

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 sp. 3 (sp. "D"; Goonoo Goonoo S.F.)

Family: Rutaceae

Conservation Status: Vulnerable (Code 2V/N/51)

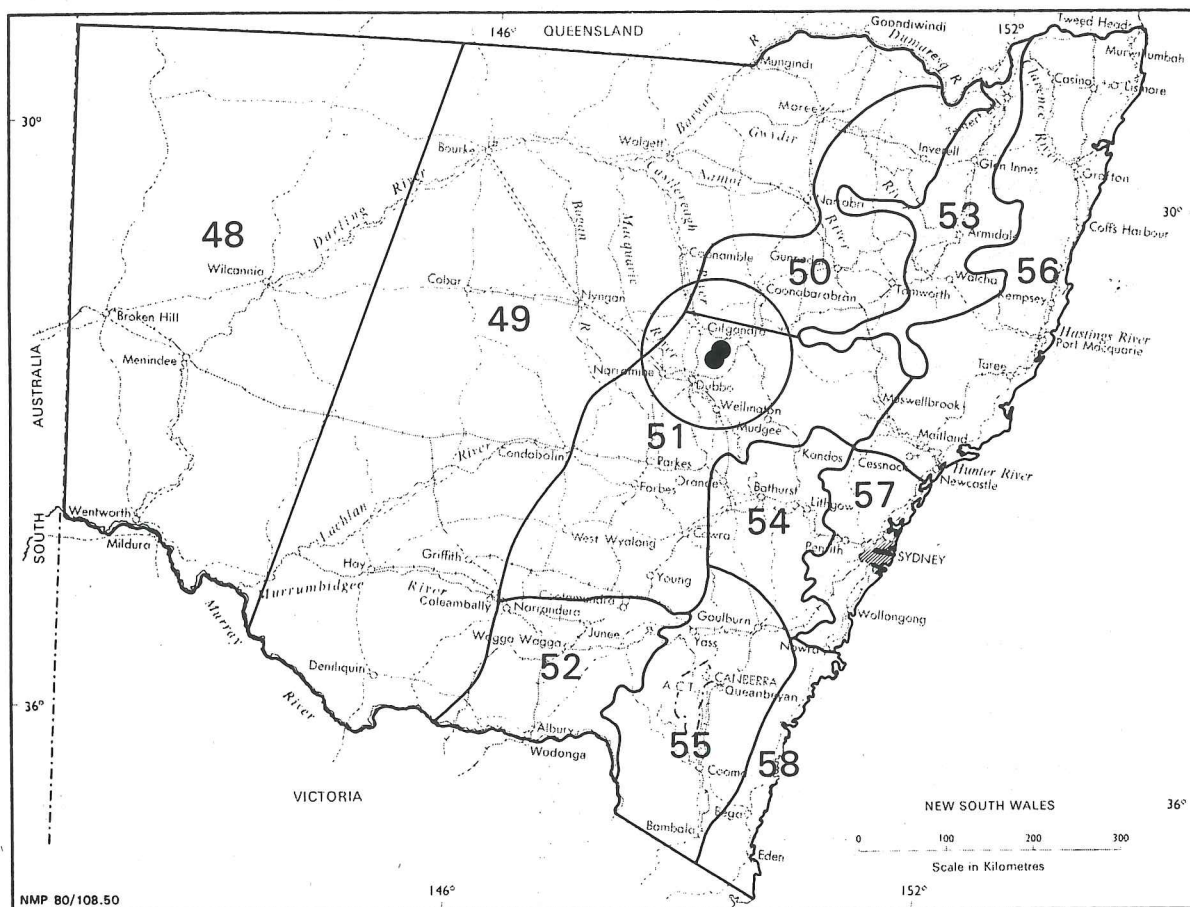


Flowering branchlet.

Description

Erect, slender to occasionally bushy shrub usually 40-60 cm high but occasionally to 1 m high. The young branchlets and leaves have a sparse covering of short fine hairs. Leaves opposite and comprised of three leaflets (trifoliolate). The central leaflet is almost linear, 8-16 mm long and 1-2 mm wide with the edges strongly rolled under to conceal almost all but the midrib of the undersurface. Lateral leaflets similar to the central leaflet but sometimes

Distribution of Zieria sp.3(sp."D")



slightly shorter. *Flowers* pink fading white, arranged in 3-9-flowered clusters branching from a common stalk arising singly in the leaf axils. Each flower is borne on a short individual stalk and is 8-10 mm across with 4 oblanceolate petals. *Fruits* are capsules deeply divided into 4 chambers.

Flowering: September.



Zieria sp. 3 can develop into a medium-sized shrub as shown in this photo.



Most plants of *Zieria* sp. 3 found during the present survey were small slender plants 30-40 cm high similar to the shrub shown in this photo.

Distribution

Known only from Goonoo State Forest between 35-60 km north-of Dubbo in the northern part of the New South Wales Central Western Slopes. During this survey the species was located at 6 sites which had a total population of 240 plants and a geographic range of 25 km. Prior to this survey the species had been collected only 4 times (J. Armstrong, pers. comm.).

Although the vegetation along numerous other roads through Goonoo State Forest was searched during the present survey all populations but one (Site 6) were found adjacent to the Dubbo-Mendooran road. Time limitations did not permit more intensive searching and further surveys are required to fully ascertain the distribution of this species. However, the observations made during the current survey confirmed that the species occurs only in small localised populations and that it is not widespread within Goonoo State Forest.

During the current survey difficulty was experienced in determining the habitat preference for this species and this made it difficult to reliably predict where the species would occur and therefore where best to search. The major generalisation which could be made was that it occurs in the undulating higher parts of the area (above 390 m), often on rocky sites with loamy soils supporting ironbark and mallee red gum open-forest and woodland. The species was absent from many sites which appeared similar to the known occurrences. Previous collections and the sites identified during the present survey fall into two main areas of occurrence, one in the north-east of the State Forest and the other in the central area of the State Forest.

During the present survey the species could not be re-located 19-19.8 km east of Mogriguy at one of the previously recorded localities. There were no obvious reasons why it had apparently disappeared from this locality.

Habitat Summary

Zieria sp. 3 was recorded mostly on northerly, westerly or southerly aspects on gentle slopes or near the crests of low rises in undulating terrain. Soils are predominantly red-brown and yellow-brown loams overlying sedimentary rock (sometimes outcropping) which support either *Eucalyptus* and *Callitris* dominated woodland with a heath understorey or *Eucalyptus* and *Callitris* dominated open-forest with a shrub understorey.

Threats Summary

The known populations of *Zieria* sp. 3 are small and very localised and some of these have been, and others could be, affected by localised disturbances associated with gravel extraction and construction of vehicular tracks. Whilst current management and selective logging practices are not affecting any of the known populations, the species must be considered vulnerable to possible future changes in forestry practices until there is formal protection of at least some of the sites.

Reservation

Not reserved.

Cultivation

The masses of pale-pink flowers displayed on larger bushes are horticulturally appealing. *Zieria* sp. 3 can be propagated with some difficulty from cuttings. A total of 17 plants from 5 individuals are in cultivation at the Australian National Botanic Gardens, Canberra (M. Richardson, pers. comm.).

Recommendations Summary

Further surveys are required to fully determine the distribution of this species within Goonoo State Forest. Such surveys could take some weeks because of the relatively large area (several hundred hectares) of potential habitat. Other populations are likely to occur within forestry compartments well away from existing roads and tracks.

Sites 1, 2, 4 and 5 have been nominated for inclusion on the Register of the National Estate. These encompass the larger and/or more extensive of the known populations. Once other surveys are completed, then the existing site nominations should be reviewed in relation to their relative values compared with other occurrences which may yet be found.

SITE DETAILS

Site 1 - Compartment 42

Latitude and Longitude: 31° 59' 50", 148° 56' 07".

Altitude: ca. 400 m.

Location: 300-400 m north of Garlings Road on the Dubbo-Mendooran Road. The species was found only on the north-west side of the road, extended no more than 100 m from the road and was concentrated immediately north of a large gravel pit. The nominated site is a semi-circular area of radius 100 m centred on the Gilgandra 1:100,000 map sheet 8634 grid reference point

82555810, the centre point being on the Dubbo-Mendooran road and the site on the north-west side of the road. (See map pages 266 and 269).

Land Status: Goonoo State Forest (south-western corner of Compartment 42).

Area: ca. 1 ha.

Population: 50 small, apparently young plants.

Habitat

Soil: Yellow-brown clay-loam with numerous rocks.

Substrate: Sedimentary rock resembling sandstone.

Topography: Crest of low rise in undulating terrain.

Aspect: Northerly.

Vegetation: *Eucalyptus fibrosa* subsp. *nubila* - *E. dwyeri* - *Callitris endlicheri* woodland with an open shrub understorey including *Melaleuca uncinata*, *Boronia glabra*, *Leucopogon attenuatus*, *Acacia triptera*, *A. spp.*, *Prostanthera sp.*, *Philotheca salsolifolia* and *Hibbertia sp.*



Looking south across part of Site 1. The Dubbo-Mendooran Road is just visible on the far left. *Zieria* sp. 3 plants are not visible in this photo but are scattered through the understorey.

Threats: A large gravel pit occurs adjacent to the south-west of this site. Any northward expansion of this pit would further destroy *Zieria* habitat. See also summary section.

Recommendations: There should be no northward expansion of the gravel pit adjacent to this site. See also summary section.

Survey Date: 19/9/88.

Voucher Specimen: J.D.B. No. 2388.

Site 2 - Compartment 15/9 North

Latitude and Longitude: 31° 54' 51", 149° 01' 58".

Altitude: 400 m.

Location: 3.6-3.9 km by road north-east of the Denmire Creek crossing of the Dubbo-Mendooran Road towards Mendooran. The species was found on both sides of the road but did not extend beyond 80 m from the road. The nominated site is a circular area of radius 200 m centred on the Mendooran 1:100,000 map sheet 8734 grid reference point 921672. (See map pages 267 and 269).

Land Status: Goonoo State Forest (about half way along the boundary between Compartments 15 and 9).

Area: ca. 5 ha.

Population: 28 mature plants, many small and young.

Habitat

Soil: Red loam.

Substrate: Sedimentary rock.

Topography: Gently sloping shallow depression between low rises in undulating terrain.

Aspect: West.

Vegetation: *Eucalyptus fibrosa* subsp. *nubila* - *Callitris endlicheri* open-forest/woodland with a shrub understorey including *Acacia triptera*, *Leptospermum trivalve*, *Boronia glabra* and *Eriostemon* sp.



Eucalyptus fibrosa subsp. *nubila* - *Callitris endlicheri* open-forest habitat at Site 2. The graded track shown in the foreground runs parallel with and about 50m east of the Dubbo-Mendooran road and cuts through the *Zieria* population.

Threats: A graded track running parallel with and about 50 m east of the Dubbo-Mendooran road cuts through the *Zieria* population at this site. See also summary section.

Recommendation: If left unmaintained and untrafficked the graded track is likely to revegetate itself. See also summary section.

Survey Date: 18/9/88.

Voucher Specimen: J.D.B. No. 2382.

Site 3 - Compartment 15/9 South

Latitude and Longitude: 31° 55' 08, 149° 01' 36".

Altitude: 400 m.

Location: 2.9 to 3.1 km by road north-east of the Denmire Creek crossing of the Dubbo-Mendooran road towards Mendooran. The species was found predominantly on the east side of the road and extended about 100 m east and about 30 m west of the road. (See map pages 267 and 269).

Land Status: Goonoo State Forest (near the southern boundary of Compartments 15 and 9).

Area: ca. 3 ha.

Population: 30 mature plants, many young.

Habitat

Soil: Red loam.

Substrate: Sedimentary rock.

Topography: Near crest of low rise in undulating terrain.

Aspect: South-west.

Vegetation: *Eucalyptus fibrosa* subsp. *nubila* - *Callitris endlicheri* woodland with heath understorey including *Acacia triptera*, *Acacia* spp., *Leptospermum trivalve*, *Boronia glabra* and *Eriostemon* sp.

Threats: See summary section.

Recommendations: See summary section.

Survey Date: 25/9/88.

Voucher Specimen: Not collected.

Site 4 - Compartment 10/13 North

Latitude and Longitude: 31° 53' 21", 149° 04' 23".

Altitude: 440 m.

Location: 8.7 to 8.8 km by road north-east of the Denmire Creek crossing of the Dubbo-Mendooran road towards Mendooran. The species was found predominantly on the east side of the road and extended no more than 50 m east and 20 m west of the road. The nominated site is a circular area of radius 100 m centred on the Mendooran 1:100,000 map sheet grid reference point 958703. (See map pages 267 and 269).

Land Status: Goonoo State Forest (about halfway along the boundary of Compartments 10 and 13).

Area: ca. 1 ha.

Population: An estimated 30 mature plants, many young.

Habitat

Soil: Red-brown sandy loam with exposed rock and boulders.

Substrate: Sandstone.

Topography: Crest of low rise in undulating terrain.

Aspect: North-west.

Vegetation: *Eucalyptus dwyeri* - *E. fibrosa* subsp. *nubila* - *Callitris endlicheri* - *Allocasuarina verticillata* stunted woodland with a low shrub understorey including *Dillwynia sericea*, *Philotheca salsolifolia*, *Grevillea floribunda*, *Prostanthera* sp., *Hibbertia* sp., *Dampiera* sp., *Acacia* spp., *Leptospermum* sp. and *Persoonia* sp.

Threats: See summary section.

Recommendations: See summary section.

Survey Date: 25/9/88.

Voucher Specimen: J.D.B. No. 2426.

Site 5 - Compartment 10/13 South

Latitude and Longitude: 31° 53' 54", 149° 03' 18".

Altitude: ca. 390 m.

Location: 6.7 to 6.9 km by road north-east of the Denmire Creek crossing of the Dubbo-Mendooran road towards Mendooran. The species occurred predominantly on the east side of the road and extended no more than 100 m east and 50 m west of the road. The nominated site is a circular area of radius 150 m centred on the Mendooran 1:100,000 map sheet grid reference point 94356910. (See map pages 267 and 269).

Land Status: Goonoo State Forest (near the southern boundary between Compartments 10 and 13).

Area: ca. 3 ha.

Population: An estimated 80 mature plants, many young.

Habitat

Soil: Red-brown loam.

Substrate: Sedimentary rock.

Topography: Gentle slope in undulating terrain.

Aspect: South-west.

Vegetation: *Eucalyptus fibrosa* subsp. *nubila* - *E. dwyeri* - *Callitris endlicheri* woodland with a shrub understorey.



Looking south-east across the Dubbo-Mendooran road to Site 5.

Threats: See summary section.

Recommendations: See summary section.

Survey Date: 25/9/88.

Voucher Specimen: Not collected.

Site 6 - Compartment 51

Latitude and Longitude: 32° 01' 34", 148° 53' 07".

Altitude: ca. 390 m.

Location: 1.35 to 1.45 km west on Frost Road from its intersection with the Dubbo-Mendooran road. The species was found only on the north side of the road and extended north about 50 m. The nominated site is a semi-circular area of radius 100 m centred on the Dubbo 1:100,000 map sheet 8633 grid reference point 781541. The centre point lies on Frost Road and the site is on the north side of the road. (See map pages 268 and 269).

Land Status: Goonoo State Forest (southern boundary of Compartment 51).

Area: ca. 0.5 ha.

Population: 20 mature plants.

Habitat

Soil: Yellow-brown sandy loam.

Substrate: Sedimentary rock.

Topography: Gentle slope in undulating terrain.

Aspect: West.

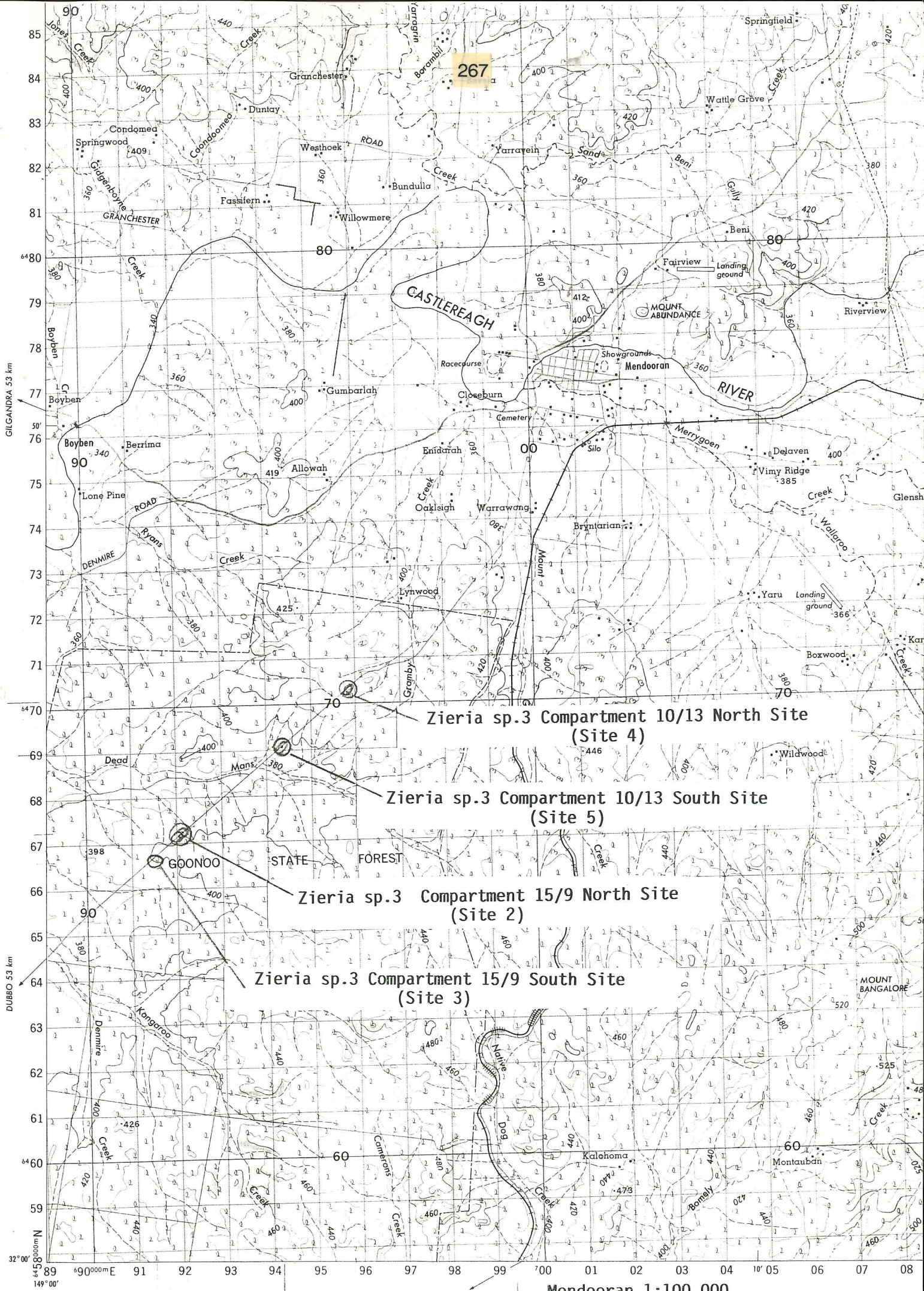
Vegetation: *Eucalyptus dwyeri* - *E. fibrosa* subsp. *nubila* - *Callitris endlicheri* woodland with a low shrub understorey.

Threats: See summary section.

Recommendations: See summary section.

Survey Date: 19/9/88.

Voucher Specimen: Not collected.



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CASTLEREAGH

MOUNT ABUNDANCE

RIVER

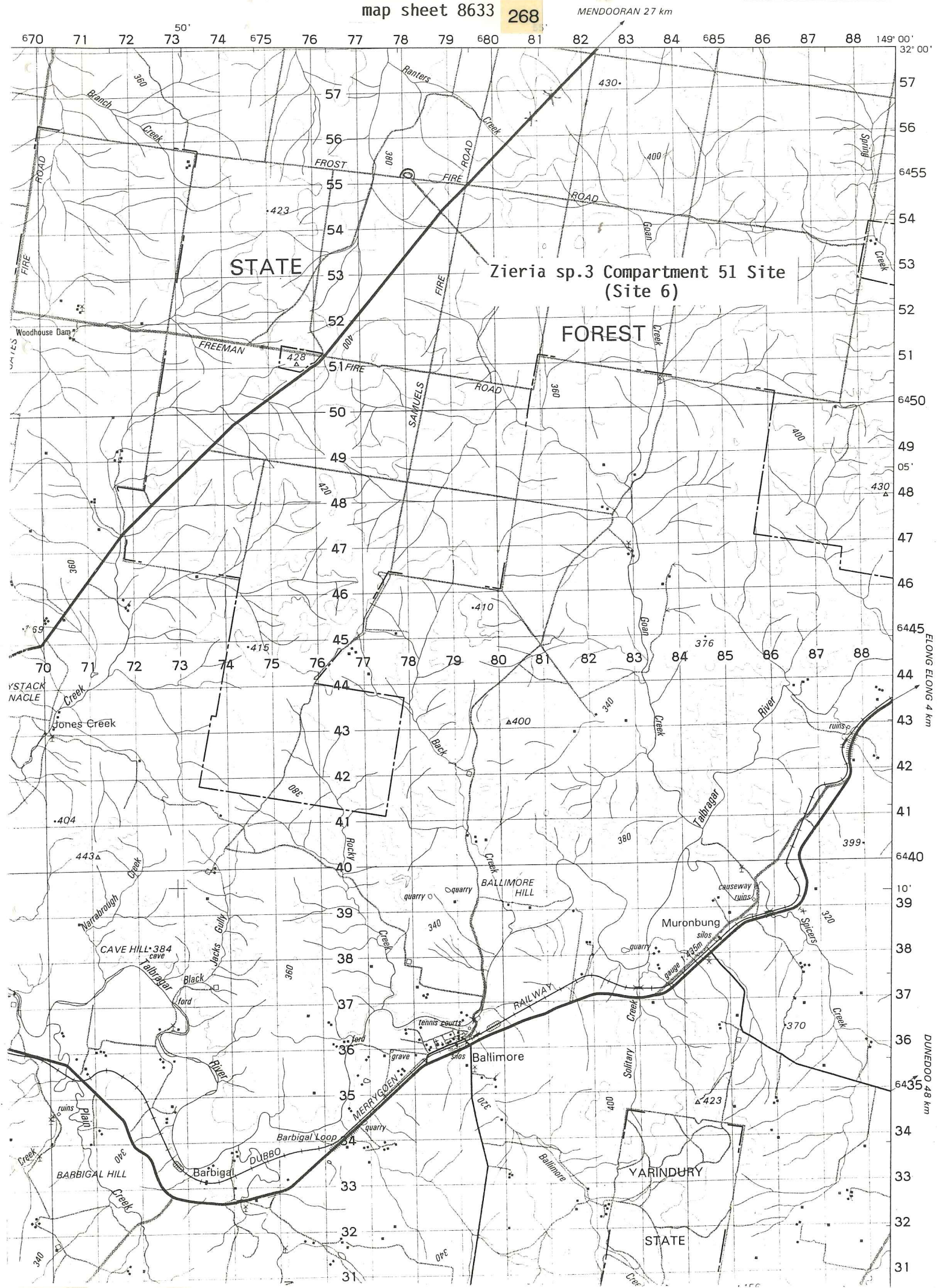
Zieria sp.3 Compartment 10/13 North Site
(Site 4)

Zieria sp.3 Compartment 10/13 South Site
(Site 5)

Zieria sp.3 Compartment 15/9 North Site
(Site 2)

Zieria sp.3 Compartment 15/9 South Site
(Site 3)

Mendooran 1:100,000
map sheet 8734



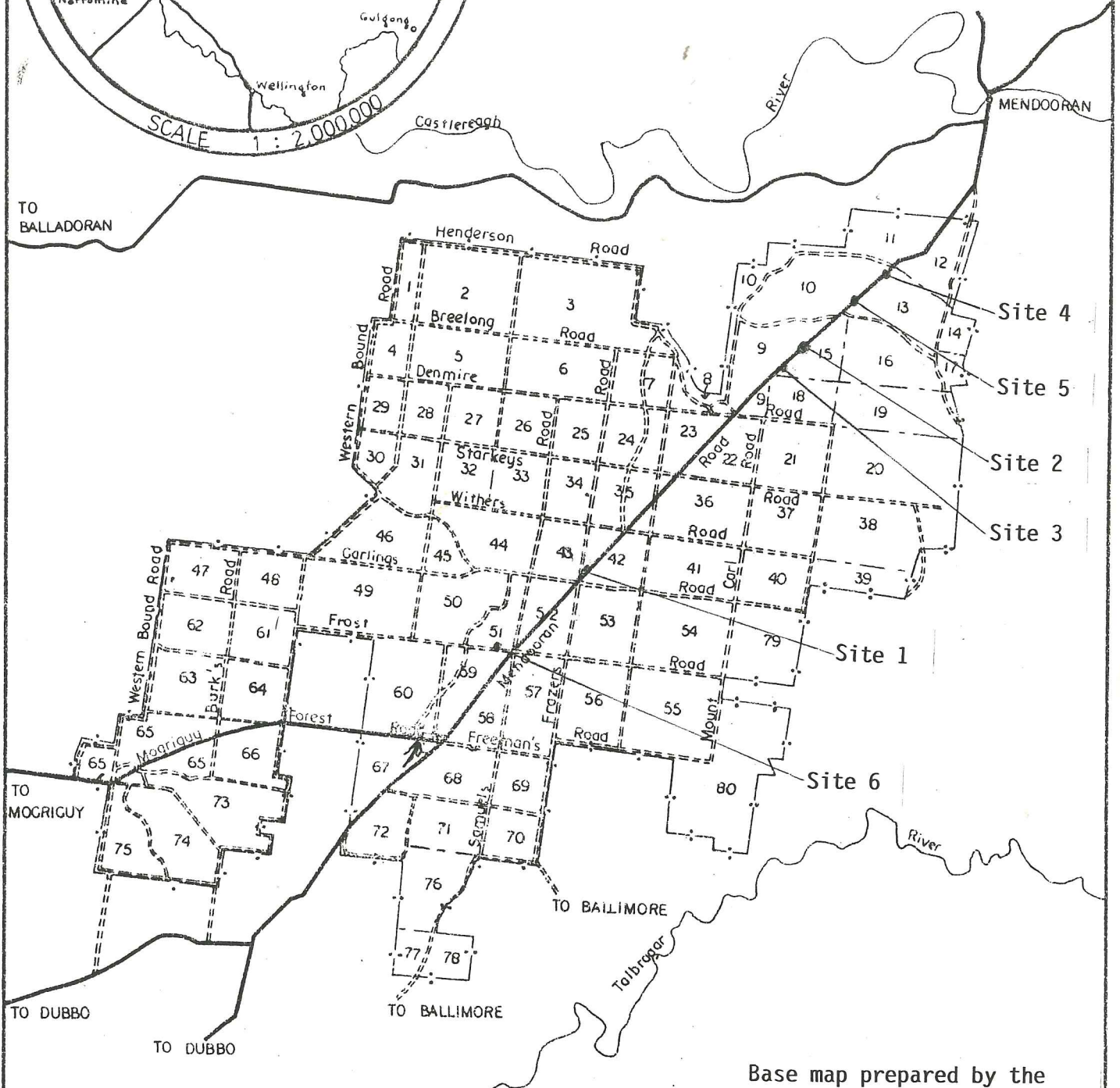
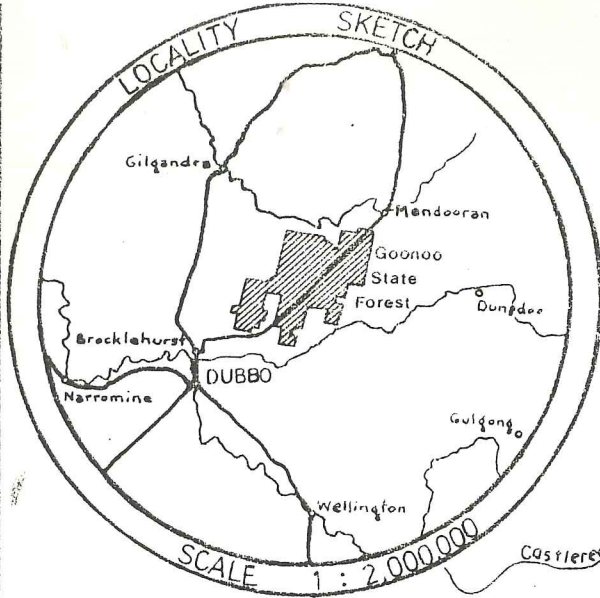


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GOONOO STATE FOREST

N^o 436

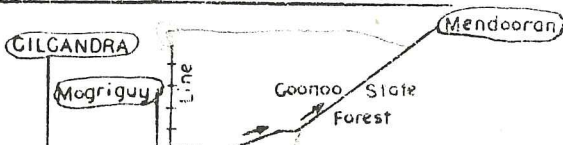
ZIERIA SP. 3 SITE LOCATIONS



SCALE 1 : 250 000

5 0 5 Kilometres

MUD MAP TO HELP FIND ONES WAY FROM DUBBO TO GOONOO STATE FOREST



Base map prepared by the Forestry Commission of NSW.

LEGEND

Sealed road ———

Earth road - - - - -

State forest boundary — : —

Compartment boundary — - - -

Compartment number 63

NOTE Compartment boundaries are roads