

# Carmichaelia williamsii

## COMMON NAME

William's Broom, Giant-flowered broom

## SYNONYMS

None

## FAMILY

Fabaceae

## AUTHORITY

*Carmichaelia williamsii* Kirk

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

## NVS CODE

CARWIL

## CHROMOSOME NUMBER

2n = 32

## CURRENT CONSERVATION STATUS

2017 | At Risk – Relict | Qualifiers: PD

## PREVIOUS CONSERVATION STATUSES

2012 | At Risk – Relict | Qualifiers: PD

2009 | At Risk – Relict | Qualifiers: PD

2004 | Threatened – Nationally Endangered

## BRIEF DESCRIPTION

Rare robust coastal shrub with erect leafless wide flattened green branches. Branches 5-12mm wide, with wavy edge, lower branches drooping. Flowers large (to 25mm long), pea-like, white or yellow, sometimes striped. Pod a dry flattened pod containing 5-15 hard orange and black seeds.

## DISTRIBUTION

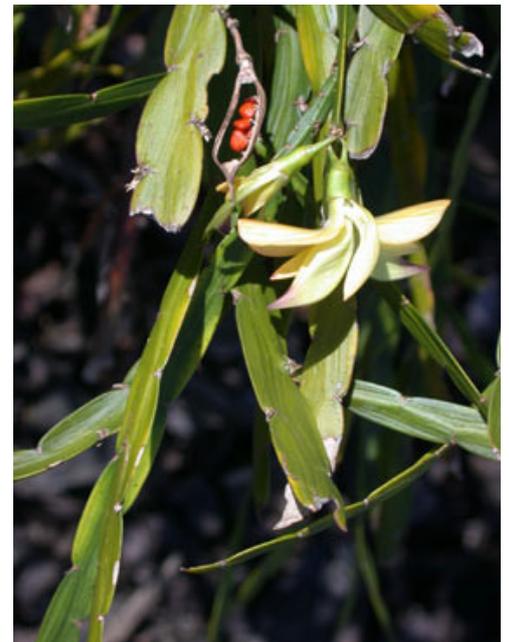
Endemic. North Island only, where it known mainly from northern offshore islands (particularly the Poor Knights and Alderman Islands) to East Cape. On the mainland it is now known from only two small remnant populations near East Cape.

## HABITAT

A strictly coastal species of open forest, scrub, cliff faces and talus slopes.



*Carmichaelia williamsii* flowering branch.  
Photographer: John Smith-Dodsworth, Licence: CC BY-NC.



*Carmichaelia williamsii* shrub with flowers.  
Photographer: Andrea Brandon, Licence: CC BY-NC.

## DETAILED DESCRIPTION

Erect to suberect, spreading, usually leafless shrub up to 2-4 x 2-4 m. Branches 50-100 mm diam., stout, rather woody, ascending or spreading. Cladodes 130-380 x 5-12 mm, yellow-green, green to dark green, stout, linear, striate, compressed, glabrous, apex obtuse; leaf nodes 7-16. Leaves present on seedlings and reversion shoots or shaded cladodes of adult plants. Petiole 1-5 mm. Lamina fleshy, 1-3-foliolate, 6-23 x 5-15 mm, green often yellow toward proximal end, elliptic, obovate to broad-elliptic, apex retuse, base cuneate. Terminal leaflet larger than lateral leaflets. Leaves on cladodes reduced to scales, , 1 mm long, broad-triangular. Stipules 1.5 x 1 mm, free, broad-triangular, sometimes with a second pair of denticles. Inflorescence a 1-6-flowered raceme, usually in fascicles of 3-4 per node. Peduncle 1-6 mm long, hairy, green. Bracts 1-1.4 x 0.8-1.5 mm, narrow-triangular to broad-triangular, apex subacute to obtuse. Pedicel 4-8 mm long, hairy, pale green. Bracteoles 0.4-0.6 x 0.2 mm, narrow-triangular to linear, apex subacute. Calyx 8-9 x 4.7-5.5 mm, campanulate, green. Bud green becoming yellow-green at maturity. Standard 18-22 x 11-13.5 mm, ovate, patent, keeled, margins incurved, apex subacute to weakly retuse, greenish-yellow, yellow, to pale yellow with central portion and marginal veins maroon-red to purple. Wings 20-22 x 4-4.5 mm, oblong, falcate, shorter than keel, yellow to pale yellow. Keel 25-27 x 7-8 mm, apex narrow and acute, yellow, distal part of inner surface maroon-red or purple. Stamens 28-30 mm long; dorsal filaments fused for  $\frac{3}{4}$  length, otherwise free for remainder of length. Pistil 32-33 mm long, exerted well beyond stamens. Pods 23-34 x 6-12 mm, oblong to oblanceolate, light to dark brown, valves dehiscent; beak 2-4 mm, stout, apex pungent. Seeds 5-15 per pod, 3-5 x 2-3 mm, reniform to oblong-reniform, dull red to orange-red usually mottled with black.

## SIMILAR TAXA

This is the only yellow-flowered native New Zealand broom, and may be distinguished from the common introduced broom (*Cytisus scoparius* (L.) Link) by the non-leafy, light green, much wider, flattened branches, the larger, pale-yellow flowers with purple or red veins, and the late-winter flowering habit.

## FLOWERING

From July and October, though sporadic flowering may occur throughout the year.

## FLOWER COLOURS

Green, Yellow

## FRUITING

Throughout the year.

## LIFE CYCLE

Seeds are possibly dispersed by wind and granivory (Thorsen et al., 2009).

## PROPAGATION TECHNIQUE

Easy from seed or hardwood cuttings. Seed germinates best if scarified and then soaked over night. An excellent winter to early spring flowering shrub for a coastal or lowland garden. Prefers full sun and free draining soil but will tolerate semi-shade. This species is usually short-lived (5-15 years), and it is wise to keep a few replacement plants going in pots just in case. Although it will tolerate snow and frost, it is better grown in warmer climates.

## THREATS

Flowers, fruits and seed are palatable to rats. Some populations are at risk from coastal erosion. Plants tend to be short-lived, and are often inflicted with lemon tree borer (*Oeomona hirta*). Because the species is principally bird-pollinated, by New Zealand honeyeaters, the loss of these pollinators may affect reproductive effort. Though previously ranked as Nationally Endangered on the basis of the loss of mainland populations and the limited extent of island populations, it is now ranked as Relict on the basis that the loss of (most) mainland populations was historical and the island populations appear stable

## ETYMOLOGY

**carmichaelia**: After Carmichael, a botanist

## ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange 13 June 2006. Description modified from Heenan (1996).

## REFERENCES AND FURTHER READING

Heenan, P. B. 1996: A taxonomic revision of *Carmichaelia* (Fabaceae-Galegeae) in New Zealand. Part 2. *New Zealand Journal of Botany* 34: 157-177.

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. *Perspectives in Plant Ecology, Evolution and Systematics* 2009 Vol. 11 No. 4 pp. 285-309

## NZPCN FACT SHEET CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Carmichaelia williamsii* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/carmichaelia-williamsii/> (Date website was queried)

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/carmichaelia-williamsii/>