

# Carmichaelia astonii

## COMMON NAME

Aston's dwarf broom

## SYNONYMS

None

## FAMILY

Fabaceae

## AUTHORITY

Carmichaelia astonii G.Simpson

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

## NVS CODE

CARAST

## CHROMOSOME NUMBER

2n = 32

## CURRENT CONSERVATION STATUS

2017 | Threatened – Nationally Vulnerable | Qualifiers: DP, RR, RF

## PREVIOUS CONSERVATION STATUSES

2012 | Threatened – Nationally Vulnerable | Qualifiers: RF

2009 | Threatened – Nationally Vulnerable | Qualifiers: RF

2004 | Range Restricted

## BRIEF DESCRIPTION

Rare low-growing shrub with many erect greenish-brown leafless branches inhabiting limestone sites in Marlborough. The many branches are orange-tipped, leafless, erect, flattened, 4–8 mm wide, grooved, with hairy young growth. Flowers pea-like, pink, with darker centre. Fruit in a dry pod which has an upturned tip.

## DISTRIBUTION

Endemic. New Zealand: South Island (Eastern Marlborough in a small area south of Ward, encompassing the Flaxbourne, Mead, Waima (Ure) River catchments, Weld Cone, Ward Beach and the Chalk Range).

## HABITAT

A limestone endemic, restricted to sparsely vegetated rendzina and related steepland soils of medium to high fertility.



Carmichaelia astonii. Photographer: Ingrid Gruner, Licence: CC BY-NC.



An image of the flowers. Photographer: Ingrid Gruner, Licence: CC BY-NC.

## DETAILED DESCRIPTION

Dwarf and spreading shrub, up to 0.2 × 0.5 m. Branches stout, ascending and horizontal, 10-25 mm diameter. Cladodes linear, striate, compressed, erect to spreading, green to green-bronze, frequently hairy when young (hairs sometimes retrorse), 30-95 × 4-8 mm; apex subacute to obtuse, yellow to yellow-green; leaf nodes 2-4. Leaves simple, obovate to oblanceolate, fleshy, green or green-bronze, present on seedlings, absent on adult plants, 6-8 × 2.0-5.5 mm; upper and lower surfaces hairy; apex emarginate to retuse; base cuneate; petiole hairy, c. 2 mm long. Leaves on cladodes reduced to a scale, triangular, glabrous, < 0.5 mm long; apex acute. Stipules free, triangular, 0.9-1.0 × 0.7-0.8 mm; upper surface glabrous; lower surface hairy, becoming glabrous with age; apex acute; margin hairy. Inflorescence a raceme, 1-4 per node, each with 1-4 flowers. Peduncle hairy, green, 7-8 mm long. Bracts triangular, glabrous, pale green, < 1 mm long; apex acute; margin hairy. Pedicel hairy, pale green, 2.5-8.0 mm long. Bracteoles at top of pedicel, green and occasionally flushed red, < 0.5 mm long; apex acute; margin hairy. Calyx campanulate, 4.5-5.5 × c.2.0 mm; inner surface glabrous, green; outer surface hairy, green and occasionally flushed red. Calyx lobes narrow-triangular, green and usually flushed red, 2.0-2.5 mm long; adaxial surface densely hairy; apex acute; two upper lobes usually appressed to base of standard; three lower lobes spreading away from keel. Standard obovate, patent, positioned in central area of keel, weakly keeled, margins recurved, c.12 × c.8 mm; central area of upper surface purple, margins white, sometimes purple-veined; lower surface white with a darkened central part; claw pale green, c.3 mm long; apex emarginate and occasionally mucronulate. Wings oblong, shorter than keel, c.9.0 × c. 2.5 mm; distal area of upper surface purple, proximal area pale green; lower surface white, purple-veined; auricle triangular, pale green, 1.0-1.25 mm long; claw pale green, 2.5-3.0 mm long; apex acute. Keel c.10 × c.3.5 mm; distal area of upper surface purple, proximal area white or pale green; auricle triangular, pale green, c.1 mm long; apex obtuse; claw pale green, 3.5-4.0 mm long. Stamens 9-11.5 mm long. Pistil exserted beyond stamens, c.12 mm long; ovary weakly falcate, glabrous; ovules 8-16. Pod oblong or oblanceolate, compressed, light grey or brown, valves often partially dehiscent, 14.0-23.0 × 4.0-7.5 mm; beak stout, pungent, 1-2 mm long. Seeds oblong-reniform, 4-8 per pod, olive green, green-yellow, or dull yellow, occasionally with black mottling, 2.5-3.5 × 1.5-3.0 mm.

## SIMILAR TAXA

*C. astonii* is allied to *C. monroi* Hook.f. and *C. vexillata* Heenan from which it is by its more robust growth habit; stouter cladodes; larger calyx, petals and pods; and by the long lower calyx lobes which spread away from the keel

## FLOWERING

January - December

## FLOWER COLOURS

Violet/Purple, White

## FRUITING

December – April

## LIFE CYCLE

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

## PROPAGATION TECHNIQUE

Easily grown from fresh seed and hardwood cuttings. A very beautiful shrub that flourishes in a well drained, sunny situation. It does best on soil enriched in lime. Dislikes long periods of humidity.

## THREATS

A limestone endemic that is naturally restricted to a small geographical area. moderate-sized populations are known, and these appear to be secure though some are vulnerable to browse damage from goats, possums, and sheep. Of more concern is that seedlings are very rarely seen, and all populations are dominated by mature shrubs.

## ETYMOLOGY

**carmichaelia**: After Carmichael, a botanist

**astonii**: After Aston

## WHERE TO BUY

Not commercially available.

## ATTRIBUTION

Description adapted from: Heenan (1996)

## REFERENCES AND FURTHER READING

Heenan, P.B. 1995: A taxonomic revision of *Carmichaelia* (Fabaceae - Galegeae) in New Zealand (part I). *New Zealand Journal of Botany* 33: 455-475.

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

## MORE INFORMATION

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