SubFamily Grevilleoideae

Only Brabejum
And invasives: Banksia, Grevillea, Hakea.

Banksia L. f. 1782

About 75 species in Australia. Although several species have been identified as potentially invasive in South Africa, only the Needle-leaf Banksia *B. ericifolia* was recorded as spreading. The following Banksias were Atlassed, but only from cultivated protea orchards, but sample sizes are too small to warrant inclusion:
B. baxterii R.Br., *B. coccinea* R.Br., *B. ericifolia* L.f., *B. hookeriana* Meissner, *B. integrifolia* L.f., *B. speciosa* R.Br., *B. sphaerocephala* R.Br..
The type is *B. serrata* L.f. Saw Banksia. Named after Sir Joseph Banks (1743-1820) the botanist on Captain Cook's voyage who collected the first specimen in the genus in 1770.

Grevillea R. Br. 1810

The following Grevilleas were Atlassed, but only from cultivated protea orchards, but sample sizes are too small to warrant inclusion:
Grevillea juniperina R.Br
The type is *G. aspleniifolia* (Salisb ex Knight), but a proposal to change it to *G. pteridifolia* (Salisb ex Knight) Golden Grevillea has been suggested. Named after the Right Honorable Charles Greville (1749-1809), one of the founders of the Royal Horticultural Society in 1804, and responsible for the introduction of the Geranium (*Pelargonium*) in horticulture in the UK.

Hakea Scrader 1795

Apart from the four invasive Hakea species, the following species were recorded in cultivation:
Hakea petiolaris Meisn. and*Hakea victoria* Drummond
The type is *Hakea glabra* Scrad. which is a synonym for *H. teretifolia* (Salisb.) J. Britten the Dagger Hakea. Named after Baron Christian von Hake (1745-1818), a German patron of botany and councilor from Hanover, where H. Scrader resided.

Banksia ericifolia L.f. 1782
Needle-leaf Banksia

Other Common Names: Heath-leaved Banksia, Heath Banksia.
Other Scientific Names: *B. phylicifolia* Salisb. ex Knight 1809.

12 Records
Population (1 record): Rare.
Dispersion (0 records).
Flowering (11 records with: Jan 1, Feb 1, Mar 1, Apr 0, May 1, Jun 0, Jul 0, Aug 2, Sep 3, Oct 0, Nov 2, Dec 0): Buds from Feb; Flowering from Aug to Nov; Peak Flowering from Sep; Over from Sep; Fruit from Jan, May and Nov; Nothing from Mar. Historically recorded as flowering from Feb to Oct.
Growth (11 records with: Jan 1, Feb 1, Mar 1, Apr 0, May 1, Jun 0, Jul 0, Aug 2, Sep 3, Oct 0, Nov 2, Dec 0): Much from Jan; None from Feb, Mar, May, Aug, Sep and Nov.
Seedlings (4 records): All without any seedlings present.
Fire Survival : No data.
Age to first flowering: One record of flowering at 21 years.
Height (11 records): 18% 1-2 m tall, 64% 2-5 m tall, 18% taller than 5 m.
Pollinators : No data.
Detailed Pollinators: No additional data.

Habitat:
Distance to Ocean (1 record): inland - further than 2 km from coast.
Altitude (1 record): 580 - 600 m; 580 $_{lq}$ - 600 $_{med}$ - 600 $_{uq}$m.
Landform (1 record): deep soil.
Slope (1 record): gentle incline.
Aspect (1 records): 50% East, 50% South.
Soil Type (1 record): clayey.
Soil Colour (1 record): brown.
Geology (1 record): sandstone.
Vegetation (1 record): shrubland.

Conservation Status and Threat:
Red Data List Status: Not applicable.
Nature Reserves (1 record): 0% in nature reserves.
Habitat destruction (1 record): extensive natural habitat.
Alien Invasive Species (1 record): other aliens.
Alien Density (1 record): sparse.

Cultivation & Utilization:
Picking (8 records): 100% no sign of picking.
Cultivation Status: Plantings - 10 records (83%), Escapes - 1 record (8%).

Atlassers Notes:
Planted As A Hedge (HRK97021001);
Has escaped - *i.e.* young plants were found in veld (LYM97081603).

Distribution: Add.
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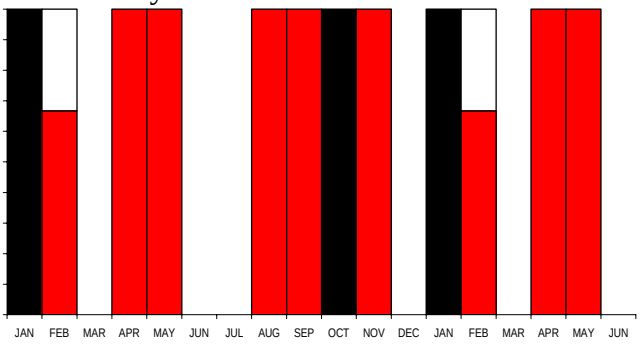
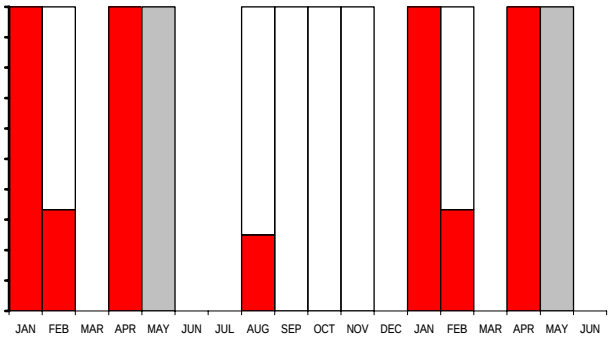
Grevillea banksii R.Br. 1810
Scarlet Silky Oak

Other Common Names: Banks' Grevillea, Dwarf Silky Oak, Red Silky Oak, Red-flower Silky Oak.
Other Scientific Names: *None.*

15 Records
Population (9 records): 22% Common, 56% Frequent, 22% Rare.
Dispersion (9 records): 56% clumped, 33% variable, 11% evenly distributed.
Flowering (15 records with: Jan 1, Feb 3, Mar 0, Apr 1, May 1, Jun 0, Jul 0, Aug 5, Sep 2, Oct 1, Nov 1, Dec 0): Buds not recorded Flowering from Feb and Apr to Sep and Nov; Peak Flowering from Jan and Oct; Over and Fruit not recorded; Nothing from Feb. Inadequate data to determine Peak levels. Historically recorded as flowering from all year round in Australia.



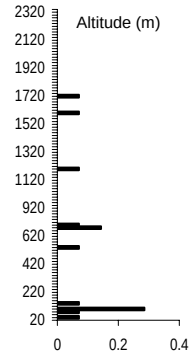
Growth (14 records with: Jan 1, Feb 3, Mar 0, Apr 1, May 1, Jun 0, Jul 0, Aug 4, Sep 2, Oct 1, Nov 1, Dec 0): Much from Jan to Apr and Aug; Rare from May; None from Feb and Aug to Nov. Inadequate data to determine Peak levels.



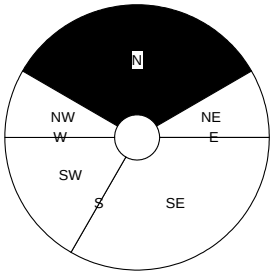
Seedlings (4 records): Absent in 50%: more seedlings than prefire adults in 1 cases. Seedlings found in Oct 1.
Fire Survival (4 records): 50% resprouted from aerial trunks, 25% escaped fires in fire-safe areas, 25% resprouted from underground boles.
Age to first flowering: A resprouter flowering in the first year post fire with 100% recorded at 1 year.

Height (15 records): 7% 0.2-1 m tall, 60% 1-2 m tall, 33% 2-5 m tall.
Pollinators (2 records): 50% birds, 50% bees or wasps.
Detailed Pollinators (3 records): Honey Bee, Greater Double-collared Sunbird, Amethyst Sunbird.

Habitat:
Distance to Ocean (8 records): 63% coastal - less than 2 km from coast.
Altitude (8 records): 20 - 1620 m; 80 $_{lq}$ - 100 $_{med}$ - 100 $_{uq}$m.



Landform (7 records): 86% deep soil, 14% shallow soil.
Slope (8 records): 63% gentle incline, 25% hill top, 13% steep incline.
Aspect (7 records): 43% North, 29% South, 21% East, 7% West.



Soil Type (8 records): 63% sandy, 25% loamy, 13% gravelly.
Soil Colour (8 records): 50% brown, 25% red, 13% grey, 13% orange.
Geology (8 records): 50% Tertiary sands, 25% sandstone, 13% shale, 13% granite.
Vegetation (8 records): 50% grassland, 25% wooded grassland, 25% shrubland.

Conservation Status and Threat:
Red Data List Status: Alien Invader Category 1.
Nature Reserves (8 records): 0% in nature reserves - unconserved.
Habitat destruction (7 records): 86% extensive natural habitat, 14% islands.
Alien Invasive Species (8 records): 38% *Hakea*, 25% other aliens, 13% Fabaceae (chiefly alien *Acacia*), 13% *Pinus*, 13% none.
Alien Density (8 records): 13% alien-free, 38% sparse, 25% abundant, 25% dense.

Cultivation & Utilization:
Picking (10 records): 100% no sign of picking.
Cultivation Status: Plantings - 6 records (40%).

Atlassers Notes:
- Seems to escape fire damage by excluding grass growth, although isolated plants survive in grassland. Strongly invasive-thickets, which although still limited are firmly established, and particularly dense along drainage lines (ATA93041102);

Confusing Species: Caused by lack of guides.
Records of identification queries = 3.
Records of corrected identification queries = 1.

Variation and Taxonomy: Extremely variable in Australia. It is uncertain which varieties or forms are problematic here.

Distribution: Add.

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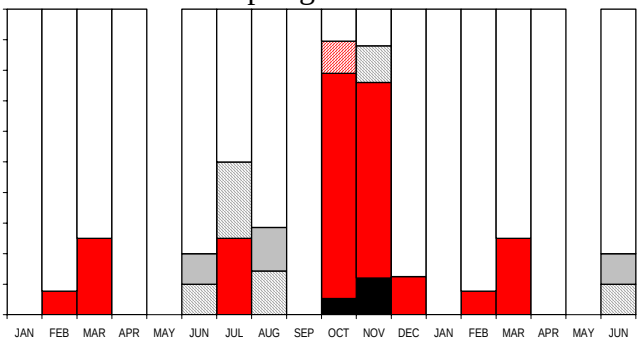
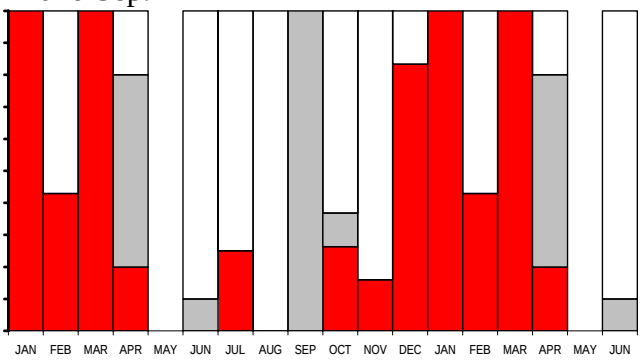
Grevillea robusta A. Cunn. ex R.Br. 1810
Silky Oak

Other Common Names: Silver Oak, Southern Silky Oak, *Ha'iki*, *He-oka*, *Ke'oke'o*, *Oka-kilika* (Hawaiian!).
Other Scientific Names: *umbratica* A. Cunn .

122 Records
Population (78 records): 1% Common, 51% Frequent, 47% Rare.
Dispersion (46 records): 50% variable, 50% clumped.
Flowering (97 records with: Jan 1, Feb 13, Mar 4, Apr 5, May 0, Jun 10, Jul 4, Aug 7, Sep 1, Oct 19, Nov 25, Dec 8): Buds from Oct; Flowering from Mar and Jul and Oct to Dec; Peak Flowering from Nov; Over from Jul to Aug and Nov; Fruit from Jun and Aug; Nothing from Dec to Sep. Peak levels at 90% in Oct. Historically recorded as flowering in Australia from spring.

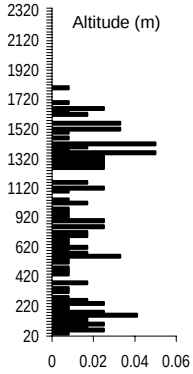


Growth (93 records with: Jan 1, Feb 14, Mar 2, Apr 5, May 0, Jun 10, Jul 4, Aug 6, Sep 1, Oct 19, Nov 25, Dec 6): Much from Dec to Apr and Jul and Oct; Rare from Apr to Jun and Sep; None from Feb and Apr to Aug and Oct to Nov. Peak levels at 100% in Jan, Mar and Sep.

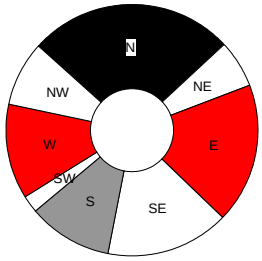


Seedlings (24 records): All without any seedlings present.
Fire Survival (1 records): 100% escaped fires in fire-safe areas.
Age to first flowering: Data unreliable as most records from protected plantings within sites.
Height (112 records): 2% 0.2-1 m tall, 4% 1-2 m tall, 21% 2-5 m tall, 74% taller than 5 m.
Pollinators (2 records): 50% bees or wasps, 50% flies.
Detailed Pollinators: No additional data.

Habitat:
Distance to Ocean (78 records): 97% inland - further than 2 km from coast.
Altitude (78 records): 20 - 1700 m; 360 $_{lq}$ - 760 $_{med}$ - 1160 $_{uq}$m.



Landform (71 records): 93% deep soil, 4% riverine, 3% shallow soil.
Slope (70 records): 61% gentle incline, 14% steep incline, 14% platform, 10% valley bottom.
Aspect (55 records): 35% North, 31% East, 19% South, 15% West.



Soil Type (66 records): 47% sandy, 44% loamy, 5% clayey, 3% rocky, 2% gravelly.
Soil Colour (61 records): 38% brown, 25% grey, 25% red, 10% orange, 3% yellow.
Geology (46 records): 59% sandstone, 28% granite, 9% shale, 4% Tertiary sands.
Vegetation (70 records): 30% shrubland, 27% wooded grassland, 16% woodland, 9% suburban, 7% grassland, 7% agricultural lands, 4% plantations.

Conservation Status and Threat:
Red Data List Status: Alien Invader Category 1.
Nature Reserves (78 records): 12% in nature reserves - inadequately conserved.
Habitat destruction (71 records): 48% extensive natural habitat, 25% islands, 18% road verges, 6% naturally linear habitats, 3% naturally fragmented habitats.
Alien Invasive Species (56 records): 23% other aliens, 21% Fabaceae (chiefly alien *Acacia*), 21% none, 18% *Pinus*, 16% Myrtaceae.
Alien Density (56 records): 21% alien-free, 50% sparse, 16% abundant, 13% dense.

Cultivation & Utilization:
Picking (47 records): 100% no sign of picking.
Cultivation Status: Plantings - 43 records (35%).

Atlassers Notes:
- The single tree in the arboretum was not flowering even though in the suburbia of Bergvliet and Meadowridge plants are in full flower - perhaps the arboretum's canopy upsets the flowering pattern? (NGFY0102201);
- Thick stands occur further down river - is being eradicated (MCG96080701); Many small plants - naturalization taking place (RHEY0111207); Have started to naturalize from seed source in original planted lane (RHE99080706).

Confusing Species: None.
Records of identification queries = 2

Variation and Taxonomy: None noted.

Distribution: Add.

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Hakea drupacea (Gaertn. F.) Roemer & Schult. ???

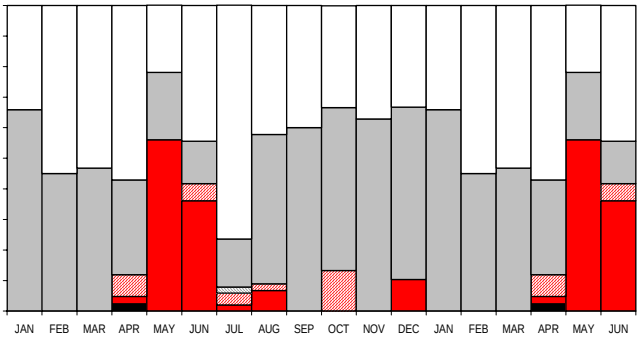
Sweet Needlebush

Soetspeldebos

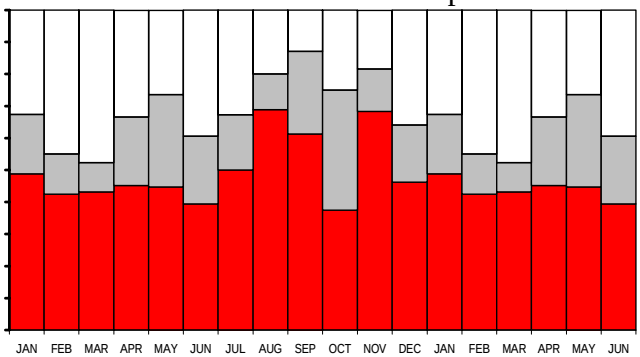
Other Common Names: Sweet-scented Needlebush, *Soethakea*.
Other Scientific Names: *pectinata Colla, suaveolens (RBr) 1810.*

518 Records

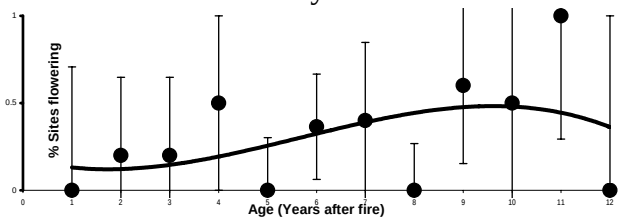
Population (511 records): 2% Abundant, 15% Common, 44% Frequent, 39% Rare, 2% Extinct.
Dispersion (379 records): 68% variable, 30% clumped, 2% widespread, 0.3% evenly distributed.
Flowering (492 records with: Jan 44, Feb 40, Mar 47, Apr 42, May 41, Jun 36, Jul 51, Aug 45, Sep 30, Oct 15, Nov 62, Dec 39): Buds infrequent; Flowering from May to Jun; Peak Flowering from Apr; Over from infrequent; Fruit retained from all year round; Nothing from all year round. Peak levels at 56% in May. Historically recorded as flowering in Australia from winter.



Growth (483 records with: Jan 43, Feb 40, Mar 44, Apr 42, May 38, Jun 33, Jul 52, Aug 45, Sep 31, Oct 16, Nov 60, Dec 39): Much from all year round, with a slight peak in Jul to Nov; Rare from all year round, with a slight peak in Sep to Oct; None from all year round. Peak levels at 87% in Sep.

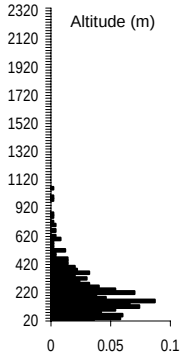


Seedlings (198 records): Absent in 96%: fewer seedlings than prefire adults in 1 case, and more in 3 cases. Seedlings found in Feb, Jul (2) and Nov.
Fire Survival (23 records): 83% survived by seedlings only, 9% resprouted from aerial trunks, 4% eliminated from the area by fires, 4% escaped fires in fire-safe areas. The aerial trunk survival is for plants sufficiently tall to experience only a cool burn.
Age to first flowering: First flowers recorded at 2 years, 50% estimated at 4-8 years, and 100% recorded at 11 years.

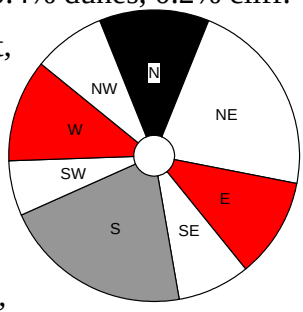


Height (503 records): 3% 0-0.2 m tall, 25% 0.2-1 m tall, 34% 1-2 m tall, 35% 2-5 m tall, 4% taller than 5 m.
Pollinators (1 records): 100% bees or wasps.
Detailed Pollinators (1 record): Wasp (unspecified).

Habitat:
Distance to Ocean (503 records): 56% inland - further than 2 km from coast.
Altitude (503 records): 20 - 960 m; 100 $_{lq}$ - 160 $_{med}$ - 220 $_{uq}$m.



Landform (503 records): 81% deep soil, 12% shallow soil, 6% rocky outcrops, 0.4% swamp, 0.2% riverine.
Slope (500 records): 55% gentle incline, 31% steep incline, 9% platform, 3% valley bottom, 1% hill top, 0.4% dunes, 0.2% cliff.
Aspect (464 records): 28% South, 27% East, 27% North, 18% West.



Soil Type (500 records): 54% sandy, 31% loamy, 9% gravelly, 4% clayey, 1% rocky, 0.4% peaty.
Soil Colour (498 records): 45% brown, 38% grey, 6% orange, 5% white, 3% yellow, 2% black, 0.4% red.
Geology (464 records): 56% sandstone, 22% granite, 8% shale, 6% silcrete or ferricrete, 6% Tertiary sands, 2% conglomerate.
Vegetation (503 records): 91% shrubland, 4% plantations, 3% thicket, 1% suburban, 0.8% agricultural lands, 0.4% woodland, 0.2% grassland.

Conservation Status and Threat:
Red Data List Status: Alien Invader Category 1.

Occurrence (Fynbos): 32 436 km^2 with 21% conserved and 21% lost; Occupancy: 505 km^2 with 23% conserved and 32% lost. Fragmentation index: 1%.
Nature Reserves (503 records): 33% in nature reserves.
Habitat destruction (499 records): 84% extensive natural habitat, 8% islands, 4% road verges, 2% naturally linear habitats, 1% corridors, 0.4% naturally fragmented habitats.
Alien Invasive Species (503 records): 54% Fabaceae (chiefly alien *Acacia*), 20% *Hakea*, 19% *Pinus*, 7% Myrtaceae.
Alien Density (496 records): 41% sparse, 32% abundant, 19% dense, 8% impenetrable.

Cultivation & Utilization:
Picking (379 records): 98% no sign of picking, 2% severely picked, 0.3% lightly picked.
Cultivation Status: No noted cultivation.

Atlassers Notes:
- One plant had a 30 mm caterpillar with yellow dots on it (NGF99022807).
- Adult Plant 3 m tall seen - chopped it out. Very many young plants – pulled most out – all have juvenile leaves from serrated to divided (AGR92111607).
- Blown in from a stand a few km to east - hacked out! (AGRY0011338); Originating from a few dead mature trees under which they grow densely – a few scattered plants further away (CVVY1010202); This site is bordered by a thick hedge of infestation - they are so dense it is impossible to penetrate them (VJK97032001).
- They make a good, strong, long walking stick (VJK97032001).

Confusing Species: Often missed as large specimens are assumed to be a Stone Pine. The only divided leaved invasive *Hakea* at present. Consistently mistaken by one atlasser (PVR) for *H. gibbosa* until corrected by other atlassers.
Records of identification queries = 13.
Records of corrected identification queries = 10.

Variation and Taxonomy: Add.

Distribution: Not as serious a threat as the other species because it only sets seeds in year 6 (Wrigley and Fagg, 1989), but atlas data suggest flowers as young as 2 years, but only reaches 100% flowering at 11 years.
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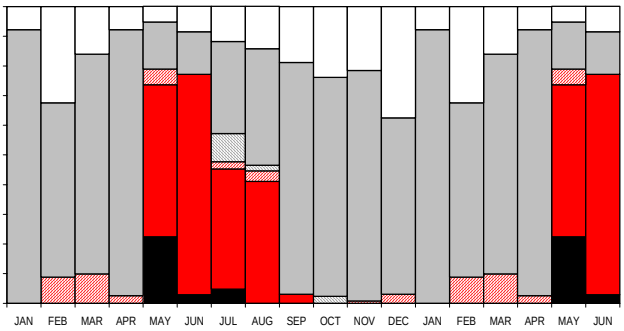
Hakea gibbosa (Smith) Cav.
Rock Needlebush
Harigespeldebos

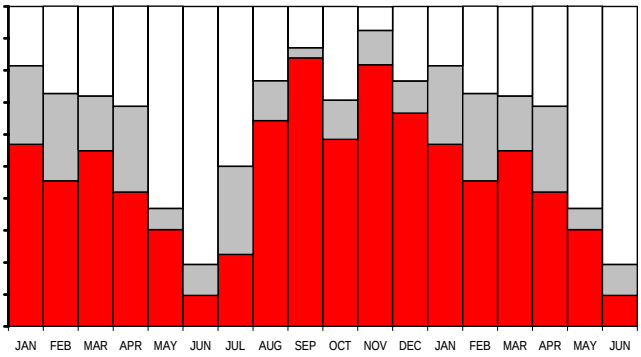
Other Common Names: Hairy Needlebush.
Other Scientific Names: *cornutum Gaertn., lanigera Ten., pinifolia Salisb. ex Knight 1809, pubescens Schrad. 1797, sphoeroideum Sm.*

765 Records

Population (754 records): 4% Abundant, 30% Common, 33% Frequent, 32% Rare, 2% Extinct.
Dispersion (577 records): 77% variable, 20% clumped, 2% widespread, 0.9% evenly distributed.
Flowering (730 records with: Jan 64, Feb 34, Mar 81, Apr 115, May 76, Jun 35, Jul 42, Aug 56, Sep 32, Oct 42, Nov 121, Dec 32): Buds from Feb to Mar; Flowering from May to Aug; Peak Flowering from May; Over from Jul; Fruit (retained) from all year round; Nothing from Feb and Oct to Dec. Peak levels at 79% in May. Historically recorded as flowering in Australia from winter.

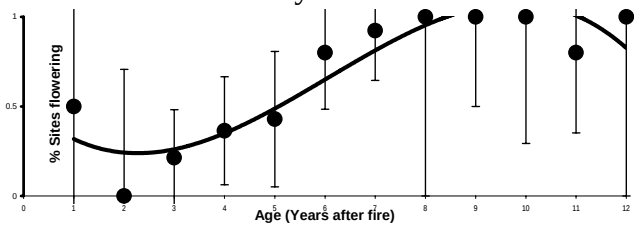


Growth (718 records with: Jan 65, Feb 33, Mar 82, Apr 112, May 76, Jun 31, Jul 40, Aug 56, Sep 31, Oct 41, Nov 121, Dec 30): Much from Aug to May 30; Rare from Jan to Feb and Apr and Jul 28; None from Feb to Aug and Oct and Dec. Peak levels at 93% in Nov.



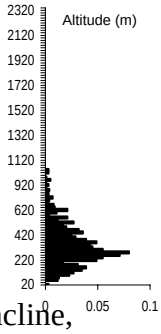
Seedlings (332 records): Absent in 94%: fewer seedlings than prefire adults in 5 cases, and more in 5 cases. Seedlings found in May (2), Aug, Oct (4), Nov (2) and Dec.
Fire Survival (17 records): 76% survived by seedlings only, 24% eliminated from the area by fires.

Age to first flowering: First flowers recorded at 1 years, 50% estimated at 5-6 years, and 100% recorded at 8 years.

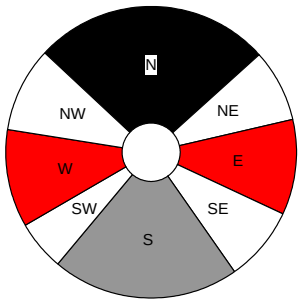


Height (735 records): 2% 0-0.2 m tall, 35% 0.2-1 m tall, 40% 1-2 m tall, 22% 2-5 m tall.
Pollinators : No data.
Detailed Pollinators: No additional data.

Habitat:
Distance to Ocean (748 records): 93% inland - further than 2 km from coast.
Altitude (748 records): 40 - 940 m; 220 $_{lq}$ - 280 $_{med}$ - 360 $_{uq}$m.



Landform (747 records): 86% deep soil, 13% shallow soil, 1% rocky outcrops, 0.1% riverine.
Slope (747 records): 58% gentle incline, 24% steep incline, 10% hill top, 7% platform, 0.7% cliff, 0.7% valley bottom.
Aspect (658 records): 35% North, 28% South, 18% West, 18% East.



Soil Type (734 records): 52% sandy, 27% loamy, 9% gravelly, 7% clayey, 3% rocky, 2% peaty.
Soil Colour (736 records): 54% grey, 28% brown, 5% black, 5% white, 4% orange, 3% yellow, 0.7% red.
Geology (709 records): 77% sandstone, 15% shale, 6% silcrete or ferricrete, 1% granite, 0.7% Tertiary sands, 0.1% limestone.
Vegetation (742 records): 98% shrubland, 0.8% plantations, 0.4% grassland, 0.4% thicket, 0.3% agricultural lands, 0.1% wooded grassland, 0.1% forest.

Conservation Status and Threat:
Red Data List Status: Alien invader Category 1.
Occurrence (Fynbos): 29 770 km^2 with 21% conserved and 21% lost; Occupancy: 695 km^2 with 17% conserved and 31% lost. Fragmentation index: 1%.

Nature Reserves (748 records): 18% in nature reserves - inadequately conserved.
Habitat destruction (743 records): 89% extensive natural habitat, 6% islands, 2% road verges, 1% naturally linear habitats, 0.4% corridors, 0.4% naturally fragmented habitats.
Alien Invasive Species (742 records): 42% *Hakea*, 35% *Pinus*, 18% Fabaceae (chiefly alien *Acacia*), 4% Myrtaceae, 0.1% other aliens.
Alien Density (739 records): 61% sparse, 28% abundant, 8% dense, 3% impenetrable.

Cultivation & Utilization:
Picking (543 records): 99% no sign of picking, 1% severely picked, 0.2% lightly picked.
Cultivation Status: No noted cultivation.

Atlassers Notes:
- In some areas this species has not recruited well at all. In others there are lots of young - but nowhere near the dense adult stand from before the fire (AGRY0102001); Dense thicket destroyed by fire about 4 years ago - very many small plants now between 100 - 250 mm tall (DJL94012601);
- Vlakkenberg: this is the site of the most dense Hakea stand I have ever seen (NGF95080501); This site is doomed to become a vast Hakea stand which will eventually obliterate the Fynbos - it is impossible to walk through this veld without being seriously spiked because it is literally everywhere (NGF96070604).

Confusing Species: Occasionally confused with *H. sericea*, especially young plants and plants without new growth.
Records of identification queries = 16.
Records of corrected identification queries = 12.

Variation and Taxonomy: None noted.

Distribution: Add.
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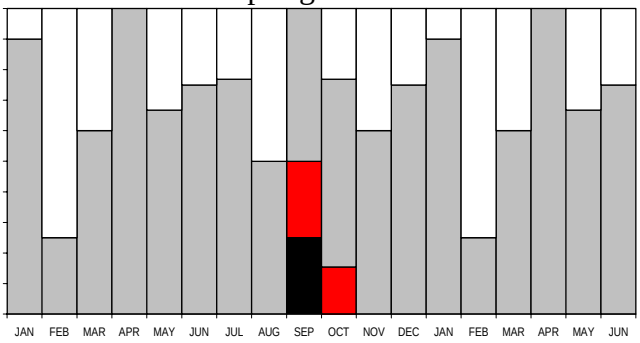
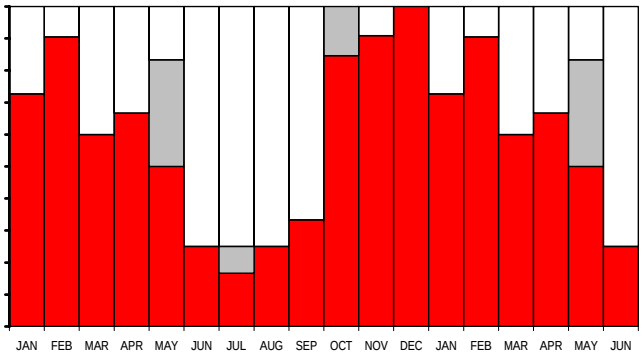
Hakea salicifolia (Vent.) Burtt.
Willow Hakea
Makspeldebos

Other Common Names: Hedge Hakea, Willow-leaf Hakea.
Other Scientific Names: *amplifolia Gandoger, mimosoides A Cunn, salginum Salisb. ex Knight 1809.*

113 Records
Population (48 records): 4% Abundant, 17% Common, 35% Frequent, 44% Rare.
Dispersion (35 records): 51% clumped, 20% variable, 17% widespread, 11% evenly distributed.
Flowering (99 records with: Jan 10, Feb 16, Mar 5, Apr 2, May 6, Jun 8, Jul 13, Aug 4, Sep 4, Oct 13, Nov 10, Dec 8): Buds not recorded; Flowering from Sep to Oct; Peak Flowering from Sep 25; Over not recorded; Fruit (retained) all year; Nothing from Feb to Mar and May to Dec. Peak levels at 50% in Sep. Historically recorded as flowering in Australia from spring.



Growth (105 records with: Jan 11, Feb 21, Mar 5, Apr 3, May 6, Jun 8, Jul 12, Aug 4, Sep 3, Oct 13, Nov 11, Dec 8): Much from Oct to May; Rare from May; None from Mar 40 to Apr and Jun to Sep. Peak levels at 100% in Oct and Dec.

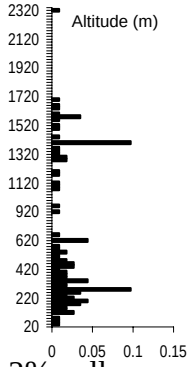


Seedlings (42 records): Absent in 62%: fewer seedlings than prefire adults in 1 case, and more in 7 cases. Seedlings found in Jan, Jun (2), Jul, Aug, Oct and Dec (2).
Fire Survival (10 records): 50% escaped fires in fire-safe areas, 30% survived by seedlings only, 10% eliminated from the area by fires, 10% resprouted from aerial trunks.

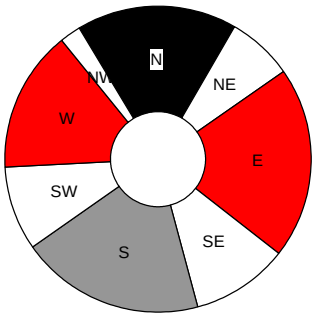
Age to first flowering: First flowers recorded at 1 years, 50% estimated at 4-6 years, and 100% recorded at 13 years.

Height (111 records): 2% 0-0.2 m tall, 8% 0.2-1 m tall, 30% 1-2 m tall, 53% 2-5 m tall, 7% taller than 5 m.
Pollinators : No data.
Detailed Pollinators: No additional data.

Habitat:
Distance to Ocean (48 records): 96% inland - further than 2 km from coast.
Altitude (48 records): 20 - 1600 m; 260 $_{lq}$ - 360 $_{med}$ - 860 $_{uq}$m.



Landform (46 records): 76% deep soil, 24% shallow soil.
Slope (46 records): 61% gentle incline, 22% platform, 11% steep incline, 4% hill top, 2% valley bottom.
Aspect (42 records): 30% South, 26% East, 26% West, 18% North.



Soil Type (46 records): 67% loamy, 20% sandy, 9% clayey, 4% gravelly.
Soil Colour (45 records): 44% grey, 38% brown, 9% orange, 4% black, 2% yellow, 2% red.
Geology (42 records): 36% sandstone, 33% shale, 19% granite, 7% silcrete or ferricrete, 5% basalt.
Vegetation (44 records): 66% shrubland, 25% grassland, 5% thicket, 2% agricultural lands, 2% plantations.

Conservation Status and Threat:
Red Data List Status: Alien invader Category 1.
Occurrence (total): 398 610 km^2 with 3% conserved and 2% lost; Occupancy: 101 km^2 with 23% conserved and 29% lost. Fragmentation index: 0.3%.
Nature Reserves (48 records): 31% in nature reserves.

Habitat destruction (45 records):
58% extensive natural habitat, 20% islands, 16% naturally linear habitats, 7% road verges.
Alien Invasive Species (47 records):
38% Fabaceae (chiefly alien *Acacia*), 34% *Pinus*, 23% *Hakea*, 2% Myrtaceae, 2% other aliens.
Alien Density (47 records): 60% sparse, 21% abundant, 19% dense.

Cultivation & Utilization:
Picking (67 records): 100% no sign of picking.
Cultivation Status: Plantings - 61 records (54%), Escapes - 4 records (4%).

Atlassers Notes:
- Escaping and spreading! (AGR96110601); Actually invading mature Fynbos (AGR97121329); Spreading nicely (AGRY3011514); Escaped - gone wild (ABL98102601, KEH98102106); Established and spreading - nearest hedge was 200 m away (SMR98102103).
- Establishing in veld a few metres west of old hedgerow killed in last fire: lots of young plants - good recruitment but most dispersal is within 10 m of fence - almost none further than 20 m (AGRY2011927).
- Tree dead covered in cones most burst open into equal wings at right angles; suspect this to be a self - planted tree escaped from a hedge further east (PAN94092504);
- A dense mass of self-seeded plants from a planted hedge - numerous seedlings also thrive on road verge (PAN94123101); Original vegetation being smothered by aggressive seedlings from hedge - exploded in the fire of 5 years ago: approximately 10 morgan now heavily infested with Aukland Indigenous Forest also at risk (PAN98030402); Never trust a Hakea not even a "mak" one - the terrible infestation of two hillsides sloping down to the edge of aukland state forest is a result of a fire 5 years ago (PAN98030402).
- Unusual to see this species invading Mesic Renosterveld but this almost certainly due to area not having been burnt for over 75 years (NAHY2050101).
- Planted hedge - no seedlings visible, never subjected to fire (PAN94092503); The planted bushes are well controlled (PANY0081701);

Confusing Species: Add.
Records of identification queries = 6

Variation and Taxonomy: Add.

Distribution: Add.
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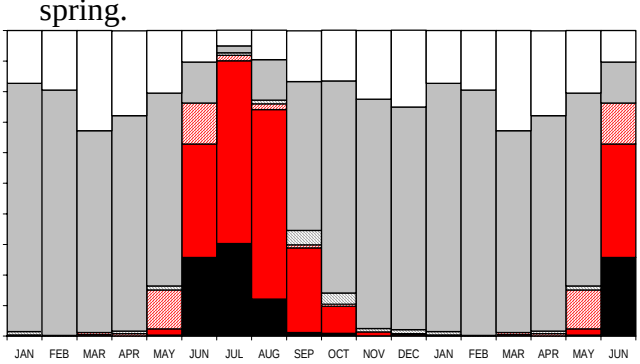
Hakea sericea Schrad.
Silky Needlebush
Syerigespeldebos

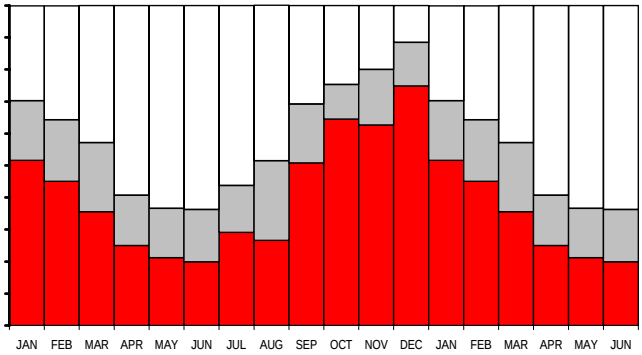
Other Common Names: Bushy Needlewood, Needlebush.
Other Scientific Names: *acicularis RBr 1810, longispina Gandoger, tenuifolia (Salisb.) Domin 1796.*

6005 Records

Population (5855 records): 1% Abundant, 19% Common, 48% Frequent, 30% Rare, 2% Extinct.
Dispersion (4665 records): 72% variable, 17% clumped, 9% widespread, 1% evenly distributed.
Flowering (5558 records with: Jan 462, Feb 436, Mar 603, Apr 363, May 385, Jun 261, Jul 396, Aug 429, Sep 573, Oct 700, Nov 559, Dec 391): Buds from May to Jun; Flowering from Jun to Sep; Peak Flowering from Jun to Jul; Over from Sep to Oct; Fruit (retained) from Sep to May; Nothing from Mar to May and Nov to Dec. Peak levels at 93% in Jul. Historically recorded as flowering in Australia from late winter and spring.

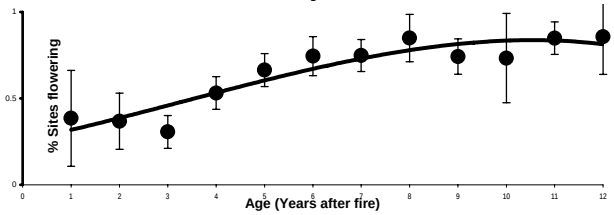


Growth (5466 records with: Jan 459, Feb 432, Mar 596, Apr 364, May 377, Jun 256, Jul 388, Aug 414, Sep 561, Oct 679, Nov 549, Dec 391): Much from Sep to Mar; Rare from all year round; None from Jan Oct. Peak levels at 89% in Dec.



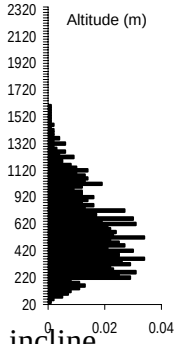
Seedlings (2351 records): Absent in 93%: fewer seedlings than prefire adults in 46 cases, and more in 34 cases. Seedlings found in Jan (7), Feb (2), Mar (15), Apr, May (3), Jun (2), Jul (12), Aug (12), Sep (10), Oct (14) and Nov (2).

Fire Survival (269 records): 77% survived by seedlings only, 12% eliminated from the area by fires, 10% escaped fires in fire-safe areas, 1% resprouted from aerial trunks.
Age to first flowering: First flowers recorded at 1 years, 50% estimated at 3-4 years, and 100% recorded at 15 years.

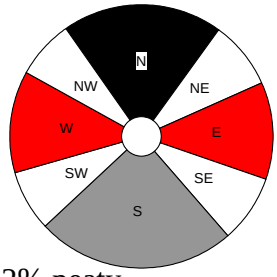


Height (5696 records): 2% 0-0.2 m tall, 26% 0.2-1 m tall, 49% 1-2 m tall, 23% 2-5 m tall, 0.3% taller than 5 m.
Pollinators (6 records): 50% bees or wasps, 33% flies, 17% beetles.
Detailed Pollinators (2 records): Solitary Bee, Honey Bee.

Habitat:
Distance to Ocean (5939 records): 97% inland - further than 2 km from coast.
Altitude (5939 records): 20 - 1540 m; 320 *lq* - 520 *med* - 700 *uq* m.



Landform (5926 records): 78% deep soil, 18% shallow soil, 3% rocky outcrops, 0.7% riverine, 0.3% swamp.
Slope (5923 records): 50% gentle incline, 36% steep incline, 6% platform, 5% hill top, 2% valley bottom, 0.6% cliff, 0.0% dunes.
Aspect (5339 records): 33% South, 28% North, 20% East, 20% West.



Soil Type (5874 records): 40% loamy, 39% sandy, 10% gravelly, 5% clayey, 4% rocky, 2% peaty.
Soil Colour (5858 records): 45% brown, 39% grey, 6% black, 6% orange, 2% white, 2% yellow, 1% red.
Geology (5684 records): 71% sandstone, 17% shale, 7% granite, 2% conglomerate, 2% silcrete or ferricrete, 1% Tertiary sands, 0.0% limestone.
Vegetation (5920 records): 95% shrubland, 3% plantations, 0.7% grassland, 0.7% thicket, 0.4% agricultural lands, 0.1% wooded grassland, 0.1% woodland, 0.1% forest, 0.1% suburban.

Conservation Status and Threat:
Red Data List Status: Invasive alien Category 1.

Occurrence (Total): 174 390 km^2 with 9% conserved and 9% lost; Occurrence (Fynbos): 35 221 km^2 with 27% conserved and 17% lost; Occupancy: 5 330 km^2 with 32% conserved and 22% lost. Fragmentation index: 3%.
Nature Reserves (5939 records): 34% in nature reserves.
Habitat destruction (5830 records): 87% extensive natural habitat, 9% islands, 2% road verges, 1% naturally linear habitats, 0.4% corridors, 0.4% naturally fragmented habitats, 0.1% patches.
Alien Invasive Species (5920 records): 53% *Hakea*, 31% *Pinus*, 15% Fabaceae (chiefly alien *Acacia*), 2% Myrtaceae, 0.2% other aliens, <0.1% annual alien grasses.
Alien Density (5895 records): 74% sparse, 19% abundant, 6% dense, 1% impenetrable.

Cultivation & Utilization:
Picking (3890 records): 99% no sign of picking, 0.5% severely picked, 0.2% lightly picked.
Cultivation Status: Plantings - 1 record.
Witch's Broom Infestation: 2 records (0.03%).

Atlassers Notes:
- Young with new growth, older ones with flowers (AWA97081404); Tops grazed: leaves stripped by animals in reserve (AGR91120104).
- In grassland seems to escape fire damage by excluding grass growth - although isolated plants survive in grassland Creating strongly invasive thickets which although still limited, are firmly established (ATA93041102); Chopped down and resprouting from base (DJLY0101908).
- Yes, Planted! Heaven help us (AGR99050606).
- Plant With peculiar fasciation: lots of branching from all axils with dense minute stubby leaves – is this Witches Broom on Hakea? (ASP94110302, AGR96051001).

Weevil Biocontrol
- Weevil present (PMRY0121102, SHR91092102, WMP98050301 + 13);
- Very few cones - lots of weevil damage (APE93021402, ASP92092005, PAP92091101, PVR95011404); Many plants had the weavel in the follicles (NGF99121801); Many opened cones on live plants (NGFY2010508); Some plants had almost 100% of seeds parasitized (SMR99051205); The reported biological control seems to have been quite effective (PVRY0061901); It does appear that biological control has been introduced as many hakea seeding bodies look infected (WMP95122901); *Erytenna consputa* population doing good work on seed, also sign of fungus at work but only in beginning stages (HRK94040201); *Erytenna consputa* and fungus present (HRK94040202-7, 9-11, HRK96110905, HRK97051401, HRK99121001); Some plants had died - holes in the follicles left by weevils were seen (NGF97092001); Biological control evident - quite a few dead plants quite a few seeding bodies immature (WMP98050102);
- Full of cones - No biocontrol here (AGRY2052919 AGRY2052927); The plants on this slope is unaffected by biocontrols - no holes in cones: treatment needed before infestation increases (WIJ98012409, WIJ98021401, WIJ99101602, WIJY0102505, WIJY0122604); New species for this National Park - no signs of weevil attack and lots of cones- action required promptly (AGR97010431); Biocontrol present but very high cone levels (AGRY4082101); No sign of any biocontrol agents - dead skeleton dense with follicles and has produced almost 100 plants from only a single prefire individual (AGRY2070635); Remarkable that it has not re-established from seed - weevils present here? (DFJ99012609); There are far fewer young plants than there were the adults now burnt - the reported biological control seems to have been quite effective (PVRY0061901).

Fungal infections
- Infected With Fungus (AWA98050503, GEH94010807, HRK96042303); Dying from fungus (DOA97030115, DOA97031604); Young tips dead- stem canker (GNIY1032920); Plants dead with stem canker (GNI95012101); Much Die Back (HRKY1010103, OUT94040905-7, OUT95100702, 8-9); Young Dying (OUT95100712); Biocontrol – many dead plants (WMP98041106); Half plants dead! Fungus! (AGR99011004); Mosty dead - killed by fungus. (HCE96051602); Wide sweep of dieback down centre of valley (OUT99050705); Much die back and many dead trees - few small plants (OUT94040604); Impenetrable clumps with scattered plant dying of fungal disease (GEH94010809); With fungus and no weevils (APE94082311); Stem canker and seed snout beetle (GNI95012102); Signs of die back but not much cone damage (OUT94040903); Stem canker on older plants with all young shoots dead (GNIY1032917); Swarm of bees resting in stem kanker and cones damaged by weevil and dead tips (GNIY1032919); Lots of older plants dying back- both fungi and seed weavil present- lots of young present (HRKY1010102); Twenty years ago whole valley was densely infested. Now only lower reaches have dense stands remaining - upper mountain slopes are just about clear but no signs of physical removal - just plenty of infected plants (DFJ99012607); Several dead plants noted (some fungus is being used to kill ha sericea) - we spoke to the farmer: he has been trying to eradicate them (WEL98042001);

Deaths
- Turning brown (AWA99050803); Very ill looking (IVM98102901); Dying (AWA96032503, AWA96070902-4, 6, AWA97120406, AWA99031101, AWA99050804, VCH99040403); Many plants dying (OUT96030902-7, 10, OUT96032305-6); Many dead (OUTY0090901); Some dying or dead (HEL95091906); Lots dead (LYMY0060202); Dying in impenetrable clumps (MHG96010204); Much plants on upper slopes dead (VCH99090809); Adjacent farm has impenetrable stands - these are now dying fast (AWA94112501); Some dead and partially dead plants (regrowing from base) (AGRY0112611); Hakea dying everywhere on the whole (AWA97120405);

Confusing Species: Occasionally confused with *H. gibbosa*, but far more frequently treated recorded as an alien but not regarded as a protea.

Records of identification queries = 62

Records of corrected identification queries = 42%.

Variation and Taxonomy: None noted.

Distribution: Add.

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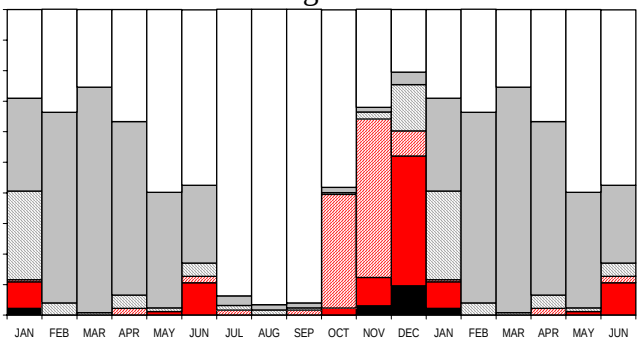
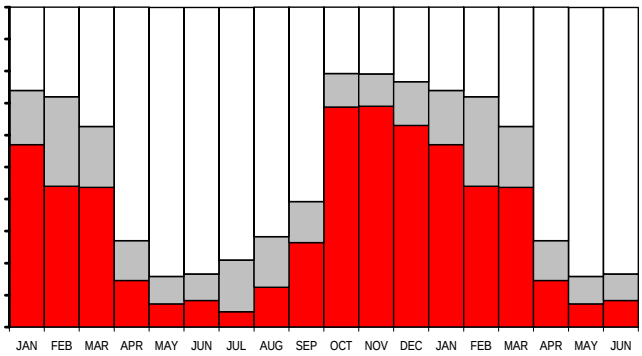
Brabejum stellatifolium L. 1753
Wild Almond
Wildeamandel

Other Common Names: African Almond, Bitter Almond, Cape Almond, Hottentot's Almond, Kaffir Chestnut, Starry Brabeium, Wild Chestnut, *Wilder Mandelboom, Bitteramandel, Doboontjie, Doboontjieboom, Geelamandel, Ghioekoffie, Ghoboom, Ghoboontjieboom, Ghoeboontjie, Hotnotsamandel, Hottentotsamandel, Kafferkastaiing, Wildebitteramandel, Gu (Khoi).*
Other Scientific Names: *None.*

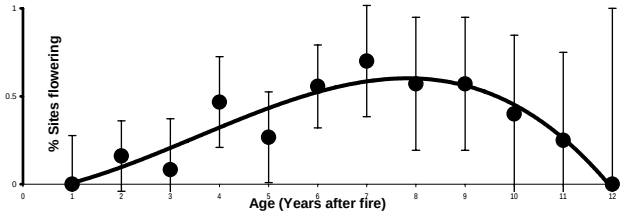
1317 Records
Population (1296 records): 0.1% Abundant, 14% Common, 62% Frequent, 23% Rare.
Dispersion (1145 records): 56% variable, 41% clumped, 2% widespread, 1% evenly distributed.
Flowering (1272 records with: Jan 138, Feb 101, Mar 126, Apr 90, May 82, Jun 47, Jul 64, Aug 121, Sep 127, Oct 172, Nov 131, Dec 73): Buds from Oct to Nov; Flowering from Dec; Peak Flowering from Dec; Over from Dec to Jan; Fruit from Jan to Jun; Nothing from all year, but especially Jul to Sep. Peak levels at 75% in Dec. Historically recorded as flowering from XXX.



Growth (1269 records with: Jan 142, Feb 100, Mar 126, Apr 89, May 82, Jun 48, Jul 62, Aug 120, Sep 125, Oct 173, Nov 129, Dec 73): Much from Sep to Mar; Rare from Jul to Apr; None from all year round but especially Apr to Sep. Peak levels at 79% in Oct-Nov.

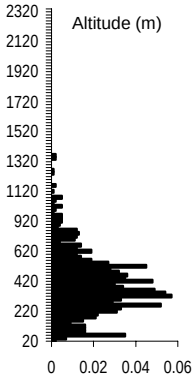


Seedlings (507 records): Absent in 94%: fewer seedlings than prefire adults in 9 cases, and more in 6 cases. Seedlings found in Jan (2), Feb, Mar, Apr, Jun, Oct, Nov (4) and Dec (4).
Fire Survival (99 records): 58% resprouted from underground boles, 25% resprouted from aerial trunks, 13% escaped fires in fire-safe areas, 4% survived by seedlings only.
Age to first flowering: A resprouter so encountered as mature plants. First flowers recorded at 1 years, 50% estimated at 7 years, and 100% recorded at 17 years.

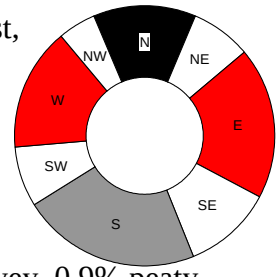


Height (1304 records): 0.1% 0-0.2 m tall, 4% 0.2-1 m tall, 27% 1-2 m tall, 60% 2-5 m tall, 9% taller than 5 m.
Pollinators (11 records): 45% bees or wasps, 27% flies, 18% beetles, 9% none observed.
Detailed Pollinators (2 records): Wasp (unspecified), Honey Bee.

Habitat:
Distance to Ocean (1274 records): 97% inland - further than 2 km from coast.
Altitude (1274 records): 20 - 1260 m; 240 *lq* - 360 *med* - 460 *uq*m.



Landform (1269 records): 57% deep soil, 30% riverine, 9% shallow soil, 3% rocky outcrops, 0.5% swamp.
Slope (1264 records): 41% gentle incline, 31% valley bottom, 22% steep incline, 5% platform, 0.6% cliff, 0.2% hill top.
Aspect (996 records): 32% South, 28% East, 21% West, 19% North.



Soil Type (1193 records): 52% sandy, 28% loamy, 9% rocky, 7% gravelly, 3% clayey, 0.9% peaty.
Soil Colour (1167 records): 40% brown, 36% grey, 9% white, 6% orange, 4% black, 3% yellow, 2% red.
Geology (1174 records): 75% sandstone, 12% granite, 10% shale, 2% Tertiary sands, 1% conglomerate, 0.8% silcrete or ferricrete.
Vegetation (1265 records): 72% shrubland, 15% thicket, 5% plantations, 3% forest, 3% woodland, 0.8% suburban, 0.3% wooded

grassland, 0.3% agricultural lands, 0.2% grassland.

Conservation Status and Threat:
Red Data List Status: Least Concern.
Occurrence (Fynbos): 20 617 km^2 with 10% conserved and 28% lost; Occupancy: 1 320 km^2 with 18% conserved and 19% lost. Fragmentation index: 3%.
Nature Reserves (1274 records): 47% in nature reserves.
Habitat destruction (1254 records): 66% extensive natural habitat, 27% naturally linear habitats, 5% islands, 0.7% road verges, 0.7% corridors, 0.2% naturally fragmented habitats.
Alien Invasive Species (1209 records): 35% none, 32% Fabaceae (chiefly alien *Acacia*), 20% *Pinus*, 9% *Hakea*, 2% other aliens, 1% Myrtaceae, 0.6% annual alien grasses.
Alien Density (1208 records): 35% alien-free, 42% sparse, 16% abundant, 6% dense, 2% impenetrable.

Cultivation & Utilization:
Picking (905 records): 100% no sign of picking.
Cultivation Status: Plantings - 13 records (1.0%).

Atlassers Notes:
- Many cones only present on the branches of a 50 mm diameter big branch hanging over river). Other slightly smaller branches had no cones these were the only cones seen among scores of other trees - many bigger - in the Gifberg rivers (WIJ94041501).
- In contrast to those plants in Van Riebeeck's Hedge which are all in bud these appear to be either growing (95% shoots) or in bud (1% shoots) (AGR91111901); Farmer says they don't produce fruit every year (WIJ94041305);
- Many shoots heavily galled (AGR91111901); Leaves being stripped by huge caterpillars of Pine Emperor Moth (CHE96111302);
- Some branches dying off and turning yellow. These plants were 10 m away from the river and perhaps were suffering from a water shortage after a very hot summer and dry winter of 2000 (NGFY0070801); A plant has got many yellow leaves probably because of lack of water (NGFY0120301);
- Flies and common honeybees were attracted to the "pong" exuded by the flowers (GNIY0120406).
- Looks very much like Oleander! Does it occupy a similar niche? (AGR95070523).
- The Historical Monuments plaque at this point states that these were planted in 1660 as part of Van Riebeeck's hedge - presumably then these plants are protected although not in a reserve (PVR93072102).
- Many notes about plants either confined to river banks, occ. confined to forest margins, or spread out in Fynbos.

Confusing Species: None.
Records of identification queries = 6. Mostly dealing with stems having unusual numbers (5 to 9) of leaves per whorl.

Variation and Taxonomy: The only African member of the Grevilleoideae: closely related to *Panopsis* in South America and *Macadamia* in Australia.

Distribution: Add.
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