



Gentiana wingecarribiensis

Common name Wingecarribee Gentian

Conservation status

Gentiana wingecarribiensis L. G. Adams is listed as an **Endangered Species** on Schedule 1 of the New South Wales *Threatened Species Conservation Act, 1995*. This species is also listed as an **Endangered Species** on Schedule 1 of the Commonwealth *Endangered Species Protection Act, 1992*.

General description

The small shrub, *G. wingecarribiensis*, has greenish ribbed flowers which are sky blue inside. Flowers are generally only open in direct sun from October to December. The stem is a reddish colour and leaves are broad and oval. Photographs of *G. wingecarribiensis* and its habitat are provided in Cohn (1993) and an illustration can be found in Harden (1992).

Scientific description

G. wingecarribiensis (Gentianaceae) is an erect (4-9 cm tall), annual (possibly biennial) hairless herb. Its stem is simple or sparsely branched and reddish tinged. 4-7 pairs of sessile, broad or oblong-ovate leaves (3-8 mm long, 3-6 mm wide) are borne on the stem. Each plant produces 1-6 flowers. Calyx 6-10 mm long; ribs not winged; lobes 2-4 mm long. Corolla 10-17 mm long, greenish ribbed outside, sky blue inside; lobes 2-3 mm long. Stipe 2-3 mm long, elongating to 15-25 mm long. The fruit is a broad-obovoid dry dehiscent capsule (4-5 mm long) (Harden 1992).

G. wingecarribiensis is one of 4 species of *Gentiana* within NSW, with the others being; *G. baeuerlenii*, *G. bredboensis*, and *G. wismanii*. *G. wingecarribiensis* can be distinguished from these species by its lack of a basal rosette and its stems which are minutely scabrous above and smooth below (Harden 1992).

Distribution

G. wingecarribiensis is endemic to New South Wales and is known from only two localities. The type locality is Wingecarribee Swamp, near Robertson on the Central Tablelands of New South Wales (Harden 1992), where two-three discrete patches occur on the southern side of the swamp (Kodala *et al.* 1994; J. Briggs pers. comm.). A second location was discovered in 1994 at Hanging Rock Swamp, 40 km south-west of Wingecarribee Swamp. Four discrete patches have been found at this site (Matthes *et al.* 1996).

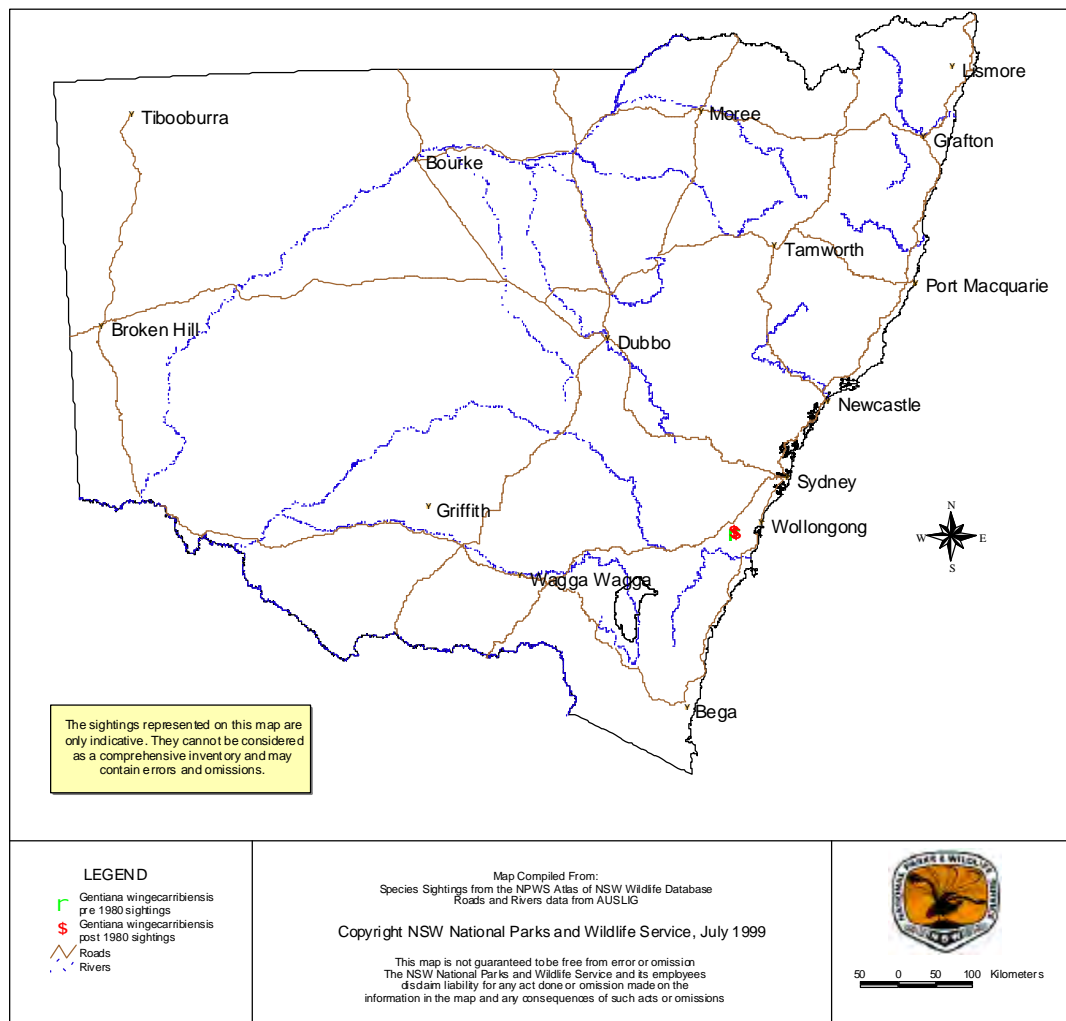
Recorded occurrences in conservation reserves

G. wingecarribiensis is not known to occur in any conservation reserves (Briggs & Leigh 1996).

Habitat

At Wingecarribee Swamp, *G. wingecarribiensis* is located in an ecotone area within 10-15 m of the swamp margin where the sedgeland, with some low shrubs, integrates with the surrounding grassland/pasture. This micro-habitat on damp peat or peaty loam to clay loam supports a low, open vegetation cover 5-60 cm high, of predominantly sedges, grasses and other herbs, as well as woody subshrubs. The soil is damp or occasionally saturated (Kodala *et al.* 1994). A detailed list of associated species can be found in Cohn (1993) and Kodala *et al.* (1994) and additional details of Wingecarribee Swamp can be found in Stricker & Stroinovsky (undated) and Kodala & Hope (1992).

At Hanging Rock Swamp the species occurs on both wet open hummock grassland and on the drier margins of the swamp in leptospermum dominated heath (Matthes *et al.* 1996; J. Briggs pers. comm.).



NPWS records of *Gentiana wingecarribiensis* in NSW

The species typically occurs on either paths made by kangaroos or amongst grasses cropped short by kangaroos. Associated vegetation comprises *Leptospermum juniperinum* and *L. obovatum* scattered within a damp grassland of *Poa labillardieri*, *Isachne globosa* and *Tetrarrhena turfosa* (RBG Database Feb. 1999).

Ecology

This annual (or possibly biennial) species flowers chiefly from October until December. The capsules and seed appear to mature rapidly within about one month of flowering and the plants wither and die completely within about 2 months (Kodala *et al.* 1994). The species produces a

relatively large quantity of seed (Matthes *et al.* 1996) which appears to have restricted dispersal (Kodala *et al.* 1994). The viability of these seeds is as yet unknown (Matthes *et al.* 1996; Being a short-lived plant, changes in population size can be dramatic. For example, over 4 years one population at Wingecarribee Swamp changed from 30, 0, 0, to 20 individuals (Matthes *et al.* 1996). The absence of above ground plants some years implies the species possesses a persistent seedbank and the seeds possess a dormancy mechanism enabling persistence through dry periods and unsuitable years. The failure to observe above ground plants in any one year does not therefore mean the population is extinct or absent, as the species may be present as a seedbank.

Threats

Cohn (1993) outlined the potential threats to the survival of *G. wingecarribiensis* at Wingecarribee Swamp. A major potential threat to *G. wingecarribiensis* populations is the disturbance brought about by cattle. An inappropriate fire regime may also be a threat to the species survival. The swamp is reputedly burnt frequently, although patchily, and the effects of this regime on *G. wingecarribiensis* is unknown. Weed invasion is also considered a major threat to the habitat of *G. wingecarribiensis* (particularly Blackberry and aggressive grasses eg. *Holcus*). Additionally, a major washout/collapse of Wingecarribee Swamp in August 1998 may result in changed hydrological conditions within the swamp. Such changes could threaten the survival of the species at that location (J. Briggs pers. comm.).

References

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Management

Cohn (1993) described the proposed ~~management of~~ *G. wingecarribiensis* and Matthes *et al.* (1996) have outlined management progress. Current management is centred upon the protection and monitoring of the species habitat and also upon gaining further understanding of the ecology of this species.

Recovery plans

A Conservation Research Statement and Recovery Plan (Cohn 1993) and a Recovery Plan annual report (Matthes *et al.* 1996) have been prepared for *G. wingecarribiensis*. An updated and reviewed recovery plan is currently being prepared by the NSW NPWS.

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