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## THE PLANT COMMUNITIES OF THE EAST RISDON NATURE RESERVE

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### INTRODUCTION

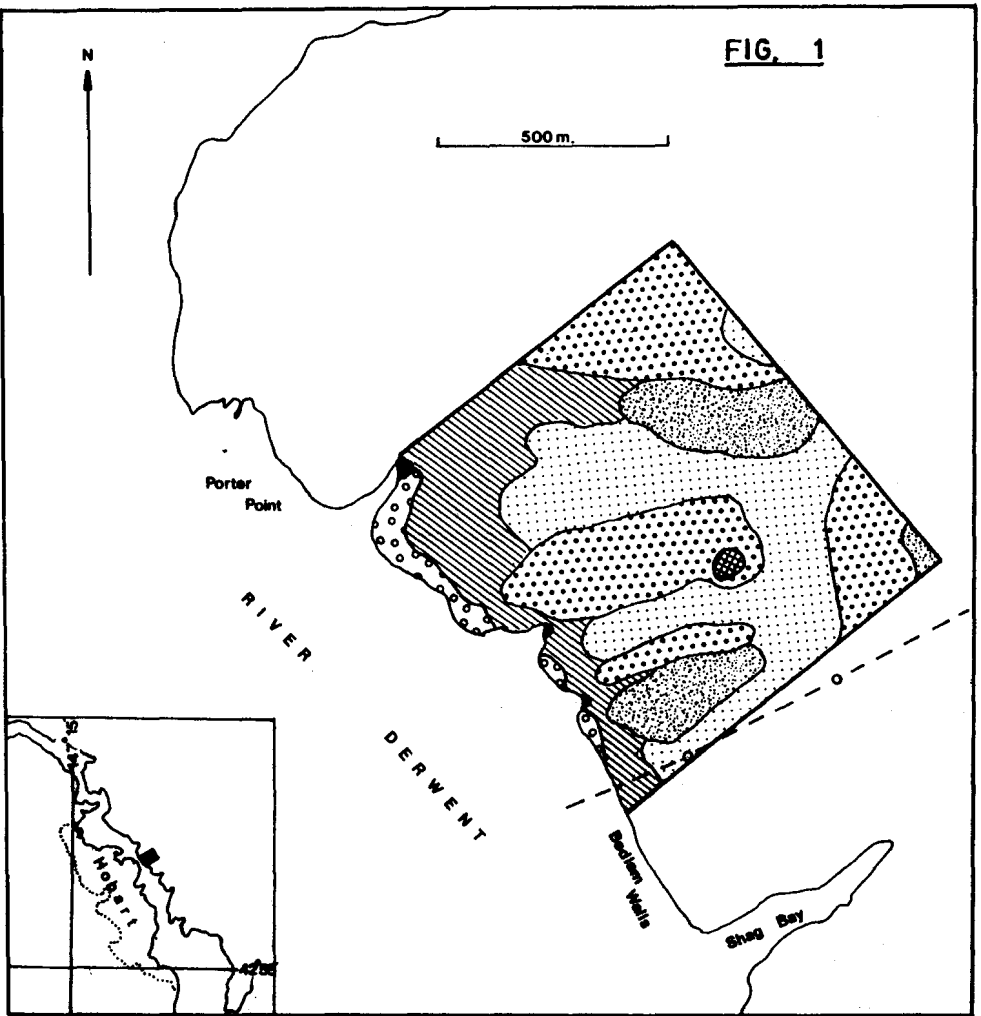
The East Risdon Nature Reserve comprises 44.5 ha of land in the Government Hills adjacent to the Derwent River near Hobart (fig. 1). The reserve was established in 1971 to protect one of the two remaining stands of the Tasmanian endemic eucalypt species, *Eucalyptus morrisbyi*. The reserve also provides the only formal protection for *E. risdonii*, another endemic eucalypt which is confined to this south-eastern part of Tasmania.

Curtis (1969) and Jackson (1965) have given generalised descriptions of the characteristics of 'dry sclerophyll' forests in Tasmania. Hogg and Kirkpatrick (1974) have undertaken a phytosociological analysis of the eucalypt forests and woodlands which occur in the Risdon area, in the vicinity of the reserve. Their analysis showed that changes in the floristics of the different communities are associated with a gradient in water availability, and a gradient in soil fertility - inferred from the characteristics of the geological substrates (Triassic sandstone, Permian mudstones and Jurassic dolerite). The substrate of the East Risdon Nature Reserve is of Permian age and the present report provides a detailed account of the structure and floristics of the plant communities which occur on these sediments.

### SITE DESCRIPTION








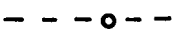
A series of parallel, east-west ridges reach a maximum altitude of ca. 460 m within the reserve. The ridges are bounded by the Derwent River on their western extremity. In the south-western part of the reserve the ridges terminate abruptly to form part of the

FIG. 1



EAST RISDON NATURE RESERVE - VEGETATION

**KEY**

- |  |                             |   |                           |
|--|-----------------------------|---|---------------------------|
|  | North & Northwestern Slopes |  | <i>E. morrisbyi</i> Gully |
|  | Ridgetops                   |  | Casuarina Low-open Forest |
|  | Western Slopes              |  | Saltmarsh & Strand        |
|  | Southern Slopes & Gullies   |  | Transmission Line         |

steep cliff-face known as Bedlam Walls. Most of the remainder of the shoreline consists of a narrow wave-cut platform. Some small alluvial flats have formed at the outflows of the creeks which drain into Porter Bay and Tommy's Bight.

The north and north-west facing slopes of the ridges are subject to higher insolation and wind stress than the south-facing slopes and gullies.

The soils of the reserve are underlain by unfossiliferous quartz siltstones (Fern-tree Group) of Permian age (Leaman, 1972). The soils are shallow, skeletal and relatively infertile on the exposed steep slopes of northern aspect. The soils of the ridges and southern slopes have a higher organic content and show more profile development.

## THE VEGETATION

According to the classification of Specht (1970), the reserve contains seven structural formations of vegetation. Open forest predominates on sheltered aspects, whilst mixtures of tall woodland, low open forest, woodland, open woodland and low woodland occur on the ridges and more exposed aspects. Poorly developed saline herb-fields (saltmarsh) are restricted to the alluvial flats around creek outflows.

The vegetation has been mapped into 7 units (fig. 1):-

1. Vegetation of the north to north-west facing slopes.
2. Vegetation of the ridge tops.
3. Vegetation of the west facing slopes.
4. Vegetation of the south facing slopes and gullies.
5. *Eucalyptus morrisbyi* gully.
6. *Casuarina* low-open forest.
7. Saltmarsh and strand communities.

### 1. Vegetation of the north to north-west facing slopes.

The north to north-west facing slopes support low open forests and low woodlands which are dominated by *E. risdonii*, together with scattered taller trees of *E. amygdalina*. The two eucalypts form a hybrid swarm towards the crests of the slopes. The understorey is sparse and contains xerophytic low shrubs. The chief species present are *Pultenaea daphnoides*, *P. gunnii*, *Acacia genistifolia* and *Daviesia ulicifolia*. Ground cover is generally sparse but patchy, consisting primarily of *Pultenaea gunnii* var. *baeckiioides*, *P. pedunculata*, *Dianella revoluta*, *Stipa* sp. and *Poa* sp. The slopes have been repeatedly burnt. Only scattered *E. risdonii* adult trees remain, but coppice regeneration from lignotubers has resulted in a very high stem density.

### 2. Vegetation of the ridge tops.

On the ridgetops, *Eucalyptus amygdalina*, *E. risdonii* and *E. viminalis* are codominant in a mixed low-woodland to open woodland community. The peppermints have interbred to produce a confusing mixture of hybrids in which *E. amygdalina* x *E. risdonii* and backcrosses to the parental species predominate. There is also evidence of introgression between these two species and *E. pulchella*. There has been a relatively high frequency of fires on the ridges, resulting in mixed-age stands of coppice growth eucalypts. The shrubby under-storey is layered but sparse. A few scattered shrubs of *Acacia mearnsii*, *Exocarpos strictus* and *Casuarina stricta* have heights in excess of 3 m, but most of the shrubs are less than 2 m tall. The main species present are *Acacia dealbata*, *A. genistifolia*,

*A. myrtifolia*, *Bursaria spinosa*, *Dodonaea viscosa*, *Pultenaea daphnoides* and *Helichrysum obcordatum*. There is a mid-dense ground cover of grasses (*Poa*, *Stipa*, *Agrostis*) although procumbent shrubs of *Pultenaea gunnii* var. *baeckioides* are relatively common.

### 3. Vegetation of the west facing slopes.

The vegetation of the west facing slopes is subject to less water stress than that found on the north facing slopes and ridge tops. The slopes support *E. amygdalina* open forests. A few *E. viminalis* are scattered through the community. The trees appear to be even aged. A few shrubs of *Casuarina littoralis* form an upper (6 - 8 m) understorey layer over a sparse 2 m layer of *Acacia genistifolia* and *Dodonaea viscosa*. The main shrub coverage occurs at less than 2 m, and includes *Acacia dealbata*, *Dodonaea viscosa*, *Pultenaea daphnoides*, *Tetratheca glandulosa*, *Helichrysum obcordatum* and *Eriostemon verrucosus* over a patchy ground cover of *Poa* and *Stipa*.

### 4. Vegetation of the south facing slopes and gullies.

The open forests of the south facing slopes and gullies are dominated by *E. globulus*, *E. viminalis* and *E. amygdalina*. The area has been burnt, but not as frequently as the northern slopes and ridges. At least two ages of eucalypts are evident in the mature trees, and seedling regeneration is sparse to common. The understorey is layered. *Casuarina littoralis* forms a secondary layer of low trees over a tall shrub layer of *Acacia dealbata*, *Pultenaea daphnoides* and *Dodonaea viscosa*. This tall shrub layer grades from about 70% cover in the valley bottoms, to less than 10% cover on the upper slopes. The same shrub species, together with *Acacia genistifolia* and *Helichrysum obcordatum* form a lower shrub layer which has an average height range of 1 - 2 m. The discrete layering of the shrubs into two height classes probably results from germination after two separate fires. The gradient in the taller shrub cover reflects the varying intensity of fires down the slope. Except in exceedingly dry conditions, the gullies are relatively protected from fire. Fires which start on the exposed northern slopes and ridges burn fiercely uphill but creep slowly downhill. Shrubs on the upper slopes are therefore more likely to be killed by one of these fires than shrubs which grow on more sheltered slopes and in gullies.

### 5. *E. morrisbyi* gully.

An *E. morrisbyi* woodland is localised in a gully in the centre of the reserve (fig. 1). Only ten large trees remain, but there is abundant seedling and coppice regeneration which reaches heights of 4 - 6 m. The stand is bounded on the northern and eastern slopes by an *E. amygdalina* woodland. Some juvenile *E. morrisbyi* x *E. viminalis* hybrids occupy the ecotonal area. *E. globulus* becomes dominant on the southern side of the *E. morrisbyi* woodland.

The stand of *E. morrisbyi* has a dense understorey of *Acacia verticillata*, *Pultenaea daphnoides* and *Cassinia aculeata* at heights of 2 - 4 m. A lower shrub layer of *Epacris impressa*, *Pultenaea gunnii* and *Acacia genistifolia* is also present. The ground cover is sparse. *Poa*, *Agrostis*, *Goodenia lanata* and *Stylidium graminifolium* are the main species present. The parasitic vine, *Cassytha pubescens* has invaded this community. The dense shrub understorey is laden with the vine, to the extent that much of the *E. morrisbyi* regeneration is presently under great threat of elimination.

## 6. *Casuarina* low open forest.

The cliffs and shorelines along the Derwent River support low (open) forests and woodlands of *Casuarina stricta*. Scattered trees of *E. viminalis* are also present. The understorey is layered and is comprised of a sparse upper (2 - 4 m) layer of *Dodonaea viscosa* over a mid-dense cover of shrubs of *Dodonaea* and *Acacia dealbata*. *Correa reflexa* dominates the patchy third layer of shrubs at 0.8 - 1 m. The shrubby understorey is interspersed with a dense but patchy grassy ground cover. The grasses are thickest where the upper canopy is more open, and also in areas of high fire frequency. Parts of the shoreline are subject to very frequent burns which are generally of low intensity. The flame heights of these fires are not sufficient to scorch the crowns of the taller shrubs and the *Casuarina*. Thus the overstorey is maintained, but conditions favour the establishment and persistence of the grasses.

## 7. Saltmarsh.

Some small patches of saltmarsh vegetation are found at the outflows of the small creeks which drain the area. The alluvial flats are not extensive, consequently the zonation found in saltmarsh communities elsewhere (e.g. Glasby, 1975) are not well developed. The main species present are succulents (*Salicornia quinqueflora*, *Suaeda australis*), the rhizomatous maritime rush (*Juncus maritimus*) and the grass *Distichlis distichophylla*. Sea parsley (*Apium prostratum*) is also locally common. Isolated plants of *Salicornia* are scattered along the strand line of the reserve.

## THE FLORA

To date, 133 vascular plant species have been recorded in the reserve (appendix). There are 2 ferns, 35 monocotyledons from 5 families and 96 dicotyledons from 36 families. At least 9 introduced species (including 4 grasses) occur in the reserve. The reserve is an important place for the conservation of flora. It contains 7 species which are endemic to the state; 3 of which (*E. morrisbyi*, *E. risdonii* and *Olearia hookeri*) are not known to occur in any other State Reserve. Another species, *Spyridium eriocephalum* has a widespread but very local distribution within Tasmania and occurs in a reserve only at East Risdon (Brown et al, 1977).

## MANAGEMENT OF THE RESERVE

The primary aim in managing this reserve is to ensure the survival of the stands of *E. morrisbyi* and *E. risdonii*. A number of problems need to be overcome in order to achieve this aim. The reserve is close to populated areas, and the land in the vicinity traditionally has been used in ways which are detrimental to the native vegetation. It has been burnt too frequently, car bodies have been dumped and live trees have been cut illegally for later use as firewood. These problems should diminish now that the area is supervised by the rangers located at nearby Bowen Park (Risdon Cove Historic Site).

Other problems of management result from the small size of the *E. morrisbyi* population. A fire plan is to be prepared detailing protection measures necessary to reduce the risk of fire within the reserve.

Hazard reduction burning within the stand of *E. morrisbyi* may be necessary in the future, but should not be undertaken before the present sapling population reaches maturity.

The juvenile *E. morrisbyi* are festooned with *Cassytha pubescens*. This parasitic

creeper twines about the stems and branches of the sapling eucalypts and has suckers which penetrate the tissues of the host plant and draw off the food required for further growth. An experimental plot (12 x 12 m) has been cleared of *Cassytha*, and the growth of *E. morrisbyi* in this plot will be compared with the growth of trees in an adjacent, un-cleared control area.

Seed has been collected from the *E. morrisbyi* population and 50 young plants have been raised and planted out in a similar habitat in an adjacent gully. This trial planting will be monitored and if successful it is hoped to establish a second stand of the same *E. morrisbyi* provenance to decrease the risk of the entire population being obliterated.

#### **Acknowledgements.**

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## APPENDIX

### CHECKLIST OF VASCULAR PLANT SPECIES FOUND AT EAST RISDON

Taxonomic nomenclature is after the following sources:

1. Curtis & Morris (1975) and Curtis (1963, 1967) for dicotyledons.
2. Willis (1970) for monocotyledons and pteridophytes.

The status of species is indicated by

- e Tasmanian endemic species  
g species otherwise of geographic significance  
i introduced species

The abundance of each species within each vegetation mapping unit is indicated by

- a abundant  
c common  
p present  
r rare  
l local

| Species                             | Status | Vegetation Mapping Unit |   |   |   |   |   |   |
|-------------------------------------|--------|-------------------------|---|---|---|---|---|---|
|                                     |        | 1                       | 2 | 3 | 4 | 5 | 6 | 7 |
| <b>ANGIOSPERMAE: DICTOTYLEDONES</b> |        |                         |   |   |   |   |   |   |
| <b>RANUNCULACEAE</b>                |        |                         |   |   |   |   |   |   |
| <i>Clematis aristata</i>            |        |                         | p | c | c |   |   | p |
| <b>DILLENIACEAE</b>                 |        |                         |   |   |   |   |   |   |
| <i>Hibbertia riparia</i>            |        |                         | p |   | p |   |   | p |
| <b>VIOLACEAE</b>                    |        |                         |   |   |   |   |   |   |
| <i>Viola hederacea</i>              |        |                         |   |   | p |   |   | p |
| <b>CRUCIFERAE</b>                   |        |                         |   |   |   |   |   |   |
| <i>Cardamine heterophylla</i>       |        |                         | p |   | p |   |   | p |
| <b>PITTOSPORACEAE</b>               |        |                         |   |   |   |   |   |   |
| <i>Bursaria spinosa</i>             |        |                         | p | p | c |   |   | c |
| <i>Marianthus procumbens</i>        |        |                         | p |   | p |   |   |   |
| <b>TREMADRACEAE</b>                 |        |                         |   |   |   |   |   |   |
| <i>Tetratheca glandulosa</i>        |        |                         | p | c | c | p |   | p |

| Species                         | Status   | Vegetation Mapping Unit |   |   |   |   |   |   |
|---------------------------------|----------|-------------------------|---|---|---|---|---|---|
|                                 |          | 1                       | 2 | 3 | 4 | 5 | 6 | 7 |
| <b>POLYGALACEAE</b>             |          |                         |   |   |   |   |   |   |
| <i>Comesperma volubile</i>      |          |                         | p | p | p |   | c |   |
| <b>CARYOPHYLLACEAE</b>          |          |                         |   |   |   |   |   |   |
| <i>Cerastium</i> sp.            | <i>i</i> |                         |   |   |   | r |   |   |
| <b>HYPERICACEAE</b>             |          |                         |   |   |   |   |   |   |
| <i>Hypericum gramineum</i>      |          |                         | p |   | p |   |   |   |
| <b>LINACEAE</b>                 |          |                         |   |   |   |   |   |   |
| <i>Linum marginale</i>          |          |                         |   |   |   |   |   | p |
| <b>GERANIACEAE</b>              |          |                         |   |   |   |   |   |   |
| <i>Geranium potentilloides</i>  |          |                         | p |   | p |   | p |   |
| <i>G. solanderi</i>             |          |                         | p |   | p |   |   |   |
| <b>OXALIDACEAE</b>              |          |                         |   |   |   |   |   |   |
| <i>Oxalis corniculata</i>       |          |                         | c | p | p |   |   |   |
| <b>RUTACEAE</b>                 |          |                         |   |   |   |   |   |   |
| <i>Eriostemon verrucosus</i>    |          |                         | p | c | c |   |   |   |
| <i>Correa reflexa</i>           |          | p                       |   |   | l |   | a |   |
| <b>COMPOSITAE</b>               |          |                         |   |   |   |   |   |   |
| <i>Brachycome scapiformis</i>   |          |                         | p | p | p |   |   |   |
| <i>B. stricta</i>               |          |                         | p | p |   |   |   |   |
| <i>Olearia lirata</i>           |          |                         |   | p | p | p | c |   |
| <i>O. phlogopappa</i>           |          |                         | p |   |   |   |   |   |
| <i>O. ramulosa</i>              |          |                         | p | p |   |   | p |   |
| <i>O. hookeri</i>               | <i>e</i> |                         | c |   |   |   |   |   |
| <i>Gnaphalium collinum</i>      |          |                         | c |   | p |   | p |   |
| <i>Leptorhynchos squamatus</i>  |          |                         | p | p | p |   |   |   |
| <i>Helichrysum scorpiodes</i>   |          |                         | p | c |   |   |   |   |
| <i>H. obcordatum</i>            |          |                         | p | c | c | p |   | r |
| <i>H. scutellifolium</i>        | <i>e</i> |                         | p |   |   |   |   |   |
| <i>Cassinia aculeata</i>        |          |                         | p | p | p | c | p |   |
| <i>Senecio</i> sp.              |          |                         |   |   | p |   |   |   |
| <i>Bedfordia salicina</i>       |          |                         | p | c | c |   | p |   |
| <i>B. linearis</i>              |          |                         |   |   | p |   |   |   |
| <i>Hypochaeris</i> sp.          | <i>i</i> |                         |   |   | p |   | p | p |
| <i>Leontodon leysleri</i>       | <i>i</i> |                         | p |   |   |   | p |   |
| <i>Tragopogon porrifolius</i>   | <i>i</i> |                         |   |   | p |   |   | p |
| <b>STYLIDIACEAE</b>             |          |                         |   |   |   |   |   |   |
| <i>Stylidium graminifolium</i>  |          |                         | p |   | c | p | p | p |
| <b>GOODENIACEAE</b>             |          |                         |   |   |   |   |   |   |
| <i>Goodenia ovata</i>           |          |                         |   |   | p |   |   | p |
| <i>G. lanata</i>                |          |                         |   |   | p | p |   | p |
| <b>CAMPANULACEAE</b>            |          |                         |   |   |   |   |   |   |
| <i>Wahlenbergia gracilentia</i> |          |                         |   |   | p |   |   | p |
| <i>Wahlenbergia</i> sp.         |          |                         |   |   | p |   | p |   |



| Species                                 | Status | Vegetation Mapping Unit |   |   |   |   |   |     |
|---|--------|-------------------------|---|---|---|---|---|-----|
|   |        | 1                       | 2 | 3 | 4 | 5 | 6 | 7   |
| <b>GENTIANACEAE</b>                     |        |                         |   |   |   |   |   |     |
| <i>Centaurium erythraea</i>             |        |                         | p | p |   |   | p | p   |
| <b>EPACRIDACEAE</b>                     |        |                         |   |   |   |   |   |     |
| <i>Astroloma humifusum</i>              |        | r                       | p | p | p |   |   | r   |
| <i>Lissanthe strigosa</i>               |        |                         |   |   |   |   | p |     |
| <i>Acrotriche serrulata</i>             |        |                         |   |   |   |   | p |     |
| <i>Epacris impressa</i>                 |        |                         | p |   |   |   | p | c   |
| <b>PRIMULACEAE</b>                      |        |                         |   |   |   |   |   |     |
| <i>Samolus repens</i>                   |        |                         |   |   |   |   |   | p c |
| <b>PLANTAGINACEAE</b>                   |        |                         |   |   |   |   |   |     |
| <i>Plantago coronopus</i>               |        |                         | p | p | c |   |   | c c |
| <i>P. lanceolata</i>                    |        |                         |   |   | c |   |   |     |
| <i>P. hispida</i>                       |        |                         |   |   |   |   |   | p p |
| <i>P. varia</i>                         |        |                         | p |   | p |   |   |     |
| <b>CHENOPODIACEAE</b>                   |        |                         |   |   |   |   |   |     |
| <i>Salicornia quinqueflora</i>          |        |                         |   |   |   |   |   | c   |
| <i>Suaeda australe</i>                  |        |                         |   |   |   |   |   | c   |
| <b>LAURACEAE</b>                        |        |                         |   |   |   |   |   |     |
| <i>Cassytha pubescens</i>               |        |                         | c | c |   | p | a | c   |
| <b>RHAMNACEAE</b>                       |        |                         |   |   |   |   |   |     |
| <i>Pomaderris elliptica</i>             | e      |                         |   |   | p |   |   | c   |
| <i>P. pilifera</i>                      |        |                         |   |   | r |   |   | c   |
| <i>Spyridium eriocephalom</i>           | g      |                         | c | l | p |   |   |     |
| <b>SAPINDACEAE</b>                      |        |                         |   |   |   |   |   |     |
| <i>Dodonaea viscosa</i>                 |        |                         | r | p | p |   |   | a   |
| <b>LEGUMINOSAE</b>                      |        |                         |   |   |   |   |   |     |
| <i>Acacia verticillata</i>              |        |                         |   |   | c | c | a |     |
| <i>A. genistifolia</i>                  |        | c                       | c | p | c | a | p |     |
| <i>A. myrtifolia</i>                    |        | p                       | c |   |   |   |   |     |
| <i>A. mearnsii</i>                      |        |                         | c |   |   |   |   |     |
| <i>A. dealbata</i>                      |        |                         | c | p | a | c | c |     |
| <i>A. melanoxylon</i>                   |        |                         |   |   |   | p |   |     |
| <i>Daviesia ulicifolia</i>              |        | p                       | p | p |   |   |   | p   |
| <i>Pultenaea daphnoides</i>             |        | c                       | c | c | c | c | c |     |
| <i>P. gunnii</i> var. <i>baeckoides</i> |        | a                       | a |   |   |   | c |     |
| <i>P. pedunculata</i>                   |        | c                       | c |   | p | c | c |     |
| <i>P. juniperina</i>                    |        |                         | p | p | p |   |   |     |
| <i>Dillwynia sericea</i>                |        |                         | p | p | p |   |   |     |
| <i>Bossiaea prostrata</i>               |        | p                       | p | p | p | p |   |     |
| <i>B. riparia</i>                       |        |                         | p |   |   |   |   |     |
| <i>Indigofera australis</i>             |        |                         |   | p | p | p |   |     |

| Species                          | Status | Vegetation Mapping Unit |   |   |   |   |     |     |
|----------------------------------|--------|-------------------------|---|---|---|---|-----|-----|
|                                  |        | 1                       | 2 | 3 | 4 | 5 | 6   | 7   |
| <b>ROSACEAE</b>                  |        |                         |   |   |   |   |     |     |
| <i>Rubus parvifolius</i>         |        |                         | p |   |   | p |     |     |
| <i>Potentilla anserina</i>       |        |                         |   |   |   |   | r   |     |
| <i>Acaena novae-zelandiae</i>    |        |                         | p | p | p |   |     | p   |
| <i>A. echinata</i>               |        |                         | p | p |   |   |     | p   |
| <i>Rosa rubiginosa</i>           | i      |                         |   | p |   | p |     |     |
| <b>HALORAGACEAE</b>              |        |                         |   |   |   |   |     |     |
| <i>Haloragis tetragyna</i>       |        | r                       | c | p | p |   |     |     |
| <b>MYRTACEAE</b>                 |        |                         |   |   |   |   |     |     |
| <i>Eucalyptus viminalis</i>      |        |                         | c | p | a | c | p   |     |
| <i>E. morrisbyi</i>              | e      |                         |   |   |   |   | l   |     |
| <i>E. globulus</i>               |        |                         |   |   | p | a | p   | p   |
| <i>E. pulchella</i>              | e      |                         |   | p |   | p |     | p   |
| <i>E. amygdalina</i>             | e      |                         | c | c | a | c | p   |     |
| <i>E. risdonii</i>               | e      |                         | a | p |   | r |     |     |
| <b>FICOIDEAE</b>                 |        |                         |   |   |   |   |     |     |
| <i>Carpobrotus rossii</i>        |        |                         |   |   |   |   |     | c p |
| <b>UMBELLIFERAE</b>              |        |                         |   |   |   |   |     |     |
| <i>Apium prostratum</i>          |        |                         |   |   |   |   |     | l   |
| <i>Hydrocotyle javanica</i>      |        |                         | p |   | p |   |     |     |
| <b>RUBIACEAE</b>                 |        |                         |   |   |   |   |     |     |
| <i>Opercularia varia</i>         |        |                         |   | p |   |   |     |     |
| <i>Galium australe</i>           |        |                         | p |   | p |   |     | p   |
| <b>THYMELAEACEAE</b>             |        |                         |   |   |   |   |     |     |
| <i>Pimelea humilis</i>           |        |                         | p | p |   |   |     |     |
| <b>SANTALACEAE</b>               |        |                         |   |   |   |   |     |     |
| <i>Leptomeria druceana</i>       |        |                         |   |   |   | c | p   |     |
| <i>Exocarpos cupressiformis</i>  |        | c                       | p |   |   |   | p p |     |
| <i>E. strictus</i>               |        |                         |   |   |   |   | p p |     |
| <b>EUPHOBIAEAE</b>               |        |                         |   |   |   |   |     |     |
| <i>Poranthera microphylla</i>    |        |                         |   | p | p | p |     |     |
| <i>Beyeria viscosa</i>           |        |                         |   |   |   | p |     | p   |
| <b>CASUARINACEAE</b>             |        |                         |   |   |   |   |     |     |
| <i>Casuarina stricta</i>         |        |                         | c | p |   |   |     | a   |
| <i>C. littoralis</i>             |        |                         |   |   | c | c |     |     |
| <b>MONOCOTYLEDONES</b>           |        |                         |   |   |   |   |     |     |
| <b>GRAMINEAE</b>                 |        |                         |   |   |   |   |     |     |
| <i>Poa</i> sp.                   |        |                         | c | c | p |   | p   | p   |
| <i>Briza minor</i>               | i      |                         |   |   |   |   |     | l   |
| <i>Dactylis glomerata</i>        | i      |                         | c | p |   |   |     | c   |
| <i>Distichlis distichophylla</i> |        |                         |   |   |   |   |     | c   |

| Species                         | Status   | Vegetation Mapping Unit |   |   |   |   |   |     |
|---------------------------------|----------|-------------------------|---|---|---|---|---|-----|
|                                 |          | 1                       | 2 | 3 | 4 | 5 | 6 | 7   |
| <i>Aira</i> sp.                 | <i>i</i> |                         |   |   | p |   | c | p   |
| <i>Holcus lanatus</i>           | <i>i</i> | c                       | r |   | p |   | c | p   |
| <i>Agrostis</i> sp.             |          | p                       | c | p |   | p | c |     |
| <i>Danthonia</i> sp.            |          |                         |   | p |   | p |   |     |
| <i>Stipa</i> sp.                |          | c                       | c | p |   |   | p | c p |
| <i>Themedia australis</i>       |          |                         |   | p |   | p |   | p   |
| <b>CYPERACEAE</b>               |          |                         |   |   |   |   |   |     |
| <i>Scirpus nodosus</i>          |          |                         |   |   | p |   |   | p   |
| <i>Lepidosperma laterale</i>    |          |                         |   |   |   |   |   | p   |
| <b>JUNCACEAE</b>                |          |                         |   |   |   |   |   |     |
| <i>Luzula australis</i>         |          |                         |   |   |   |   |   | p   |
| <i>Juncus maritimus</i>         |          |                         |   |   | p |   |   | p c |
| <b>LILIACEAE</b>                |          |                         |   |   |   |   |   |     |
| <i>Lomandra longifolia</i>      |          | p                       |   | c | p |   |   | a   |
| <i>Bulbine bulbosa</i>          |          |                         |   |   | p |   |   |     |
| <i>Dianella tasmanica</i>       |          |                         |   |   |   | p |   |     |
| <i>D. revoluta</i>              |          | c                       | p |   | p |   |   | p   |
| <b>ORCHIDACEAE</b>              |          |                         |   |   |   |   |   |     |
| <i>Chiloglottis</i> sp.         |          |                         |   |   |   | p |   |     |
| <i>Acianthus exertus</i>        |          | r                       | p |   |   |   |   |     |
| <i>Pterostylis nutans</i>       |          |                         |   |   |   | p |   |     |
| <i>P. pedunculata</i>           |          |                         |   |   |   | p |   |     |
| <i>P. longifolia</i>            |          |                         |   |   |   | p |   |     |
| <i>Dipodium punctatum</i>       |          |                         |   |   |   | p |   |     |
| <i>Thelymitra</i> sp.           |          |                         |   |   |   | p |   |     |
| <b>PTERIDOPHYTES</b>            |          |                         |   |   |   |   |   |     |
| <i>Asplenium flabellifolium</i> |          |                         |   |   |   | p |   | r   |
| <i>Pteridium esculentum</i>     |          |                         |   |   |   | c |   | p   |

### SUPPLEMENTARY LIST OF ORCHIDS

- Caladenia angustata*
- C. carnea*
- Calochilus campestris*
- C. robertsonii*
- Chiloglottis gunnii*
- Diuris maculata*
- D. sulphurea*
- Glossodia major*
- Thelymitra aristata*
- T. grandiflora*

## EASTER CAMP 1975 - WADDAMANA

(Continued from *The Tasmanian Naturalist*, 42, August, 1975)

### PLANTS RECORDED AT BASHAN BRIDGE 29.3.75

*Acacia dealbata*  
*Acaena novae-zelandiae*

*Bedfordia linearis*  
*Bossiaea riparia*

*Cyathodes parvifolia*

*Eucalyptus pauciflora*  
*Eucalyptus rubida*

*Geranium microphyllum*  
*Gnaphalium* sp.

*Hakea lissosperma*  
*Hakea microcarpa*  
*Helichrysum dendroideum*  
*Helichrysum purpurascens*

*Leptospermum lanigerum*  
*Leptospermum nitidum*  
*Leucopogon hookeri*  
*Lomatia tinctoria*

*Muehlenbeckia axillaris*

*Notelaea ligustrina*

*Olearia algida*  
*Olearia phlogopappa*

*Pittosporum undulatum*  
*Pomaderris apetala*  
*Pultenaea juniperina*

*Richea procera*  
*Rubus parviflorus*

## HAS THE ECHIDNA A GOOD SENSE OF SMELL?

L. E. WALL

Recently while preparing my camera for attempts to photograph a Dusky Woodswallow's nest I noted an Echidna about ten metres behind the nest. Some minutes later while I was waiting for the bird to return to the nest the camera tripod collapsed, having been knocked by the Echidna, which then tried to burrow under my boot.

This was not the first time that I have found an Echidna being quite unconcerned at the smell of humans yet I have always believed that this animal must have an acute sense of smell to find its food, a fact which was also mentioned by Ellis Troughton in *Furred Animals of Australia*.