

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



RESEARCH REPORT
to the
Australian Heritage Commission

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Zieria obcordata Cunn.

Family: Rutaceae

Revised Conservation Status: Endangered (Code 3E/N/51,54)

Conservation Status prior to this survey: Vulnerable (Code 3V/N/51, 54)

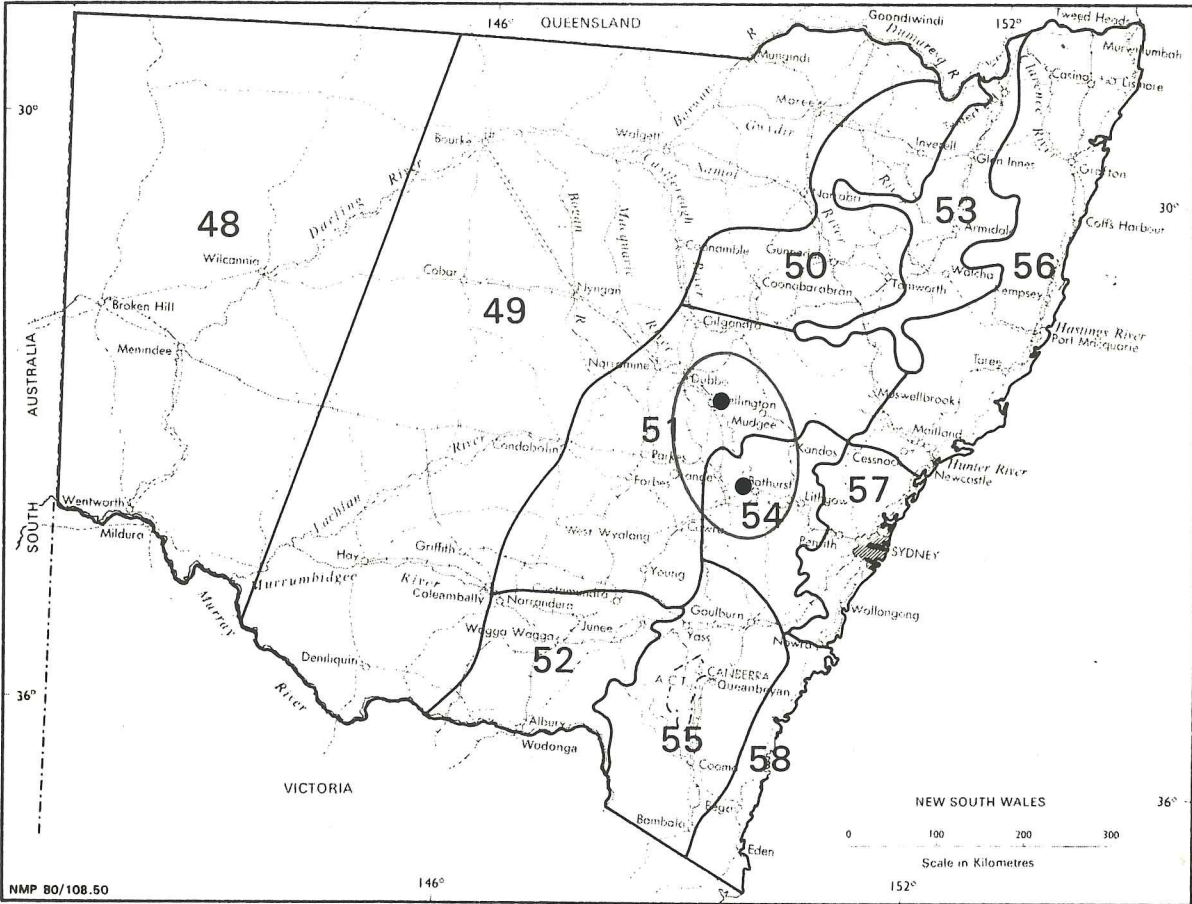


Close-up showing the small white flowers, the 4-chambered fruit (capsules) and the small finely-warty obcordate leaves characteristic of this species.

Description

Dense rounded perennial shrubs to 40 cm high and 50 cm across. Leaves opposite, small and comprised of three leaflets (trifoliolate), the upper surface covered with numerous small warts (tubercules). The central leaflet is 5-10 mm long and 3-5 mm wide with the tip characteristically recurved to give the leaflet tip a notched appearance, whilst the secondary leaflets are similar but only about two thirds the size. *Flowers* white or

Distribution of *Zieria obcordata*



pale-pink rapidly fading to white, arranged singly or in small clusters in the leaf axils. Each flower is about 5-6 mm across with 4 oblanceolate petals. *Fruit* is a capsule about 5 mm across deeply divided into 4 chambers. Each chamber contains one or rarely two elliptical seeds about 2 mm long.

Flowering: September-October.

Distribution

Known only from near Bathurst on the Central Tablelands and near Wellington on the Central Western Slopes of New South Wales, having a geographic range of 105 km.

At the time of this survey the species had been collected only 5 times, these collections being from the Type and two other localities. The Type locality information is vague 'Rocky hills of the Macquarie River' and is not re-locatable. During this survey survival of the species at the other two recorded localities was confirmed. Two small populations totalling 30 plants were found west of Bathurst and a single population of 100 plants was found north-east of Wellington.

Unsuccessful searches were also made of some other similar granite outcrops in the vicinity of Bathurst. All these areas have been subject to domestic stock grazing and much of the native understorey has been destroyed. Other small populations of *Z. obcordata* may survive in suitable ungrazed granite outcrops between Bathurst and Wellington, but additional resources would be required in order to conduct further searches.

Habitat Summary

At both sites *Z. obcordata* grows on moderately steep west to north-west facing slopes in sandy loam amongst granite boulders. It occurs in *Eucalyptus* and *Callitris* dominated woodland with an open, low-shrub understorey.

Threats Summary

All sites are on private property. In the Bathurst area both populations are being heavily browsed by wallabies whilst at the other there has been some browsing damage by domestic stock to the more accessible plants. The second site remains extremely vulnerable to a change in stocking practices, such as the introduction of goats. Evidence at the Bathurst site indicates that *Z. obcordata* is palatable to domestic stock and that it is unable to tolerate heavy browsing.

Reservation

Not reserved.

Cultivation

This species has proved extremely difficult to maintain in cultivation. In 1988 only one plant survived at the Australian National Botanic Gardens, Canberra (ANBG). This originated from cuttings taken from the Wellington population in 1978 by the Royal Botanic Gardens, Sydney (J. Armstrong, pers. comm.). No plants survive at the Royal Botanic Gardens. Cuttings from 5 plants at both populations were collected during this survey and sent to ANBG. The strike rate was low (ca. 20%), survivorship even lower (10%) and growth rates very slow. Only 8 plants from 3 clones, all from the Wellington site, survive at ANBG. A single plant from the Bathurst site and 4 plants from the Wellington site have been established in pots at CSIRO Plant Industry. Best growth has been achieved with plants in a very sandy well-drained soil. Because of the relatively small, pale-coloured flowers there would appear to be little horticultural potential for the species. The horticultural difficulties encountered with this species highlight the necessity for it to be conserved in its natural habitat.

Recommendations

The three known occurrences should be conserved. Culling of the wallaby population at the Bathurst site is necessary and the area should continue to be protected from browsing by domestic stock. The Wellington site should be fenced to prevent access to domestic stock. Both occurrences should be monitored regularly to detect any unforeseen threats and appropriate action taken.

All sites have been nominated for inclusion on the Register of the National Estate.

SITE DETAILS

Site 1 - Bulbudgeree Station

Latitude and Longitude: 32° 31' 30", 149° 06' 00".

Altitude: 500 m.

Location: A granite outcrop 1.4 km direct NNE of Bulbudgeree Homestead and centred on the Euchareena 1:100,000 map sheet 8732 grid reference point 973998. (See map page 233).



Looking east-north-east across grazing land towards the granite outcrop supporting *Z. obcordata*.

Land Status: Private freehold.

Area: 0.5 ha.

Population: 100 mature healthy plants. No seedlings observed.

Habitat

Soil: Shallow sandy loam.

Substrate: Granite.

Topography: Moderately steep slopes of granite outcrop in undulating terrain surrounded by low hills. The plants occur in crevices between boulders.

Aspect: Westerly to northerly.

Vegetation: *Eucalyptus blakelyi* - *Brachychiton populneus* - *Acacia implexa* woodland with pockets of low shrub understorey dominated by *Pandorea pandorana*, *Haloragis* sp., *Cheilanthes* sp., *Lepidosperma* sp. and *Isotoma axillaris*.



A typical shrub of *Z. obcordata* growing amongst granite boulders on the west side of the outcrop.

Threats: Because of the steep rocky nature of the site much of the area is not readily accessible to domestic stock and only plants on the lower slope show browsing damage. However, an increase in stocking rates or the introduction of goats could substantially increase browsing damage to the *Z. obcordata* population. Numerous exotic forbs and grasses have invaded the lower part of the site where there has been disturbance by stock.

Recommendations: It is desirable that the site be fenced to prevent domestic stock access. The population should be monitored for unforeseen management requirements and to check that native herbivore browsing does not become a threat as it has at the Bathurst site.

Survey Date: 17/9/88.

Voucher Specimens: J.D.B. 2376 and 2377.

Site 2 - Crackerjack Rock

Latitude and Longitude: 33° 22' 20", 149° 24' 40".

Altitude: 770-830 m.

Location: Lower to mid north slope of Crackerjack Rock, about 17 km west of Bathurst. The nominated site is encompassed by straight lines joining the Vittoria 1:25,000 map sheet 8731-11-S grid reference points 244036-241036-23850408, then east along the boundary of Portions 199 and 87, and then south along the boundary of Portions 199 and 146 to the starting point. (See map page 234).



Looking south to Crackerjack Rock. *Zieria obcordata* occurs on the lower north slope of this granite outcrop.

Land Status: Private freehold.

Area: 15 ha.

Population: Only 18 plants were found although the population may be larger. The plants had been heavily browsed and hence some plants may have been overlooked.

Habitat

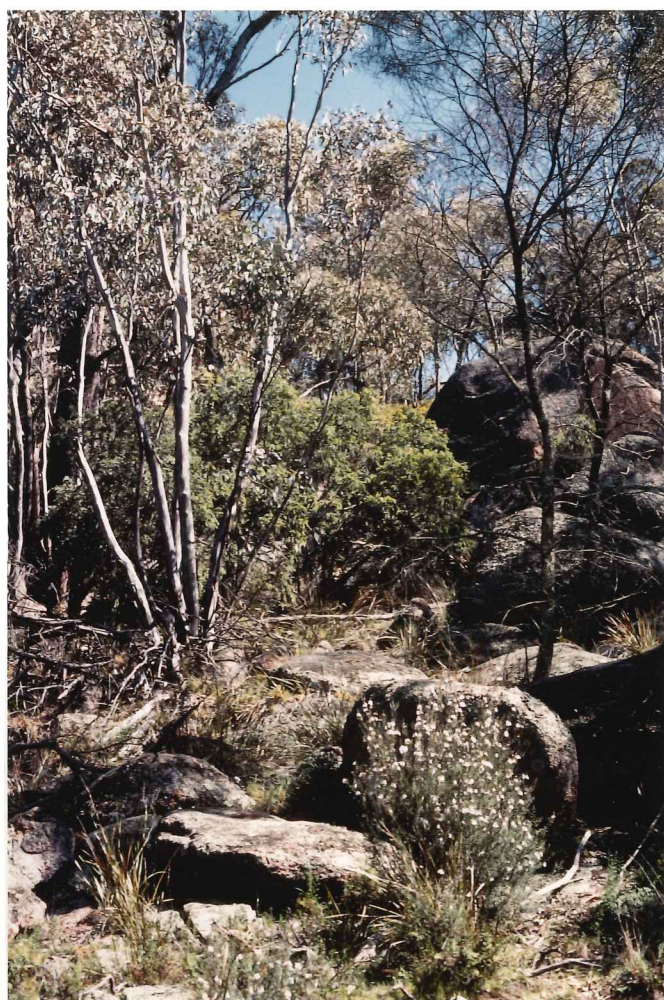
Soil: Brown gravelly loam amongst granite boulders.

Substrate: Pink granite.

Topography: Moderately steep, boulder-strewn mid to lower slope of a conspicuous rocky hill emergent from a low rocky ridge.

Aspect: Northerly.

Vegetation: *Eucalyptus goniocalyx* - *E. dwyeri* - *Acacia doratoxylon* - *Callitris glaucophylla* woodland with shrub understorey including *Westringia eremicola*, *Leucopogon attenuatus*, *Dillwynia sericea*, *Olearia ramulosa*, *Stypandra glauca*, *Stellaria pungens*, *Acacia vestita*, *Melichrus urceolatus* and *Lepidosperma* sp.



Zieria obcordata
habitat on the lower
slopes of Crackerjack
Rock.

Threats: All plants observed had been extremely heavily browsed by wallabies. The only ungrazed plants found were those afforded some protection between boulders or beneath fallen branches. The area is uncleared and is fenced from domestic stock. It provides shelter for wallabies which move off the rocky slopes onto adjacent pastures at night to feed and water. The area is now carrying an unnaturally high number of wallabies which are exerting heavy browsing pressure on the more palatable native flora, and in particular on *Z. obcordata*.

No *Z. obcordata* plants were observed to survive beyond the boundary fence with the grazing land near the base of the hill, even though a number of plants were found adjacent to the fence on the ungrazed side and suitable habitat continued beyond the fenceline. This indicates that the species has been unable to tolerate sheep grazing.



A heavily browsed *Z. obcordata* shrub surviving under the partial protection of fallen dead timber.

Recommendations: The wallaby population needs to be culled to reduce browsing pressure on *Z. obcordata*. The *Z. obcordata* population should be regularly monitored and appropriate actions taken if required.

Domestic stock, particularly goats, should continue to be excluded from the area.

Survey Date: 16/9/88.

Voucher Specimen: J.D.B. No. 2372.

Site 3 - Crackerjack Rock North

Latitude and Longitude: 33° 22' 30", 149° 25' 00".

Altitude: 740 m.

Location: A rocky slope 1.3 km direct NNE of the summit of Crackerjack Rock, about 17 km west of Bathurst. The nominated site is encompassed by straight lines joining the Vittoria 1:25,000 map sheet 8731-11-S grid reference points 250042-246042-246046-250046-250042. (See map page 234).



Looking east to the rocky slope on which *Z. obcordata* is growing. The largely cleared strip located beneath a high voltage transmission line running up the slope and over the ridge bisects the *Z. obcordata* population.

Land Status: Private freehold.

Area: 12 ha.

Population: Only 12 plants were found. Most of the plants were browsed almost to ground level and therefore some may have been overlooked and the population may be larger.

Habitat

Soil: Shallow, brown gravelly loam.

Substrate: Granite, extensively exposed.

Topography: Moderately steep slope with much exposed granite rock and boulders on a low ridge extending north from a low hill in generally undulating terrain.

Aspect: Westerly.

Vegetation: *Eucalyptus macrorhyncha* - *E. goniocalyx* - *Callitris glaucophylla* woodland with shrub understorey including *Acacia vestita*, *Westringia eremicola*, *Cryptandra amara*, *Stypandra glauca*, *Styphelia* sp. and *Kunzea* sp.



Area cleared of trees beneath the transmission lines. Occasional shrubs of *Z. obcordata* survive in the drainage lines on the exposed granite.

Threat: As for site 2.

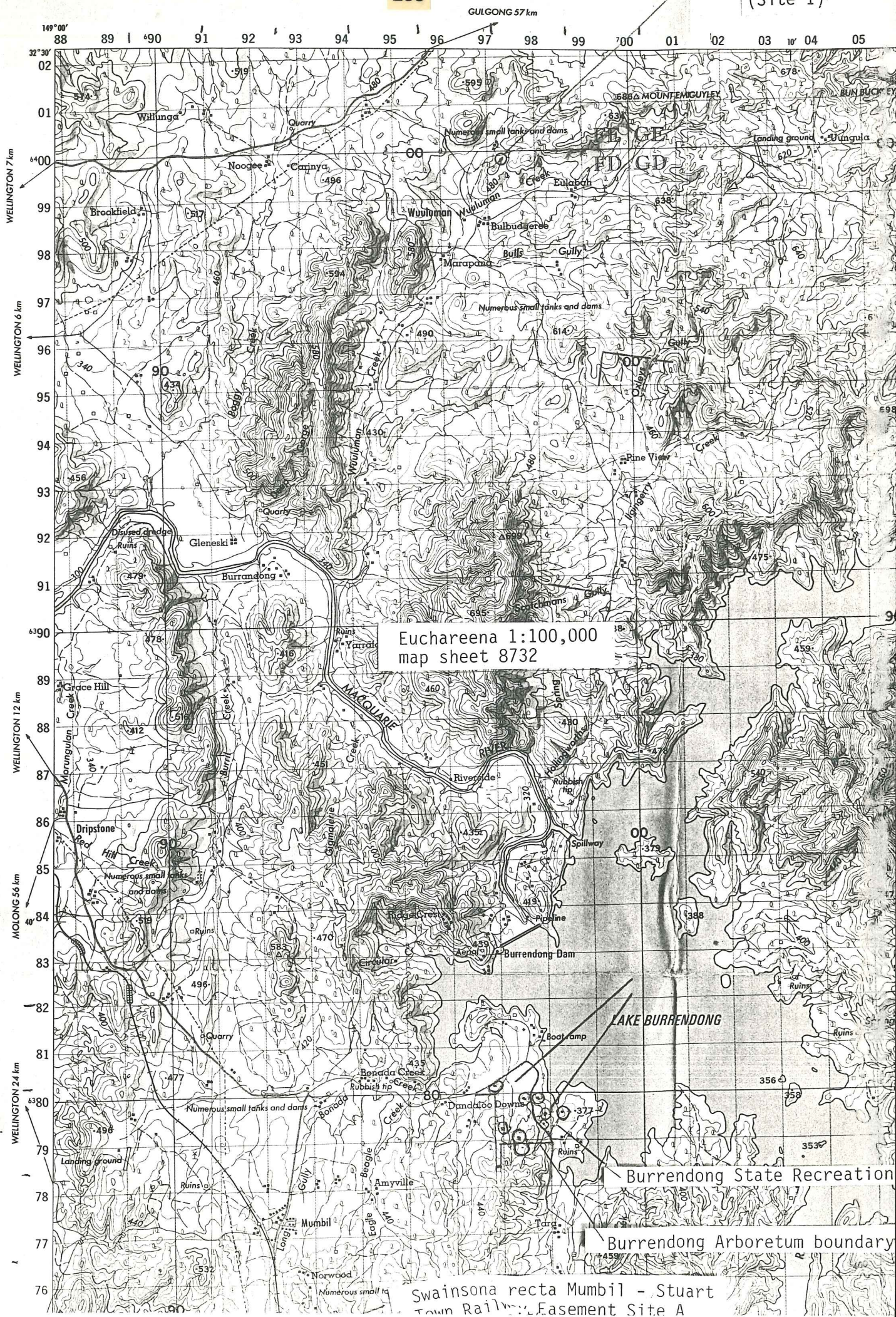


Three of the largest surviving plants of *Z. obcordata* at this site. There is a marked difference in the condition of these and the ungrazed plants at Site 1.

Recommendations. As for Site 2.

Survey Date: 26/9/88.

Voucher Specimen: J.D.B. No. 2433.



○ = distribution of
Zieria obcordata

Vittoria 1:25,000
map sheet 8731-II-S

Zieria obcordata
Crackerjack Rock North Site
(Site 3)

Zieria obcordata
Crackerjack Rock Site
(Site 2)

