

Gastrodia cooperae

COMMON NAMES

Cooper's black orchid

BIOSTATUS

Native

CATEGORY

Vascular

STRUCTURAL CLASS

Orchids

SIMPLIFIED DESCRIPTION

A terrestrial, parasitic orchid (all parts without chlorophyll). Plants with tubers, producing numerous stems. Flowers fragrant, numerous pendulous, dark brown—green, labellum evident at flower mouth, apex dark brown—black.

FLOWER COLOURS

Brown, White

DETAILED DESCRIPTION

Terrestrial, parasitic (on fungi), leafless, achlorophyllous, herb. **Rhizome** tuberous, pale brown. **Plant** (220)–360–455–(960) mm tall at flowering. **Stem** solitary, glabrous, dark to pale brown with greyish longitudinal streaks; (1.2)–1.6–2.6–(4.5) mm diameter. **Inflorescence** erect, terminal, flowers 6–40, scented, erect when developing and pendulous at anthesis. **Floral bract** papery, glabrous, deltoid to widely deltoid, apex acute, 2.1–6.6 × 1.6–2.2 mm. **Pedicel** 1.6–5.3 mm long. **Perianth tube** 4.9–10.4 × 2.5–5.3 mm, brown to dark brown, surface with pale green to gray wartlike elevations. **Sepals** reflexed, white to pale green abaxially; margin entire to slightly irregular towards the apex; apex acuminate. **Petals** adnate to the tube formed by the sepals, oblong, 3.0–3.4 × 1.3–1.8 mm, white on both sides; margin irregular, apex obtuse to round. **Labellum** 6.5–10.8 mm long; adnate to the base of the perianth, fleshy. **Hypochile** pale brown, covered with pseudo-pollen, margin entire. **Mesochile** strongly contracted; margins entire. **Epychile** trilobed, white at the base to pale yellow towards the apex. **Lateral margins** incurved, entire in the basal portion then irregularly crenate to cristate towards the apex. **Labellum** apex fleshy, dark brown to black. Two pale yellow ridges covered in pseudo-pollen extend from the mid-section of the epychile to the apex where they join. **Column** erect, 5.4–7.8 mm tall, narrow at base and wide towards the apex, 1.2–2.0 mm wide. **Pollinia** two. **Rostellum** flap like, flanked by one oblong or two deltoid wings, positioned under anther. **Stigma** at base of the column, ovate. **Ovary** 3.7–4.6 × 6.1–6.7 mm long, brown with a few greyish wart-like elevations. **Capsules** upright when mature; seeds pale brown



Under *Kunzea robusta*, Wairarapa.
Photographer: Jeremy R. Rolfe, Date taken: 02/01/2010, Licence: CC BY.



Tip of column visible below dark tip of labellum.
Wairarapa. Photographer: Jeremy R. Rolfe, Date taken: 02/01/2010, Licence: CC BY.

SIMILAR TAXA

Allied to *Gastrodia cunninghamii*, *G. molloyi* and *G. sesamoides*. From *Gastrodia cunninghamii* it is easily distinguished by the long rather than short column (which is not visible at the flower mouth). From *G. sesamoides* it can be distinguished by the dark brown to black rather than pale brown to cream or pale pink perianth, and by the tuberculate rather than smooth stem and flower surfaces. From *Gastrodia molloyi*, *G. cooperae* differs by the dark brown to black rather than greenish gold to golden brown perianth; and by the labellum apex which is dark brown to black rather than yellow to orange.

DISTRIBUTION

Endemic. New Zealand: North Island (Wairarapa), South Island (North-west Nelson).

HABITAT

Gastrodia cooperae is known in the North Island from a small area of rawirinui (*Kunzea robusta*) forest, and from the South Island from southern beech (*Fuscospora solandri*) forest. *Gastrodia cooperae* seems to have a similar ecology to *G. cunninghamii* with which it is syntopic in the South Island and once was in the North Island sites where *G. cooperae* historically occurred.

CURRENT CONSERVATION STATUS

2023 | Threatened – Nationally Critical | Qualifiers: DPR, DPS, DPT

THREATS

Historically recorded from several North Island sites—from two of which it now seems to be extinct (the reasons why are not clear). The three extant populations known at the time *Gastrodia cooperae* was described (one North Island, two South Island) are believed to comprise fewer than 250 mature individuals so making this species 'Threatened / Nationally Critical, Criterion A1 (de Lange et al. 2018; Lehnebach et al. 2016; Townsend et al. 2008). Several observations of *G. cooperae* have been reported since 2016 (iNaturalist.nz, accessed 2023) at hitherto unknown locations widespread throughout the North Island and South Island. Most of these appear to be valid records but they provide no information about the size or extent of populations. While no threats have been documented, the larger *Gastrodia* species are browsed by possums (*Trichosurus vulpecula*), and are vulnerable to plant collectors.

DETAILED TAXONOMY

FAMILY

Orchidaceae

AUTHORITY

Gastrodia cooperae Lehnebach et J.R.Rolfe

SYNONYMS

None - first described in 2016

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

ECOLOGY

FLOWERING

December–January

FRUITING

January–February

PROPAGATION TECHNIQUE

A parasitic species (on fungi) which should not be removed from the wild

OTHER INFORMATION

ETYMOLOGY

gastrodia: Belly tooth (flower centre)

cooperae: In recognition of Dorothy 'Dot' A. Cooper (1941–) who established the New Zealand Native Orchid Group and who authored the Field Guide to New Zealand orchids, which led to the recognition of this species as distinct

MANAAKI WHENUA ONLINE INTERACTIVE KEY

[Key to native orchids of New Zealand](#)

PREVIOUS CONSERVATION STATUS

2017 | Threatened – Nationally Critical | Qualifiers: DP

REFERENCING AND CITATIONS

REFERENCES AND FURTHER READING

de Lange PJ, Rolfe JR, Barkla JW, Courtney SP, Champion PD, Perrie LR, Beadel SM, Ford KA, Breitwieser I, Schonberger I, Hindmarsh-Walls R, Heenan PB, Ladley K. 2018. Conservation status of New Zealand indigenous vascular plants, 2017. *New Zealand Threat Classification Series 22*. Department of Conservation, Wellington, NZ. 82 p. <https://www.doc.govt.nz/globalassets/documents/science-and-technical/nztcs22entire.pdf>

iNaturalist. 2014–present. *Gastrodia cooperae* observations https://inaturalist.nz/observations?taxon_id=509183. Accessed 29 December 2023.

Lehnebach, CA, Rolfe JR, Gibbins J, Ritchie P. 2016. Two new species of *Gastrodia* (Gastrodieae, Orchidaceae) endemic to New Zealand. *Phytotaxa* 277(3): 237–254. <https://doi.org/10.11646/PHYTOTAXA.277.3.2>

Rolfe J. 2017. [Guide to New Zealand Gastrodia \(Orchidaceae\)](#) (pdf, 5Mb).

Townsend AJ, de Lange PJ, Norton DA, Molloy J, Miskelly C, Duffy C. 2008. New Zealand Threat Classification manual. Department of Conservation, Wellington, NZ. 35 p.

<https://www.doc.govt.nz/globalassets/documents/science-and-technical/sap244.pdf>.

ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange (1 October 2016). Description from Lehnebach et al. (2016)

NZPCN FACT SHEET CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Gastrodia cooperae* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/gastrodia-cooperae/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/gastrodia-cooperae/>

PDF DATE

12 October 2024