feb and Apr; Nothing from Dec to May. Peak levels at 76% in Aug. Historically recorded as flowering from July (earlier at lower altitudes) to Oct at high altitudes, fruit ripen 4 months later and drop immediately.



Growth (3921 records with: Jan 98, Feb 300, Mar 371, Apr 399, May 290, Jun 395, Jul 232, Aug 431, Sep 390, Oct 458, Nov 374, Dec 183): Much from Nov to Mar; Rare from Dec to Feb; None from all year round. Peak levels at 80% in Jan.

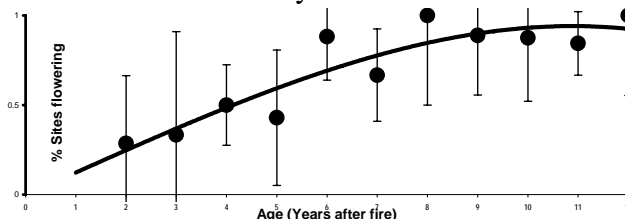


Seedlings (1552 records): Absent in 96%: fewer seedlings than prefire adults in 23 cases, and more in 6 cases. Seedlings found in Jan (15),

Feb, Apr (2), May, Jun (3), Jul, Aug, Sep (4), and Nov.

Fire Survival (169 records): 75% survived by seedlings only, 15% escaped fires in fire-safe areas, 8% eliminated from the area by fires, 2% resprouted from underground boles.

Age to first flowering: First flowers recorded at 1 years, 50% estimated at 3-4 years, and 100% recorded at 8 years. Slight evidence of senescence after 21 years.



Height (4006 records): 0.7% 0-0.2 m tall, 29% 0.2-1 m tall, 66% 1-2 m tall, 5% 2-5 m tall, 0.0% taller than 5 m.

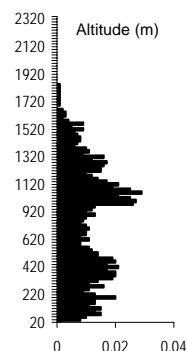
Pollinators (25 records): 76% beetles, 16% flies, 4% birds, 4% bees or wasps.

Detailed Pollinators (9 records): Monkey Beetle (5), Green Stripy Beetle (3), Great Protea Beetle.

Habitat:

Distance to Ocean (4045 records): 100% inland - further than 2 km from coast.

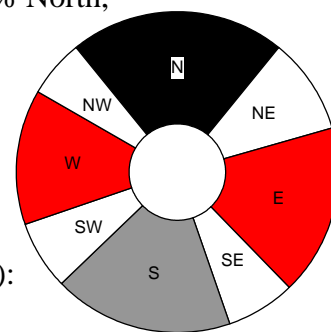
Altitude (4047 records): 20 - 1780 m; 360 *lq* - 760 *med* - 1020 *uq*m.



Landform (4022 records): 72% deep soil, 25% shallow soil, 3% rocky outcrops, 0.2% riverine.

Slope (4021 records): 61% gentle incline, 15% platform, 14% steep incline, 8% hill top, 2% valley bottom, 0.3% cliff, 0.1% dunes.

Aspect (3377 records): 29% North, 26% East, 25% South, 20% West.



Soil Type (4005 records):

67% sandy, 14% loamy, 10% gravelly, 9% rocky, 1.0% clayey.

Soil Colour (3987 records): 38% brown, 23% grey, 13% yellow, 9% orange, 9% white, 7% red, 0.5% black.

Geology (3836 records): 82% sandstone, 9% Tertiary sands, 8% shale, 2% silcrete or ferricrete.

Vegetation (4021 records): 99% shrubland, 0.4% agricultural lands, 0.1% thicket,

0.0% grassland, 0.0% plantations,
0.0% woodland, 0.0% desert.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 14 507 km² with 11% conserved and 19% lost; Occupancy: 3 953 km² with 10% conserved and 17% lost. Fragmentation index: 11%.

Nature Reserves (4047 records): 13% in Nature Reserves - inadequately conserved.

Habitat destruction (3987 records): 78% extensive natural habitat, 17% islands, 3% road verges, 1% naturally fragmented habitats, 1% naturally linear habitats, 0.1% corridors.

Alien Invasive Species (3931 records): 78% none, 14% Fabaceae (chiefly alien *Acacia*), 6% *Pinus*, 1% Myrtaceae, 0.5% other aliens, 0.1% *Hakea*, 0.0% annual alien grasses.

Alien Density (3927 records): 79% alien-free, 18% sparse, 3% abundant, 0.4% dense, 0.1% impenetrable.

Cultivation & Utilization:

Picking (2857 records): 100% no sign of picking, 0.4% lightly picked, 0.1% severely picked.

Cultivation Status: No noted cultivation.

Witch's Broom Infestation: 2 records (0.05%).

Atlassers Notes:

Leaf colour variation:

Silver form: 138 records; Grey form: 18 records (including: normal grey form (1), grey (pale green) form (1) and grey-green form (1); Green form: 19 records

Green form lower down and silver form on top (AGR99072403 + 7); Silver form green form below this (AGR99072413 + 15); Plants differ from populations to north and south as follows: (1) Silvery leaves (2) Indistinct involucreal leaves (3) Later flowering (SHR95100801); Silver form completely different from the big green shrubs that are common in the more arid areas (VJKY0092303);

Juveniles silver till flowering then turning grey (AGRY2040502); Female smooth green leaves, male hairy (MHR98031002); Attractive silver-leaf form (SMRY0072102);

Leaf size variation:

Big leaf form (IEB99042504); Large leaf form (NGF99042504); Broad leaf form (NGF99042506); The plants look very different from that found on the west coast: leaves longer greener straighter & less hairy (PVR95061801); Widely distributed along roadside large female leaves 50x12 mm male leaves 18x3 mm (WIJ92071807); Large and small leaf varieties - esp. latter (WIJ99090302); Small-leaf variety (WIJ99090306);

With big green leaves in female (RGJ97011801 + 3); Large female leaves 50x12 mm, male leaves 18x3 mm (WIJ92071807);

Other notes on variation:

Cone very hairless! (AGR99032602); Found one plant that had the growth habit of *Protea sulplurea* - i.e. hanging over the rocks (DOA94012712);

Confusing species:

Only females definite - males confusable with other species (MHR92081502); Grey form: veld young and *L. pubescens* and *glaberrimum subsp. glaberrimum* required special attention to separate (AGRY2040501); *L. pubescens* and *glaberrimum subsp. erubescens* numbers from skeletons - differences in young too subtle (AGRY3112510);

Phenology:

With growth and developing next flowers (AWA95061603); Females: old cones only, males: in bud (HCE96070401); Males in new growth whereas females are not (PMR98120601); Males in early bud but females show nothing yet (SMRY0062205); The male buds appear to be sterile dry - may be earlier in year drought (VJK95061605); Some seeds in cones though most are empty (WIJY0050804);

Fire survival:

Interfire recruitment (AGR96091133 + 34); Some plants so old and stressed: no flowers or new growth (AWA96082001); Some resprouted (WIJ92011202); One plant resprouting from ground after damage (WIJ94041002);

Habitat:

Spreading into old lands (AGR99051512); Includes old fields at base with good recolonization (AGRY1042705); Much taller and more prolific at base of sandstone adjacent shale band - however no differences in abundance and no plants on shale proper so separate plot not done (AGRY0031824); In riverine area: growing like one of the Steam Conebushes in dense riverine patches (AGRY0102806); On the boundary between shale and sandstone (DJL99102707);

Grazing and damage:

A few plants heavily grazed! (APE94081711); Plants removed from veld: used to make kraal (AGR92082402); Bush cut (GEKY2110601);

Deaths:

Lots of dead plants - about 1/2 of population (AGR95081109); Bush half dead (AGR99072403); Skeleton very recently dead (AGRY0062230); 1 In 7 Plants Dead (AGRY1020604); In places most plants dead (this fire cycle) or dying - drought? (AGRY1020616); Some dead, lots have lost last years leaves and look sick - previous years leaves OK - this years leaves at tips of bare branches (AGRY1020714); 2 dead plants only (AMMY0111501); A lot of plants are dead or dying (AMMY0112306); One very old bush big part of it died off (AWA95061601); Many dying plants (CFRY0072101); Large but not very healthy plants (CHE99102701); Dead (SAS98080809); Experiencing water stress (SHRY0070901); 100s of dead plants (WIJ99042507);

Population dynamics:

All female (AGR94101001, AGR97051818); 23 plants (AGR98080908); 6 males and 2 females (AGRY0012929); Less than 1/3 of the previous generation (AGRY0112323); Austen counted 75 plants - is a sucker for counting proteas! (AWA95061603); There were 4 females + 2 males (HCE96070401); Mainly males present on plot (HCE96070601);

Pollinators:

Saw butterfly and worm (IVM98082702); Butterflies landing on bushes where buds are

opened – 30 mm brown/black with blue spots on wings, flies on bushes, large caterpillars on 1 bush - lots - obliterating bush! (VCH98082702); Beetles - 2 types: 1- hairy black 9x4 mm, 2- green 10x4 mm (WIJ95082409);

Confusing Species: Confused with *L. barkerae* (which has different – hairless cones and similar sexes), *L. dregei* (which has a different growth habit), and sporadically with other species during the juvenile phases. Expected problems with *L. loranthifolium* (with hairless cones) and *L. rubrum* (male plants similar) did not materialize perhaps because females were correctly sought after for identification.

Records of identification queries = 243.

Records of corrected identification queries = 27.

Variation and Taxonomy: Williams states that this is a very variable species: he would have liked to have divided it into about 5 subspecies, but could not find enough

geographical criteria to do so. The following forms were singled out by him:

- Very small leaves: at Lokenberg, Botterkloof and Tigerberg;
- Extremely large leaves, especially in the male: Karoopoort;
- Very acute leaves: Touwsberg.
- Dwarf form with silver leaves: Tafelberg: Cedarberg.

Salisbury's *Protea aemula* 1809 predates Robert Browns *Leucadendron aemulum* 1810 for *L. comosum*. Thunberg's *Protea virgata* 1806 predates Browns *Leucadendron virgatum* 1810 for *L. salignum*. So why is it not *Leucadendron virgatum*?

Distribution: Add.

INCLUDEPICTURE

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Leucadendron remotum Williams 1969
Nieuwoudtville Conebush

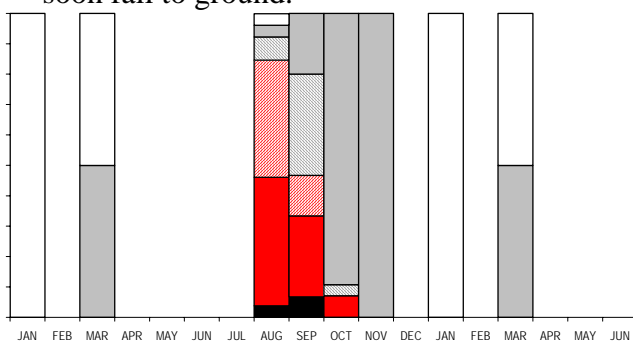
Other Common Names: Bokkeveld Conebush.
Other Scientific Names: *None*.

74 Records

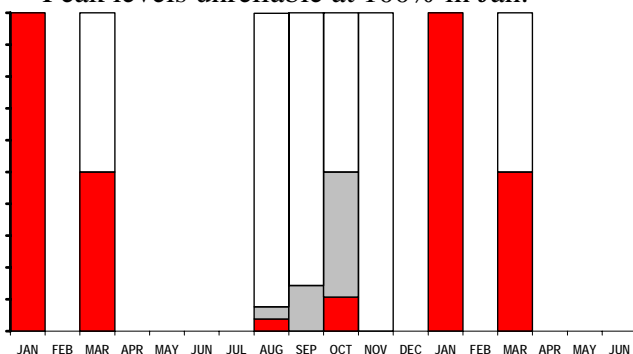
Population (74 records): 20% Common, 49% Frequent, 31% Rare.

Dispersion (60 records): 72% variable, 27% clumped, 2% evenly distributed.

Flowering (73 records with: Jan 1, Feb 0, Mar 2, Apr 0, May 0, Jun 0, Jul 0, Aug 26, Sep 15, Oct 28, Nov 1, Dec 0): Buds from Aug; Flowering from Aug to Sep; Peak Flowering not significant; Over from Sep; Fruit from Mar and Sep to Nov; Nothing from Jan to Mar. Peak levels unreliable at 92% in Aug. Historically recorded as flowering from late Aug to early Sep, fruits ripen in Nov and soon fall to ground.



Growth (72 records with: Jan 1, Feb 0, Mar 2, Apr 0, May 0, Jun 0, Jul 0, Aug 26, Sep 14, Oct 28, Nov 1, Dec 0): Much from Jan to Mar; Rare from Oct; None from Mar to Nov. Peak levels unreliable at 100% in Jan.



Seedlings (32 records): All without any seedlings present.

Fire Survival : No data.

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



Height (73 records): 8% 0.2-1 m tall, 89% 1-2 m tall, 3% 2-5 m tall.

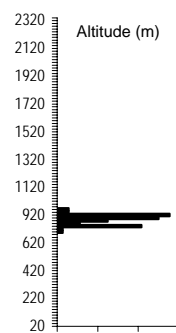
Pollinators (8 records): 63% beetles, 25% bees or wasps, 13% flies.

Detailed Pollinators (4 records): Monkey Beetle.

Habitat:

Distance to Ocean (72 records): 100% inland - further than 2 km from coast.

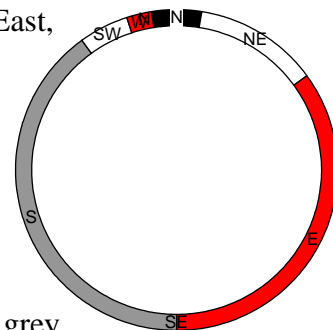
Altitude (72 records): 680 - 860 m; 740 *lq* - 800 *med* - 800 *uq* m.



Landform (72 records): 89% deep soil, 8% shallow soil, 1% swamp, 1% rocky outcrops.

Slope (72 records): 46% gentle incline, 26% hill top, 26% platform, 1% valley bottom.

Aspect (40 records): 43% South, 41% East, 11% North, 5% West.



Soil Type (71 records): 85% sandy, 15% loamy.

Soil Colour (71 records): 41% brown, 23% yellow, 20% grey, 8% orange, 6% white, 3% red.

Geology (72 records): 99% sandstone, 1% shale.

Vegetation (71 records): 97% shrubland, 1% wooded grassland, 1% agricultural lands.

Conservation Status and Threat:

Red Data List Status: Endangered A3c, B1a(ii)b(i,ii,iii,iv,v) + 2a(ii)b(i,ii,iii,iv,v).

Occurrence (Fynbos): 183 km² with 0% conserved and 19% lost; **Occupancy:** 97 km² with 0% conserved and 29% lost. **Fragmentation index:** 42%.

Nature Reserves (72 records): 0% in Nature Reserves - unconserved.

Habitat destruction (71 records): 66% extensive natural habitat, 27% islands, 6% road verges, 1% naturally fragmented habitats.

Alien Invasive Species (67 records): 64% none, 15% Fabaceae (chiefly alien *Acacia*), 12% *Pinus*, 7% other aliens, 1% Myrtaceae.

Alien Density (67 records): 64% alien-free,
31% sparse, 4% abundant.

Cultivation & Utilization:

Picking (50 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

With a variety of smaller bushes - not all the
same age (AGR92082510);

Saw plants only next to road (AWA95090103);

Two different types of Monkey Beetles : black
and iridescent-blue (AGR92082508);

Confusing Species: Easily confused with *L.*
pubescens by inattentive atlassers, but has
squarer leaves and less sexual dimorphism.

Records of identification queries = 14.

Records of corrected identification queries = 11.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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Leucadendron nitidum Buek ex Meisn. 1856

Bokkeveld Conebush

Perdepisbos

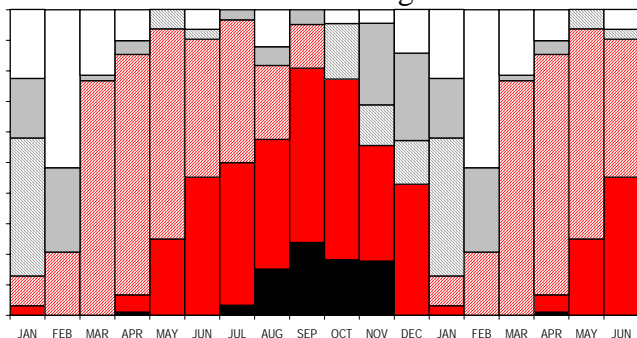
Other Common Names: *Perdepistolbos*.
Other Scientific Names: *schinzianum* Schltr. 1900, *schlechteri* Phill & Hutch 1912.

418 Records

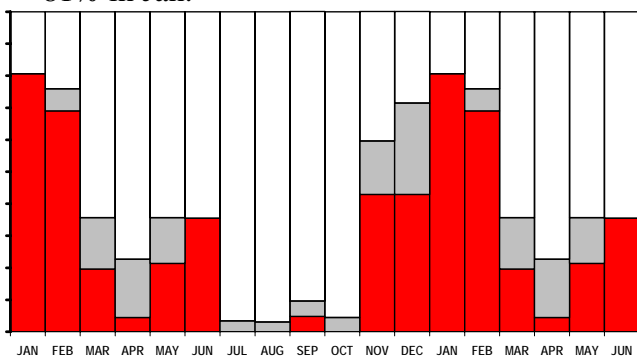
Population (413 records): 25% Common, 57% Frequent, 17% Rare, 0.5% Extinct.

Dispersion (375 records): 67% variable, 30% clumped, 3% widespread, 0.5% evenly distributed.

Flowering (410 records with: Jan 31, Feb 29, Mar 56, Apr 89, May 16, Jun 31, Jul 30, Aug 33, Sep 21, Oct 22, Nov 45, Dec 7): Buds from Feb to Aug; Flowering from May to Dec; Peak Flowering from Sep; Over from Jan; Fruit from Nov to Feb; Nothing from Jan to Mar. Peak levels at 96% in Oct. Historically recorded as flowering from Jul to Nov and even earlier, fruit ripen after 3 months and soon fall to the ground.



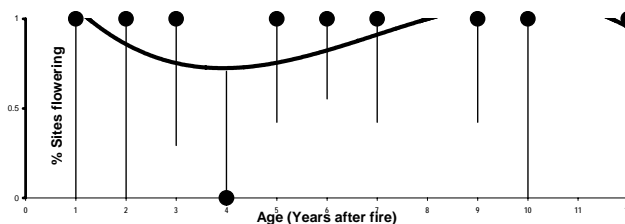
Growth (402 records with: Jan 31, Feb 29, Mar 56, Apr 88, May 14, Jun 31, Jul 29, Aug 32, Sep 21, Oct 22, Nov 42, Dec 7): Much from Nov to Mar and May to Jun 35; Rare from Dec; None from Feb to Dec. Peak levels at 81% in Jan.



Seedlings (146 records): Absent in 99%: more seedlings than prefire adults in 1 case. Seedlings found in Jan.

Fire Survival (15 records): 53% survived by seedlings only, 27% eliminated from the area by fires, 13% resprouted from underground boles, 7% escaped fires in fire-safe areas.

Age to first flowering: First flowers recorded at 1 years, 50% estimated at 2-3 years, and 100% estimated at 5 years.



Height (410 records): 10% 0-0.2 m tall, 70% 0.2-1 m tall, 19% 1-2 m tall, 0.7% 2-5 m tall.

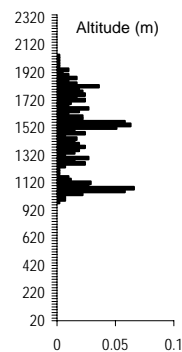
Pollinators (2 records): 50% bees or wasps, 50% beetles.

Detailed Pollinators (1 record): Monkey Beetle.

Habitat:

Distance to Ocean (412 records): 100% inland - further than 2 km from coast.

Altitude (412 records): 860 - 1940 m; 1120 *lq* - 1420 *med* - 1500 *uq*m.

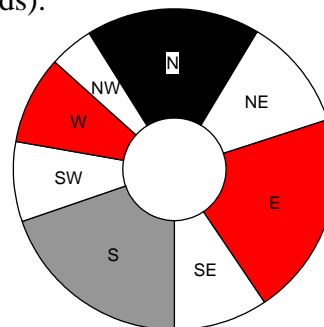


Landform (404 records): 66% deep soil, 31% shallow soil, 3% rocky outcrops, 0.2% riverine, 0.2% swamp.

Slope (404 records): 58% gentle incline, 16% platform, 15% steep incline, 7% hill top, 4% valley bottom.

Aspect (342 records):

32% East,
29% South,
25% North,
15% West.



Soil Type (406 records): 59% sandy, 15% gravelly, 13% rocky, 12% loamy, 1% clayey.

Soil Colour (402 records): 44% grey, 27% brown, 12% yellow, 10% white, 4% orange, 2% red, 0.2% black.

Geology (394 records): 84% sandstone, 14% shale, 1% Tertiary sands.

Vegetation (404 records): 100% shrubland, 0.5% grassland.

Conservation Status and Threat:

Red Data List Status: Least Concern.

Occurrence (Fynbos): 2 812 km² with 7% conserved and 8% lost; **Occupancy:** 539 km² with 14% conserved and 2% lost. **Fragmentation index:** 15%.

Nature Reserves (412 records): 22% in Nature Reserves.

Habitat destruction (399 records): 91% extensive natural habitat, 6% islands,

2% naturally linear habitats, 0.8% naturally fragmented habitats, 0.5% road verges.

Alien Invasive Species (393 records):

86% none, 13% *Pinus*, 0.8% other aliens, 0.3% Fabaceae (chiefly alien *Acacia*).

Alien Density (392 records): 86% alien-free, 10% sparse, 3% abundant, 0.8% dense.

Cultivation & Utilization:

Picking (225 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlasers Notes:

Very small leaved form (like *L. sericeum*) but occasional plants form upright growth and much larger leaves - so not typical of *sericeum* (AGRY0042711); Dwarf form flat on ground small leaves (AGRY0042713); With dwarf prostrate habit and very small leaves with a few normal erect stems (AGRY0042818); Growth form erect (JAT93050101 + 3); Is a little smaller than normal though but not *L. sericeum* as suspected (WMP98080803);

Silver Leaves (VCH99072408 + 10);

The big involucre leaves occur only with older cones and those which have opened and released seed. Much foliage from low down on plants several branches over 1m long with relatively little foliage and terminal cones (WIJ94111608);

In bud, even though some seeds just dropped - two flowerings in this year (AGR99032831);

Appears to be flowering for the second time this season (AGRY0112307); Only stunted plants here blooming everywhere else (AWA96082507);

Orange Breasted Sunbirds visiting plants - presumably gleaming insects - flowers not yet open so not pollinators (AGR99032802); Lots of galls (AGR99032817); Experiencing water stress (SHRY0070901);

Confusing Species: Apart from a few transcription errors, rarely mistaken for anything else other than when not in flower for *L. dubium* and male *L. pubescens*.

Records of identification queries = 27

Records of corrected identification queries = 5.

Variation and Taxonomy: The leaf and flower sizes vary somewhat. The size of the involucre leaves is also extremely variable: large forms occur at Ezelbank and small forms at Hansiesberg, Gydoberg and Baviaansberg (i.e. the southernmost populations). The southern-most populations are also more decumbent, being low spreading plants.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron sericeum (Thunb.) R.Br. 1781, 1810
Waaboom's Conebush

Other Common Names: Silky Gissonia, *Perdebos*.

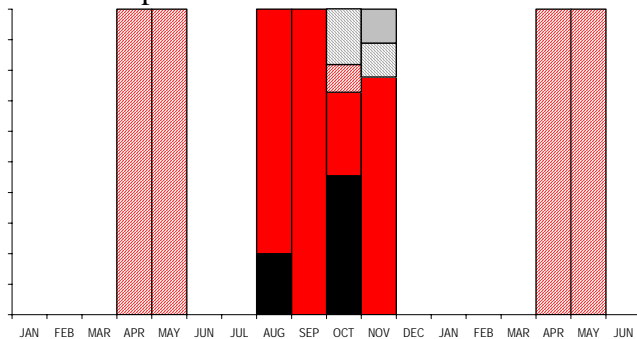
Other Scientific Names: *None*.

31 Records

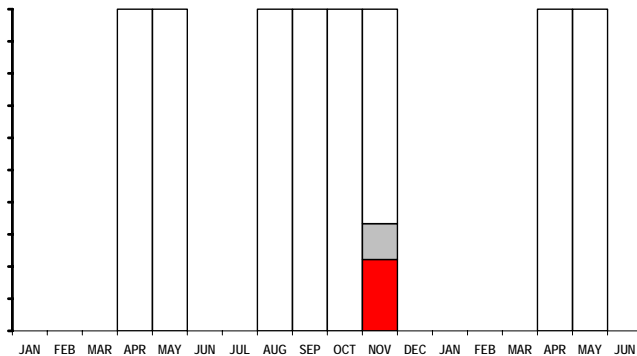
Population (31 records): 58% Common, 35% Frequent, 6% Rare.

Dispersion (30 records): 63% variable, 37% clumped.

Flowering (31 records with: Jan 0, Feb 0, Mar 0, Apr 2, May 1, Jun 0, Jul 0, Aug 5, Sep 3, Oct 11, Nov 9, Dec 0): Buds from Apr to May; Flowering from Aug to Nov; Peak Flowering from Aug and Oct; Over from Oct; Fruit not significant from Nov; Nothing not recorded. Peak levels at 100% from Aug to Oct. Historically recorded as flowering from May to Sep, fruits ripen after 4 months and drop.



Growth (31 records with: Jan 0, Feb 0, Mar 0, Apr 2, May 1, Jun 0, Jul 0, Aug 5, Sep 3, Oct 11, Nov 9, Dec 0): Much from Nov; Rare not significant from Nov; None from all year Apr to Nov. Peak levels unreliable at 33% in Nov.



Seedlings (11 records): All without any seedlings present.

Fire Survival : No data.

Age to first flowering: First flowers recorded at 100% at 9 years, no data from younger veld.



Height (31 records): 6% 0-0.2 m tall, 94% 0.2-1 m tall.

Pollinators (1 record): 100% beetles.

Detailed Pollinators (1 record): Monkey Beetle.

Habitat:

Distance to Ocean (30 records): 100% inland - further than 2 km from coast.

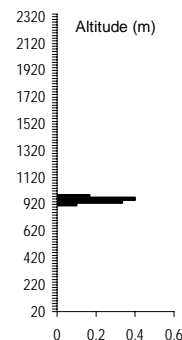
Altitude (30 records): 800 - 880 m; 820_{lq} - 840_{med} - 840_{uq}m.

Landform (30 records): 100% deep soil.

Slope (30 records): 53% platform, 30% valley bottom, 17% gentle incline.

Aspect (14 records):

61% West,
32% North,
7% East.



Soil Type (30 records):

67% sandy,
30% loamy,
3% gravelly.

Soil Colour (30

records): 50% grey,
30% white, 17% brown, 3% yellow.

Geology (30 records): 87% sandstone,
7% shale, 7% Tertiary sands.

Vegetation (30 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Critically Endangered

B1b(i,ii,iii,iv,v)c(iv).

Occurrence (Fynbos): 36 km² with 0% conserved and 33% lost; Occupancy: 20 km² with 0% conserved and 23% lost.

Fragmentation index: 56%.

Nature Reserves (30 records): 0% in Nature Reserves - unconserved.

Habitat destruction (29 records):

90% extensive natural habitat, 10% islands.

Alien Invasive Species (30 records): 87% none, 13% *Pinus*.

Alien Density (30 records): 87% alien-free, 13% sparse.

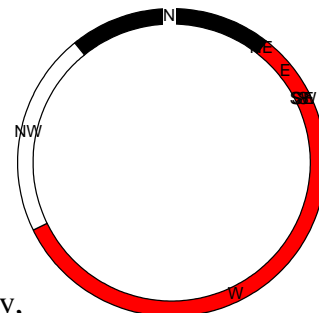
Cultivation & Utilization:

Picking (25 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Plant Was (NAH94040403);



46 plants on a minute piece of mainly disturbed land where the farmer turned his plough!
(AWA99100303);

1 plant in this area less than 1 m away from an onion field, female: leaves 8-9 mm long by 2 mm wide, densely covered with adpressed grey hairs, involucre lvs 13 X 2 mm
(NAH94040403);

Confined to road verge (GEDY0112303);

Confusing Species: A small form of *L. nitidum*, much smaller than typical of that

species. It has the smallest leaves in the genus.

Records of identification queries = 4.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron singulare Williams Kammanassie Conebush

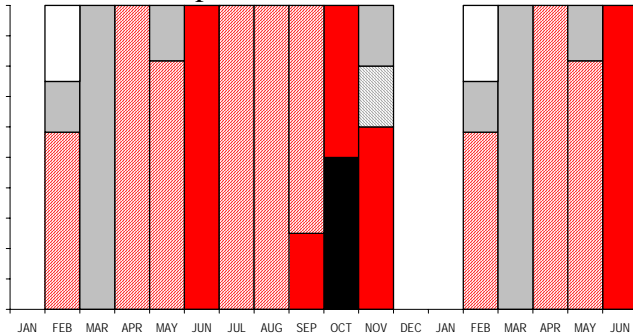
Other Common Names: None known.
Other Scientific Names: *None*.

49 Records

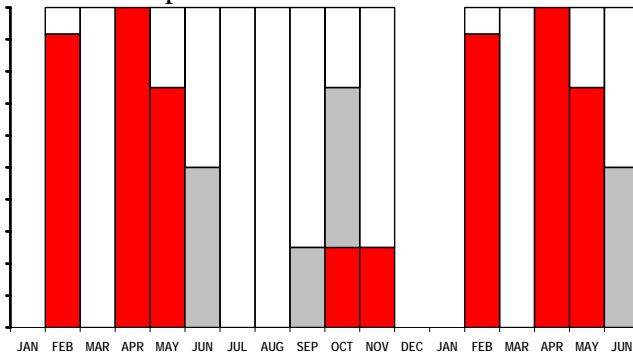
Population (49 records): 14% Common, 47% Frequent, 39% Rare.

Dispersion (43 records): 44% clumped, 40% variable, 14% evenly distributed, 2% widespread.

Flowering (47 records with: Jan 0, Feb 12, Mar 1, Apr 1, May 11, Jun 1, Jul 2, Aug 6, Sep 4, Oct 4, Nov 5, Dec 0): Buds from Feb to Sep; Flowering from Sep to Nov; Peak Flowering from Oct 50; Over from Nov; Fruit from Mar and Nov; Nothing from Feb. Peak levels unreliable at 100% in Oct. Historically recorded as flowering from Oct, fruit ripen in Feb and drop.



Growth (47 records with: Jan 0, Feb 12, Mar 1, Apr 1, May 12, Jun 2, Jul 2, Aug 5, Sep 4, Oct 4, Nov 4, Dec 0): Much from Oct to May; Rare from Jun and Sep to Oct; None from May to Nov. Peak levels unreliable at 92% in Apr.



Seedlings (24 records): Absent in 92%; fewer seedlings than prefire adults in 1 case. Seedlings found in Jun.

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

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



Height (49 records): 24% 0-0.2 m tall, 73% 0.2-1 m tall, 2% 1-2 m tall.

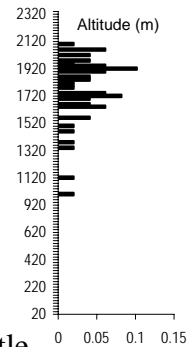
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (49 records): 100% inland - further than 2 km from coast.

Altitude (49 records): 880 - 2000 m; 1540 *lq* - 1680 *med* - 1820 *uq*m.



Landform (48 records): 50% shallow soil, 25% rocky outcrops, 25% deep soil.

Slope (49 records): 61% steep incline, 16% hill top, 14% gentle incline, 8% cliff.

Aspect (39 records): 58% South, 18% East, 15% West, 9% North.

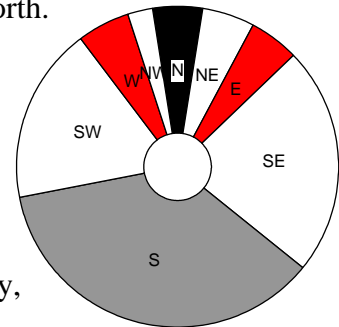
Soil Type (49 records):

41% sandy, 20% rocky, 16% loamy, 12% peaty, 10% gravelly.

Soil Colour (47 records): 68% grey, 26% black, 6% brown.

Geology (45 records): 98% sandstone, 2% shale.

Vegetation (49 records): 98% shrubland, 2% grassland.



Conservation Status and Threat:

Red Data List Status: Vulnerable A3c, D2(ii).

Occurrence (Fynbos): 149 km² with 74% conserved and 0% lost; **Occupancy:** 63 km² with 58% conserved and 0% lost. **Fragmentation index:** 40%.

Nature Reserves (49 records): 73% in Nature Reserves - well conserved.

Habitat destruction (47 records): 89% extensive natural habitat, 6% islands, 2% naturally linear habitats, 2% naturally fragmented habitats.

Alien Invasive Species (48 records): 98% none, 2% *Pinus*.

Alien Density (48 records): 98% alien-free, 2% sparse.

Cultivation & Utilization:

Picking (32 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

7 male and 5 female plants (JBB98043006);

Confusing Species: Single instances of confusion with *L. dregei* and *L. sorocephalodes*, both of which have hairless leaves. The males does resemble a dwarf *L. album*, but the female is quite different.

Records of identification queries = 5.

Records of corrected identification queries = 2.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d

Leucadendron sorocephalodes Phill. & Hutch. 1912
Woolly Conebush

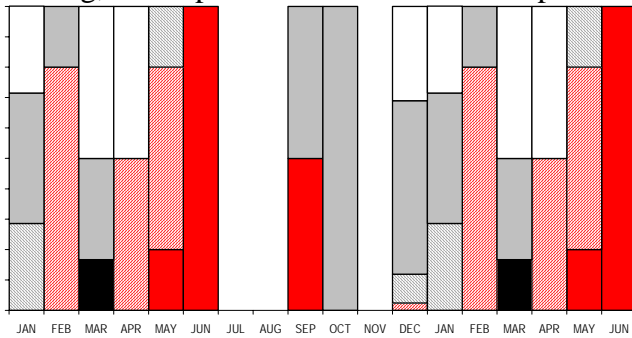
Other Common Names: Kouga Conebush.
Other Scientific Names: *dregei* (Buek ex Meisn.) 1856, *intermedius* (Buek in Drege) 1844.

93 Records

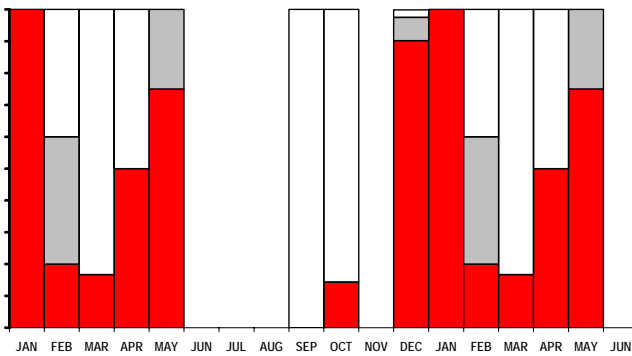
Population (92 records): 41% Common, 40% Frequent, 17% Rare, 1% Extinct.

Dispersion (84 records): 74% variable, 23% clumped, 2% widespread, 1% evenly distributed.

Flowering (92 records with: Jan 7, Feb 5, Mar 6, Apr 2, May 5, Jun 2, Jul 0, Aug 0, Sep 2, Oct 21, Nov 0, Dec 42): Buds from Feb and Apr to May; Flowering from May to Sep; Peak Flowering not significant; Over from Jan and May; Fruit from Sep to Mar; Nothing from Dec to Jan and Mar to Apr. Peak levels unreliable at 100% from May to Jun. Historically recorded as flowering in Aug, fruit ripen 4 months later and drop.



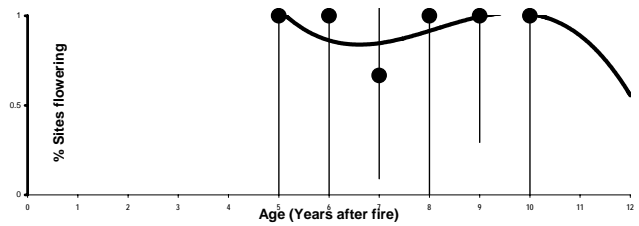
Growth (88 records with: Jan 7, Feb 5, Mar 6, Apr 2, May 4, Jun 0, Jul 0, Aug 0, Sep 2, Oct 21, Nov 0, Dec 41): Much from Dec to Feb and Apr to May; Rare from Feb and May; None from Feb to Apr and Sep to Oct. Peak levels unreliable at 100% in Jan.



Seedlings (30 records): Absent in 93%: fewer seedlings than prefire adults in 1 case. Seedlings found in Dec.

Fire Survival (5 records): 80% survived by seedlings only, 20% eliminated from the area by fires.

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



Height (91 records): 38% 0-0.2 m tall, 60% 0.2-1 m tall, 1% 1-2 m tall.

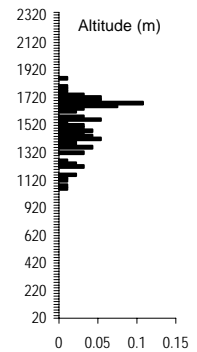
Pollinators : No data.

Detailed Pollinators: No additional data.

Habitat:

Distance to Ocean (93 records): 100% inland - further than 2 km from coast.

Altitude (93 records): 940 - 1760 m; 1300 *lq* - 1400 *med* - 1560 *uq*m.



Landform (90 records): 74% shallow soil, 24% deep soil, 1% rocky outcrops.

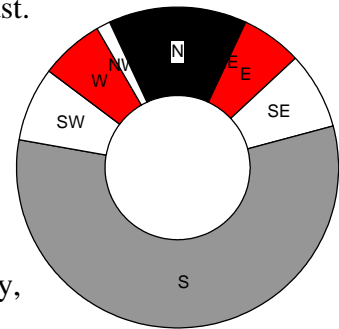
Slope (90 records): 47% steep incline, 32% hill top, 21% gentle incline.

Aspect (65 records): 66% South, 15% North, 12% West, 7% East.

Soil Type (90 records):

52% loamy, 32% sandy, 11% rocky, 3% peaty, 1% gravelly.

Soil Colour (91 records): 67% grey, 19% brown, 14% black.



Geology (92 records): 100% sandstone.

Vegetation (91 records): 100% shrubland.

Conservation Status and Threat:

Red Data List Status: Near Threatened A2a.

Occurrence (Fynbos): 1 281 km² with 45% conserved and 2% lost; Occupancy: 120 km² with 39% conserved and 1% lost. Fragmentation index: 8%.

Nature Reserves (93 records): 17% in Nature Reserves - inadequately conserved.

Habitat destruction (88 records):

94% extensive natural habitat, 3% naturally fragmented habitats, 2% naturally linear habitats.

Alien Invasive Species (86 records): 78% none, 20% *Pinus*, 2% *Hakea*.

Alien Density (86 records): 78% alien-free, 22% sparse.

Cultivation & Utilization:

Picking (38 records): 100% no sign of picking.

Cultivation Status: No noted cultivation.

Atlassers Notes:

Some old plants about 300 mm high
(SGAY0121506);

Confusing Species: None noted.

Records of identification queries = 4.

Variation and Taxonomy: No variation noted.

Distribution: Add.

INCLUDEPICTURE

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MERGEFORMAT \d