

DELINEATION of IMPORTANT HABITATS of THREATENED PLANT SPECIES in SOUTH-EASTERN NEW SOUTH WALES



RESEARCH REPORT
to the
Australian Heritage Commission

J.D. Briggs & J.H. Leigh

CSIRO Division of Plant Industry
GPO Box 1600
Canberra ACT 2601

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Grevillea iaspicula McGillivray

Family: Proteaceae

Conservation Status: Endangered (Code 2E/N/55)



Description

Straggling to erect bushy shrubs mostly 1-1.5 m high but occasionally to 4 m high. *Leaves* light-green and somewhat leathery, spirally arranged and densely clustered along the branchlets, 5-6 mm wide and 2-3 cm long, oblong but tapering slightly at the base and ending in a short, fine slightly sharp point. The leaves are usually slightly twisted and the entire blade sometimes longitudinally rolled to partly conceal the undersurface. *Flowers* with pale yellowish-green to orange perianths and with red protruding styles, arranged in about 12-flowered clusters arising at the ends of the branchlets. *Fruits* are thin-walled ovoid capsules (follicles) about 1 cm long which split down one side to release 2 grey-brown seeds about 0.5 cm long.

Flowering: July-October.



An example of the erect bushy form of the species.

Distribution

New South Wales Southern Tablelands where it occurs in 4 small populations near Wee Jasper and in 2 larger populations on the shores of Lake Burrinjuck. The geographic range of the species is 16 km and a total of 204 mature plants and about 500 seedlings were found during this survey. Prior to this survey only the Wee Jasper populations totalling 23 mature plants were known. The discovery of the two larger northern populations totalling 181 mature plants and about 440 seedlings has thus greatly increased the probability of the species survival.

The only other record of the species is a herbarium specimen collected from 'Macpherson's Swamp Creek', a tributary of Lake Burrinjuck, to the north-west of Wee Jasper. Unfortunately there is no additional locality information and this creek is over 15 km long. During this survey two searches along several kilometres of the northern end of this creek failed to locate any *G. iaspicula*.

The two largest populations were discovered during a search from a boat of the hillsides around the southern shores of Lake Burrinjuck. All the hillsides along the arm of Lake Burrinjuck which extends south to Wee Jasper have not yet been searched. Most of these hillsides on the western side of this arm are now cleared and there is only a slight chance that *G. iaspicula* could

survive there. However, providing there is suitable limestone outcropping, the species may occur on the many uncleared hillsides to the east which have yet to be surveyed. Experience gained during the current survey indicates that such a surveys would be most easily conducted from a boat.

Habitat Summary

Restricted to skeletal dark-brown loam on limestone outcropping. It occurs on all aspects and on gentle to steep slopes in *Eucalyptus* and *Brachychiton* low woodland with a generally open shrub and grass understorey.

Threats Summary

All populations but one are on private property or leasehold land. The species is highly palatable to domestic stock and all but one population have been, and continue to be, threatened by domestic stock grazing. Feral goats are a potential threat to the largest known population and this population would also be affected by any increase in the level of Lake Burrinjuck. At least part of this population was flooded through the construction of Burrinjuck Dam and it is likely that other unrecorded populations were also lost through the creation of Lake Burrinjuck.

Reservation

Not reserved.

Cultivation

Horticulturally appealing and is readily propagated by cuttings. A total of 95 plants from clones from all populations are in cultivation at the Australian National Botanic Gardens, Canberra (M. Richardson, pers. comm.).

Recommendations

Efforts should be made to conserve the 3 best remaining populations (Sites 1, 2 and 3 in this report) and if resources are available also the population at Site 4. Sites 1, 2 and 3 have been nominated for inclusion on the Register of the National Estate. Site 1 should be incorporated into a nature reserve. Further searches to locate additional populations in the Wee Jasper-Lake Burrinjuck area are warranted.

The small degraded populations at sites 5 and 6 have little conservation value.

SITE DETAILS

Site 1 - Lake Burrinjuck Site 1

Latitude and Longitude: 35° 00' 00", 148° 36' 15".

Altitude: 360-410 m.

Location: 500 m direct east-south-east of Burrinjuck Village on a slope overlooking the western arm of Burrinjuck Dam. The nominated area includes a section of hillside from high water mark (363 m) to the 460 m contour interval and is bounded on the south by a straight line joining the Wee Jasper 1:25,000 map sheet 8627-IV-N grid reference points 46172527-46302527 and is bounded on the north by a straight line joining the grid reference points 46502570-46452535. (See map page 85).



Looking east across the waters of Burrinjuck Dam to *G. iaspicula* Site 1. The large bright green shrubs in the more open area immediately above the water line are those of *G. iaspicula*. The small columnar trees at bottom left are *Callitris endlicheri*. *Eucalyptus melliodora* - *E. goniocalyx* - *E. dives* - *E. bridgesiana* woodland dominates the upper parts of the site and the hillside above.

Land Status: Crown land.

Area: 1.5 ha.

Population: 160 mature plants and about 400 seedlings.

Habitat

Soil: Skeletal grey clay-loam.

Substrate: Limestone, outcropping in several places.

Topography: Steep mid-slope of hillside in hilly terrain.

Aspect: West-north-west.

Vegetation: *Eucalyptus melliodora* - *E. goniocalyx* low open-woodland with shrub understorey including *Acacia implexa*, *A. caesiella*, *Callitris endlicheri*, *Lomandra longifolia*, *Dianella revoluta*, *Themeda triandra* and *Sorghum leiocladum*.

Threats: This is the only site of this species not under immediate threat. It is in a sound condition because it is not readily accessible to domestic stock and has escaped significant grazing pressure. There are, however, increasing feral goat populations in nearby hills and if these animals migrate onto the *Grevillea* site then the population could be damaged.

Part of the original population at this site was flooded when Lake Burrinjuck was constructed, but it is not possible to estimate what percentage of the original population was lost. Any raising of the current water level in Lake Burrinjuck would eliminate more of this population.

Recommendations: The New South Wales National Parks and Wildlife Service should investigate the feasibility of acquiring this site as a nature reserve. The site should be regularly monitored to detect the presence of any feral goats which may have moved into the area.

Any proposal to increase the water level in Lake Burrinjuck should consider the impact would have on this population and the species as a whole.

Survey Date: 12/11/86.

Voucher Specimen: J.D.B. No. 2108.

Site 2 - Lake Burrinjuck Site 2

Latitude and Longitude: 34° 59' 30", 148° 37' 30".

Altitude: 380-420 m.

Location: 1.4 km direct south of Burrinjuck Waters Caravan Park boat ramp on the most northerly end of a prominent range jutting into Burrinjuck Dam. The nominated area includes a section of hillside bounded on the northern

side by Lake Burrinjuck high water mark (363 m contour level) and on the western and southern sides by straight lines joining the Yass 1:100,000 map sheet 8628 grid reference points 480262-480260-483260. (See map page 86).



Looking south from the waters of Lake Burrinjuck to the prominent headland supporting the population of *G. iaspicula* at Site 2. The area of limestone cliffs and outcropping on which *G. iaspicula* grows is clearly visible.

Land Status: Private property or Crown leasehold.

Area: c. 2 ha.

Population: 21 mature plants and 40 seedlings.

Habitat

Soil: Skeletal dark-brown loam.

Substrate: Limestone, outcropping and forming cliffs in places.

Topography: Very steep mid-slope of hillside in hilly terrain.

Aspect: North-north-east.

Vegetation: Remnant *Casuarina cunninghamii* - *Brachychiton populneus* woodland with scattered shrubs of *Correa reflexa* in an understorey dominated by exotic grasses. Before clearing the woodland probably included *Eucalyptus melliodora* and *E. goniocalyx*.

Threats: The site occurs in an area which has been largely cleared of timber and on which the natural understorey has been largely eliminated by past grazing of domestic stock. At present the area appears to be only lightly grazed and this is permitting some regeneration of *G. iaspicula*. Any increase in stocking rates is likely to have a detrimental impact on the *Grevillea* population.

Recommendations: Cessation of domestic stock grazing on the site is desirable to permit continued regeneration of the *Grevillea*. The site represents an appropriate situation for a conservation agreement between the National Parks and Wildlife Service and the landholder, similar to that possible under the South Australian Heritage Agreement Scheme.

Survey Date: 12/11/86.

Voucher Specimen: J.D.B. No. 2109.

Site 3 - Wee Jasper Site 1

Latitude and Longitude: 35° 06' 30", 148° 40' 10".

Altitude: 390-410 m.

Location: Spur on the west side of Cave Creek road 300 m north from its intersection with the Yass-Tumut road at Wee Jasper. The nominated site is a rectangular area bounded by straight lines joining the Wee Jasper 1:25,000 map sheet 8627-IV-N grid reference points 52071370-52271368-52231358-52051360. (See map page 87).



Looking west to the lower end of the spur supporting the population of *G. iaspicula* at Site 3. The large limestone boulders characteristic of the site are clearly visible. The sparsely scattered trees are *Eucalyptus bridgesiana* and *Brachychiton populneus* and the dominant shrub is *Bursaria spinosa*. The sparsely scattered shrubs of *G. iaspicula* are not visible.

Land Status: Private property.

Area: 2 ha.

Population: 7 mature shrubs and 40 seedlings.

Habitat

Soil: Skeletal dark-brown loam.

Substrate: Limestone, outcropping down spur and with numerous large boulders.

Topography: Lower end of gently sloping spur in hilly terrain.

Aspect: East to north-east.

Vegetation: *Brachychiton populneus* - *Eucalyptus bridgesiana* stunted woodland with a shrub understorey dominated by *Bursaria spinosa* but also including grassy patches dominated by *Themeda triandra*.

Threats: The spur is surrounded by cleared grazing land and the *Grevillea* plants have been subject in the past to severe browsing by domestic stock. In 1986 only 7 mature plants survived, these having been partly protected by large limestone boulders. The New South Wales National Parks and Wildlife Service built cyclone-netting exclosures around 3 of the plants in 1983 in order to protect them. At the time of this survey in 1986, 40 seedlings were found, both inside and outside the exclosures. These seedlings appear to have been able to establish outside the exclosures through a combination of favourable seasonal conditions and a recent reduction in grazing pressure. Unless the whole area of limestone outcropping is fenced the survival of the seedlings outside the exclosures will be entirely dependent on future stocking rates on the adjacent paddocks.



One of the three *G. iaspicula* plants fenced from domestic stock grazing by the National Parks and Wildlife Service.



A *G. iaspicula* seedling that established outside one of the cyclone-netting exclosures and which has already been browsed by domestic stock which presently have access to the site. Severe browsing by domestic stock has and continues to be the major threat to this species.

Recommendations: The section of limestone spur supporting *G. iaspicula* habitat should be fenced from domestic stock to permit continued regeneration of the species. Efforts by the New South Wales National Parks and Wildlife Service to obtain a conservation agreement with the landowner concerning the area should continue. Such an agreement would be the most appropriate way to afford the site long term protection.

Survey Date: September, 1986.

Voucher Specimen: Collected by M. Richardson (C.B.G.).

Site 4 - Wee Jasper Punchbowl Doline

Latitude and Longitude: 35° 08' 30", 148° 39' 50".

Altitude: 460 m.

Location: 2 km direct west-south-west of the junction of Wee Jasper Creek and the Goodradigbee River. The site is centred on the Couragago 1:25,000 map sheet 8627-IV-S grid reference point 51700995. (See map page 88).



Looking east across the large limestone sink-hole which is the dominant feature of Site 4. A small number of *G. iaspicula* plants growing in cracks on the near-vertical sides of this sink-hole have escaped destruction through browsing by domestic stock.

Land Status: Crown leasehold.

Area: 0.5 ha.

Population: 12 mature plants and about 10 seedlings.

Habitat

Soil: Skeletal dark-brown loam.

Substrate: Limestone, outcropping extensively.

Topography: Deep limestone sink-hole on gentle slope near top of rise in hilly terrain.

Aspect: A predominantly southerly slope but plants occur on all aspects around the edge of the sink-hole.

Vegetation: Remnant *Brachychiton populneus* woodland with scattered shrubs of *Bursaria spinosa*, *Correa reflexa*, *Hardenbergia violaceae* and the Rare species *Discaria pubescens*. Pasture grasses and introduced forbs are the dominant ground cover.

Threats: This site occurs on the edge of cleared grazing land and is readily accessible to domestic stock which have eliminated all *G. iaspicula* plants except those growing in inaccessible cracks on the near vertical walls of the sink-hole. The area of apparently suitable habitat for *G. iaspicula* around this

site is quite large (several hectares) and it seems likely that there would have been a substantial *Grevillea* population at this site prior to domestic stock grazing.

Recommendations: Because of the drastic alteration to the habitat at this site including the dense ground cover of introduced grasses and forbs it is uncertain how well *G. iaspicula* could regenerate on the site if domestic stock were removed. Whilst fencing of this site would be worthwhile in order to establish whether or not the species can regenerate satisfactorily, it would be best to give priority to protecting the species at Sites 1, 2 and 3.

Survey Date: September, 1986.

Voucher Specimen: Collected by M. Richardson (C.B.G.).

Site 5 - Wee Jasper Caravan Park Site A

Latitude and Longitude: 35° 07' 12", 148° 40' 40".

Altitude: 370 m.

Location: About 100 m north-north-east of the Wee Jasper Caravan Park Office. The site corresponds with the Wee Jasper 1:25,000 map sheet 8627-IV-N grid reference point 528123. (See map page 87).



Looking south-west across the small sink-hole supporting the four *G. iaspicula* plants at Site 5.

Land Status: Private property.

Area: 30 m².

Population: 4 mature plants, one severely affected by herbicide used to kill Blackberries.

Habitat

Soil: Skeletal dark-brown loam.

Substrate: Limestone, outcropping locally around sink-hole.

Topography: Gentle slope to the east of a range of low hills.

Aspect: North and west around rim of sink-hole.

Vegetation: Native species almost completely eliminated and replaced by exotics including *Rubus* sp. (Blackberry) and *Rosa rubiginosa* (Sweetbriar). A few shrubs of *Bursaria spinosa* persist.

Threats: The 4 surviving plants at this site are now protected from domestic stock browsing by a fence encircling the sink-hole. There is little opportunity for the species population to increase at this site because of grazing outside the enclosure and lack of additional habitat within. The site is also heavily infested with exotic weeds and grasses which are also likely to inhibit regeneration. An added threat comes from spraying of herbicide to control Blackberry, which had last been conducted a few months prior to the survey. Blackberries had been sprayed to the very edge of the sink-hole and one of the *Grevillea* plants and had been sprayed and was in poor health.

Recommendations: The very degraded condition of this site and the small population in relation to the larger more recently discovered populations does not justify special conservation efforts for the site.

Survey Date: September, 1986.

Voucher Specimen: Collected by M. Richardson (C.B.G.).

Site 6 - Wee Jasper Caravan Park Site 2

Latitude and Longitude: 35° 07' 12", 148° 40' 30".

Altitude: 390 m.

Location: About 300 m west-north-west of the Wee Jasper Caravan Park Office. The site corresponds with the Wee Jasper 1:25,000 map sheet 8627-IV-N grid reference point 526123. (See map page 87).

Land Status: Private property.

Area: 0.2 ha.

Population: The single mature plant recorded in 1982 and protected with a fenced exclosure had died. 4 seedlings, 1 inside the exclosure and 3 outside had established.

Habitat

Soil: Skeletal dark-brown loam.

Substrate: Limestone, outcropping frequently.

Topography: Gentle slope to the east of a range of low hills.

Aspect: East.

Vegetation: *Eucalyptus bridgesiana* - *Brachychiton populneus* woodland with scattered shrubs of *Bursaria spinosa* and patches of *Themeda triandra*. The exotic species *Rosa rubiginosa* was common.

Threats: The 3 seedlings which have established outside the exclosure are unlikely to persist in the longer term whilst exposed to domestic stock grazing. Only a single seedling had established within the fenced exclosure to replace the recently dead single, mature plant.

Recommendation: This population is too low to warrant special conservation efforts for the site.

Survey Date: September, 1986.

Voucher Specimen: Collected by M. Richardson (C.B.G.).

WEE JASPER 8627-IV-N

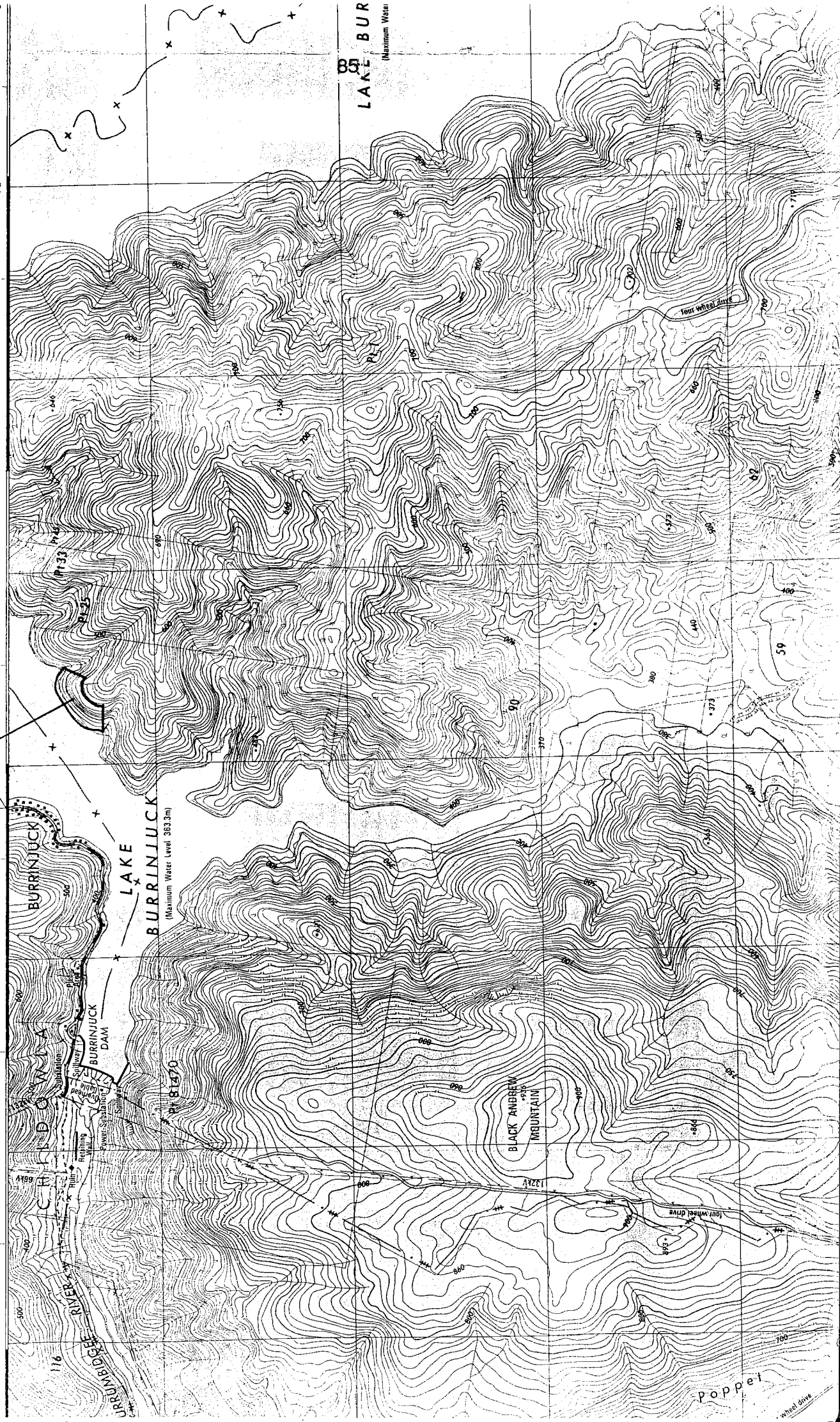
Lake Burrinjuck
Grevillea iaspicula Site 1.

1:25000

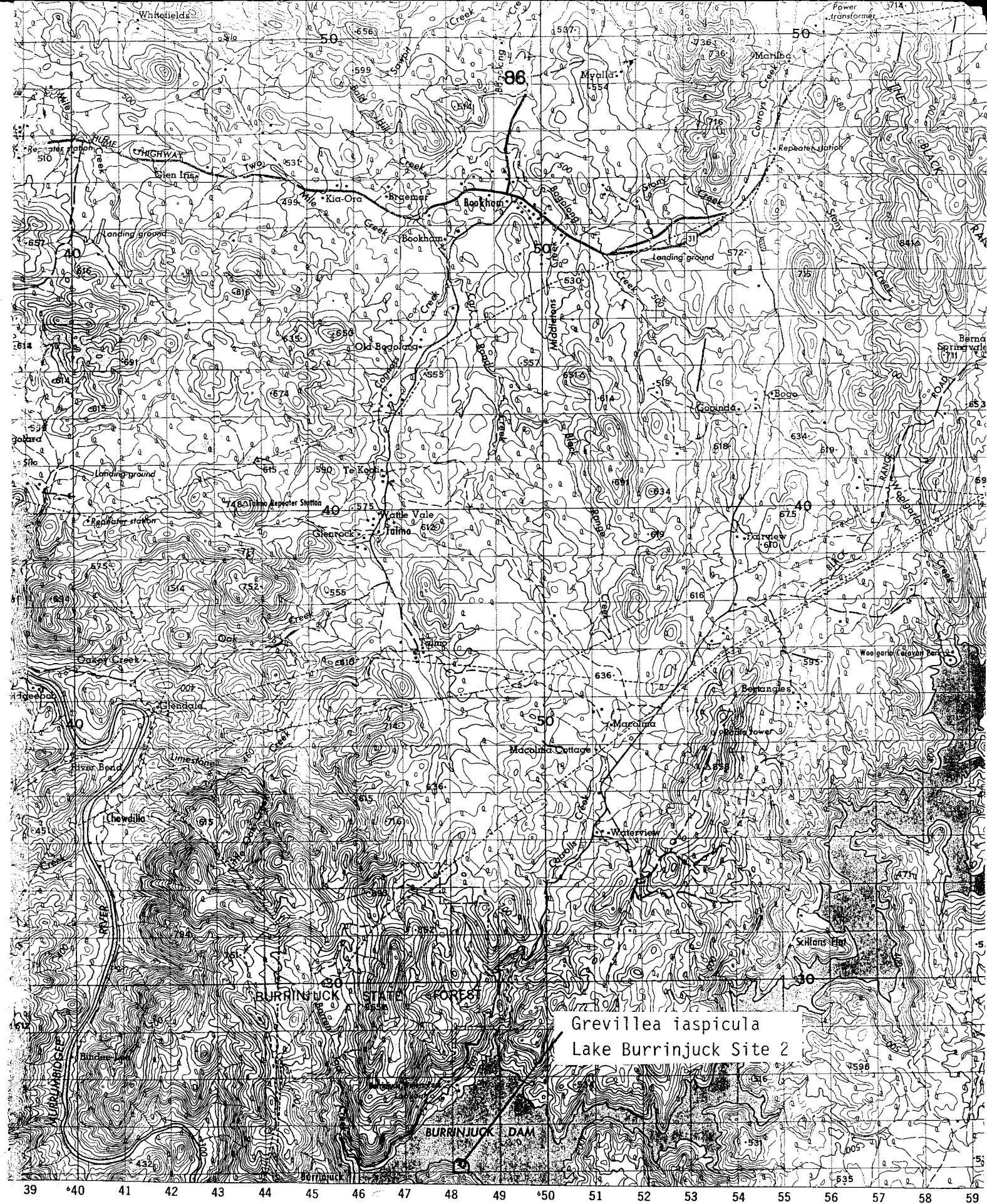
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43 44 45 46 47 48 49 50



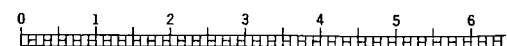
50
LAKE BUR
(Maximum Water)



TRANSVERSE MERCATOR PROJECTION
HORIZONTAL DATUM: AUSTRALIAN GEODETIC DATUM 1966

Yass 1:100000
map sheet 8628

SCAL



BLACK NUMBERED GRID LINES INDICATE 1000 M

GRID VALUES ARE SHOWN IN FULL ON

CROWN CO



© Royal Australian Survey Corps under the direction of the
Staff, as part of the national mapping programme.
The average accuracy of this map is ± 25 metres in the
of well defined detail and ± 10 metres in elevation.
Topographic information shown on this map is correct

Couragago 1:25000

TUMUT 59km

650

51

40

WEE JASPER 2km YASS 56km

WEE JASPER 2km

54

55

