AUSTRALASIAN GREBE (TACHYBAPTUS NOVAE-HOLLANDIAE) IN TASMANIA

L.E. Wall

The status of this species (formerly known as Little or Red-necked Grebe) in the last century and early part of this century is uncertain. Littler, in his "Handbook of the Birds of Tasmania and its Dependencies" (1910), only commented that it is seldom seen; Lord & Scott, in "Vertebrate Animals of Tasmania" (1924), noted that it was occasionally seen near Bridgewater, and Sharland in "Tasmanian Birds" (1958) quoted the species as "not common". Mr. Sharland has told me that up to that time he had not seen the bird in Tasmania.

The only detailed reference is in W.V. Legge's paper, "List of Birds Observed at the Great Lake in the month of March" (Emu 4, pp 103-109), where this species is noted as "...found sparingly on the lake. It is universally distributed throughout Tasmania, being met with in a variety of situations - rivers, lagoons, lakes, tarns, tidal waters - anywhere, in fact, where it can procure its food and find the requisite shelter for its nest. In the rivers of the eastern and open country portion of the island its favourite resorts are the still, reed-fringed reaches which are their chief characteristic, and likewise the shallow brackish lagoons of the East Coast." This statement is in sharp contrast to all other published comments. Great Lake seems a most unsuitable habitat for Australasian Grebes which like plenty of weeds for feeding and nesting activities while the lake appears to be entirely lacking in this respect. However, Legge's observations were made when he undertook a hydrographic survey of the lake in 1903 at which time it was in its natural state and its level not raised for hydro-electric purposes. He emphasised that the lake was remarkably shallow, rarely exceeding 5 metres in depth, and its floor extraordinarily level and in many parts covered by an erect spinous weed. Since that time the lake's level has been progressively raised by about 18 metres.
The first observation in more recent times was made by D.R. Milledge in January 1964 at Pawleena reservoir, and I saw four there on the following two weekends. In November of the same year two were seen at St. Helens and one at Diana Basin on the East Coast. In April 1965, during the Club's Easter Camp at Douglas River, twelve were seen on a reedy lagoon at Seymour, and in the following October, J.R. Napier photographed an occupied nest at Campbell Town.

I have no further records until 1972 when there were three sightings on King Island in March and April (the first for that island), one in October on Flinders Island by J.R. Napier, and one near Woodbridge by D.R. Milledge in July. The only report for 1973 was of one bird at Ouse in December and there were none in 1974.

1975 brought a number of sightings - eight at Lake Pedder on 20 March, one at Sandford on 20 April, and one at Ouse on 28 May by A.W. Fletcher. W. Ferrar reported 4 at Buckland on 3 April and one on 10 December.

A pair with two young were found at Buckland on 8 February 1976 with other sightings in the same month at Buckland and Sandford. In the following spring there was a sighting at Dodges Ferry and two breeding records from Kettering and Rosegarland.

In 1977 I have records for Sandford in July, Rosegarland in October and Kettering on 6 November when two very small young were included.

In 1978 I found one at Ouse in January, one at Kettering in July, one at Lake Dulverton in August, two at Kettering in September and in December when they had five well-grown young.

Observations of the last few years indicate that the Australasian Grebe is again a regular member of the Tasmanian avifauna as Legge indicated that it was early in this century. It favours small farm dams and reedy lagoons although a few of the observations were on substantial areas of water (Diana Basin, Lake Pedder and Lake Dulverton). There is particular interest that a very small farm dam at Kettering has been used for breeding in each of the last three years although the birds are not permanent residents there.
UNDERWATER ARCHAEOLOGY

J. Stockton

The name to be given to this new field of research has always been a problem. 'Marine' or submarine archeology would limit the work to that done in the seas, while much is done in rivers, lakes and streams. Archaeology under water, of course, should be called simply archaeology. We do not speak of those working in the Kosciusko Mountains as mountain archaeologists, nor those working on coastal colonial settlement like Bowen's Landing, coastal colonial archaeologists. They are all people who are trying to answer questions regarding man's past, and they are adaptable in being able to excavate and interpret the sites and what they contain. Is the study of an ancient ship and its cargo or the survey of a toppled harbour wall somehow different? That such remains lie underwater entails the use of different tools and techniques in their study, just as the survey of a large area on land, using aerial photographs, magnetic detectors, and drills, requires procedure different from excavating stone artefacts in an Aboriginal cave. The basic aim in all cases is the same. It is all archaeology. A defence of underwater archaeology as archaeology might seem unnecessary, but by some it has been considered something special, just outside the field of true archaeology.

Knowledge to be gained from the water is not mainly of ship construction and trade routes. There is a vast amount of information on technology, art, and history to be gained from the study of cargoes carried on ancient ships. On other sites, objects fell or were deliberately thrown into the water. In still other situations sites which were occupied by man during the last ice age were covered when the sea level rose as the ice melted. In recent years, many sites on inland river systems have been inundated by the construction of dams.

Until fairly recently most of these underwater sites were considered suitable only for salvage. The picture of sunken treasures being looted by divers readily springs to mind and such was the case for some years. This was unfortunate as much valuable information was destroyed, but this problem is becoming less common. National laws are beginning to protect sites underwater as they have done on land.

It is unfortunate that those who are simply divers, hoping to preserve their monopoly on underwater work, too often stress the difficulties in working under water. It takes years of training to become an archaeologist or an architect; however, divers can be trained in a couple of weeks.
Furthermore the new diver often maintains stricter safety standards than the experienced professional diver. It has been said that it is much simpler to train an archaeologist to dive, than to train a diver to be an archaeologist. However, there is a tremendous contribution that the non-archaeologist diver can make.

Research for underwater archaeology involves archival and historical records work, site locating, mapping and excavating. In all these fields the non-archaeologist diver can make contributions. An example of this sort of co-operation is the feasibility study carried out on the wreck of the "Sydney Cove" in April-May 1978 by the Tasmanian National Parks and Wildlife Service. The archaeological director was Graeme Henderson, the curator of the Department of Maritime Archaeology, Western Australian Museum. The team included people with expertise in engineering, boat handling, photography, archaeology and finds recording and drawing. The expedition relied upon both paid and voluntary workers.

The primary duty of the field archaeologist is to record the details of his site before and during excavation. Thus his interpretation of the remains may be evaluated by those who will know the site only through its publication. Without plans, an excavation is no more than salvage. The techniques of recording differ according to the site, and much can be learned of sites by simple mapping, without excavation.

There has been a growing awareness of the archaeological significance of the Continental Shelf in general since the early 1960's. Although it has long been common knowledge that historic shipwrecks occur in coastal offshore areas, it is only the last decade that there has been an increasing consciousness of the potential existence of important prehistoric sites on the shelf. This increased interest by archaeologists has come about largely as the result of the application to archaeology of geomorphological data in regard to sea level changes (Fairbridge 1960, Shepard 1964, Jones 1968 and Bowdler 1978). The evidence indicates that the level of the sea varied considerably along the Continental Shelf during the period of human occupation in Tasmania. These coastal sites will represent the maritime Aboriginal culture of the period.

Bowdler (1978) has argued that Australia was colonised over 40,000 years ago by people adapted to a coastal way of life; that initial colonising routes were around the coasts and thence up the major river systems. She also points to the definitive test of this hypothesis, the archaeological exploration of the submarine Continental Shelf.
The technology for such an exploration has developed since the 1960's and is now readily available. Most of this development has been on shipwrecks, or inland sites inundated by man made dams (Bass, 1970; Lenihan, 1977). The problems for this study are ones of selecting a high probability area in which to carry out the initial reconnaissance, and expense. This is a new area for Australian archaeological research.

On this point it is interesting to note that a shell midden and a burial have been found on the sea bed 20 m below the present sea level in Florida (personal communication N. Flemming) and Reynold Ruppe, of Arizona State is presently working on submerged offshore middens (Cummings and Lenihan, 1974). The submergence of an Aboriginal archaeological site by the ocean will produce a radically different environment with resultant effects on the conservation of the remains in the deposit. Just what this new environment will preserve remains to be seen. I am certain that the first Aboriginal site to be found on the present sea bed will not be found by an archaeologist.

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AVIFAUNA OF TASMANIAN ORCHARDS  
Part 1

Peter Fielding

INTRODUCTION

Orchards are disappearing from the landscape due to a decline in demand for Tasmanian fruit. In recent years orchardists have found it more economical to "grub" their orchards out. Often orchards are replaced by pastures which are poorer habitat. In a year's study of a pasture that replaced an orchard near Forcett only 39 species of birds were found. In a nearby pear orchard 54 species were observed. The pasture studied was completely bare of any trees. The removal of trees meant the disappearance of most 'bush birds', although some were found on the fringes of the pasture where eucalypts and acasias remained.

Not many species of birds are permanent residents in orchards. Most of the permanent residents are introduced birds. This is probably due to the deciduous and exotic nature of orchards. Most birds move into orchards to feed, to rest or to take up partial residence. Some birds were only observed flying overhead but possibly visit orchards. Food supply in orchards consist of insects, grubs, worms, nectar, fruit and mammals, etc.

Some orchards I entered contained no birds at all, possibly due to the use of deadly chemical sprays. A bird list of 22 species compiled by D. R. Milledge at Triabunna 20-5-'69 is an example of the numbers of birds that can be found in orchards where deadly sprays are not used: 4+ Swamp Quail, 2 Tasmanian Native-Hen, 2 Yellow-tailed Black Cuckatoo, 20+ Musk Lorikeet, 12+ Green Rosella, 1 Fan-tailed Cuckoo, 4 Common Blackbird, 1 Golden Whistler, 1 Grey Shrike-Thrush, 4+ Grey Fantail, 80+ Yellow Wattlebird, 200+ Little Wattlebird, 10 Noisy Miner, 6+ Yellow-throated Honeyeater, 30+ Black-headed Honeyeater, 20+ Crescent Honeyeater, 40+ New Holland Honeyeater, 3+ Spotted Pardalote, 30+ Silvereye, 30+ European Goldfinch, 1 Grey Butcherbird, 50+ Forest Raven.

Distribution of orchards are mainly restricted to south eastern Tasmania, Tamar Valley, Spreyton and Scottsdale districts.

Apple, pear, plum, apricot, quince and cherry orchards were studied briefly in each district. This is not considered to be a complete list of orchard birds due to the short duration of my survey. Special thanks to D. R. Milledge and thirty Tasmanian orchardists for the use of their knowledge of orchard birds.

ANNOTATED LIST OF SPECIES

1. White-faced Heron Ardea novaehollandiae

Occasional visitor during the months when trees are bare of leaves.

2. Cattle Egret Ardeola ibis

One bird observed in a pear orchard at Forcett, Jul 1979.
3. **Accipiter species**  
Several reports of occasional birds.

4. **Wedge-tailed Eagle** *Aquila audax*  
Records of occasional birds from New Norfolk, Forcett, Copping and Dunalley.

5. **Swamp Harrier** *Circus aeruginosus*  
Several sightings of birds above orchards during the early spring when trees are bare of leaves.

6. **Brown Falcon** *Falco berigora*  
Visitor to most orchards.

7. **Nankeen Kestrel** *Falco cenchroides*  
One bird observed above a pear orchard at Forcett, October 1977.

8. **Swamp Quail** *Coturnix ypsilophora*  
Common visitor in orchards with good grass cover.

9. **Peafowl** *Pavo cristatus*  
Introduced resident in an apricot orchard at Dunalley.

10. **Ring-necked Pheasant** *Phasianus colchicus*  
Introduced partial resident at Castle Forbes Bay and Port Huon. When the orchard trees shed their leaves the birds move into the protection of evergreen native forest. Breeds successfully each year in an orchard at Castle Forbes Bay.

11. **Tasmanian Native-Hen** *Gallinula mortierii*  
Common visitor. Twenty-five percent of orchadists that recorded this species reported fruit damage. Fruit is taken from low branches that can be reached from ground level. Some birds also hop up onto trees via low branches to reach high fruit.

12. **Swamphen** *Porphyrio porphyrio*  
Recorded at Franklin and Castle Forbes Bay. Reported to eat apples by flying up to the lower branches.

13. **Masked Plover** *Vanellus miles novaehollandiae*  
Common partial resident. Breeds each year in an orchard at Castle Forbes Bay.

14. **Japanese Snips** *Gallinago hardwickii*  
A regular migrant at New Norfolk amongst well spaced trees.
AVIFAUNA OF TASMANIAN ORCHARDS (PART 2)

Peter Fielding

(Part 1 appeared in The Tasmanian Naturalist, No. 56 February, 1979.)

ANNOTATED LIST OF SPECIES (Continued from Part 1)

15. Silver Gull  Larus novaehollandiae

One record of six birds at Port Huon 20 September, 1975. The birds were searching the ground for food during bad weather.

16. Domestic Pigeon  Columba livia

Two birds flying out of an orchard at Huonville is my only record.

17. Common Bronzewing  Phaps chalcoptera

One record of two birds flying between rows of pear trees at Forcett.
18. **Yellow-tailed Black Cockatoo**

*Calptorhynchus funereus*

An occasional visitor. Fifty per cent of orchardists who recorded this species claimed that it damaged their fruit. The fruit is stripped for the seeds only.

19. **Galalah**

*Cacatua roseicapilla*

One bird flying above a pear orchard at Forcett 8 November, 1977 is my only record.

20. **Sulphur-crested Cockatoo**

*Cacatua galerita*

An occasional visitor. Seventy per cent of orchardists who recorded this species claimed that it damaged their fruit. The fruit is stripped for seed only.

21. **Rainbow Lorikeet**

*Trichoglossus haematodus*

Recorded in 1842 and 1871. The only recent record is of one bird feeding on pears in company with Musk Lorikeets at Launceston on 26 March, 1977 (Green, 1977).

22. **Musk Lorikeet**

*Glossopsitta concinna*

Littler (1910) reported that the 1898 bushfires wiped out the native food of this species resulting in serious damage to all types of orchard fruit. Recent reports of sightings from Sandford, Dunalley, Castle Forbes Bay, Triabunna, Devonport and Launceston. Some damage to fruit also reported.

23. **Swift Parrot**

*Lathamus discolor*

Reported on rare occasions at Castle Forbes Bay and irregularly at Dunalley. Some damage to fruit claimed.
24. Green Rosella  
*Platycercus caledonicus*

Common visitor. Littler (1910) stated that this species had not developed strong fruit eating habits. He observed a flock on the ground searching for terrestrial food, paying no attention to fruit on the trees. I have also observed flocks on the ground feeding on wind-fall fruit and terrestrial food ignoring ripe fruit on trees. Seventy six per cent of orchardists who recorded this species claimed it damaged fruit.

25. Eastern Rosella  
*Platycercus eximius*

Occasional visitor (Green, 1977). Slight damage to fruit alleged at Dunalley and Copping.

26. Blue-winged Parrot  
*Neophema chrysostoma*

Visits orchards occasionally (Green, 1977).

27. Pallid Cuckoo  
*Cuculus pallidus*

Observed at Triabunna and Dunalley.

28. Fan-tailed Cuckoo  
*Cuculus pyrrhophanus*

Recorded at East Risdon, Forcett, Taranna and Triabunna.

29. Spotted Owl  
*Ninox novaeseelandiae*

An occasional visitor to Southport, New Norfolk and Dunalley.

30. Masked Owl  
*Tyto novaehollandiae*

Rare visitor to New Norfolk.

31. Tawny Frogmouth  
*Podargus strigoides*

Recorded at East Risdon and Triabunna.
32. Spine-tailed Swift  \textit{Hirundapus caudacutus}

Observed at Ilfraville and Forcett flying between rows of pear trees.

33. Kookaburra  \textit{Dacelo novaeguineae}

Common visitor to most orchards, rare south of Hobart.

34. Common Skylark  \textit{Alauda arvensis}

Common visitor to East Risdon, Ranelagh and Scottsdale.

35. Welcome Swallow  \textit{Hirundo neoxena}

Common migrant, nests in orchard sheds and culverts.

36. Tree Martin  \textit{Cecropis nigicans}

Recorded at Forcett, East Risdon, Franklin, Waterloo and Southport.

37. Richards Pipit  \textit{Anthus novaeseelandiae}

One bird observed at Ranelagh.

38. Black-faced Cuckoo-Shrike  \textit{Coracina novaehollandiae}

Migratory visitor to Dunalley, Forcett and Castle Forbes Bay. Littler (1910) reported that in some parts of northern Tasmania this bird suddenly developed fruit eating habits in 1908, a trait not known before. I have no recent records of fruit eating habits.

39. Common Blackbird  \textit{Turdus merula}

Common breeding resident. Seventy five per cent of orchardists who recorded this species claimed it damaged fruit.
40. Flame Robin *Petroica phoenicea*
   Two winter records at Forcett and East Risdon.

41. Scarlet Robin *Petroica multicolor*
   Common visitor to most orchards.

42. Dusky Robin *Melanodryas vittata*
   Common visitor to most orchards.

43. Golden Whistler *Pachycephala pectoralis*
   Recorded at Forcett, Dunalley and Triabunna.

44. Grey Shrike-Thrush *Colluricincla harmonica*
   Common visitor to most orchards.

45. Satin Flycatcher *Myiagra cyanoleuca*
   Migratory visitor to a pear orchard at Forcett.

46. Grey Fantail *Rhipidura fuliginosa*
   Common visitor to most orchards.

47. Superb Blue Wren *Malurus cyaneus*
   Common visitor to most orchards.

48. Brown Thornbill *Acanthiza pusilla*
   Common visitor to East Risdon and Forcett.

49. Tasmanian Thornbill *Acanthiza ewingii*
   One record of six birds at Ranelagh, 16 August, 1975.
50. Yellow-rumped Thornbill

Acanthiza chrysorrhoa

Recorded at Scottsdale, East Risdon, Forcett and Copping.

51. Yellow Wattlebird

Anthochaera paradoxa

A common nomadic visitor. Twenty five per cent of orchardists who recorded this species claimed it damaged fruit. Over-ripe and wind-fall fruit is favoured, although some ripe fruit is taken from the trees. Flocks often get intoxicated on fermented fruit dumped in waste heaps.

52. Little Wattlebird

Anthochaera chrysoptera

Large flocks recorded at Triabunna April-May 1969 and 1970, 20 + feeding on rotten fruit at Triabunna 23 April, 1970. Wall (1974) quotes that this species often raids orchards to feed on stone fruit and soft pears.

53. Noisy Miner

Manorina melanocephala

Regular visitor to orchards within their restricted range. Some damage caused to plums at Dunalley was the only report of fruit damage I received.

54. Yellow-throated Honeyeater

Lichenostomus flavicollis

Regular visitor. No reports of fruit damage from orchardists interviewed. Littler (1910) claimed some damage to cherry crops. Sharland stated in the Mercury, 1 May, 1976, that ripe and over-ripe pears are damaged by this species in Hobart gardens.
55. Strong-billed Honeyeater  
*Melithreptus validirostris*

Six birds in a pear orchard at Forcett on 8 January, 1978 is my only record. Sharland (1958) and Officer (1971) claim that fruit is occasionally eaten. No reports of fruit damage from orchardists interviewed.

56. Black-headed Honeyeater  
*Melithreptus affinis*

Recorded in flocks of up to 30+ at Triabunna and Forcett. Sharland (1958), Cayley (1966) and Officer (1971) claim that fruit is damaged. No reports of fruit damage from orchardists interviewed.

57. Crescent Honeyeater  
*Phylidonyris pyrrhoptera*

Occasional visitor. Officer (1971) claims that very little fruit damage is caused by this species. Sharland in the Mercury, 1 May, 1976, states that the juice from ripe and over-ripe pears is extracted from Hobart gardens. I received no reports of fruit damage from the orchardists interviewed.

58. New Holland Honeyeater  
*Phylidonyris novaehollandiae*

Recorded at New Norfolk, Forcett and Triabunna where a flock of 100+ was observed 29 May, 1969. Sharland (1958) stated that soft pears and other fruit are damaged. I received no reports of fruit damage from the orchardists interviewed.

59. Eastern Spinebill  
*Acanthorhynchus tenuirostris*

My only observation was at Forcett. Sharland (1958) quotes orchards as an occasional habitat of this species.
60. Spotted Pardalote  
**Pardalotus punctatus**

Recorded at Forcett, Sandford and Triabunna. Sharland (1958) classifies this species as a visitor to orchards.

61. Striated Pardalote  
**Pardalotus striatus**

Recorded at Sandford and Forcett.

62. Silvereye  
**Zosterops lateralis**

Common visitor. Sixty five per cent of orchardists who recorded this species claimed that it damaged fruit. The species had developed a taste for fruit as early as 1910 (Littler 1910). Silvereyes provide a useful service to orchardists by eating grubs and other insect pests.

63. European Goldfinch  
**Carduelis carduelis**

Common breeding resident. Decline in numbers noticed in the Geeveston district due to the removal of many of the orchards and harmful chemical sprays. One bird observed at Glen Huon with its beak inside an over-ripe apple that had been partly eaten by other birds. Many orchardists claimed that nesting birds fouled fruit around the nest site.

64. European Greenfinch  
**Carduelis chloris**

Recorded at Scottsdale, Dunalley, Forcett and Middleton. Also recorded at New Norfolk where numbers have increased during the last twelve years.

65. House Sparrow  
**Passer domesticus**

Common breeding resident. Forty per cent of orchardists who recorded this species claimed that it damaged fruit mainly by eating buds and ripe fruit.
66. Beautiful Firetail  
**Emblema bella**

Occasional visitor to most southern orchards. Lalla and Sassafras were the only northern orchards to record this species.

67. Common Starling  
**Sturnus vulgaris**

Common breeding resident. Eighty per cent of orchardists who recorded this species claimed it damaged fruit.

68. Dusky Woodswallow  
**Artamus cyanopterus**

Recorded at Waterloo and Forcett.

69. Grey Butcherbird  
**Cracticus torquatus**

Recorded at Castle Forbes Bay, Forcett and Dunalley. One report of damage to plums at Dunalley.

70. Australian Magpie  
**Gymnorhina tibicen**

Common visitor to orchards within its restricted range.

71. Black Currawong  
**Strepera fuliginosa**

Common visitor. Flocks of over 100 birds observed eating over-ripe apples at Judbury and Lunawanna August, 1975. Littler (1910) states that before orchards came into existence the food of this species was almost entirely insects. By 1910 orchards were regularly raided for fruit. Forty seven per cent of orchardists who recorded this species claimed it damaged fruit.

72. Grey Currawong  
**Strepera versicolor arguta**

Common visitor. Littler (1910) claimed that like the Black Currawong this species had developed fruit eating habits, but to a lesser extent. Several reports of recent attacks on mostly over-ripe fruit.
73. Forest Raven  

*Corvus tasmanicus*

Common visitor. Eighty five per cent of orchardists who recorded this species claimed it damaged fruit. Littler (1910) states that fruit-eating habits had developed by 1910. At Judbury in August, 1975 50 + Ravens were feeding on wind-fall apples in company with 100 + Black Currawongs.

**CONCLUSION**

Seventy three species of birds were found in orchards and twenty six of these were claimed to damage fruit. The largest proportion of these were honeyeaters (8 species), parrots (7 species) and introduced birds (4 species). Some ripe fruit is damaged but mostly over-ripe and wind-fall fruit is preferred. Most of the twenty six species that damaged fruit are insectivorous and destroy many insect pests throughout the year. Insectivorous birds help control the Brown Apple Moth which is rapidly increasing in numbers, possibly more so in orchards where bird numbers have been reduced by pesticides, etc. Sixteen of the species of birds recorded help control mammal pests.

Orchardists can minimise fruit damage by using many devices ranging from scare guns to various forms of netting over trees. However, few are 100 per cent effective or inexpensive enough for broad hectare usage. Mrs. C. Lott of King Island could have a simple and cheap method of protecting fruit crops. She places plastic snakes in her apple trees. Six plastic snakes to eight trees proved effective in not only keeping away birds but opossums as well. The snakes should be shifted once a day for best results.

With a bit of thoughtful management, birds and orchardists can be beneficial to each other.
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The Bird Species of Mt. Nelson in Relation to Microhabitat and Recent Bushfires

Ann V. Ratkowsky

The two surveys described here were conducted in the dry sclerophyll bushlands in the hills of Mt. Nelson, Hobart.

For the first survey, I selected three nearby areas differentiated by their geographical characteristics: East facing slope (E), West facing slope (W), and a wet gully (G). The elevation of (E) and (W) were approximately the same (330 m.), (G) was in Cartwright Creek, (40 m. - 160 m. elevation). Whereas (E) was fairly open sclerophyll with a very light understorey, (W) was vegetationally denser, and (G), being a creek, supported a dense understorey. The survey was conducted for 24 weeks, 30 August, 1978 to 16 February, 1979, with a total of 38 visits. During each visit, I spent approximately 30 minutes walking through each of the three areas, recording each species heard or seen for each area. On 29 November, 1978, a controlled burn occurred in (E). This markedly affected the average number of species in (E) as Table 1 shows. The average numbers in (W) and (G) did not change.

Table 1

Mean number of bird species per visit

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<th>Number of visits</th>
<th>Before 29 Nov.</th>
<th>After 29 Nov.</th>
<th>Statistical Significance</th>
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<tr>
<td>E</td>
<td>11.56</td>
<td>6.90</td>
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<tr>
<td>W</td>
<td>14.44</td>
<td>15.10</td>
<td>n.s.</td>
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<tr>
<td>G</td>
<td>18.72</td>
<td>17.85</td>
<td>n.s.</td>
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*** p < 0.001; n.s. = not significant, p > 0.05
The second survey was initiated by a severe bushfire which, on 2 October, 1978, raged through dry sclerophyll bushland adjacent to our house and over Porter Hill, Mt. Nelson. Three days later, 5 October, I commenced a survey to record and compare bird species present in the burnt (B) and adjacent unburnt (U) bush at the same elevation, 100 m. to 180 m. This survey was continued for 19 weeks, with a total of 63 visits, until 16 February, 1979, after which time we decided to move elsewhere to live.

The list of species observed in the two surveys are tabulated adjacently in Table 2.
<table>
<thead>
<tr>
<th>Species</th>
<th>Scientific Name</th>
<th>E</th>
<th>W</th>
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E = east-facing slope; W = west-facing slope; G = gully; B = burnt area; U = unburnt area
In the first survey, the average numbers of bird species per visit were: (E) 9.1, (W) 14.8, (G) 18.3. These figures show that the micro-habitat (G) had the richest avifauna, with (W) in second place. The average number of species in (E) was lower than in either of these even before the fire of 29 November as the means of Table 1 show. The results thus demonstrate that within a large area of dry sclerophyll bushland, there are local environmental distributions of bird species. The most noteworthy are:-

Species that occurred only in (G):-

Common Bronzewing, Yellow-tailed Black Cockatoo, Southern Boobook, Tawny Frogmouth, White's Thrush, Pink Robin, White-browed Scrubwren, Tasmanian Thornbill.

Species that occurred predominantly (but not exclusively) in (G):-

Shining Bronze-Cuckoo, Olive Whistler, Yellow Wattlebird, New Holland Honeyeater.

Species which never occurred in (G):-


The exclusive presence of White's Thrush, Pink Robin, White-browed Scrubwren and Tasmanian Thornbill in (G), species which are normally regarded as wet sclerophyll inhabitants, indicates that where a suitable micro-habitat exists these birds may be found in what is classified as dry sclerophyll bushland.

In the second survey, the average numbers of bird species per visit are (B) 5.7, (U) 16.2. The most frequently observed birds in (B) were:-

Even 19 weeks after the drastic fire, very few bird species were recorded in (B). The comparison of this survey with my earlier survey on Tolmans Hill ("The Effect of a Spring Fire on the Number of Bird Species", 'The Tasmanian Naturalist No. 53 May, 1978) is interesting. On Tolmans Hill, after a controlled burn in which low vegetation and trees up to 8 m. high were burnt, the number of bird species were originally much reduced in the burnt area but re-established themselves to the number of species in the unburnt area after 11 weeks. In the Porter Hill holocaust, all low vegetation and all trees including crowns of trees were burnt. The average number of species in (B) (5.7), was much lower than that in (U) (16.2), and remained fairly constant at this low level throughout the 19 weeks.

These observations indicate clearly that intensity of fire is a very important factor in determining the rate at which avifauna will repopulate a burnt area, i.e. the more severe the burn, the longer the time required for recovery.

The adjacent tabulation in Table 2 of species lists of the two surveys, draws one's attention to two species whose distributions are noteworthy: the Common Bronzewing appeared only in (G) and (B), two vastly different microhabitats. The New Holland Honeyeater appeared very frequently in (G) and (U), again two very different microhabitats, but never appeared in (E) which was vegetationally similar to (U). The explanation could be that these species are residential, and the same individuals were being observed in each visit.
THE PLANT COMMUNITIES OF THE
EAST RISDON NATURE RESERVE

M.J. Brown and H.J. Bayly-Stark
National Parks and Wildlife Service, Hobart

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
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 herbfields (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.
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. myrtillo
a, Bursaria spinosa, Dodonaea viscosa, Pultenaea daphnoi
des and Helichrysum obcordatum. There is a mid-dense ground cover of grasses (Poa, Stipa, Agrostis) although procument 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 gulley.

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 Cassine a 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 zonations 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, uncleared 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.
We gratefully acknowledge the assistance of D. Hoggins, R. Tyson and S. Blackhall during the survey. J. Wapstra and family provided us with a supplementary list of orchids found in the reserve.

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**APPENDIX**

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

Taxonomic nomenclature is after the following sources:

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

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- A. echinata
- Rosa rubiginosa

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- Haloragis tetragyna

MYRTACEAE
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- E. morrisbyi
- E. globulus
- E. pulchella
- E. amygdalina
- E. risdonii

FICOIDEAE
- Carpobrotus rossii

UMBELLIFERAE
- Apium prostratum
- Hydrocotyle javanica

RUBIACEAE
- Opercularia varia
- Galium australe

THYMELAEACEAE
- Pimelea humilis

SANTALACEAE
- Leptomeria drupacea
- Exocarpos cupressiformis
- E. strictus

EUPHOBIAEACEAE
- Poranthera microphylla
- Beyeria viscosa

CASUARINACEAE
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- C. littoralis

MONOCOTYLEDONES

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**SUPPLEMENTARY LIST OF ORCHIDS**

Caladenia angustata  
C. carneae  
Calochilus campestris  
C. robertsonii  
Chiloglottis gunnii  
Diuris maculata  
D. sulphurea  
Glossodia major  
Thelymitra aristata  
T. grandiflora
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*.
A LANDING ON THE MEWSTONE

N.P. Brothers, D.E. Rounsevell and M.J. Brown
National Parks and Wildlife Service, Hobart

The Mewstone (43° 44'S, 146° 23'E) is an island which lies in the Southern Ocean 22 km south of Tasmania and is incorporated into the South West National Park. It supports the largest breeding colony of the Shy Albatross, *Diomedea cauta*, (approx. 1,750 pairs) in Australia (Brothers, 1979).

Previous biological information from the island (Lord, 1927; Kurth, 1951) was obtained by observing from boats. The first recorded landing on the Mewstone was made by one of us (N.P.B.) on 31 December 1977 during a visit lasting 3 hours. The main aim of the landing was to study seabirds, but the opportunity was also taken to collect other animals, plants and rocks.

Brothers (1979) describes all the vertebrate animals that breed on the island; the Shy Albatross *D. cauta*, The Fairy Prion, *Pachyptila turtur*, and the skink *Leiolopisma pretiosa*. The fur seal *Arctocephalus pusillus* and a small number of common species of other sea birds also live on the island.

The island is a 6.8 ha ridge of granite of Devonian (?) age rising to a maximum height of 134 m above sea level. It is 450 m long and 150 m wide. Steep rock slopes on the eastern and western faces meet along its length to form a ridge. Beneath the boulders along the ridge are crevices and cavities in the rock in which soil has accumulated.

Six species of vascular plants were found. All of these species have adaptations suiting them to a saline environment and are relatively common in the salt spray zone of rocks, cliffs and offshore islands around the Tasmanian coastline. The shore spleenwort *Asplenium obtusatum*, is a fern which has shiny, thick, coriaceous fronds. *Poa poiformis* is the tussock grass commonly found on dunes, cliffs and along the upper edges of salt marshes. *Senecio leptocarpus* and *Senecio lautus* are fleshy-leaved daisies which have a disjunct distribution in Tasmania - both are to be found high on mountain plateaux as
well as along the coast. *Carpobrotus rossii, Chenopodium glaucum ssp. ambiguum* and *Salicornia quinqueflora* have succulent leaves borne on prostrate, spreading stems and are frequently encountered in saline areas of inland and coastal Tasmania.

Seventeen species of terrestrial arthropods were found in a small amount of soil and plant litter taken for examination. Some of these arthropods are probably eaten by the skink which is very abundant. The insects included an un-identified species of earwig, two species of beetles (Carabidae and Staphylinidae), the larvae of a moth (Pyralidae), the pupa of a fly (Stratiomyidae) and the lesser house fly *Fannia canicularis* L. (Muscidae). One female spider (Amaurobiidae) was also collected.

Ten species of mites were found in the soil. Five of these species, which have not been fully identified, are free living cryptostigmatic mites that eat detritus and soil fungi. The remaining 5 species are mesostigmatic mites all belonging to different genera. One, an undescribed species of *Caliphis*, also occurs in Victoria and South Australia and is a free living predator which lives amongst plant debris. Another, also a predator found amongst plant litter, is a new (undescribed) species of *Pilellus*. The 3 other species of mites occur in the nests of birds (*Hypoaspis* sp.) or are phoretic (*Parasitus* sp.) or parasitic (*Leptus* sp.) on other arthropods.

The Mewstone was separated from the mainland of Tasmania by a rising sea level, perhaps, 17,500 years ago (Rawlinson, 1974). Despite its size, barren appearance and isolation, it is home for at least 27 species of plants and animals.

**ACKNOWLEDGEMENTS**

We are grateful to Messrs G. Buckland, D.G. Peters and T.G. Peters for providing transport to the island.

Our thanks also to Mr. B. Griffin for identifying rock samples, Dr. J. Ireson for identifying the insects, Mrs. E. Turner for identifying the spider and Mr. D.C. Lee for identifying the mites.

**Brothers N.P. 1979**  

**Kurth D.E. 1951**  

**Lord C. 1927**  

**Rawlinson P.A. 1974**  
Biogeography and Ecology of the Reptiles of Tasmania and the Bass Strait Area.  
BREEDING BEHAVIOUR OF THE LITTLE GREBE, *Tachybaptus novaehollandiae*.

R.C. Walters

Over a period of 4 months (September/December, 1978) I was able to observe the breeding behaviour of a pair of Little Grebes, on a small farm dam, west of Ulverstone. Because the dam is situated close to a sealed road, I was able to observe the Grebes' behaviour from my car without disturbing them or any of the other waterfowl present on the dam.

The Grebes' nest was situated in bullrushes approximately 3 metres from water's edge and 30 metres across a paddock from my viewing point.

**Nest Building:** It took the Grebes approximately one week to build their nest. The nest, a floating, shallow bowl-shaped platform, was attached to bullrush stems by pieces of weed.

While one of the Grebes stayed at the nest arranging material, the other would dive and swim underwater, surface, dive, collect some bottom weed, swim back in an indirect way, dive 3 - 4 metres in front of the nest and appear alongside the nest platform. The bird would then deposit the weed, whereupon it would dive to repeat the whole procedure.

After 3 - 5 minutes of this gathering and arranging of material both birds would go their separate ways to feed. This pattern was repeated many times.

Both birds took turns at gathering weed or arranging material on the nest, and at the same time were always on the alert for intruders and other dangers.

**Incubation:** The incubation time for the Little Grebe is approximately 21 days. Both birds take turns in incubating the eggs. While one bird is incubating, the other spends its time feeding and defending the nest.

I was able to count 3 light blue eggs in the nest, on an occasion when the incubating bird was forced to leave in a hurry, in order to fend off an intruding Native Hen.

Normally, the Little Grebe covers the eggs with a flap of weed, before leaving the nest. On warm days both birds could be seen feeding near the nest while the eggs remained warm under the flap of weed.

**Methods of Defence:** The Little Grebe has an interesting way of attacking intruding waterfowl. When a bird, such as a duck, happens to swim too close to the nest, the feeding Grebe will dive and attack the unsuspecting intruder from underwater, 2 or 3 times before surfacing. Birds attacked in this way are left completely bewildered by the experience.

Grebes will also attack intruders by running very fast across the water, flapping their short rounded wings and calling loudly. These two methods of attack seem very effective in defending the nest.

**The Young Grebes:** It was not until after I discovered the Grebes had built a new nest on the other side of the dam that I observed the three dark grey downy chicks being fed by one of the parent Grebes. Apparently the Grebes had moved the newly hatched chicks to the new nest.
The feeding Grebe would swim into the dam, collect some bottom weed, return directly to the nest and feed both the other parent and the chicks. After taking the weed the chicks would wriggle under the parent and await the next feed, in 2 - 3 minutes time. At this stage the chicks could swim but spent most of their time on the nest with one of the parent Grebes. Both parent birds took turns at incubating and feeding the chicks. 

At approximately 3 weeks of age the young Grebes were quarter grown and had lost most of their down. The 3 young were now feeding on bottom weed, begged from the 2 parent Grebes. While the parent birds were below collecting weed, the young birds would put their striped heads under-water and appeared to be watching the activities of their parents. The young Grebes may have been learning to feed from the bottom. At 6 weeks of age the young Grebes were still being fed by one of the parent birds but were now capable of diving and feeding themselves. The other parent Grebe was now incubating a new clutch of eggs. I could not see how many eggs were in the nest. At 8 weeks of age the young Grebes were completely independent of their parents. One of the parent Grebes acted very aggressively towards the 3 fully grown young by running at them, flapping its wings and calling loudly. Two weeks later the parent Grebes were carrying weed to a new nest site. The second nest was now abandoned and the eggs nowhere to be seen. The 3 young Grebes were still together and well away from their parents. On my last visit to the dam, 9 days later, the third nest was abandoned and only one adult Grebe was seen on the water.

Conclusions: I am not sure why the Grebes abandoned their first nest, but I am certain the 3 eggs were hatched before their second nest was completed. This suggests the chicks must have been capable of swimming from a very early age. The Grebes probably abandoned the second and third nests after the farmer started pumping operations close to the nest sites. The Little Grebe defends its nesting site very vigorously and appears to care very much for its young for at least 9 weeks after the young hatch.

Editor’s Note: Similar nesting behaviour was recorded in 1930 by Edwin Ashby - see The Emu, 32, pp 250.
FIRST RECORDS OF THE ONE SPOT PULLER (*Chromis hypsilepis*) AND THE SPOTTED STINGAREE (*Urolophus gigas*) FROM TASMANIAN WATERS WITH AN ANNOTATED LIST OF FISHES RECORDED FROM KENT ISLANDS, BASS STRAIT.

P.R. Last  
Tasmanian Fisheries Development Authority, Taroona.

INTRODUCTION

The Kent Islands are situated in north-eastern Bass Strait, 26 Kilometres south of the northern limit of Tasmanian waters.

The island group, consisting of five main islands (fig. 1a), is part of a ridge of Devonian granite (Jennings, 1974) extending from Victoria into north-eastern Tasmania. The shores are mainly high rocky cliffs plummeting into depths of up to 30 metres. A deep channel separating the largest island from two smaller ones, provides access to a few small semi-exposed beaches.

The islands, as for most other areas of Bass Strait, are exposed to strong winds, rough seas and strong currents with large tidal ranges.

This interesting combination of a deep sub-tidal zone with a large tidal flushing, plus the geographic position, initiated the following pioneer survey of the fishes of these islands.

The first biological expedition to the islands was conducted by a group of naturalists in 1891. Apart from a recent collecting trip by invertebrate zoologists from the National Museum of Victoria, surveys of marine fauna are non existent.

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Fig: 1a Northern Bass Strait showing relative position of the Kent Islands.  
Fig: 1b Eight sampling sites around the main Kent Islands.
METHODS

The expedition was launched from Killiecrankie, Flinders Island and transport to and around the islands involved the voluntary use of a sharkcat owned by Mr. J. Mason, a local abalone diver. The survey took place in early March 1979.

Fish species were recorded through observation (O), seining (S), spearing (Sp), underwater photography (P) or hand capture (H). Species of doubtful identity were preserved in formalin.

Eight sites (fig. 1b) around the three main islands, were sampled using at least one of the above methods. Habitats and the appropriate methods used at each site are summarised below:

1. East Cove, Deal Island; deep profile, semi-exposed beach, sea grass bed (*Posidonia*) at depths exceeding 5 m M.H.W.S. (Mean High Water Spring); 2.3.79, S, 3.3.79, O, Sp, H; 4.3.79, O.
2. Murray Pass, Deal Island; semi-exposed reef only receiving heavy wave action from northerly swells; 3.3.79, O, Sp, P.
3. Murray Pass, Erith Island; semi-sheltered reef, deep and exposed to strong currents, but not exposed to direct swells; 2.3.79, O, Sp, P.
4. Erith Beach, Erith Island, semi-exposed beach somewhat exposed to north-easterly swells but protected from prevailing westerlies. Sparsely weeded rocks dropping quickly onto sand; 2.3.79, O, Sp, P.
5. Murray Pass, Erith Island; deep semi-exposed, heavily weeded reef, subjected to strong currents; 3.3.79, O, Sp.
7. Wallibi Cove, Erith Island; deep, exposed, weedy reef; 4.3.79, O, Sp, P.
8. Wallibi Cove, Erith Island; exposed weedy reef, bottom dispersed with large granite rocks; 4.3.79, O, Sp, P.

Species recorded are listed by family and short notes on each are given.

SPECIES ACCOUNTS

**MYLIOBATIDAE**: Eagle Rays.

*Myliobatis australis* Macleay 1881.

Single specimen, disc width approximately 1.2 m, observed off East Cove Beach.

**UROLOPHIDAE**: Stingarees.

*Urolophus gigas* Scott 1954.

Single specimen photographed at East Cove. This species, not previously recorded from Tasmanian waters, has since been collected at Marshall Bay, Flinders Island and Little Musselroe Beach, north-eastern Tasmania.

**DUSSUMIERIIDAE**: Sprats.

*Spratelloides robustus* Ogilby 1897.

Large schools observed on every dive.

**ALABIDAE**: One-gilled Eels.

*Alabes rufus* (Macleay) 1881.

Species very common beneath intertidal rocks in East Cove.

**ANGUILLIDAE**: Freshwater Eels.

*Anguilla australis* Richardson 1841.
Included from description given by lighthouse keepers of specimens collected in Garden Cove Creek.

**LEPTOCEPHALIDAE: Conger Eels.**

*Leptocephalus wilsoni* (Bloch and Schneider) 1801.
Several specimens to 10 kg observed in channel.

**MORIDAE: Cods.**

*Physiculus barbatus* (Gunther) 1863.
Common around reefs.

**PLEURONECTIDAE: Right-hand Flounders.**

*Ammrotretis liturata* (Richardson) 1843.
Two small adult specimens seined off East Cove Beach.

**SPHYRAENIDAE: Sea Pikes.**

*Australuzzza novaechollandiae* (Gunther) 1860.
This species is moderately common around seagrass beds in Bass Strait. Its record here however is restricted to a single observation.

**MUGILIDAE: Mullets.**

*Aldrichetta forsteri* (Cuvier and Valenciennes) 1836.
Large specimens (600 g) seined off East Cove Beach.

**ATHERINIDAE: Hardyheads.**

*Atherinasoma presbyteroides* (Richardson) 1843.
The above name is believed by Ivantsoff (pers. comm.) to be a senior synonym of *Taeniomembras tamarensis* (Johnson) and will be treated by that worker in due course. The species appears to be common around the beaches examined.

**CENTROLOPHIDAE: Trevallas.**

*Seriollekho noel* (Whitley) 1958?
This species is found in association with the jellyfish *Pelagia noctiluca* which occurred in large aggregations off East Cove Beach. The species has also recently been collected but not officially recorded, from plankton tows in Bass Strait.

**PATAECIDAE: Prow Fishes.**

*Aetapucus maculatus* (Gunther) 1861.
Single specimen observed at Site 2.

**CARANGIDAE: Trevallys**

*Caranx georgianus* (Cuvier and Valenciennes) 1833.
Small schools of small juveniles (L.C.F. (Length to Caudal Fork) less than 5 cm) were observed at different localities in channel.

**MULLIDAE: Red Mullets.**

*Upeneichthys porosus* (Cuvier and Valenciennes) 1829.
Abundant at transitory areas between reef and sand.

**ENOPLOSIDAE: Oldwife.**

*Enoplosus armatus* (White) 1790.
This species is commonly found in pairs at more exposed areas, being much more abundant than on the Tasmanian mainland.
DINOLESTIDAE: Long-finned Pike.  
*Dinolestes lewini* (Griffith) 1834.  
Widespread around reefs.

KYPHOSIDAE: Drummers.  
*Kyphosus sydneyanus* (Gunther) 1886.  
This species, which was only recently recorded from Tasmania (Scott, 1975) is reasonably common and specimens were observed at most localities. The species obtains a total length of about 80 cm in N.S.W. but all specimens observed and collected here were less than 25 cm.

PEMPHERIDAE: Bullseyes.  
*Liopempheris multiradiatus* (Klunzinger) 1879.  
A cave species commonly found at most reef localities.

GERRIDAE: Silverbellies.  
*Parequula melbournensis* (Castelnau) 1872.  
Common at Erith Beach around transition of reef and sand.

PLESIOPIDAE: Prettyfins.  
*Trachinops caudimaculatus* (McCoy) 1890.  
Observed at all reef localities.

GIRELLIDAE: Banded Drummers.  
*Melambaphes zebra* (Richardson) 1846.  
Most abundant of the drummers. Larger individuals up to 2.5 kg solitary, while younger fish school.  
*Girella elevata* (Macleay) 1881.  
Several schools of fish (averaging about 0.5 kg) observed in caves in the intertidal zones of sites 2, 7, 8.  
*Girella tricuspidata* (Quoy and Gaimard) 1824.  
Two small specimens observed with a school of *G. elevata*.

APLODACTYLIDAE: Rock Cales.  
*Dactylosargus arctidens* (Richardson) 1839.  
Very abundant in shallow sub-tidal and inter-tidal zones. Average size very large compared with specimens from other Tasmanian localities; obtaining 5 kg.

LATRIDAE: Trumpeters.  
*Latridopsis forsteri* (Castelnau) 1872.  
An abundant species with specimens up to 2.5 kg collected.

CHEILODACTYLIDAE: Morwongs.  
*Goniistius vizonarius* (Saville-Kent) 1887.  
A major reef species common throughout Bass Strait, this species is very abundant at all sites. Maximum weight 1.5 kg.  
*Cheilodactylus spectabilis* (Hutton) 1872.  
This species is very common. Maximum weight 4 kg.

ARRIPIDAE: Australian Salmon.  
*Arripis trutta* (Bloch and Schneider) 1801.  
Juveniles seined off East Cove Beach.
HISTIOPTERIDAE: Boarfishes.

*Pentaceropsus recurvirostrus* (Richardson) 1845.
Two large adults observed at Site 6.

SCORPIDAE: Sweeps.

*Scorpius acutipinnis* (Richardson) 1848.
A very abundant species particularly in areas of turbulence on reefs.
This fish attains a larger size (1.5 kg) than on Flinders Island or the
Tasmanian mainland.

*Scorpius lincolatus* (Kner) 1865.
Less abundant and smaller (0.5 kg) than above, usually found in a
similar habitat.

*Atypichthys striatus* (Gunther) 1860.
Large aggregation of juveniles (less than 3 cm L.C.F.) under Deal
Island jetty (Site 1).

ANTHIIDAE: Sea Perches.

*Caesioperca lepidoptera* (Bloch and Schneider) 1801.
*Caesioperca rasor* (Richardson) 1839.
These two species are most abundant of the large reef species. They
are sympatric at most localities.

LEPTOSCOPIDAE: Sandfishes.

*Crapatalus sp. nov.*
This species which is recorded from a single specimen, occurs on selected
beaches around Tasmania. It will be described by the author in due
course.

BLENNIDAE: Blennies.

*Pictiblennius tasmanianus* (Richardson) 1849.
Several individual specimens observed in intertidal zone.

TRIPTYERGIDAE: Threefins.

*Gillia macleayana* (Lucas) 1891.
A few small individuals (less than 6 cm) observed in caves. Difficult to
make positive identification without specimens for microscopic
examination.

LABRIDAE: Wrasses.

*Pseudolabrus fusicauda* (Richardson) 1840.
Most common wrasse, more abundant close to shore and reaches 1.5 kg.

*Pseudolabrus tetricus* (Richardson) 1840.
The largest wrasse, this common species attains a maximum weight
of about 2.5 kg.

*Pictilabrus laticeps* (Richardson) 1839.
Several individuals observed at each sampling site.

*Pseudolabrus psittacus* (Richardson) 1840.
Common in Murray Pass.

Unidentified species.
A single specimen (approximately 8 cm total length) of a species not
recorded from Tasmania, observed at Site 4 but escaped collection.
ODACIDAE: Rock Whitings.

*Olisthops cyanomelas* (Richardson) 1850.

Species very abundant and average size larger than on Tasmanian mainland (approximately 1 kg and obtaining 2 kg).

*Nemadax balteatus* (Cuvier and Valenciennes) 1839.

A small species more common at the sheltered localities and around seagrasses.

SCARIDAE: Parrotfishes.

*Heteroscarus acroptilus* (Richardson) 1846.

Specimens of both sexes photographed.

POMACENTRIDAE: Damsel Fishes.

*Parma microlepis* (Günther) 1862.

Species very abundant in some areas of Murray Pass particularly Site 4.

*Chromis hypsilepis* (Günther) 1867.

An underwater photograph of a specimen from Site 4 constitutes the first record of this species from Tasmanian waters.

DIODONTIDAE: Porcupine Fishes.

*Atopomycterus nichthemcrm* (Cuvier) 1818.

Specimens observed at all diving sites.

OSTRACINTIDAE: Boxfishes.

*Aracana aurita* (Shaw) 1798.

Single specimen observed around sand and rocks at East Cove.

MONACANTHIDAE: Leatherjackets.

*Eubalichthys gumii* (Günther) 1870.

This species is the rarest reef leatherjacket in Tasmanian mainland waters, however at all exposed localities it was clearly the most common.

*Penicippela vittiger* (Castelnau) 1873.

Some adults observed in the deeper water. Juveniles common over seagrass in East Cove.

*Meuschenia freycineti* (Quoy and Gaimard) 1824.

Adult specimens observed and photographed in caves in 8 - 15 m.

*Meuschenia australis* (Donovan) 1824.

Single specimen observed at Site 6.

A single specimen of the one spot puller (*Chromis hypsilepis*) was observed and photographed in the vicinity of a large population of whitears (*Parma microlepis*). A single specimen of the spotted stingaree (*Urolophus gigas*) was photographed on sand in East Cove and along with the above sighting represent the most southern records for these species. McCulloch (1929) listed the distribution of *C. hypsilepis* as New South Wales while the spotted stingaree has been recorded from South Australia (Scott, Glover and Southcott, 1974), Victoria (Anon., 1973) and Western Australia (Walker, 1979).

Three additional records are of particular interest. A single specimen of a new species of sandfish (*Crapatalus sp.*) was collected. Although undescribed this species is widely distributed throughout south eastern Australia and a detailed account will be
presented at a later date. An elusive unidentified wrasse was observed by the author but unfortunately not collected. The record of the trevalla, *Seriolella noel*, would also constitute a new record for Tasmania. However the taxonomy of this group of fishes is highly confused so at this stage this identification is only tentative.

**DISCUSSION**

A literature search reveals a paucity of information on fish species compositions of inshore marine habitats of northern Tasmania and Victoria. However limited evidence from some works (Scott, Glover and Southcott 1974; Anonymous, 1973; Scott, 1934 - 1979) plus observations and unpublished notes made by the author, indicates a basic similarity between faunas. The same indicator species for each habitat appear in both areas, the only real difference being a greater relative influx (in terms of species numbers and abundances) of New South Wales dominants in Northern Bass Strait waters. This situation is beautifully demonstrated at the Kent Group, by three groups of fish; the damselfishes, drummers and sweeps.

The family Pomacentridae or damselfishes is principally a warm water group with only three species recorded from the cool temperate waters of Tasmania. The white ear (*Parma microlepis*) is a very abundant reef species in southern New South Wales. Small isolated populations of juveniles are found along the north and eastern coasts of Tasmania but large adults are extremely rare. The scalyfin (*Actinochromis victoriae*) is a common reef species and the dominant pomacentrid in the coastal waters of northern Tasmania and the Bass Strait Islands. The only known exception being Murray Pass where large adult whitears are extremely abundant and scaly fin have not been recorded. A further similarity in habitat type with New South Wales is suggested when the occurrences in the Kent’s of two other warm temperate species, the one spot puller and the urchin (*Centrostephanus rodgersi*), are considered.

The Australian drummers, Girrelidae and Kyphosidae, attain their greatest diversity in New South Wales waters. Apart from the zebra fish (*Melambaphes zebra*), these species are relatively much less abundant in mainland Tasmanian waters. Observations made in the Kent Group indicate that their numerical importance is somewhere intermediate between the situations at the above areas.

A similar case exists for the three sweep species with the mado (*Atypichthys strigatus*) being the major indicator from warm temperate waters although the *Scorpius* species are both more abundant in New South Wales waters.

Although sharp zoogeographic boundaries are non-existent in the sea (Dakin, 1952), records presented here and other similar unpublished data, support the use of three intertidal faunal provinces (Bennet and Pope, 1953) for reef fish distributions in southern Australia. These provinces the warm temperate Flindersian (south and south western Australian coasts) and Peronian (New South Wales and eastern Victorian coasts) and the cool temperate Maugean (Victorian and Tasmanian coasts) overlap in Bass Strait.

Dakin suggested, for invertebrates at least, that exposed rocky reef faunas provided better indicators of provincial status than less stable sheltered bay or estuarine faunas. Such observations are also generally true for fish distributions, as the latter habitats are more variable physically and at certain times of the year
provide suitable habitats for migrants and juveniles from other provinces. The fish fauna of this exposed island group is basically Peronian and possibly constitutes the southern most stronghold for this province. Clearly the area is of considerable zoogeographic importance and it is intended that a more intense collecting expedition will be conducted to this area within the near future.

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REFERENCES


BIRDS OF THE SULLIVANS COVE AREA, CITY OF HOBART

J.G.K. Harris

In 1978 the Bird Observers Association of Tasmania (B.O.A.T.) was requested by the Sullivans Cove Development Committee to provide a report on the species of birds inhabiting the Sullivans Cove area to assist in the formulation of planning guidelines for the area's future use. The Sullivans Cove Study Area, as indicated in Fig. 1, comprises the main commercial wharves of the City built around the inlet known as Sullivans Cove, together with a surrounding zone of mainly commercial buildings and two small park areas. The report was based on observations made by J.G.K. Harris, J. Berry and A.W.J. Fletcher over the period 1973 to 1978. This paper is adapted from that report.

Sullivans Cove and its foreshore consist of four types of bird habitat, each with its own distinct bird population. The first and dominant habitat is the built-up area with little or no trees or shrubs. This area includes the railway yards and wharf service areas behind the wharf. Very few birds frequent this habitat and most of those that do would generally be considered the least desirable. The major species are three introduced birds, the house sparrow, common starling and feral or domestic pigeon. All three of these nest in the area. The native silver gull also frequently scavenges in the area and the two native swallows, the welcome swallow and the tree martin are both fairly commonly seen hawking for insects around the buildings. The tree martin definitely nests in the area using pipes in the sides of buildings as ready-made nest sites. The welcome swallow probably also nests under eaves of the buildings.

The second habitat and that with the greatest variety of birds is the park-land, which is currently restricted to St. Davids Park and Franklin Square and the area in front of Parliament House. A total of 30 species have been recorded in these areas, but it is very noticeable that 15 of these, all the native bush species, are almost exclusively found in the vicinity of the large blue gum (Eucalyptus globulus) in St. Davids Park. The other species consist of seven introduced birds, the silver gull, aerial feeders (swallow and swifts)
and occasional raptors. Most of the introduced species nest in the area, but none of the native bush birds have been found nesting.

The third habitat is the wharf and docks frequented by three species of gull, one tern and two cormorants with occasional sightings of little penguins.

Finally there is the River Derwent outside the dock area in which at odd times purely marine species can be observed. There is even one record of a wandering albatross straying up the river in a gale.

List of Bird Species Recorded

The habitat in which the species was recorded is denoted by a number and appears on the right of the list.

1 = Built-up areas
2 = Parks
3 = Wharfs and docks
4 = River Derwent

| Hoary-headed grebe — Poliocephalus poliocephalus | 3 |
| Little penguin — Eudyptula minor | 3, 4 |
| Wandering albatross — Diomedea exulans | 4 |

Occasionally seen swimming in the dock area.
Fairly regular in the river occasionally entering the docks.
One recorded following a ship up the river in a gale.
Giant petrel — *Macronectes sp.*
Irregularly recorded following ships up the river, usually in stormy weather.

Short-tailed shearwater (muttonbird) — *Puffinus tenuirostris*
Enormous flocks in the river at certain times of year, particularly late summer.

Australian pelican — *Pelecanus conspicillatus*
Irregularly recorded flying over the river.

Australian gannet — *Morus serrator*
Common in the mouth of the Derwent, but only occasionally coming up as far as Hobart.

Black cormorant — *Phalacrocorax carbo*
Common on wharf. Frequently seen perched on ships or dockside buildings with wings held spread out to dry.

Little pied cormorant — *Phalacrocorax melanoleucus*
Common in the wharf area.

White-faced heron — *Ardea novaehollandiae*
Flies over wharf area not infrequently, but only occasionally seen to land in the area.

Great egret — *Egretta alba*
Large pure white heron, occasionally seen flying over wharfs and river.

Black swan — *Cygnus atratus*
Common in upper reaches of the Derwent near Granton. Often seen flying over the wharfs and occasionally lands on the river.

Mallard — *Anas platyrhynchos*
Introduced bird (ancestor of domestic duck). Two were seen regularly in the wharf area in the year following the Tasman Bridge disaster. They were fed regularly by passengers queuing for the Derwent ferries.

Collared sparrow hawk — *Accipiter cirrhocephalus*
Several records from St. David's Park and Parliament Square. Probably feeding on starlings during their pre-roost gathering in St. David's Park. One definitely seen to kill a starling in the park.

Peregrine falcon — *Falco peregrinus*
One observed flying over Parliament Square.

Brown falcon — *Falco berigora*
Fairly regular over wharves and parks. May feed on rodents around docks and grain silo.

White-bellied sea-eagle — *Haliaeetus leucogaster*
Irregularly seen flying over the river.

Wedge-tailed eagle — *Aquila audax*
Irregularly seen soaring over wharf area.
Masked lapwing (spurwing plover) — *Vanellus miles*
  Occasionally seen in wharf area.

**Great skua — Stercorarius skua**
  Several records from the Derwent where they follow ships up river in stormy weather.

**Arctic jaeger — Stercorarius parasiticus**
  Follows ships up river. Feeds by chasing gulls until they drop their food.

**Silver gull — Larus novaehollandiae**
  Common in all areas. Regularly fed in Franklin Square.
  In most cities in the world, feral pigeons are hand-fed in town squares. The silver gull may be responsible for Hobart's feral pigeon population remaining at a fairly low level by usurping them in this regard.

**Pacific gull — Larus pacificus**
  Commonly seen in wharf and river areas but in much smaller numbers than the silver gull.

**Kelp gull — Larus dominicanus**
  Common in New Zealand and many Antarctic islands.
  Only first seen in Australia in 1940's, but now common in the Derwent River. Commonest at rubbish tips and sewerage outfalls and probably less frequent in wharf area than Pacific gull.

**Feral pigeon — Columba livia**
  Fairly common, breeding on stone shelves on buildings.
  Numbers considerably lower than in most modern cities.

**Spotted turtle-dove — Streptopelia chinensis**
  Nests in trees within the area. Often seen feeding on spillage from grain silo.

**Swift parrot — Lathamus discolor**
  Small bright green parrot with red throat, tail and underwing.
  Commonly seen chasing each other in squealing flocks between St. David's Park and Parliament Square. Commonest when the blue gum is in flower when they feed on nectar and/or pollen from the flowers. In years of poor flowering of the blue gum flocks of 80 or more have been seen eating elm seeds in St. David's Park.

**Green rosella — Platycercus caledonicus**
  Endemic parrot recorded twice in St. David's Park

**Eastern rosella — Platycercus eximius**
  Brilliantly coloured parrot common near the Olympic Pool and occasionally straying over Hobart Railway Station. Also twice recorded from St. David's Park.
Pallid cuckoo — *Cuculus pallidus*
Summer visitor from the mainland. Occasionally recorded from park areas.

Masked owl — *Tyto novaehollandiae*
One photographed by a *Mercury* newspaper photographer at a window of an old warehouse (since demolished to build a new court house). Could have been regular in the past feeding on rodents around warehouses, but unlikely to be seen again except as a chance vagrant.

White-throated needletail (Spine-tailed swift) — *Hirundapus caudacutus*
Large flocks commonly seen hawking for insects above the city during February and March. Breeds in the Northern hemisphere.

Welcome swallow — *Hirundo neoxena*
Common. Hawks for insects particularly around parks and wharves. Almost certainly breeds in the area.

Tree martin — *Cecropis nigricans*
Very common. Hawks for flying insects. Normally nests in holes in trees, but several have been recorded nesting in holes in buildings and in pipes in the side of the ship ‘Darling River’ which was moored to a wharf in the area for about two years.

Blackbird — *Turdus merula*
Introduced bird and a considerable pest in fruit growers. Has a beautiful song which is often heard around St. David’s Park where several pairs nest. One of the commonest species in St. David’s Park all the year round.

Grey fantail — *Rhipidura fuliginosa*
Recorded twice in Franklin Square and regularly in St. David’s Park.

Brown thornbill — *Acanthiza pusilla*
Small flocks in St. David’s Park. Searches for insects in mainly native shrubs.

Yellow wattle-bird — *Anthochaera paradoxa*
Largest Australian honeyeater and endemic to Tasmania. Occasionally seen in park area.

Yellow-throated honeyeater — *Licheronotus flavicollis*
Endemic. Small numbers in the park area when the blue gum is in flower.

Black-headed honeyeater — *Meliphagris affinis*
Small endemic honeyeater with all black head. Always in small flocks and never far from eucalypt trees. Recorded occasionally from the blue gum in St. David’s Park.
Crescent honeyeater — *Phylidonyris pyrrhoptera*
Appears in suburban Hobart in large numbers in autumn and is readily attracted to native flowering shrubs.

New Holland honeyeater — *Phylidonyris novaehollandiae*
Fairly regular in St. David’s Park when the blue gum flowers.

Eastern spinebill — *Acanthorhynchus tenuirostris*
Occasionally recorded in St. David’s Park.

Silvereye — *Zosterops lateralis*
Fairly common in St. David’s Park where it may breed. Feeds in flowering eucalypts and other native shrubs. Flocks to exotic berries especially blackberry and cotoneaster in autumn and winter when it is very common in the Hobart area.

Spotted pardalote — *Pardalotus punctatus*
Recorded a few times from the vicinity of the St. David’s Park blue gum. Feeds amongst foliage, mainly of eucalypt.

Striated (Yellow-tipped) pardalote — *Pardalotus striatus*
Similar to spotted pardalote but more numerous.

European goldfinch — *Carduelis carduelis*
Introduced from Europe. Common in St. David’s Park where it nests. Feeds on seeds of weeds especially thistles, groundsel and other members of the Compositae family.

European greenfinch — *Carduelis chloris*
Introduced from Europe. Regular in St. David’s Park but less numerous than goldfinch. May well nest in the park. Feeds on larger seeds than does the goldfinch.

House sparrow — *Passer domesticus*
Introduced from Europe. Very common, nesting in eaves of buildings feeding mainly on scraps discarded by man.

Common starling — *Sturnus vulgaris*
Introduced from Europe. Probably at times the commonest birds in the area, because St. David’s Park is used as a staging post in autumn and winter by birds flying to roost under the Tasman Bridge. Enormous numbers congregate in the trees just before dusk, flying on to the Tasman Bridge just as darkness falls. At other times they are mainly found in the park areas feeding on invertebrates picked out of the lawns. Nests in the area in eaves of buildings.

Forest raven — *Corvus tasmanicus*
Half a dozen or so ravens scavenge regularly, particularly around the wharves and parks. Could possibly breed in tall trees around Parliament Square or St. David’s Park.
THE CONSISTENCY OF BIRD OBSERVATIONS IN A HOMOGENEOUS ENVIRONMENT

Ann V. Ratkowsky

In my paper 'The Bird Species of Mt Nelson in Relation to Microhabitat and Recent Bushfires', the Tasmanian Naturalist No. 57, May 1979, I counted the number of different bird species in three areas of the dry sclerophyll bushland in the hills of Mt Nelson, Hobart. The three areas had different geographical and vegetative characteristics.

The present study was carried out to investigate the consistency of the number of bird species observed when the habitat is as uniform as possible, i.e. when it consists of a single type of micro-habitat. In the dry sclerophyll bushlands of the Mt Nelson hills, I selected three reasonably homogeneous line transects, each of which was about 2 km in length and which required a walking time of 30 minutes to traverse. These three transects are labelled A, B and C, and a fourth transect labelled D is in fact transect A walked in the reverse direction on the return trip; thus A and D serve as a control. My method of observing bird species was the same as I have used before, i.e. I recorded each species seen or heard in each transect. The results are given in the following table:

<table>
<thead>
<tr>
<th>Day</th>
<th>No. of species observed in transect</th>
<th>Average per day over all transects</th>
<th>Range of no. of species in col. (2)</th>
<th>No. of species that occurred in all four transects and its percentage of the average number in col. (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>1</td>
<td>9</td>
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<tr>
<td>2</td>
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<td>15</td>
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</tr>
<tr>
<td>3</td>
<td>12</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
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<td>14</td>
</tr>
<tr>
<td>6</td>
<td>17</td>
<td>19</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>7</td>
<td>16</td>
<td>16</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>8</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Average</td>
<td>13.6</td>
<td>13.9</td>
<td>14.4</td>
<td>14.3</td>
</tr>
</tbody>
</table>

The average number of bird species in the four transects (col. 2) did not differ significantly, although there was considerable variation in the average number of species per day (col. 3). A further measure of consistency is the small range (col. 4) between the maximum and minimum numbers of species observed in the four transects.
On any given day the same species were often observed in each of the four transects (see col. 5), e.g. on Day 6, fourteen species were common to all transects. This represented 77.8% of the average number of species observed on that day. These percentages varied from 57.1 on Day 1, which was exceptionally windy, to 81.5 on Day 4. These high values further demonstrate the consistent results that can be obtained with 30 minutes of observation in a relatively homogeneous environment.

There were four species of birds sufficiently abundant so that they were observed every day in every transect: Superb Fairy-wren, Brown Thornbill, Yellow-throated Honeyeater, Forest Raven. Other species which were observed every day in practically every transect were: Golden Whistler, Grey Shrike-thrush, Black-headed Honeyeater, Spotted Pardalote, Striated Pardalote.

The reader interested in a more systematic and thorough study of the effects of different time intervals and weather upon the number of bird species recorded is referred to a recent publication: “A comparison of counting methods to obtain bird species numbers” by A.V. Ratkowsky and D.A. Ratkowsky, Notornis 26:53 - 61 (March 1979).

**ROAD KILLED PLATYPUS**

R.M. Tyson, St. Leonards

Why do Platypus *Ornithorhynchus anatinus* become road killed victims?

Recently I have visited four (4) sites where platypus have been killed on the road. Each of these places have been where a water course crosses under the road through pipes.

These sites are:

(a) Half a mile west of Nunamarra where water is piped from the St. Patricks River to supply the water treatment plant at Waverley near Launceston. The pipes in this instance cut through a hill finally crossing under the road approximately 400 metres in distance.

(b) Strathroy Bridge just south of Launceston. The water in this case is little more than a trickle passing through quite large pipes under the bridge.

(c) Approximately one and a half miles west of Glengarry. This is where a small stream is piped under the road.

(d) Several miles south of Exeter. This site is similar to C.

There are a couple of logical answers to why the platypus left the water. One is that the platypus was swimming up stream and could not get into the pipes because of the concentrated water flow and also in some cases the sharp rise into the pipes. Likewise the platypus could have been swimming down stream and did not want to fall or be swept out the other end.

Or, could it be that when confronted by structures made of pipes (culverts, etc.), the platypus, finding it unfamiliar to the course it has been following simply gets out of the water, returning when conditions become more favourable?

Platypus, of course, are often seen swimming under some bridges. However it could be that in these cases the river bed is usually unaltered.
FOOD OF THE WHITE-BROWED SCRUBWREN

R.H. Green
Queen Victoria Museum and Art Gallery
Launceston

The zoology section of the Queen Victoria Museum, Launceston, has since 1974 been collecting material and data at Maggs Mountain, central northern Tasmania with special reference to the fauna of the area.

An annotated list of the vertebrate animals of the area was published in 1977 in *Records of the Queen Victoria Museum* No. 58.

Amongst the material collected was a series of 24 White-browed Scrubwrens *Sericornis frontalis* from which the stomach contents were removed and preserved. The birds were collected principally by mist netting in summer and autumn in mixed sclerophyll forest at an altitude of 450 m in the vicinity of the Arm River camp where the Museum’s field station is established.

A subsequent examination of the preserved gut contents has revealed scrubwrens from the Maggs Mountain area have an omnivorous diet, taking both invertebrates and seeds in approximately equal proportions. Of the 24 samples examined, all contained invertebrates, 19 contained seeds and nine contained small particles of gravel.

The invertebrate material was broken into small fragments and no attempt was made to identify items, though fragments of beetles were noted in six samples. Insect eggs were found in two samples and remains of ants were found in another two.

The seeds have been examined at the Seed Testing Laboratory, Department of Agriculture, Launceston, by Mr. Bruce Turner and Mrs. C. Knowles who have kindly provided me with the following list. Because many of the seeds were broken or partly digested, determination was difficult and sometimes only tentative. The number of samples in which each occurred is also given.

**Monocotyledons**

**GRAMINEAE**
- unidentified grass 1
- *Vulpia* sp. 1

**CYPERACEAE**
- unidentified sp. 3
- *Dianella* 1

**LILIACEAE**

**Dicotyledons**

**RANUNCULACEAE**
- *Ranunculus* sp. 7

**GERANIACEAE**
- *Geranium* sp. 12

**OAXLIDACEAE**
- *Oxalis* sp. 3

**LEGUMINOSAE**
- *Pultenaea* sp. 1
- *Senecio* sp. 1
- *Cirsium* sp. 3

**PRIMULACEAE**
- *Anagallis* sp. 1

**SCROPHULARIACEAE**
- *Veronica* sp. 1

**LABIATE**
- *Prunella* sp. 8

unidentified seeds
One sample contained five species, five contained four species, four contained three species, five contained two species, four contained one species and five contained only invertebrate material. The greatest number of seeds in any one sample was 65 of four species.

The plants listed are mostly those which might be found growing on the edge of clearings and on the edge of streams or ponds, and include at least two introduced weed species. They are mostly plants producing hard seeds which lack a fleshy outer covering. The muscley nature of the bird’s stomach together with the presence of gravel would assist in the digestion of seeds. The broken and partly digested seeds amongst the gut contents indicate that this scrubwren is not just insectivorous as was generally believed but that it utilises a variety of seeds, in addition to the invertebrate animals, as items of its diet.

NOTES FROM KING ISLAND (Received 17th October 1979)

Mrs. P.F. Barnett
Hon. Secretary, Field Naturalists Club of King Island

A few months ago on a field expedition to our Forestry Reserve, we found one of the known sea eagles dead under the nest. As the forester had seen him alive the day before, he was quite fresh and, with Ansett Airlines co-operation, was sent off that day to Bob Green at Launceston Museum who, although sorry the bird was dead, was very pleased to receive it and has since advised made into a very fine study skin. Luckily the bird had been frozen so that on learning a few days later that a neighbouring farmer was using a poison (Luci-jet) for crows, the stomach contents were able to be sent to Mount Pleasant laboratories where the poison was found in the intestinal contents. We have at least 9 sea eagles nests on the Island but it is a pity to lose one in such circumstances, about which we can’t do a thing.

Also recently a sea elephant was noticed on the beach just south of City of Melbourne Bay where each day until about 4 or 5 p.m. he took to the water then came ashore either onto the rocks or on the beach. A bull of approximately 14 ft, he stayed in this area for at least 3 weeks but had recently moved further south and we’re not sure whether he is still here or not now. It is amazing to see that great bulky body suddenly and so easily rear up and rather terrifying to look into that great chasm of a mouth.
The partly feathered skeleton of a crested penguin was collected by Mr. Peter Duckworth on Plain Place Beach, Okehampton, about 5 km north-east of Triabunna, in June 1979. Recognising its probable importance, Mr. Duckworth had the specimen sent to the National Museum of Victoria where Mr. A.R. McEvey and Mr. K.N.G. Simpson identified the remains, with a reasonable degree of certainty, as that of Snares Crested Penguin \textit{Eudyptes robustus} Oliver, 1953. Its sex was indeterminable.

This species breeds on Snares Island south of New Zealand and its distribution is restricted to the adjacent seas. Stragglers rarely reach Macquarie Island and Australia. Simpson & McEvey (The Emu 72:110 - 111) give details of the two previously recorded from Australia, one being in the South Australian Museum (Reg. No. B1071) from Cape Banks, South Australia in January 1914 and one in the Tasmanian Museum and Art Gallery (Reg. No. B2367/10002) from Seven Mile Beach, south-eastern Tasmania in August 1951.

The present specimen is therefore the third known Australian record. It has been lodged with the Queen Victoria Museum and Art Gallery, Launceston (Reg. No. 1979/2/338).

**BOOK REVIEWS**

**ENCOUNTERS WITH NATURE**

L. Brown

Published by Oxford University Press. Price $21

No one writes more attractively on African wildlife than Leslie Brown, former government official in that country, and all his life an ardent amateur naturalist. His newest book is so full of interest that the reader, naturalist or not, will find it hard to put down. What commends it particularly is that, apart from the tiger, only the barest reference is made to the so-called "big game" which have already been tediously over-played in most African books and on TV. Refreshingly, it mainly covers a comparatively little known segment of nature in Africa, such as the antbear, badgers, the mountain nyala, flamingos, and other smaller and no less interesting creatures that normally we hear little about.

It is on birdlife that Brown probably is at his best. Nightjars and the two kinds of flamingos, as well as the curious honey guides and the many eagles, form subjects for some fascinating stories, all drawn from his personal experiences. Most dramatic of these is perhaps his account of a search for nesting flamingos in which he barely escaped with his life while wading through a deposit of mud. It is taken from an earlier book, but loses nothing by being repeated. Quaint flashes of humour lend spice to the book; and there are some very nice drawings by Doris Tischler.

Michael Sharland.
KOSCIUSKO ALPINE FLORA
A.B. Costin, M. Gray, C.J. Totterdell, D.J. Wimbush
Published jointly by C.S.I.R.O. and William Collins Pty. Ltd.
Price $25

Written and illustrated by an evidently dedicated team of four, this Flora of a strictly limited area is an extremely satisfying book.

"Plants grow neither in random mixtures nor in isolation, but as members of communities. . . any diverse area such as Kosciusko usually supports a mosaic of plant communities reflecting the main combinations of environmental conditions." This quotation from the book is indicative of the change of emphasis that has occurred in comparatively recent years from the study of the individual to that of the whole eco-system.

To this end habitat maps and tables are provided and historical and environmental factors are considered, though as its title tells us, the book is essentially a Flora with a dichotomous key. Excellent colour photographs are an additional aid in identifying plants, and for those with limited botanical knowledge the photographs of grasses and sedges will be particularly useful. Plates 4 - 60 are mostly scenic, topographical, and plant-community pictures. Plates 61 - 350 are essentially of individual plants. However, as the authors say "those (not familiar with botanical terms) who take the initial trouble to key out the plants rather than take the short cut of matching them against the illustrations will find, to their satisfaction, that they are also training themselves to identify plants in any environment."

Although alpine areas vary because of differing rock, altitude, latitude and climate, some factors are common to all, so that in many respects this book applies also to Tasmanian alpine areas. Even for the Tasmanian mountain flora, the key in this book will be useful as far as the genera and in some cases to the species, although Tasmanian species not occurring in the Kosciusko area are of course not included.

Important to conservation, the sheer beauty of the alpine scene is very well communicated in the superb photographs.

Because of its balanced appeal to the scientist, field naturalist and the book-lover, 'Kosciusko Alpine Flora' should be very successful. Certainly most field naturalists will want to own it for frequent reference.

The Club’s library copy came with the compliments of CSIRO.

Kelsey Aves.
FROM BUTLER’S GORGE TO GORDON DAM AT THE KNOB

A.M. MOSCAL

South of Clark Dam, following a power transmission line and then a rough Bombardier track to First Bay (Guelph Basin), the vegetation is predominantly of open-forest communities dominated by *Eucalypt* species except within the sheltered depressions where patches of *Nothofagus* and *Athrotaxis* extend down from Mt. Hobhouse.

From First Bay to Long Bay the intermittent swamp area is dominated by *Gymnoschoenus sphaerocephalus*, depending on the edaphic condition and drainage, *Eucalypt* woodland with an open shrubland mosaic of *Epacridaceae*, *Compositae* and *Protaceae*. A sparse cover of grasses comprises the vegetation of rocky outcrops and stony soil humps within the plain towards the Gordon River extending south-westerly for about three kilometres past Long Bay. In general the area appears to have been in frequently burned and individual *Athrotaxis cupressoides* and *Milligania* species occur occasionally within wet areas.

About two kilometres south of Long Bay the Bombardier track bisects for half a kilometre a closed-canopy *Eucalypt* forest leading down a steep slope in a straight line towards the Gordon River. Appreciable erosion was evident within the deep soil strata. For the next four kilometres the track follows the river through a lightly forested *Eucalypt* woodland with an abundance of *Callistemon viridiflorus* on its edges. About five kilometres south-east of Mt. King William III an airstrip had been constructed on a quartzite eminence. The adjoining creek was bridged with trees felled on the embankment parallel to the stream now causing through the log jam thus created hydrological changes adversely affecting the surrounding vegetation and causing additional siltation on the low area through soil washouts around the stream obstruction.

From the south end of the airstrip the track continues for five kilometres through a watershed dominated with shrubland and a prime example of successive
progression from heath-sedgeland to rainforest, the inner rim dominated by Myrtaceae such as Melaleuca and Leptospermum and the rainforest including Nothofagus cunninghamii, Atherosperma and Riehea pandanifolia.

Then on a quartzite ridge at 500 metres elevation another airstrip has been started but not completed. Descending towards the Gell River an abandoned campsite can be found.

The Bombardier track continues in a westerly direction through a one kilometre section of rainforest using a creek bed to descend to an eastern branch of the Denison River where there is evidence of a recent bushfire. The vehicular track continues along the Denison Valley to a low ridge; several attempts to branch off towards the river have been foiled by the conditions of the terrain and the size and density of the vegetation which is predominantly Leptospermum scoparium and L. lanigerum along the river flats.

The northern plateau of The Prince of Wales Range which lies west of the Denison River is vegetated mainly with Buttongrass with isolated patches of low shrubs re-establishing themselves over formerly burned areas in association with Nothofagus cunninghamii and Athrotaxis selaginoides. Along the rest of the range, mainly on the western slopes, occasional burnt skeletons of Athrotaxis are conspicuous but without any evidence of regeneration. The entire high ridge area of The Prince of Wales Range is covered by Gymnoschoenus which excludes bolster plant communities except within a limited area on the northern end of Mt. Humboldt. Here, within the broken surfaces of the massif, open heath-herb predominates with low and prostrate shrubbery alternating with bare ground within the wind-gaps cutting across the ridges in an east-west direction.

The high alpine vegetation within the Prince of Wales Range is limited in its extent mainly in the north to the Diamond Peak area and in the south to the Mt. Humboldt massif. In addition to the endemic flora (as tabulated in separate appendix) Dr. S.J. Jarman's discovery of a new Epacris on Mt. Humboldt renders this area highly significant as from my field observation this Epacris is limited in its distribution to the high quartzite bluffs and the adjoining fjaeldmark community.

Below the cliff base line the vegetative cover varies considerably - from dwarfed Nothofagus cunninghamii and Eucryphia milliganii as dominants of unburnt areas to shrubland Olearia, Orites and Monotoca of various ages depending on the frequency and period elapsed since the last fires in the respective areas.

The long, low southern ridge (520 metres elevation) between Mt. Humboldt and the Denison Gorge is dominated along its crest by Leptospermum and Melaleuca species interspersed with Banksia and an understorey of Bauera; in addition Galuia grandis is found in deep soil areas and old stands of Gymnoschoenus on steep slopes with little soil cover.

Below 400 metres elevation there is a mixture of Eucalypts, Nothofagus, Eucryphia, Atherosperma and the occasional immature Phyllocladus. The creek gullies are usually dominated by Antrodopetalum biglandulosum and sometimes with Pomaderris apectula and old mature trees of Leptospermum and Melaleuca.

Then at 280 metres elevation and downwards to the Denison River flats a more uniform rainforest pattern is established, dominated by Nothofagus cunninghamii
Eucryphia lucida, Atherosperma moschatum with an understorey of Orites diversifolia, Lomatia polymorpha, Anopterus glandulosus, and Dicksonia antarctica; ground cover consists of Blechnum watsonii, B. nudum and Histiopteris incisa. Microsorium diversifolium and Hymenophyllum species are abundant on trees; common on embankments are Oxalia lactea and Oreomyrrhis ciliata, and on rocky embankments Epilobium perpusillum.

At the southern end of The Prince of Wales Range, and straddling the Denison River, is the Truchanas Huon Pine Reserve. The only mature Huon Pines on the two and a half kilometre stretch of the east bank had been cut down and discarded wood rollers and slip-marks on the ground indicated that logs had been transported from further afield to the river within the reserve. The absence of mature pines on the west bank led to the conclusion that logging had taken place there also. (This logging was carried out before the reserve was gazetted - Editor).

Ascending the Hamilton Range from the Denison Gorge through dense rain-forest the vegetation changes abruptly to shrubland dominated by Eucalypts, Leptospermum and Banksia. From 280 metre elevation upwards and along the ridges Gymnoschoenus predominates. Stands of stunted Nothofagus cunninghamii north of Mt. Robert had been burned, but minimal soil erosion had occurred because abundant herbaceous vegetation such as Senecio pectinatus and Rubus gunnianus was present except where the topsoil had eroded or been removed by bulldozers in connection with the Gordon Dam construction activities.

**DISTRIBUTION OF FLORA**

<table>
<thead>
<tr>
<th>Abundant (A)</th>
<th>Gymnoscoenus Wood</th>
<th>Rain Gymnoscoenus Alpine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common (C)</td>
<td>Heath-wood</td>
<td>Forest Heath-wood</td>
</tr>
<tr>
<td>Occasional (O)</td>
<td>Herb</td>
<td>Shrubland Shrubland</td>
</tr>
<tr>
<td>Rare (R)</td>
<td>(lowland)</td>
<td>(highland)</td>
</tr>
</tbody>
</table>

**BUTLER’S GORGE**

TETRATHECA PROCUMBENS X(A)
BEDFORDIA SALICINA X(A)
BEDFORDIA LINEARIS X(A)
CYATHODES PARVIFOLIA X(A)
WESTRINGIA ANGUSTIFOLIA X(C)
TELOPEA TRUNCATA X(O)
RUBUS GUNNIANUS X(C)

**LAKE KING WILLIAM/GUELPH BASIN, FIRST BAY TO LONG BAY**

MONOTOCA SUBMUTICA X(O)
EUCRYPHIA LUCIDA X(O)
Gymnosco-
hoenus
Wood
Land
Rain
Gymnosco-
hoenus
Alpine
Heath-
Forest
Herb
Shrubland
Heath-
(lowland)
Shrubland
(highland)

LAKE KING WILLIAM/GUELPH BASIN, FIRST BAY TO LONG BAY (CONT.)

ATHROTAXIS CUPRESSOIDES X(R)
CYATHODES PARVIFOLIA X(C)
TELOPEA TRUNCATA X(O) X(O)
EPACRIS GUNNII X(C) X(C)
CALLISTEMON VIRIDIFLORUS X(A) X(C)
LOMATIA TINCTORIA X(A)
LOMATIA POLYMORPHA X(R) X(O)
TETRATHECA PROCUMBENS X(O)
RUBUS GUNNIANUS X(A) X(C)
RICHEA PROCERA X(O)
RICHEA GUNNII X(R)
MILLIGANIA SP. X(R)

LONG BAY—GORDON RIVER—5 KM SOUTH TO GELL RIVER

ORITES REVOLUTA X(O) X(R)
ORITES DIVERSIFOLIA X(O) X(C) X(C)
LOMATIA POLYMORPHA X(R) X(R) X(O)
ANOPTERUS GLANDULOSUS X(O)
ANODOPETALUM BIGLANDULOSUM X(O)
MONOTOCA SUBMUTICA X(O) X(O)
HAKEA EPIGLOTTIS X(R) X(R)
RUBUS GUNNIANUS X(R) X(R)
EUCRYPHIA LUCIDA X(O)
CALLISTEMON VIRIDIFLORUS X(C) X(C)
RICHEA PANDANIFOLIA X(R) X(O)

GELL RIVER—EAST BRANCH DENISON RIVER—UPPER DENISON RIVER

PHYLLOCALUS ASPLENIIFOLIUS X(R) X(R)
ARISTOTELIA PENDUNCULARIS X(R)
RUBUS GUNNIANUS X(C) X(C)
ANOPTERUS GLANDULOSUS X(R)
ANODOPETALUM BIGLANDULOSUM X(C)
EUCRYPHIA LUCIDA X(O)
BAECKEA LEPTOCAULIS X(C)
TELOPEA TRUNCATA X(R)
CYATHODES PARVIFOLIA X(O)
TROCHOCARP A THYMIFOLIA X(O) X(O)
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<tr>
<th>Gymnosc-hoenus</th>
<th>Wood</th>
<th>Rain</th>
<th>Gymnosc-hoenus</th>
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</thead>
<tbody>
<tr>
<td>Heath-</td>
<td>Land</td>
<td>Forest</td>
<td>Heath-</td>
<td>Shrubland</td>
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<tr>
<td>Herb</td>
<td>(lowland)</td>
<td></td>
<td>(highland)</td>
<td></td>
</tr>
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</table>

**GELL RIVER - EAST BRANCH**

**DENISON RIVER - UPPER DENISON RIVER (CONT.)**

<table>
<thead>
<tr>
<th>Monotoca submutica</th>
<th>X(O)</th>
<th>X(O)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euphrasia diemenica</td>
<td>X(R)</td>
<td></td>
</tr>
<tr>
<td>Agastachys odorata</td>
<td>X(O)</td>
<td>X(O)</td>
</tr>
<tr>
<td>Cenarrhines nitida</td>
<td>X(R)</td>
<td></td>
</tr>
<tr>
<td>Orites diversifolia</td>
<td>X(C)</td>
<td>X(C)</td>
</tr>
<tr>
<td>Caloropus elongatus</td>
<td>X(C)</td>
<td>X(C)</td>
</tr>
</tbody>
</table>

**PRINCE OF WALES RANGE**

<p>| Phyllocladus aspleniifolius | X(R) | X(R) |
| Athrotaxis selaginoides | | X(O) |
| (east plateau only) | | |
| Anemone crassifolia | X(A) | X(A) |
| Aristotelia peduncularis | | X(R) |
| Rubus gunnianus | X(A) | X(A) |
| Anodopetalum biglandulosum | X(A) | X(O) | X(R) |
| Anopterus glandulosus | X(R) | |
| Tetracarpaea tasmanica | X(O) | X(R) | X(R) | X(O) |
| Eucryphia lucida | X(R) | X(O) |
| Eucryphia milliganii | X(C) | X(A) |
| Baeckea leptocaulis | X(A) | X(C) |
| Eucalyptus vernicosa | X(C) | X(A) |
| Diplaspis cordifolia | | X(R) |
| Dichosciadium ranunculaceum | | |
| var. tasmanica | | X(R) |
| Actinotus moorei | X(C) | X(C) |
| Olearia personioides | X(O) | |
| Olearia tasmanica | X(O) | X(C) |
| Olearia ledifolia | | X(O) |
| Celmisia saxifraga | X(R) | X(R) |
| Helichrysum pumilum | X(A) | X(A) |
| Helichrysum backhousii | X(C) | |
| Abrotanella scapigera | X(R) | |
| Forstera bellidifolia | X(O) | X(O) |
| Gaultheria hispida | | X(R) |
| Telopea truncata | X(R) | |
| Cyathodes petiolaris | X(C) | X(C) |
| Cyathodes parvifolia | X(C) | X(C) |</p>
<table>
<thead>
<tr>
<th>Gymnoschoenus</th>
<th>Wood Land</th>
<th>Rain Forest</th>
<th>Gymnoschoenus</th>
<th>Alpine</th>
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<tbody>
<tr>
<td>Heath-Herb</td>
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<td>Heath-Herb</td>
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<tr>
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<td></td>
<td>Herb</td>
<td></td>
</tr>
<tr>
<td>Shrubland</td>
<td></td>
<td></td>
<td>Shrubland</td>
<td></td>
</tr>
<tr>
<td>(lowland)</td>
<td></td>
<td></td>
<td>(highland)</td>
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THE VEGETATION OF HELLFIRE BLUFF - CAPE BERNIER
TASMANIA

S. Harris and M.J. Brown
National Parks and Wildlife Service, Hobart

Introduction:

Hellfire Bluff and Cape Bernier form a spectacular series of coastal cliffs and
screes rising to 315 m on the south-eastern coast of Tasmania (fig. 1), and dominate the
coastal landscape between Cape Frederick Henry 14 km to the south and Lords Bluff
23 km to the north.

Much of the land in the vicinity of Cape Bernier is either privately owned or
is leased, and has been subject to grazing by sheep, but the vegetation of the cliffs,
screes and foreshores is distinctive and remains relatively untouched. Whilst there are
many descriptions available of the vegetation and ecology of plant communities which
occur on periglacial screes and blockfields of inland areas of Tasmania and Victoria
(Ashton and Moore, 1978; Davies, 1978; Jackson, 1973; Martin, 1940; Ratkowsky
and Ratkowsky, 1977; Wells et al. 1977), there have been few studies reported for
equivalent coastal situations, especially on dolerite substrates.

Kirkpatrick (1975, 1977) has described the heathland vegetation above the
coastal dolerite cliffs of Bruny Island and the Tasman Peninsula, and Brown and
Bayly-Stark (1979) have described the plant communities which occur on the dolerite
screes and cliffs of Maria Island. The present report provides a preliminary description
of the range of plant communities in the vicinity of Hellfire Bluff and Cape Bernier.

Site Description:

Climate:

The climate of the study area has been classified as moist, sub-humid and
warm by Gentilli (1972). Climatic data are unavailable for Cape Bernier, but the climate is probably similar to that at Orford 18 km to the north.

Orford receives an average annual rainfall of 731 mm, distributed fairly evenly throughout the year, with maxima in May (70 mm) and December (73 mm), and minima in September (50 mm), and January (46 mm). Temperatures are generally mild ranging from average monthly maximum temperatures of 22.2°C and 13.3°C in February and July respectively. Mean monthly minima for the same months are 11.5°C and 3.1°C respectively. Frosts can be expected between June and October at lower altitudes, but at altitudes exceeding 300 m frosts may occur in any month (Langford 1965).

Geology:

The bedrock is formed of Jurassic dolerite outcrops of which are extensive in the region. The sea cliffs are dolerite with Triassic sandstones exposed on the lower parts of sections of the cliff. The geology of the area is shown on the 1" to 1 mile Buckland sheet (Blake, 1958). The valley of Cockle Bay Creek contains an alluvium layer of undetermined thickness, probably accumulated during the Holocene.

Geomorphology:

A sharp ridge runs parallel to the coast and reaches a maximum altitude of 315 m, but averages between 200 and 250 m. The ridge carries a thin mantle of scree deposits on its inland slope. Colhoun (1975) has said of deposits of this type that "although not diagnostic of severe periglacial conditions they do point to the occurrence of cold conditions on low ground with much more widespread snowfall, deep seasonal freezing and mass movements during the later part of the last Glacial than was previously realised".

To the west, the ridge drops away fairly rapidly to a flat, alluvium-floored valley. Although occupying a large valley the small Cockle Bay Creek is an example of an underfit stream. Colhoun (1975) says that "One of the most impressive geomorphological characteristics of the subhumid broken hill and valley country of Eastern Tasmania is that the present streams are grossly underfit when compared with the size of the valleys and basins in which they occur. The steep valley slopes are bare and rocky but the broad valley floors are thickly mantled with alluvium."

The most spectacular feature of the area is the high, near vertical, cliffs of Hellfire Bluff, plunging into the sea on the eastern side of the ridge. These are caused by weathering along the vertical joints of the dolerite. Columnar jointing of very good form was observed along the scarp. Broken off sections of columns have accumulated in an extensive scree pediment fringing the base of these slopes. In places along the top of the cliffs are some trenches and holes caused by massive separation along joint faces. These appear to be presently stable.

Fig. 2. is a diagrammatic cross section of the cliffs, ridge and valley showing some of the features mentioned above.

The Vegetation:

The vegetation between Cockle Bay Creek and the ridgeline of Hellfire Bluff is typical in many respects of the dry sclerophyll forests and woodlands on dolerite elsewhere in Tasmania (e.g. Curtis 1969, Hogg and Kirkpatrick 1974, Brown and
Bayly-Stark 1979). The sparse understorey is mostly grassy and shrubby on dry and rocky ground. Frequent fires maintain this sparse understorey; however fire refuges are found in specialised habitats such as the cliffs, large landslip crevices, and the talus slopes at the base of the sea cliffs.

The vegetation has developed in response to fire frequency, local drainage, exposure to onshore dessicating winds, aspect, and sheep grazing pressure. Inland of Hellfire Bluff the dry rocky slopes are covered with Eucalypt Open-forest. The Open-forest has a greater crown cover where it occupies slopes with least insolation (southeast and south facing slopes). The understorey throughout the Open-forest varies but
is mostly very dry, open, and comprised of low sedges, tussocky grasses and herbs. The dominant eucalypts change throughout the formation, these being shown in fig. 3.

To seaward of the ridge above Hellfire Bluff, are fire protected communities on the cliffs and on the basal talus slopes. Some shaded, protected and specialised habitats occur in damp clefts in the dolerite along the ridge top, these habitats being colonised mainly by ferns.

The structural formations (Specht, 1970) were sampled in the field to find out the vegetation composition. The structural units were subsequently delineated on black and white aerial photographs and mapped. Each community is described in more detail below.

The area has been divided into 13 communities which comprise Eucalyptus globulus Open-forest, E. ovata - E. amygdalina - E. viminalis Open-forest, E. ovata Open forest, Ixodia angusta Low shrubland, Callitris rhomboidea - Notelaea ligustrina Low closed-forest, bare rock and talus (very sparse herbfield), Casuarina stricta Low open-woodland, E. globulus Open-forest above Blowhole Point, E. ovata Open-woodland, E. pulchella - E. viminalis Open-forest on generally north facing slopes, E. pulchella - E. viminalis Open-forest on generally south facing slopes, E. cordata Low open-forest on the exposed ridgetops and strand (halophytic herbfield) communities.

**E. globulus Open-forest over understorey of Casuarina stricta, Callitris rhomboidea and Banksia marginata.**

This community occurs in a fairly fire protected situation on the southeast and east facing slopes of Pebbly Point on steep talus slopes.

Apart from much bare dolerite rock, the scrub component consists mainly of Banksia marginata and Olearia viscosa with occasional specimens of Casuarina stricta and Callitris rhomboidea. Growing among the boulders are plants such as Cardamine sp, Asplenium flabellifolium, Lomatia tinctoria, Euphrasia collina, Bulbine bulbosa, Cerastium fontanum, Aira caryophyllea, Poranthera microphylla, Microsorium diversifolium and Luzula sp.

**E. amygdalina - E. viminalis - E. ovata Open-forest**

This alliance occupies the flat and gently sloping area of the valley to the east of Cockle Bay Creek. E. ovata is locally dominant on the poorly drained areas but E. amygdalina is far more abundant overall, with individuals of E. viminalis scattered here and there.

The substrate comprises a thicker soil mantle due to the wash of soil from the steep adjacent slopes. The understorey is very sparse and this appears to be primarily due to the high frequency of fires with grazing by sheep a contributing factor. Casuarina littoralis is scattered through the community but is rarely found on the higher slopes to the east. Banksia marginata also occurs more commonly in this alliance.

The groundcover comprises mainly sedges and herbs. The rare endemic plant Wurmbea uniflora is abundant. Diplarrena moraea is abundant and occurs with Haloragis tetragyna, Bossiaea prostrata, Pimelea humilis, Helichrysum scorpioides, and Lomandra longifolia.
E. ovata Open-forest with dense scrubby understorey

This community occupies the area immediately contiguous with the creek for about 2.5 km. The dominant eucalypt is *E. ovata*. The understorey is very scrubby and includes *Leptospermum scoparium*, *Acacia verticillata*, *Pultenaea juniperina* and *Melaleuca gibbosa*. A tongue of unburnt scrub intrudes along a shallow elongate damp depression. Here were collected *Epacris impressa* and the endemic *Epacris tasmanica*.

**Ixodia angusta Low Open-shrubland**

(Ixodia angusta - E. ovata Low shrubland on former pasture).

This community is seral and is restricted to a largely flat area near Whalers Lookout where it occupies an area on private land which was once cleared for pasture. Old stockyards still exist here. Numerous introduced species occur in the groundcover including many introduced pasture species.

If undisturbed this sere will proceed to a *E. ovata* Open-forest with a scrubby understorey component of *Bursaria spinosa* and *Acacia verticillata*.

At present, numerous shrubs of *Ixodia angusta* cover the area with interspersed low coppiced *E. ovata* regeneration. There is almost complete groundcover and this includes *Mazus pumilio*, *Hypericum sp.*, *Juncus pauciflorus*, *Eryngium vesiculosum*, *Plantago lanceolata*, *Carex inversa*, *Gnaphalium luteoalbum*, *Rumex acetosella*, *Oxalis sp.*, *Cotula sp.*, *Acaena novaezelandiae*, *A. ovina*, *Viola hederacea*, *Wahlenbergia sp* Hypochaeris radicata, *Haloragis tetragyna* and Dichondra repens. Seedlings of *Bursaria spinosa* and *Acacia verticillata* occur.

The area is still used as a rough run for sheep.

**Callitris rhomboidea - Notelaca ligustrina Low closed-forest**

This community has developed on the dolerite talus slopes on Hellfire Bluff. No evidence of firing was found, in marked contrast to the ubiquitous evidence of past fires elsewhere in the area. The area is buffered from fire by the low fuel availability on the surrounding bare areas of talus, a situation found also by Ashton & Moore (1978) on Victorian block fields.

The floors of these forests are composed of the talus largely covered by moss and a diversity of ferns including *Pteris tremula*, *Microsorium diversifolium*, *Hymenophyllum rarum*, *H. cupressiforme*, *Polystichum proliferum*, *Lycopodium sp.*, *Asplenium flabellifolium*, *Ctenopteris heterophylla*, *Rumohra adiantiformis* and *Grammitis billardieri*. Apart from *Callitris rhomboidea* which is predominant, there are also large specimens of *Pittosporum bicolor*, *Olearia argophylla*, *Notelaea ligustrina*, *Leucopogon parviflorus*, *Beyeria viscosa* and *Bedfordia salicina* in the upper layer of vegetation.

The absence of fire has enabled the growth of a fire-susceptible climax community apparently of a great age in spite of an environment depauperate in soil.

Isolated specimens of *E. globulus* are found along the base of the cliffs and are occasional emergents from the *Callitris - Notelaea* Low closed-forest. (These occasional emergents were ignored in ascribing a structural term to the *Callitris - Notelaea* formation.)
Bare Rock and Talus (very sparse herbfield)

This "community" is widespread on the talus slopes of Hellfire Bluff. There has been little litter accumulation and no chance for soil to develop, hence only a few small herbs and ferns are found in crevices here and there. These include Asplenium flabellifolium, Crassula sieberana, Cynoglossum suaveolens and Microsorium diversifolium and an orchid sp.

*Casuarina stricta* Low open-woodland

This community occurs discontinuously along the precipitous slopes of Hellfire Bluff itself and on the cliffs to the north of Cape Bernier in an environment highly exposed to salty, dessicating winds. Run-off is fairly rapid on these slopes due to the small amount of soil available for water retention. Thus these areas have been colonised largely by drought resistant species. The community is dominated by *Casuarina stricta* with Dodonaea viscosa in patchy association, over a (mainly) grassy understorey. Scattered here and there are clumps of Dianella revoluta and D. tasmanica. Also occurring are Bedfordia salicina, Helichrysum reticulatum, Exocarpus strictus, Plantago hispida, Beyeria viscosa, Bulbine bulbosa, Lepidosperma inops and Stylidium graminifolium. At the southern end of Hellfire Bluff cliffs were also found: Plantago varia, Correa reflexa, Lobelia alata and Olearia axillaris, together with occasional emergent Eucalyptus globulus.

*Eucalyptus globulus* Open-forest

This alliance occurs on the seaward side of Hellfire Bluff ridge, just north of Blowhole Point. *E. globulus* is dominant over a dense scrubby understorey especially thick in the gully, and which includes Acacia verticillata, Banksia marginata, Pomaderris apetala, Leucopogon parviflorus, Pittosporum bicolor, Coprosma quadrifida, Bedfordia salicina, Casuarina stricta and Zieria arborescens. The slopes here are south-east facing and receive less insolation than most of the investigated area. Thus there is greater moisture availability and reduced fire frequency leading to more prolific growth. It is likely that most fires would start in the valley of Cockle Bay Creek, burn straight to the top of the ridge and stop dead, fire not having a propensity to burn downslope.

*Eucalyptus ovata* Open-woodland

This community is confined to the vicinity of Cockle Bay Creek, especially the southern end, on soils which are deep and loamy, in contrast to the rest of the study area. The area has been severely burnt in the recent past.

A creek bed carrying a small intermittent stream occurs with some deep pools containing a *Myriophyllum sp*. Elsewhere, the plain is punctuated by specimens of *E. ovata*. Saplings have been killed by fire, but the plants are sprouting from lignotubers. Other sub-dominants comprise Leptospermum scoparium, Melaleuca gibbosa and Leptospermum lanigerum. Most branches of these are actually dead but the plants are re-sprouting from rootstocks. The herbs and forbs found on the ground include Haloragis tetragyna, H. teucrioides, Hydrocotyle sp., Ranunculus sp., Bossiaea prostrata, Mazus pumilio, Hypoxis hygrometrica, Helichrysum pumilum, Xanthosia tridentata, Geranium sp., Cassytha pubescens, Epacris tasmanica and Wurmbea uniflora.
**E. pulchella - E. viminalis** Open-forest on generally north-facing slopes

This alliance occupies a great part of the area and is dominated by *E. pulchella* with scattered specimens of *E. viminalis*.

The forest has apparently suffered a high fire frequency. Undergrowth and eucalypt seedlings are very sparse, most of the ground cover being composed of sedges and herbs and some shrubs and tussocky grasses. These plants include *Ixodia angusta*, *Astroloma humifusum*, *Oxalis corniculata*, *Geranium solanderi*, *Gahnia graminifolia*, *Carex graminifolia*, *Lepidosperma laterale*, *Plantago varia*, *Gnaphalium collinum*, *Poa labillardieri*, *Lomatia tinctoria*, *Bossiaea spp.*, *Viola spp.*, *Hypocharis radicata*, *Taraxacum officinale*. Sub-dominants include *Casuarina stricta*, *Bursaria spinosa* and *Banksia marginata*.

Sheep still run freely over most of this community and together with high fire frequency contribute to a very open understorey. Because of the scant groundcover in many places there has been considerable soil erosion and much bare scree is evident on the upper slopes.

**Open-forest dominated by E. pulchella - E. viminalis on generally south-facing slopes**

This community does not apparently differ in floristic composition from the previously described community yet would be receiving marginally less insolation. On aerial photos the darker tone coinciding with this community appears to be due to the greater crown cover of the dominant eucalypts.

The understorey plants noted include *Lomandra longifolia*, *Lepidosperma lineare*, low grasses and forbs such as *Gnaphalium collinum*, *Viola spp.*, *Cheilanthes tenuifolia*, *Goodenia lanata*, *Hypericum gramineum*, seedlings of *Ixodia angusta*, *Bursaria spinosa*, and *Clematis gentianoides*.

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Fig. 2 Diagrammatic cross section of the ridge from Hellfire Bluff to Cockle Bay Creek showing the geomorphology and geology.
A patch of *E. cordata* low open-forest occurs around the trig. point on the highest part of the ridge of Hellfire Bluff. In fact some of the trees have been felled to enable an unobstructed view of the trig. station. Many of the eucalypts reach 0.3 - 0.5 m diameter at breast height.

The understorey is shrubby and dissimilar in floristic composition to the *E. pulchella - E. viminalis* Open-forests on the lower western slopes. Some components of this shrubby understorey which is typical of the ridge tops in general include *Cyathodes glauca*, *C. divaricata*, *Lomatia tinctoria*, *Helichrysum antennarium*, *Acacia melanoxylon*, *Indigofera australis*, *Olearia viscosa*, *O. phlogopappa*, *O. lirata*, *Pultenaea daphnoides* and *Banksia marginata*.

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**KEY**

- E. pulchella - E. viminalis Open-forest (south facing slopes)
- E. ovata - E. amygdalina - E. viminalis Open-forest
- E. globulus Open-forest (with understorey of *Casuarina stricta*, *Callitris rhomboidea*, *Banksia*)
- Bare rock and talus (very sparse herbfield)
- E. globulus Open-forest
- E. ovata Open-woodland
- E. ovata Open-forest
- E. cordata Low open-forest
- Ixodia angusta Low open-shrubland
- E. pulchella - E. viminalis Open-forest (north facing slopes)
- *Casuarina stricta* Low open-w'land
- Callitris rhomboidea - Notelaea - *Tiguistra* Low closed-forest

Fig. 3 Map showing the Plant Communities of the Study Area.
Halophytic Closed-herbland

Patches of this community occur as dense mats of *Tetragonia implexicoma*, *Disphyma australe*, and *Carpobrotus rossii* in places along the rocks at the base of Hellfire Bluff. These were not inspected at close quarters.

Conclusion

Altogether 203 plant species from 61 families were found in the area and a more intense scrutiny of areas such as the actual cliff faces and the halophytic herbfields would certainly reveal more. A good diversity of species was found and included the rare endemic *Eucalyptus cordata*, also the rare, delicately beautiful, and endemic *Wurmbea uniflora* occurring lower on the slopes.

An interesting diversity of plant habitats occurs in the area from dry slopes to steep damp gullies in places behind the shore to the south, from talus slopes carrying fire protected miniature forests to *Casuarina* woodland on cliff slopes.

Botany aside, the area is one of spectacular natural scenery, especially along the ridge above Hellfire Bluff. From here, inspiring views can be obtained of a coastline which is still largely in its natural state.

Acknowledgements

The assistance of A.E. Orchard and D.I. Morris in identifying some of the plant specimens is gratefully acknowledged.

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CHECKLIST OF SPECIES

Except where authorities are given, the nomenclature for species in the checklist follows Curtis (1963, 1967) and Curtis and Morris (1975) for dicotyledons and gymnosperms, Willis (1970) and Townrow (1973) for monocotyledons, and Jones and Clemesha (1976) for pteridophytes.

Endemic species are prefixed by e, and introduced species by i in the checklist.

**PTERIDOPHYTA : FILICINAE**

**ADIANTAECAE**
- Cheilanthes tenuifolia
- Pellaea falcata
- Pteris tremula

**ASPIDIACEAE**
- Polystichum proliferum
- Rumohra adiantiformis

**ASPLENIACEAE**
- Asplenium flabellifolium
- Asplenium flaccidum

**BLECHNACEAE**
- Blechnum watsii
- Blechnum nudum
- Doodia media

**DENNSTAEDTIACEAE**
- Pteridium esculentum

**GRAMMITIDACEAE**
- Ctenopteris heterophylla
- Grammitis billardieri

**HYMENOPHYLLACEAE**
- Hymenophyllum cupressiforme
- Hymenophyllum rarum

**POLYPODIACEAE**
- Microsorium diversifolium

**PTERIDOPHYTA : Lycopodiinae**

**LYCOPODIACEAE**
- Lycopodium myrtifolium

**GYMNOSPERMAE**

**CUPRESSACEAE**
- Callitris rhomboidea

**ANGIOSPERMAE : DICOTYLEDONES**

**BORAGEACEAE**
- Cynoglossum suaveolens

**CAMPANULACEAE**
- Wahlenbergia sp.

**CARYOPHYLLACEAE**
- Cerastium fontanum

**CASUARINACEAE**
- Casuarina littoralis
- Casuarina stricta

**CHENOPODIACEAE**
- Rhagodia baccata

**COMPOSITAE**
- Bedfordia salicina
- Brachycome scapiformis
- Cotula sp.
- Cirsium arvense
- Gnaphalium candidissimum
- Gnaphalium collinum
- Gnaphalium luteo-album
- Helichrysum antennarium
- Helichrysum apiculatum
- Helichrysum bicolor
- Helichrysum pumilum
- Helichrysum reticulatum
- Helichrysum scorpioides
- Hypochaeris glabra
- Hypochaeris radicata
- Ixodia angusta
- Leptorhynchos squamatus
- Olearia argophylla
ANGIOSPERMAE : DICOTYLEDONES

COMPOSITAE

Olearia axillaris
Olearia lirata
Olearia phillogopappa
Olearia ramulosa
Olearia sp. aff. ramulosa
Olearia viscosa
Senecio sp. aff. laetus
Senecio linearifolius
Senecio minimum
Senecio pectinatius
Senecio quadridentatus
Senecio sp.
Solenogyne belliioides
Sonchus asper
Sonchus oleraceus
Taraxacum officinale

CONVOLVULACEAE

Dichondra repens
Convulvulus erubescens

CRASSULACEAE

Crassula sieberana

CRUCIFERAEE

Cardamine sp. (possibly undescribed)

EPACRIDACEAE

Acrotiriche serrulata
Astroloma humifusum
Brachyloma stricta
Cyathodes divaricata
Cyathodes glauca
Cyathodes juniperina
Epacris impressa
Epacris lanuginosa
Epacris tasmanica W.M. Curtis
Leucopogon australis
Leucopogon parviflorus
Lissarthe strigosa
Sprengelia incarnata

EUPHORBIACEAE

Beyeria viscosa
Phyllanthus gunnii
Poranthera microphylla

FICOIDEAE

Carpobrotus rossii
Disphyma australe
Tetragonia implexicoma

GENTIANACEAE

Sebaea ovata

GERANIACEAE

Geranium potentilloides
Geranium solanderi
Geranium sp.
Pelargonium australe

GOODENIACEAE

Goodenia lanata
Goodenia ovata

HALORAGACEAE

Haloragis tetragyna
Haloragis teucroides
Myriophyllum sp.

HYPERICACEAE

Hypericum gramineum
Hypericum japonicum

LABIATAE

Marrubium vulgare
Scutellaria humilis
Teucrium corymbosum

Laurus

Cassytha pubescens

LEGUMINOSAE : MIMOSOIDEAE

Acacia genistifolia
Acacia melanoxylon
Acacia mearnsii
Acacia myrtifolia
Acacia verticillata var. verticillata

LEGUMINOSAE : PAPILIONATAE

Bossiaea cordigera
Bossiaea prostrata
Indigofera australis
Pultenaea daphnoides
Pultenaea juniperina
Vicia sp.
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  Australina pusilla
  Urtica incisa

VIOLACEAE
  Viola hederacea
  Viola sieberana

ANGIOSPERMAE : MONOCOTYLEDONES

CYPERACEAE
  Carex appressa
  Carex gaudichaudiana ?
  Carex inversa
  Gahnia sp.
  e  Gahnia graminifolia Rodw.
  Lepidosperma laterale
  Lepidosperma lineare
  e  Lepidosperma lineare var. inops
  Schoenus apogon
  Scirpus sp.

GRAMINEAE
  i  Aira caryophyllea
  i  Cynosurus
  Danthonia sp.
  Dichelacne sp.
  Echinopogon ovatus
  i  Poa annua
  Poa labillardieri
  Poa poiformis
  Poa sp.
  Stipa teretifolia
  Themeda australis

HYPOXIDACEAE
  Hypoxis hygrometrica

IRIDACEAE
  Diplarrena moraea

JUNCACEAE
  Juncus pauciflorus
  Juncus spp.
  Luzula sp.

LILIACEAE : ANTHERICEAE
  Bulbine bulbosa
  Thysanotus patersoni

LILIACEAE : DIANELLEAE
  Dianella revoluta
  Dianella tasmanica

LILIACEAE : XEROTEAE
  Lomandra longifolia

LILIACEAE
  e  Wurmbea uniflora (R. Br.)
    Macfarlane and Brittan

CORRIGENDUM:

In the paper "Some plant records for the Cape Barren Island Wilderness Area" by J.S. Whinray, which appeared in Tasmanian Naturalist No. 51, November 1977, the following corrections should be made -

Page 11, para. 3, line 5 - Replace "six" with "five".

Page 12, para. 3, line 1 - Add the word "Tasmanian" after the word "six".
SNARES CRESTED PENGUIN

The report on the skeleton found in June 1979 and published in Tasmanian Naturalist No. 60 was written without knowledge of the two prior sightings detailed below:

1. One live, South Bruny Is., 15/12/77; Tas. Bird Report No. 7;

The skeleton found at Okehampton therefore becomes the fifth Australian record of this species. (Editor)

THE FIRST RECORD OF THE BAT *Eptesicus sagittula* IN TASMANIA

by D.E. Rounsevell

National Parks and Wildlife Service, Hobart

All bats of the genus *Eptesicus* found in Tasmania had been considered as one species, *E. pumilus* until recently (e.g. Green, 1965, 1973). However, McKean *et al.* (1978), from specimens collected throughout Australia, found that the genus contains at least four species, one of which comprises two subspecies. Carpenter *et al.*, (1978) have provided criteria for the identification of these forms.

The four specimens of *Eptesicus* from Tasmania examined by McKean *et al.*, (1978) were allocated to *E. vulturnus*, a small forest roosting species which then became the only member of the genus known from Tasmania. The name *E. pumilus* was reserved for two subspecies from northern and eastern Australia, *E.p. pumilus* and *E.p. caurinus* which roost in caves.

On 15 October 1979 Mr. P. Tonelly found a small bat in a log near Latrobe and subsequently forwarded it to me for identification. It was an *Eptesicus sp.* but not *vulturnus* because its forearms exceeded the maximum length known for that species. The bat was then positively identified by Mr. G.C. Richards of the CSIRO Division of Wildlife Research, Canberra, as *E. sagittula*, a larger forest roosting species. *E. sagittula* had just been described as a new species from the south-eastern states of the Australian mainland and Lord Howe Island (McKean *et al.*, 1978).

Since then it has become apparent that both *E. vulturnus* and *E. sagittula* may occur widely in Tasmania. A maternal colony of *E. sagittula* was found south-east of Oatlands in January 1980 (D.G. Peters, pers. comm.). Museum collections in Tasmania contain specimens ranging in size from the smallest to the largest species of *Eptesicus* (R.H. Green pers. comm.).

Another forest roosting species, *E. regulus* also occurs in southern Australia (McKean *et al.*, 1978) but, so far, it has not been recorded from Tasmania. Positive identifications of these species cannot be made by external examination alone but they may be preliminarily identified by using the measurements in the table below. I wish to thank Mr. P. Tonelly and Mr. G.C. Richards.
**Eptesicus spp. Forearm lengths (mm)** from McKean *et al.*, (1978) and Carpenter *et al.*, (1978)

<table>
<thead>
<tr>
<th>Species</th>
<th>Males</th>
<th>Females</th>
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<tbody>
<tr>
<td><em>E. vulturnus</em></td>
<td>$x = 28.2 \pm 1.10$ (26.5 to 30.2)</td>
<td>$x = 30.1$</td>
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<tr>
<td><em>R. regulus</em></td>
<td>$x = 31.2 \pm 1.24$ (28.8 to 33.7)</td>
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<tr>
<td><em>E. sagittula</em></td>
<td>$x = 34.2 \pm 1.38$ (31.6 to 36.1)</td>
<td>$x = 34.6$</td>
</tr>
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**A STRAY? DIVING PETREL**

On 6 January 1974 Nigel Brothers picked up a beach-washed Diving Petrel on a small island off Bluestone Bay, Freycinet Peninsula. Because its measurements were slightly outside the normal range for the Common Diving Petrel which frequents our coastal waters the specimen was referred to F.C. Kinsky of the Dominion Museum, Wellington, N.Z., as he is a recognised authority on seabirds.

Mr. Kinsky’s report was that the bird was a Common Diving Petrel, but belonging to the sub-species *chathamensis* from Chatham Island, south of New Zealand, and that it was a young bird only fledged a few weeks.

Could it be that there is a breeding colony of this sub-species on our east coast?

L.E.W.

**GREY-TAILED TATTLERS PERCHING**

At South Arm on 18 February 1978 I disturbed two tattlers from rocks on the north side of “West Bay”. They flew to and alighted on stakes standing in the water, a habit quite unusual among wading birds. I saw a similar occurrence in the same spot on 25 February, 1951.

L.E.W.
TASMANIAN FROGS AND HOW TO IDENTIFY THEM
A.M.D. Hewer

There are only ten known species of frogs in Tasmania. It should therefore be possible to identify a specimen from a general description only.

Some Tasmanian frogs are very restricted in their distribution so that knowing which frogs occur in a particular location is of considerable help.

Tasmanian frogs are easily identified by their mating calls. The different calls are so distinctive that there can be no confusion between species. Only the males are vocal and females will respond only to the call of a male of her own species. Call descriptions given below are those given by Littlejohn and Martin (1974).

Distribution and Mating Calls:

*Litoria raniformis* (Green & Gold Bell Frog)
Common throughout the eastern half of Tasmania and extending along the coastal areas to the north west. Call — a long modulated growl followed by a series of grunts in open water from October to December.

*Litoria burrowsii* (Tasmanian Tree Frog)
Endemic

Common from sea level to c.1000 m throughout the rainforest and button grass areas of Western Tasmania. Call — a long series of short "Qhanks" on vegetation near water from August to January.

*Litoria ewingii* (Brown Tree Frog)

Common throughout Tasmania to c.1500 m. Call — Harsh "whirr" repeated 5 to 15 times on land or on vegetation near water throughout the year.
**Ranidella signifera** (Brown Froglet)

Common throughout Tasmania. Appears to prefer still water for breeding. Call — rapid short grating “chirp” at the edge of still water throughout the year.

**Ranidella tasmaniensis** (Tasmanian Froglet)

Widely distributed in Tasmania but most common in alpine areas. At lower levels, e.g. Tasman Peninsula and Mt. William, it tends to occur in permanently wet areas where the water is running slowly. Appears to prefer running water for breeding. Call — Quavering “Bleat” in or at the edge of water from August to December.

**Geocrinia laevis** (Smooth Froglet)

Widely distributed in coastal areas in northern Tasmania, however, populations are known in the Derwent Valley and, in the north, at Ringarooma. Call — “Cra-a-a-a-ack, cra-a-a-a-ack, crack crack” on land from February to April.

**Limnodynastes tasmaniensis** (Spotted Marsh Frog)

Common throughout eastern and northern Tasmania. Call — loud sharp “Chick” as when two stones are struck together, in or at the edge of water from August to December.

**Limnodynastes peronii** (Peron’s Marsh Frog)

Occurs in two areas in northern Tasmania. One population exists in north western Tasmania, west of Rocky Cape. The other occurs in the north east from Bridport to Cape Portland. Call — soft explosive “Whuck” in or at the edge of water from October to December.

**Limnodynastes dumerillii** (Banjo Frog)

Sometimes called “Pobblebonk” this large frog occurs throughout much of Tasmania. Not usually found in rainforest areas. During winter, this species burrows deep into the earth and is often dug up by home gardeners. Call — Banjo-like “Plonk” in or at the edge of water from October to February.

**Pseudophryne semi-marmorata** (Southern Toadlet)

Widely distributed throughout the eastern half of Tasmania and along the north west coast. Call — Harsh grating “Cr-e-ek” on land from March to May.

In the accompanying key, descriptions are for fully grown individuals — juveniles will be similar in colour. The key is designed for the layman who may know nothing about frogs or their anatomy. It should enable him to identify any specimen occurring naturally in Tasmania. Several of the terms used in the key may need explanation.

**Discs:** All tree frogs in Tasmania have small round flat areas on the tips of their fingers and toes. These act like little suction pads and enable tree frogs to climb. Some species can climb on a smooth surface, such as glass.

**Tympanum:** The external part of the frog’s ear, usually located just behind the eye.

An excellent publication is “A Field Guide to Australian Frogs” by John Barker
and Gordon Grigg. It has an excellent series of colour plates.

Scientific names used in this article follow those used by Barker & Grigg.

**KEY**

1. (a) Discs on tips of fingers and toes  
   (b) Fingers and toes are pointed and lack discs.

2. (a) Length up to 90 mm; fingers unwebbed, toes partly webbed. Colour green marked with gold. Thighs blue, undersides white.  
   
   *Litoria raniformis*

   (b) Length up to 75 mm; fingers unwebbed, toes partly webbed. Colour green or green with irregular blotches of brown or grey. Undersides creamy white. A characteristic green mark extends backwards from the eye.

   *Litoria burrowsii*

   (c) Length up to 40 mm; colour grey or brown with dark stripe down middle of back.

   *Litoria ewingii*

3. (a) Length approx. 27—30 mm.
   (b) Length approx. 45—75 mm.

4. (a) Tympanum present
   (b) Tympanum absent

5. (a) Granular skin. Colour brown or grey, usually with ornate markings. Undersides grey, marked or spotted with black.

   *(Ranidella signifera)*

   (b) Granular skin. Colour brown or grey with ornate markings. Undersides grey or black. Bright red patch near thighs.

   *(Ranidella tasmaniensis)*

   (c) Smooth skin. Colour slate grey with irregular red or yellow spots. Undersides white marbled black. Thighs pinkish.

   *(Geocrinia laeris)*

6. (a) Up to 45 mm. Colour yellowish brown to grey with dark oval spots. Yellowish dorsal stripe. Undersides whitish.

   *(Limnodynastes tasmaniensis)*

   (b) Up to 55 mm. Colour brownish or olive above with black spots merging into longitudinal stripes. Undersides spotted with brown.

   *(Limnodynastes peronii)*

   (c) Up to 75 mm. Colour brown irregularly marked or spotted. Under surface whitish or lightly spotted with brown or blue.

   *(Limnodynastes dumerilii)*

7. Warty skin. Length 27 mm.

   Colour brown to grey, spotted with black. Undersides boldly marked bluish white and black. Thighs bright orange-yellow.

   *(Pseudophryne semi-marmorata)*

**REFERENCES**

J. Barker & G. Grigg: *A Field Guide to Australian Frogs*


M.J. Tyler: *Frogs*

W.D. Williams (Editor): *Biogeography and Ecology in Tasmania.*
### ALTERATIONS TO BIRD NAMES — ENGLISH and SCIENTIFIC

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<tr>
<td>1. Little Grebe (Dabchick) <em>Podiceps ruficollis</em></td>
<td>Little Grebe <em>Podiceps novaehollandiae</em></td>
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<tr>
<td>2. White-breasted Cormorant <em>Phalacrocorax fuscescens</em></td>
<td>Black-faced Cormorant</td>
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<td>3. Black Cormorant <em>Phalacrocorax carbo</em></td>
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<td>4. White Egret <em>Egretta alba</em></td>
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<td>5. Chestnut-breasted Shelduck <em>Casarca tadornoides</em></td>
<td>Mountain Duck <em>Tadorna tadornoides</em></td>
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<td>6. Blue-winged Shoveller <em>Anas rhynchos</em></td>
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<td>8. Swamp-Harrier <em>Circus approximans</em></td>
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<td>9. Brown Hawk <em>Falco berigora</em></td>
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<td>11. Marsh Crake <em>Porzana pusilla</em></td>
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<td>12. Australian Spotted Crake <em>Porzana fluminea</em></td>
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<td>13. Eastern Swamphen (Bald Coot) <em>Porphyrio melanotus</em></td>
<td>Swamphen <em>Porphyrio porphyrio</em></td>
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<td>15. Banded Plover <em>Zonifer tricolor</em></td>
<td>Banded Plover <em>Vanellus tricolor</em></td>
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<td>16. Hooded Dotterel <em>Charadrius cucullatus</em></td>
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<td>17. Australian Snipe <em>Gallinago hardwickii</em></td>
<td>Japanese Snipe</td>
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<tr>
<td>18. Dominican (Southern Black-backed Gull) <em>Larus dominicanus</em></td>
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*DOMINICAN (Southern Black-backed Gull)*

*GALLINAGO HARDWICKII*
R.A.O.U. 1975
Little Grebe  
*Tachybaptus novaehollandiae*
Black-faced Cormorant  
*Leucocarbo fuscescens*
Great Cormorant
Large Egret
Mountain Duck
Shoveller
White-eyed Duck
Swamp Harrier  
*Circus aeruginosus*
Brown Falcon
Water Rail
Marsh Crake
Spotted Crake
Swamphen
Masked Plover  
*Vanellus miles*
Banded Plover
Hooded Dotterel  
*Charadrius rubricollis*
Japanese Snipe
Southern Black-backed Gull

R.A.O.U. 1978
Australasian Grebe
Black-faced Shag
Great Cormorant
Great Egret
Australian Shelduck
Australasian Shoveler
Hardhead
Marsh Harrier
Brown Falcon
Lewin’s Rail
Baillon’s Crake
Australian Crake
Purple Swamphen
Masked Lapwing
Banded Lapwing
Hooded Plover
Latham’s Snipe
Kelp Gull
|---|------------------|---|------------------|
| 19. | White Cockatoo  
Kakatoe galerita |   | Sulphur-crested Cockatoo  
Cacatua galerita |
| 20. | Horsfield Bronze Cuckoo  
Chalcites basalis |   | Horsfield Bronze Cuckoo  
Chrysococcyx basalis |
| 21. | Golden Bronze Cuckoo  
Chalcites plagosus |   | Golden Bronze Cuckoo  
Chrysococcyx plagosus |
| 22. | Spotted Owl  
Ninox novae-seelandiae |   | Boobook Owl |
| 23. | Spine-tailed Swift  
Hirundapus caudacutus |   | Spine-tailed Swift |
| 24. | Australian Pipit  
Anthus australis |   | Australian Pipit  
Anthus novaeseelandiae |
| 25. | Australian Ground-thrush  
Oreocincla lunulata |   | Australian Ground-thrush  
Zoothera dauma |
| 26. | Australian Reed-warbler  
Acrocephalus australis |   | Reed-warbler  
Acrocephalus stentoreus |
| 27. | Superb Blue Wren  
Malurus cyaneus |   | Superb Blue Wren |
| 28. | Brown Scrub-wren  
Sericornis bumilis |   | White-browed Scrub-wren  
Sericornis frontalis |
| 29. | Striated Field Wren  
Calamanthus fuliginosus |   | Fieldwren |
| 30. | Yellow-winged Honeyeater  
Meliornis novae-hollandiae |   | New Holland Honeyeater  
Phylidonyris novaehollandiae |
| 31. | Striated Pardalote  
Pardalotus striatus |   | Yellow-tipped Pardalote |
| 32. | White-backed Magpie  
Gymnorhina hypoleuca |   | White-backed Magpie |
| 33. | Clinking Currawong (Bell-Magpie)  
Strepera arguta |   | Clinking Currawong |
| 34. | Little Raven  
Corvus mellori |   | Little Raven |
| 35. | Maned Goose (Wood Duck)  
Chenonetta jubata |   | Wood Duck |
| 36. | Whistling Eagle  
Haliastur sphenurus |   | Whistling Eagle |
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<td>Whistling Kite</td>
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*Continued page 9.*
ISLANDS OFF THE SOUTH–WEST

Wildlife of islands lying off the south-west of Tasmania — De Witt, Maatsuyker, Flat Witch, Louisa, the Mewstone, and others — is the subject of an extensive 60-page survey in a booklet by naturalist Gary White, who, in the absence of more conventional accommodation, camped on some of them while doing his field work between 1975 and 1977.

His studies covered not only the birdlife, but extended to plants and animals, including the ecology generally. The result is a valuable record of the natural history of this small and hitherto little known archipelago of rocks and islets whose very isolation and extreme ruggedness has largely discouraged close biological examination.

There is much interesting source material to be derived from his studies, especially in relation to the destruction of young seabirds by rats. Huge numbers of the Eastern Swamp-rat — he counted over 400 in one spot — led to decimation of young of Fairy Penguin and Short-tailed Shearwater, almost to an alarming extent; more than once the rats invaded his tent. They entered the burrows to take the young birds.

While seabird colonies have long been known among the islands, the extent of these colonies and the species to which they belong, besides the number of land birds occurring on the group, have remained indeterminate. But White’s studies, as well as those by earlier workers to which he refers, have resulted in a comprehensive assessment of the overall biology of the group.

Curiously two seabirds not seen were the Wandering Albatross and Cape Petrel, which are known to occur periodically in those waters as visitors.

Altogether "Islands of South-West Tasmania," ($4.50), while of particular interest to Tasmania, will also have its appeal to anyone studying island faunas.

M.S.R.S.

A SILVEREYE’S CREST

Probably few people are aware of the very beautiful, though very soft, sustained song of the Silvereye. While listening to one of these on 26 July 1978 I noticed that the bird was erecting the feathers on its crown while singing. I have never seen a reference to this habit in the literature.

L.E.W.
There is currently much confusion regarding the names given to our avifauna, and for those who have not studied the situation in some detail a brief history follows.

The principal ornithological society in Australia, the Royal Australasian Ornithologists Union, published a checklist of Australian birds in 1913 and this was accepted by all authorities. A second and revised edition was published in 1926 and with minor amendments was accepted as the standard work for many years.

By 1960, however, the R.A.O.U. Checklist of 1926 was hopelessly out-of-date and there seemed no early prospect of a third edition being produced so the Australian Fauna Authorities asked C.S.I.R.O. Division of Wildlife Research to compile an index of bird names currently in use in Australia. This was published in 1969 and has been used in most modern books, including Slater's "Field Guides to Australian Birds" (2 volumes).

In 1975 R.A.O.U. Checklist of the Birds of Australia (Part 1) was published, together with an "Interim List of Australian Songbirds" which would later be replaced by Part 2 of the Checklist. Part 2 has not yet been published.

In 1978 R.A.O.U. published "Recommended English names for Australian Birds" as a supplement to its journal, "The Emu". This list also includes current scientific names but no other information which forms part of a checklist.

As modern field guides and most other current books are using the names in "An Index of Australian Bird Names" produced by C.S.I.R.O. in 1969 the Tasmanian Naturalist will continue to use them also, but where changes have appeared in the R.A.O.U. list of 1978 these will be added in brackets.

The list above shows the English names of the more common Tasmanian birds which have been altered in the various references listed, with the scientific names immediately below. These latter names have not been repeated where no alteration has occurred. It should be noted that only one Dotterel is listed with its change of name to Plover: all Tasmanian Dotterels (except the Red-kneed Dotterel which belongs to a different genus) are now Plovers.
BIRDS OF SOUTH BRUNY ISLAND
L.E. Wall

For such a small area the part of Bruny Island south of the Neck has a remarkable diversity of habitats so it is not surprising that over one hundred bird species have been observed there. These include all Tasmania’s endemic birds except the Forty-spotted Pardalote which is one of the world’s rarest. However it has been found at the northern end of Bruny Island and on the Tasmanian mainland a few kilometres west of South Bruny so there is a good prospect of adding it to the list.

The South Bruny Range of mountains extends in a north-south direction for almost twenty kilometres with its highest peaks exceeding 500 metres in altitude. Temperate rainforest and wet sclerophyll forest over much of the range provide excellent habitat for the endemic Green Rosella, Scrub Tit, Tasmanian Thornbill, Black Currawong and Yellow-throated, Strong-billed and Black-headed Honeyeaters: other birds of more widespread distribution also found here are Australian Ground-Thrush (White’s Thrush), Grey Shrike-Thrush, Crescent Honeyeater, Brush Bronzewing, White (Grey) Goshawk, White-browed Scrub-wren, Olive Whistler and Pink Robin.

The hills between Simpson’s Bay in the north and Great Taylors Bay on the west side are mainly covered by dry sclerophyll forest, the balance being cleared for grazing or orchards. The birds in this sector are typical of the habitat and include four species of cuckoos, three hawks, two thornbills, two pardalotes, Spotted (Southern Boobook) and Masked Owls, Swift Parrot, Spotted Quail-thrush, and the endemic Dusky Robin, Tasmanian Native Hen, Yellow Wattlebird and Clinking (Grey) Currawong.

Around Cloudy Bay and in the vicinity of Cape Bruny are extensive heathlands where Tawny-crowned, Crescent and New Holland Honeyeaters, Eastern Spinebills, Superb Blue Wrens (Superb Fairy-wrens), Field Wrens (Calamanthus), Beautiful Firetails and many others are found. The Tawny-crowned Honeyeater has a very restricted distribution in Tasmania but this is one of its strongholds. Two parrots which are not on the list at present are possibilities in this habitat. The Ground Parrot, a very rare bird on the Australian mainland, is present in good numbers on Tasmania’s west coast where it is frequently flushed from buttongrass and heathlands and there are a few records in other parts of Tasmania, principally in heathland areas around the coasts. Because of its secretive habits it is not easily observed but I believe it will be found here. The other which should be mentioned is the Orange-bellied Parrot which is in extremely small numbers and is listed in the I.U.C.N. Red Book “Wild Life in Danger”. This is also an inhabitant of the west coast but was found in good numbers on the Acteon Islands about ten kilometres west of Cape Bruny by famous ornithologist John Gould in 1838.

There is very little fresh water on South Bruny, no large lagoons and only a few small farm dams. Just north of Cloudy Bay Lagoon (which is tidal) is a large marsh but this has been drained and converted to improved pasture and there is a swampy area behind Adventure Bay township. Waterfowl are consequently in very restricted numbers and limited to Black Swan, Black Duck (Pacific Black Duck), Chestnut Teal and Blue-winged Shoveler (Australasian Shoveler) with Tasmanian Native Hen, Swamphen (Purple), Spotted (Australian) Crane, White-faced Heron, White (Great) and Little Egrets and Japanese (Latham’s) Snipe about the margins.
With a considerable length of coastline which includes on the exposed coasts high cliffs and long sandy beaches with high dunes behind and many sheltered bays, some with extensive tidal sandflats and others with pebbly beaches, a wide range of birdlife can be expected.

The penguins form an interesting group because some sub-antarctic species come as far north as this to undergo their annual moult in autumn. Crested (Rockhopper) Penguins appear to be the most common of these but in recent years the Snares Crested Penguin has also been identified and may well prove to be a regular visitor. It is interesting to note that Adventure Bay, Bruny Island, is the type locality for the Rockhopper Penguin. Among the other sub-antarctic penguins recorded in southern Tasmania are King, Royal, Gentoo and Thick-billed (Fiordland), and it is most likely that closer observations will show that these, too, occur on South Bruny Island at times. The Little Penguin is a common resident and breeding species.

The family Laridae (Gulls and Terns) forms another interesting group. The Silver Gull and the Pacific Gull are resident breeding species, and the Southern Black-backed (Kelp) Gull has its largest known nesting colony in Tasmania (and maybe in Australia) on Green Island in d'Entrecasteaux Channel between Bruny Island and the Tasmanian mainland. The first recorded nesting in Tasmania of the Kelp Gull was on Curlew Island in Great Taylors Bay. Green Island also has a substantial nesting colony of Crested Terns and a small colony of Caspian Terns. The Fairy Tern was confirmed as a breeding species on South Bruny Island two years ago. The White-fronted Tern has an unusual history as far as Tasmania is concerned: it is an east-west migrant between Australia and New Zealand where it is known to nest regularly. There is a clutch of eggs of this species in the Tasmanian Museum marked as having been collected on The Friars, a group of rocks off the south-east tip of Bruny Island, in November 1885 but this record has always been treated with reserve. In the last two years, however, there have been four positive records (supported by photographs) of the White-fronted Tern nesting in the Furneaux Group in Bass Strait so it seems that the Bruny Island record should not be discarded.

The closely related family of Skuas is represented by three species — the Southern (Great) Skua which is common in winter but retires to breed in the sub-antarctic region in summer, and the Arctic and Pomarine Skuas (Jaegers) both of which are about our coasts in summer but breed in the northern hemisphere.

The Black-faced (Shag), Little Pied, and Black Cormorants are regularly seen around the coast, and the Little Black Cormorant less frequently. In some years the last-mentioned seems to desert Tasmania presumably when mainland conditions are very favourable to it.

The ocean wanderers — albatrosses, petrels and shearwaters — are frequently seen offshore but with the exception of the Short-tailed Shearwater (Tasmanian Mutton-bird) they have not received close attention from bird observers and much is still to be learned of their habits and movements. Identification of many of these is difficult in the field. The White-capped (Shy) Albatross nests in considerable numbers on Pedra Branca and Mewstone, two isolated rocks about fifty kilometres to the south-west (and Australian Gannets also nest on them), and other species can be expected to be seen at times — Wandering, Royal, Black-browed, Yellow-nosed and Light-Mantled Sooty Albatrosses.
The Short-tailed Shearwater, or Tasmanian Muttonbird, can be seen regularly between September and April: during our winter months its temporary home is in the North Pacific Ocean. Vast numbers nest each year on headlands and offshore islets around South Bruny and it is known that on Courts Island, just offshore from Cape Bruny some Sooty Shearwaters also breed among the Short-tails. It is likely that Diving Petrels, Storm Petrels and Fairy Prions, and possibly others of the group, also nest on remote parts of the coast.

White-breasted (White-bellied) Sea Eagles are regularly seen patrolling the shoreline and several nesting sites are known. John Gould, the ornithologist, secured a specimen of Osprey at Recherche Bay on the adjacent mainland of Tasmania in 1838 but this species must be considered a very rare vagrant on these coasts.

The shore birds or waders might be expected to be numerous in the sheltered bays with extensive sandflats but the number of species is very restricted and in most cases each species is in small numbers; the exceptions are the resident breeders Pied and Sooty Oystercatchers, Masked Plover (Lapwing) and Red-capped and Hooded Dotterels (Plovers). The reason for the paucity of migratory waders, which breed in northern Asia or Alaska, appears to be that they prefer mudflats which provide more food for them than sandflats. The only migratory waders known from South Bruny are — Lesser Golden Plover, Grey-tailed Tattler, Red-necked Stint, Eastern Curlew, Sharp-tailed Sandpiper and Ruddy Turnstone.

BACK NUMBERS OF TASMANIAN NATURALIST

The Club's periodicals have been issued in four series —

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Copies are still available from the Librarian, G.P.O. Box 68a, Hobart, 7001, at a very moderate cost.

Reports of the Club's Easter Camps were published separately and copies of those still available are listed below —

Bream Creek, 1905
Wineglass Bay, 1909
Safety Cove, 1913
Maria Is., 1915
Wedge Bay, 1917
Eaglehawk Neck, 1919
Adventure Bay, 1922
Schouten Is., 1925
Swansea, 1928
Schouten Is., 1906
Coles Bay, 1910
Wineglass Bay, 1914
Eaglehawk Neck, 1916
Safety Cove, 1918
Adventure Bay, 1921
Marion Bay, 1924
Safety Cove, 1926
THE BUSHFIRE PROBLEM

The perennial warning from the Director of Country Fire Brigades that hazard reduction burns should be carried out to minimise the possibilities of serious bushfires has again been publicised. The usual proviso that these deliberate fires should only be lit when weather conditions are suitable has also been included but all too often the judgment as to suitable conditions has proved deficient with the result that hazard reduction burns have become uncontrollable and caused serious and unnecessary damage to our bushland.

There is an ever-growing belief that hazard reduction burns do more harm than good although this is strenuously denied by the State Fire Commission. It is generally accepted that a regeneration burn to provide a good seed-bed for a new forest is a good practice, but beyond that fire should not be used as a tool.

One of this State’s largest users of forest products is Australian Newsprint Mills Ltd, which for more than forty years has been harvesting our forests and using regeneration burns in order to re-establish them, which it has done most efficiently. It is the strict policy of this Company to prevent any fire once a young forest has been established and the re-growth areas in the Florentine Valley bear witness to its effectiveness.

The State Fire Commission should direct its efforts towards educating the public in the proper care of our forests rather than encouraging burning-off which has been responsible for the tragic deterioration of many forest areas.
RICE GRASS — *SPARTINA ANGLICA*
ESTUARIES UNDER THREAT

J. Bayly-Stark
National Parks and Wildlife Service, Hobart

Estuaries have a very important place in coastal ecosystems. Nutrients washed down by freshwater streams and stirred by rhythmic tidal flow provide a rich environment for a diverse range of flora, birds, fish and invertebrate life.

Estuaries are also favoured by man as settlement sites. As a result many of our estuarine wetlands have been lost to land reclamation, port development, agricultural development and industrial pollution. Unfortunately we now have to add the insidious and potentially serious threat posed by *Spartina* to this list.

At present the taxonomy of the group in Tasmania is complicated and so I will use "Spartina" to denote the Tasmanian complex. *Spartina* is adapted to the brackish waters found in tidal reaches of estuaries.

*Spartina* is an intertidal grass of European origin and has been widely used around the world in land reclamation. It was introduced into the Tamar River in 1947 to stabilise the mobile mudflats bordering the navigation channel. It worked very well. By 1972 over 5.5 million square metres of Tamar River mudflats had been colonised by *Spartina*, (Phillips, 1975).

*Spartina* grows from seed, plant fragments or by rhizome extension to form rapidly expanding clumps which in time coalesce to form a sward of meadow. The dense shoots which rise from the root system trap and accumulate sediments. The effect of this process is to raise the intertidal surface until eventually a terrestrial environment is created. In the Tamar River *Spartina* has caused sediments to accumulate to depths of over 2m in places. (Phillips, 1975). Not only has *Spartina* colonised mudflats in the Tamar River but it has also colonised rock platforms and sandy beaches. (Phillips, 1975). The end result of this process is that large productive estuaries can be reduced to channelled streams.

Clearly such rapid and extensive changes to key estuarine environments must be to the detriment of native species which are unable to adapt to the new conditions. The National Parks and Wildlife Service is particularly concerned with the potential impact of this weed on migratory and residential waders. There are a limited number of important wader resorts in Tasmania (Anon 1979) and many of these could be substantially destroyed if *Spartina* were to become established. Further research is needed to establish just how serious a threat *Spartina* is to the plant and animal communities which go to make up an estuary. However, it is clear that waterfowl which feed on seagrass, *Zostera* spp., stand to lose large areas of feeding habitat.

Estuaries are also important breeding and feeding grounds for many freshwater and marine fish, including commercial species such as whitebait and oysters.
In the 1940's and 50's *Spartina* was planted in a number of estuaries. It has now been found in the following estuaries:— Montague River, Duck River, West Inlet, Port Sorell, Tamar River, Bridport and Little Swanport. In recent years it has been eradicated from the Derwent and Forth Rivers. The National Parks and Wildlife Service intends, with the co-operation of other authorities, to eradicate *Spartina* from all but the Tamar and Duck Rivers. In these latter areas *Spartina* is either too firmly established to contemplate control, or is providing much needed stabilisation of silt for the maintenance of navigable channels. Continued vigilance will be necessary to prevent new infestations originating from these established areas.

You can help by keeping an eye out for a rank grass, 20-100 cms tails, growing in the brackish intertidal zone. *Spartina* resembles young plants of the common reed *Phragmites communis* which occupies a similar niche but in less saline habitats.

If you suspect you have found a patch of *Spartina*, other than in the Tamar and Duck Rivers, the National Parks and Wildlife Service would be pleased to receive a specimen, together with the name and grid reference of the location.

References
ANON. (1979) Palearctic Waders
TASMANIAN BIRD REPORT 7, 30-42

ANOTHER HOBBY FOR A FIELD NATURALIST
M.L. Westbrook

Have you ever looked at the very beautiful little toadstools in the dark, damp, mossy rainforest and said to yourself "If only I could preserve them, what a lovely collection it would make!"?

Of course, for an expert photographer there is no worry, for the most accurate and colourful records can be taken to give pleasure to all who see them.

But there is another sideline for a person interested in Fungi — making spore prints. When out hiking take with you a flat tin, lined with plastic and cottonwool. Put the fungus upside down, cover with plastic before closing the lid. Or take several little tablet bottles and drop one toadstool into each. As soon as you get home, your very first job after taking off your pack is to deal with your specimens. The stem of the fungus is cut off at the top and the open cap with the gills or pores is placed on a piece of paper for several hours. The spores fall on to the paper and make a true print of the pattern of gills or pores on the fungus.

Some spores are white and show up well on black paper while others are dark and show up best on white paper. If great care is taken the print can be fixed by spraying gently with hair spray.
The prints can then be pasted into a notebook together with notes made on habitat (whether growing on dead or living wood, on bone or dung, in grass or on ground, in sun or shade, wet or dry conditions.) Morphology (size, shape, colour, thickness, surfaces, smell etc.). Season (rain is usually more important in Australia). Spores — shape and size (if you have a good microscope) and then, (if you can identify it by reference to a book such as 'A Field Guide to Fungi of South-East Australia, by Ross Macdonald & John Westerman) — its common and/or Scientific Name.

In time you can build up your own reference book on Fungi. Meanwhile, the hunt for specimens gives added interest to all your bush walks, and even a tour round your home garden, could add to your collection.

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20,000 YEARS AROUND CARLTON BLUFF

by Kelsey Aves

My interest in the Carlton Bluff area developed as a result of our family camping in a delectable glade of banksias in the shelter of sand dunes on the Carlton Bluff estate — then reached only by a primitive sand track by the Carlton River, the farmhouse and cowsheds being the only buildings on the property. The consequent solitude we enjoyed for 6 or 7 years before inevitable development started. We eventually built a cottage there ourselves, and ‘Roaring Beach’ became ‘Primrose Sands’.

The human history of the area might be said to have 3 phases — some 20,000 years of aboriginal occupation, about 200 years of white exploration and settlement, and about 20 years of modern ‘development’ — almost a logarithmic scale.

Referring to the article by Scott Cane and Jim Stockton in the ‘Tasmanian Naturalist’ for November 1977, Tasmania was probably first settled by people from the mainland of Australia some 23,000 years ago, during the end of the Pleistocene ice age, when the sea-level was about 70 metres lower than now. This meant that there was a land-bridge between Tasmania and Australia on the eastern side of what is now Bass Strait. By 12,000 years ago these people had reached southern Tasmania, but as the snowfields and glaciers melted Tasmania became an island about 10,000 years ago and men and animals were separated from mainland influences. For three or four thousand years Bass Strait widened as the ice melted. Since at least 8,500 years ago Carlton was inhabited by aboriginal people of the Oyster Bay tribe; in fact one of the middens by the river has been carbon dated to this age. Over most of the estate we used to pick up artifacts and there must still be plenty around.

As the article in ‘The Naturalist’ says, the climate into which the aborigines first ventured was colder and drier than now — about 8°C. colder. From 25,000 to 10,000 years ago the main vegetation was grassland, but with a warmer and wetter climate trees increased and a savannah developed. The aborigines constantly used fire to maintain young grass for game, but left patches of trees for shelter and this was the habitat described by the French and English explorers of the end of the 18th Century — light savannah and heath country, which persists today where it has been allowed to.
Coming now to the phase of white exploration and settlement, Frederick Henry Bay was explored by Willaumez from D’Entrecasteaux’s expedition in 1793 and Pt. Renard was named by him. It was further explored by Flinders in 1798 during his and Bass’ circumnavigation of Tasmania and he named and spent a night anchored by Isle of Caves. Also a boat from the expedition of Baudin in 1802 entered the Carlton River.

In 1803 white settlement began with Lt. Bowen founding the Risdon settlement and the following year, 1804, Collins transferred it to Sullivan’s Cove, thus founding Hobart. Gradually settlers spread further afield. Sorell was officially named in 1821, and there were farms at Carlton by 1830, when the Quaker missionaries, Backhouse and Walker wrote of having meetings with them. The Carlton Bluff property was granted to E.J. Kennedy in 1851 and it has been farmed since then, probably for wheat in its early days and as a dairy farm and sheep run during this century. It was as sheep and cattle grazing country that we first knew it and our walks towards Primrose Point were over rolling green fields, closely cropped by sheep and rabbits and reminding us rather of the South Downs in England.

This was a habitat for Australian (Richard’s) Pipit, Dusky Robin, Field-wren (Calamanthus), Skylark and Dusky Wood-swallow, but this has largely been displaced by urban development, and (Common) Starlings and House Sparrows are increasing very rapidly. However, Brown Thornbills and (European) Goldfinches are nearly always in the casuarinas on the cliff edge. The lagoon, also, used to attract many dotterels and often sandpipers but has changed and although it still has a few Red-capped and Black-fronted Dotterels (Plovers), we rarely see Hooded Dotterels (Plovers) or sandpipers. Mountain Ducks (Australian Shelducks) and Blue-winged Shovelers were often seen there, but it’s several years since I’ve seen the Mountain Ducks. We still have (Pacific) Black Ducks and Chestnut Teal as well as Hoary-headed Grebes and Musk Ducks when the lagoon is not dried out. At one stage trail bikes used to career around the sedge clumps on the edge of the lagoon and must have discouraged the water and marsh birds.

Around our house we always have Little Wattlebirds in the banksias and usually Crescent and Yellow-throated Honeyeaters, Eastern Spinebills, Brown Thornbills, Scarlet Robins and Black-faced Cuckoo-shrikes in the summer. From the trees nearby we hear White-backed Magpies, Noisy Miners, Eastern and Green Rosellas and sometimes Clinking (Grey) Currawongs. Also, there are Brown Hawks (Falcons), and Swamp (Marsh) Harriers over the lagoon area. Laughing Kookaburras seem now to be resident.

The beach always provides interest with Southern Black-backed (Kelp) Gulls increasing and a pair of Pied Oystercatchers we know as George and Martha, though in the 25 years we have known them they must have changed their identity. The nearby Carlton Estuary seems to have a community of a score or more of these birds. Often about February skeins of thousands of Muttonbirds (Short-tailed Shearwaters) weave over the bay. Once we saw the dark shapes of two enormous rays (± 1.5M across) close inshore, and also once the triangular fin of a large shark. Permanent residents might see them more often.

In our garden skinks are common. Mountain Dragons were so tame that we could sometimes pick them up but now we have none and we suspect neighbours’ cats.
The garden is planted mainly with Australian natives, most of which were given to us by Ron Smith. West Australian and mallee eucalypts give us great delight and there are also wattles, hakeas and grevilleas which encourage the honeyeaters.

While sheep were grazing few seedlings of the indigenous trees or shrubs had a chance to grow, but since sheep have been excluded casuarinas and banksias have regenerated in quantity around us. Despite the necessity to mow the grass in the garden, because of fire risk, *Pimelea humilis* comes up again every year and *Diuris sulphurea* and *Microtis unifolia* grow within a few metres of the house. *Goodenia spp.* grow in the area too, and may well be the reason for the name Primrose Point and subsequently Primrose Sands.

Most of us who are conservationists want nature to have its own way, at least in some places, believing that in the end it will achieve its own balance. ‘In nature every species is important’ said one of Walt Disney’s early nature films. But alas, wherever prolific man and his modern technology move in, this natural balance is upset and even the making of a ‘wild’ garden alters the natural balance. Still, we must be thankful that, however tentatively, the movement for conservation is alive and growing and that ‘development’ is not as unrestricted as it was a few years ago.

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**WADERS AT MARION BEACH**

L.E. Wall

On 29 November 1978 there was an unusual number of migratory waders on the ocean beach — 6 Eastern Curlews, 16 Bar-tailed Godwits, 2 Red Knots, 150 Red-necked Stints and 25 Ruddy Turnstones. This flock of Turnstones is the largest I have known in the southern part of the State. On 17 January 1979 there were 300 Red-necked Stints, 6 Eastern Curlews, 1 Whimbrel, 1 Grey Plover and 19 Bar-tailed Godwits.

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**BLACK CURRAWONGS ATTACKING A WEDGE-TAILED EAGLE**

L.E. Wall

At Sloop Point, south of Cape Sorell, on 7 December 1978 a group of Black Currawongs was seen diving at something on a steep bank just above the seashore. The subject of the attack proved to be a Wedge-tailed Eagle which appeared to be little disturbed by the currawongs but took to flight when I showed myself.
PLUMAGE CHANGES IN THE BANDED STILT
Cladorhynchus leucocephalus
L.E. Wall

Following submission of my note to "The Emu" (vol 78 p 163) J. Berry found another bird of this species at Great Bay, Bruny Island, about 35 kilometres south of Lauderdale where the earlier sightings had been made, on 31 July 1977 and I saw it there on 7 August. I noted that the pectoral band was dull brown in colour with some white patches. I saw it again on 11 March 1978 when the band was complete and coloured rich chestnut, but on several subsequent visits I have not found it.

The bird at Lauderdale was observed frequently between April 1977 and its disappearance in June 1978 and the following plumage changes were carefully noted:

- 16/4/77 full rich chestnut band
- 17/5/77 " " " "
- 23/7/77 Losing band ?
- 8/10/77 white patches on the dull brown band do not appear to be increasing
- 28/1/78 no band: dark smudge on belly only
- 26/2/78 band fully outlined but light rufous in colour, with plenty of white still showing. It was resting but was constantly pecking at the breast, apparently affected by the new band feathers growing out.
- 4/3/78 band well defined but not yet fully coloured and is still 20% white, finely spotted throughout.
- 11/3/78 As stated above I studied one bird at Great Bay, Bruny Island, on this day and then went to Lauderdale as quickly as possible to see whether there was one in each location. The bird at Lauderdale was found with about 10% of white feathers in its band while the Bruny Island bird had a complete band.

- 28/5/78 full rich chestnut band.

It seems clear that at about the end of July each year the colour of the band fades from rich chestnut to dull brown and some feathers are lost resulting in the band bearing a mottled appearance, and this remains for three or four months. The band is completely moulted in December or January but the black belly patch may not be entirely lost. Restoration of the full band may take as long as three months. As mentioned in my earlier note it has been generally accepted that the pectoral band, having been attained at maturity, becomes a permanent feature of the plumage although at least two authors, J. Jones (Emu 45: 12) and Roy Wheeler (Emu 55: 286), have expressed doubt on this point and this is now confirmed.
THE RUFOUS WHISTLER (*Pachycephala rufiventris*) IN TASMANIA

Frances P. Foster

Newman (1976) and Green (1977) cite references to its occurrence on King Island but there have not been any authenticated records of it occurring on the Tasmanian mainland.

At 1030 hours on 12 October 1980 I heard a bird calling in dry sclerophyll 100 metres from the homestead at "Bel Respiro", Green's Beach, near the mouth of the Tamar River. Though vaguely familiar I could not associate it with any of the species known to occur in the area. Upon investigation I found it to be a young male Rufous Whistler just attaining mature plumage. Its colour pattern made it easily distinguishable from the Golden Whistler (*P. pectoralis*) which is common in the area. Its steel grey crown and back, white throat above a black pectoral band, rufous breast streaked with brown and rufous belly were clearly visible through 10 x 50 binoculars.

I watched the bird on several occasions for a total of two hours throughout the day, during which time it called regularly while feeding amongst the foliage in the tops of the eucalypts. It was still in the same area at 0630 hours the following morning but has not been seen since.

I was previously acquainted with this species, having observed it at Aireys Inlet in the Otway Ranges, Victoria.


(I have two second-hand and unconfirmed reports which have never been published: one near Corinna in 1966 and the other near Liena in 1964. — Editor)

CATTLE EGRET KILLED BY HAWK

In May 1975 P. Fielding was given a Cattle Egret which had been attacked and killed by a hawk (species unknown). This is the only one I have had in my hand and I was interested to note that the soles of the feet were green. The only description I know of which includes this feature is in Prade and Grant's "South African Birds".
GRANITE QUARRY, COLES BAY

In 1975 an application was made for a licence to quarry granite within the boundaries of Freycinet National Park, in an area where this industry had been operating many years previously. Very strong opposition from a wide section of the community was expressed but in spite of this a licence was granted in 1976.

One of the conditions attached to the licence is that no stone is to be removed from the site except by sea because of the deep concern for heavy vehicles using the roads through the park and for the noise pollution in an area dedicated for peaceful recreation.

Application has now been made for a mobile crusher to be introduced to the quarry site, which will increase the noise from the quarrying operations, and for permission to transport the material from the site by road.

This should be strongly opposed because of the problems it will create. The Company carrying on this enterprise was prepared to operate under the conditions laid down five years ago and there should be no relaxation now.

ENGLISH NAMES OF AUSTRALIAN BIRDS

In Tasmanian Naturalist No. 63 (October 1980) it was stated on page 9 that this magazine would continue to use the names in the "Index of Australian Bird Names" produced by C.S.I.R.O. in 1969 but that changes made in the R.A.O.U. list, 1978, would be added in brackets. Because Pizzey's Field Guide to the Birds of Australia, just published, has retained the names used in the C.S.I.R.O. Index these names will continue to be used in the Tasmanian Naturalist but the changes which appeared in R.A.O.U. list, 1978, will not be added in brackets.
This is the second Field Guide produced in Australia in recent years. It has a distinct advantage over Slater's which is in two parts, but there are several aspects of their presentation which differ and require critical appraisal.

Pizzey's introductory remarks, including comments on Field Marks, Classification, Common Names, Expressions Used in the text, Bird-sounds, Habitat, and Range & Status are well presented and pertinent. In the main text he gives a brief description of each family — its chief characteristics, food, geographical range and number of species (both worldwide and within Australia) — before proceeding to provide details for each species under the following headings: Field Marks, Similar species, Voice, Habitat, Breeding, Range & Status. These are more extensive than those provided by Slater and Pizzey's innovation of listing similar species is well worthwhile. I have one complaint here; Field Marks commence with a measurement but there's no indication that it refers to the length of the bird from bill-tip to tail-tip when laid on its back. It is surprising how many beginners think of it as being the bird's wing-span.

Illustrations:

The illustrator of this book, Roy Doyle, was little known in this field before this production but his work is of a high standard and complementary to the text. Whilst the general standard is high there are some instances in which improvements could be made; in particular, there has been a tendency to clutter up some plates too much, especially where birds are illustrated in flight. The use of lines drawing attention to particular features of a bird, first used by the eminent American ornithologist, Roger Tory Peterson, is to be commended. In a few cases the coloured plates are not true to colour — this may be the fault of the artist or the printer and I can do no more than draw attention to the worst of these for the benefit of the book's users.

Plate 2. White-capped Albatross has narrow black edges to the leading and trailing edges of under-wings and a dark grey-brown tail. Yellow-nosed Albatross has dark brown tail.

Plate 11. Black Duck's wing speculum should be darker and less conspicuous. According to the angle of light it may appear green or purple.

Plate 15. Large and Plumed Egrets have yellow bills in non-breeding plumage when they normally occur in s. Australia and Tasmania.

Plate 16. Nankeen Night-heron has white head-plumes in the breeding season only.

Plate 21. Flight patterns of Swamp and Spotted Harriers are shown one above the other for comparison. The sequences are inconsistent — reading from the left side the order for the Swamp Harrier is Imm., Adult, Imm., Adult, but for the Spotted Harrier it is Adult, Imm., Adult, Imm.
Plate 26. Pomarine Skua has a complete collar like the Arctic Skua (pale phases only).
Plate 27. White-winged Black Tern has white rump in non-breeding plumage (a distinctive field character).
Plate 28. Little Tern has distinctly darker grey primaries than Fairy Tern.
Plate 34. Great Knot and Knot have very little mottling on wings and the breast is very slightly flecked on sides of breast only.
Plate 37. Pied Oystercatcher has white secondaries but primaries are wholly black.
Plate 40. Large Sand-plover’s legs extend beyond tail during flight.
Plate 55. Male Masked Owl and Barn Owl are reversed?
Plate 60. Grey Shrike-thrush has grey upper surface and light grey under.
Plate 61. Spotted Quail-thrush has light grey breast, not blue.
Plate 63. Dusky Robin has white spot on edge of wing, not in the centre.
Plate 65. Female Golden Whistler has no white in wing. Male Olive Whistler has grey head.
Plate 71. Scrub Tit has no well-defined white eyebrow but a poorly defined white ring around eye. Blue-grey ear coverts should be brown.
Plate 76. Yellow-throated Honeyeater has no yellow in wing and the crown is not streaked.

Nomenclature:
The chief cause for complaint in this book is the Nomenclature used. It is a problem which has plagued Australian ornithology for many years and it had been my earnest hope that this book, which has been in preparation over a long period, would overcome this by using the most recent nomenclature. Alas, it does not, and I cannot foresee another book in widespread use being produced in the near future to relieve the current confusion.

Scientific names used are generally in accord with Condon’s “Checklist of the Birds of Australia, Part I”, 1975, and its counterpart, Schodde’s “Interim List of Australian Songbirds”, 1975, but there are notable exceptions. The “common” or “vernacular” or “English” names (whichever term you wish to use) used by Pizzey are those used in “An Index of Australian Bird Names”, produced by C.S.I.R.O. Division of Wildlife Research in 1969, but again there are exceptions. In May 1978 the Royal Australasian Ornithologists Union published “Recommended English names for Australian Birds” (which also included the most up-to-date scientific names): while it is appreciated that the book now under review was already in the printer’s hands at that time Mr. Pizzey would have done Australian ornithology a major service if he had ensured that the most up-to-date names had been used, even though further delay in publication may have resulted. It is strange that in the Introduction to this book, under the heading of Classification, Pizzey states that this aspect of Australian ornithology “is in some ways like the peace of God — it passeth all understanding” and nomenclature is in the same position, yet he has ignored the opportunity to bring some order out of chaos.
In the "Recommended English names for Australian birds" (1978) all the Dotterels in the genus Charadrius have been re-named Plovers: Pizzey has adopted that for the Common Ringed, Mongolian, Large Sand, Caspian and Oriental Dotterels, but inexplicably has left the remainder under the old name.

Distribution Maps:

These are of great value in a field guide but in this respect Slater's is much to be preferred because his map for each species is alongside the bird's entry in the text. Pizzey has placed all his maps in a small section at the rear of the book so that reference from the text to the map requires turning from one section of the book to another.

There is also inconsistency in recording vagrant and rare occurrences on the maps. In most cases of birds which according to the text are vagrants or very occasional visitors the relevant maps do not show them as occurring in Tasmania, but exceptions are — Eastern Reef Heron and Royal Spoonbill (Page 413), Spotted Harrier (P. 415), Black-tailed Native Hen (P.417), Marsh Sandpiper and Ruff (P.419) and Leaden Flycatcher (P.430). It is noted, too, that the Purple-crowned and Red-crowned Pigeons (P.152) are named Fruit-doves on the maps (P.421).

Main Text:

The following alterations should be made:

Page 60 (and map P.413) Nankeen Night-Heron. Range should include Tasmania.
Page 103 Tas. Native Hen is stated to be "Nearly flightless". The word "nearly" should be deleted.
Page 104 (and map P.417) Dusky Moorhen is stated as "not recorded Tas. proper". The first record was in 1976 and it appears to be well established now.
Page 113 Grey Plover and Eastern Golden Plover. Include Tasmania in their ranges.
Page 116 Oriental Plover. Include Tasmania in its range.
Page 122 Whimbrel is stated to occur in n. Tasmania only. It is also found in the south.
Page 225 White-backed Swallow is stated to occur in Tasmania. This is incorrect.

Summary:

The comments above in respect to individual species are with one exception (Common Ringed Plover) in respect of only those birds on the Tasmanian list. It is left to other reviewers to draw attention to other short-comings.

The corrections listed have been detailed primarily for the benefit of Tasmanian observers and are not intended to denigrate the value of this book which I believe is to be preferred to Slater's Field Guides.

L.E.W.
NEW WAY TO CONTROL BONESEED
Extract from Victorian Dept of Crown Lands and Survey News
October 1980

Boneseed can be beaten, according to David Lane of the Keith Turnbull Research Institute at Frankston.

Boneseed is a serious threat to bushland, especially in the drier, open woodlands of granitic and coastal areas. It can form dense stands which crowd out native vegetation and is able to establish itself whether an area has been disturbed or not.

Rare species of plants growing in an infested area can be in danger of extinction. Boneseed is particularly serious in the You Yangs forest park and at Arthurs Seat on the Mornington Peninsula.

David Lane and other workers at the Keith Turnbull Research Institute noticed that little regrowth of boneseed occurred if seedlings were removed after fire had been through an infested area. They screened several chemicals and found that the herbicide bromoxynil killed seedlings of boneseed but did not harm the native wattles.

Using this chemical, and the knowledge that heat from a fire will stimulate germination of practically all boneseed seed in the soil, they were able to develop a successful treatment. Boneseed plants were slashed and the remains burnt. This stimulated germination of seeds in the soil. The resulting seedlings were then sprayed with bromoxynil.

David Lane said that this treatment is being used very successfully in the You Yangs forest park.

Before this, control relied on manual removal of the plants or use of the chemical 2,4-D amine. Neither method was completely satisfactory, especially for treating large areas.

Boneseed is a woody shrub about 3 m high. It has distinctive bright yellow daisy-like flowers and blooms in winter and spring. The oval leaves are from 25 to 75 mm long and are irregularly serrated.

The fruit is spherical and contains only one seed, and is about 6 mm in diameter. It has a fleshy green skin which turns black. The plant derives its name from the seed which is very hard and bone-like in color and texture.

Like many other weeds, boneseed was first introduced to Victoria from South Africa as a garden plant in 1858. It caused few problems until the 1940s when it began to spread rapidly. Boneseed was declared noxious for the whole of Victoria, except the Melbourne metropolitan area, in 1969.

David Lane said that infestations of boneseed tend to be concentrated around towns. He said that the plant could be spread by careless dumping of garden rubbish containing seed, and by birds and foxes which eat the fleshy outer covering of the seed. The hard seeds pass through their digestive systems unharmed, germinate, and start new infestations.
NESTING NOTES ON LEWINS’ RAIL *RALLUS PECTORALIS* AND SPOTLESS CRAKE *PORZANA TABUENSIS* IN NORTH-EAST TASMANIA

by

T.A. Singline, Honorary Assistant, Zoology,
Queen Victoria Museum, Launceston, Tasmania

The following observations were made on the nesting habits of Lewin’s Rail *Rallus pectoralis* and Spotless Crake *Porzana tabuensis* in the north east of Tasmania from 1977.

The area investigated was dairy farming country in the Pyengana district, about 20 km west of St Helens. Rainfall ranges from 1,500 to 2,000 mm per annum. Lush pasture grows on the river flats. The lower lying areas are flooded for extended periods in most winters, which encourages the growth of rushes and reeds along the water courses and in flat, poorly drained places. The rushes and reeds form interconnected clumps of coarse vegetation which are not heavily grazed and here the rails and crakes are concentrated. This pattern of limited habitat distribution along the drainage lines makes them easier to locate than in large swamps and samphire marshes.

During 1977, from late August to mid October, nine visits were made following reports of small rail-like birds being flushed during slashing of rushes and reeds. In this period Lewin’s Rail’s nests with eggs were found and on further subsequent visits, from mid-October, nests with eggs of Spotless Crake were also found. It has since been established that, in this area Lewin’s Rail nests mainly from October to November, with old birds starting to lay in late August. The Spotless Crake breeds somewhat later from about the middle of October to December. On most visits four or five occupied nests of Lewin’s Rail were found, the greatest number found in one day being nine. Occupied nests of Spotless Crake appear to be somewhat less numerous.

From late August 1977 to the end of October 1977 229 eggs of the Lewin’s Rail and 65 eggs of Spotless Crake were counted. In the three years of observations, these were the only crake and rail species found there.

Both species were found nesting in various locations in the rushes where they formed cup shaped nests from both rushes or reeds. Entry was gained by a narrow walkway through the surrounding vegetation and not aligned in any special direction. The cup of the nest varied from 10 to 60 cm above the mud or water. Most nests were found to be built in rushes. One was found built in blackberries.

The Spotless Crake appears to build many false nests and with both species old nests from which young have been hatched are hard to distinguish from new nests ready for eggs.

In Lewin’s Rail, the largest clutch found was 8, one contained 7, and others contained 6 and 5, but the most common number was 4.

In Spotless Crake, occasionally a clutch of 6 eggs was found, a few of 5, but the most common was 4.
Many eggs of Lewin’s Rail were eaten by animals, possibly swamp-rats *Rattus lutreolus*, judging from the droppings found in the vicinity of nests.

Only twice were adult Lewin’s Rails seen on their eggs and on both occasions this was about 11 am. Only once were young seen in the nest, and at this time two young had emerged from their eggs and two were in the process of hatching.

"PEREGRINE’S" DIAMOND JUBILEE

Michael Sharland, under the pen-name “Peregrine”, has completed a record term of sixty years as feature writer on natural history subjects for the “Illustrated Tasmanian Mail”, a weekly magazine published by “The Mercury” in Hobart, from 1921 until its cessation in 1935 and since then in “The Mercury” itself. So many compliments were paid to him at the end of fifty years’ service that little more can usefully be added now but our Club saw fit at its last meeting to present to him a caricature drawn specially for the occasion by “Kev” who has also served “The Mercury” well for several years.

Michael Sharland needs no introduction to naturalists throughout Australia: his chief interest has always been among birds and in this field he has earned a very wide reputation, not only for his writings but also for his photography which ranks among the world’s best. However, his interest has extended to all branches of natural history as evidenced by his regular articles covering a wide variety of subjects.

He joined the Tasmanian Field Naturalists Club in 1918 but there was a gap in his membership when his journalistic career took him to the Mainland in 1927. He returned to Tasmania in 1941 and assumed office as Honorary Secretary of the Club but a year later he enlisted in R.A.A.F. and saw service in northern Australia and New Guinea. On his return he was elected President of the Club in 1945 and re-elected in the following three years. He was instrumental in reviving the Club’s publication, “The Tasmanian Naturalist” in 1946. In recognition of his long and distinguished service to the Club he was elected to Honorary Life Membership in 1952. He served a further term as President in 1954, the Club’s Golden Jubilee Year.
RUDDY GREENHOOD \((Pterostylis\ rufa, \ sub-sp.\ rufa)\)

M. Wall

My introduction to this orchid was in November 1978 when I brought home a plant with rosette of leaves from the Margate tip area, thinking I had collected \(Pterostylis\ barbata\) (now \(plumosa\)), the Bearded Greenhood.

This rosette dried off and the flowering stalk started to grow, flowering in January 1979. In the same year this orchid grew in a pot of greenhoods I had collected at Coningham.

Last November (1980) I collected a plant from Kingston Heights from an area used as a turning circle for cars. The first flower opened in early January when the plant was 8 cms. high and the next flower about two weeks later. The flowers last for a month and the stem keeps growing. It is now 23 cms. high with the ninth bud ready to open.

I have not seen this orchid flowering in the wild and wonder if it would be in flower for four months like the one on the side of my kitchen sink where I can enjoy it.

SEA HARE

During late January in Bruny Island at Quiet Corner, we proceeded around the cliff to the north of the beach at low tide. There are numerous potholes in the sandstone rock which are moderately sheltered from wave action by the surrounding kelp beds. The resulting pools support a wide variety of shellfish etc.

In one such pool we observed a Sea Hare \((Aplysia\ hyalina)\). This is a mollusc similar to a nudibranch, but containing an internal shell. It sports tentacles, whose shape is the probable source of its common name.

The specimen was about 130 mm (5 in) in length. It was olive green in colour and purplish underneath. When we removed it from the water, it secreted a slippery bluish cloudy mucus, the purpose of which is camouflage.  

John and Maria Grist.
THE FUTURE OF NATIONAL PARKS & WILDLIFE SERVICE

The State Government's announcement that it intends to amalgamate the Land Management Division of the present Lands Department with National Parks & Wildlife Service, the Department of The Environment, the Town and Country Planning Commission and the Local Government Office under the title of "Department of Municipal Affairs" has caused widespread concern. Grave doubts have been expressed, not only about the wisdom of the proposal but also the method of its adoption.

Very unobtrusively the Government commissioned Mr John Mant, a Sydney barrister, to review administration and land management in Tasmania. All indications are that his report and recommendations have been presented verbally to the Government and not committed to writing.

If, in fact, Mr Mant has made a written report it seems incredible that the Government should accept the recommendations, which appear to be of major importance, without releasing the report so that the electors may make their own assessments of its merits. Only after a careful study of the report can a reasoned judgment be made and the Government's decision be endorsed or opposed.

WHITE-BREasted SEA EAGLE

I recently had a close look at an immature sea eagle (aged about two years) in flight. The under-wing pattern resembles very closely the pattern of the Whistling Kite Haliastur sphenurus.

L.E.W.
STRANGE BAT DEATHS AT ST LEONARDS, NORTHERN TASMANIA

R.M. Tyson

On the 30/12/74 I found the body of a small bat lying on the front lawn of my house at St Leonards near Launceston, Northern Tasmania. Upon examination I found it to be a male Small Forest Eptesicus, *Eptesicus vulturinus*. A study skin was prepared and I thought little more about it until on the 14/11/75 once again on the lawn, another bat was found. This proved to be a female Small Forest Eptesicus, heavily pregnant. Again a skin was prepared and the foetus was preserved. On the 5/4/76 a Lesser Long-Eared Bat, *Nyctophilus geoffroyi* female, was found on the lawn. In the same location on the 26/11/76 another female Small Forest Eptesicus was found. Skins were prepared of both of these.

Nearly five (5) months later on the 12/4/77 another male bat was found dead on the lawn. This bat was larger and much darker than the previously more easily identified species. The only other species of bat found in Tasmania that I have seen close enough to identify is the Gould’s Wattled Bat, *Chalinolobus gouldii*. In a deserted shack on Roses Tier near Ben Lomond, I observed a pair of Wattled Bats clinging and moving about on the shingles inside the building. These bats were soft brown in colour with a dark head and mantle extending over the shoulders. Specimens in the Queen Victoria Museum, Launceston, appear generally darker with however, the distinct dark head and shoulders. The fact that the latest bat found was a solid colour rules out the Gould’s Wattled Bat as the species. Museum skins of the Tasmanian Pipistrelle, *Pipistrellus tasmaniensis* do not match this latest bat from St Leonards either.

Therefore I assume this to be a Chocolate Bat, *Chalinolobus morio*. The skin I prepared matches the description of this species given by Flail and Richards (1979). Also Ride (1970) in identification, among other things says “ears too short to meet above head when pressed together.” It is interesting that this is a Chocolate Bat as Green (1973) says “It is probably the least common kind of bat found in Tasmania”.

Bats are common around St Leonards and can readily be observed “hawking” about on warm evenings. On the 4th of January 1979, I watched a small bat swoop and attack a moth I think to be of the genus *Abatiade*. This moth was dropped by the bat and fell to the ground where it died. I find this interesting as the moth had a body length of 65 mm which is as big if not bigger than all the species of bats found in Tasmania (Green 1973). However, all bats, particularly the Pipistrelle, 19g (Green 1973) are heavier than the moths.

The puzzling aspect of these dead bat findings on my front lawn could possibly be due to a large Canary Island Palm, *Phoenix canariensis* in the centre of the lawn. This palm attracts many introduced birds as well as a large number of moths and other insects. It may be that the bats are attracted to such a large food source, hunting right up into the branches of the tree. The nearer stages of the branches, or fronds, of the Canary Island Palm are a series or mass of large brittle spikes. I suspect the dead bats mentioned have failed to negotiate these spikes in their quest for food and have become entangled or
perhaps stabbed by them, causing death. Certainly the skin membrane of the wings of the bats were punctured in several places.

The bats and the moth are available for examination by any interested reader.

References:
Queensland Museum Booklet No. 12.

Oxford University Press, p. 176.


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POPULATION ESTIMATES OF THE SHORT-TAILED SHEARWATER
PUFFINUS TENUIROSTRIS, IN TASMANIA

by J.A. Naarding

Tasmanian National Parks and Wildlife Service

It is a daunting task to count the total population of an abundant species like the short-tailed shearwater. This species could be Australia’s most numerous bird (Rowley 1975) and an estimate of the total population is only made possible by its very restricted breeding range and its very predictable breeding cycle. Except for a few rookeries, along the coast of N.S.W., the south coast of Victoria and South Australia, all the breeding grounds are on the Tasmanian mainland and its off-shore islands. In Tasmania there are about 150 rookeries with a total area of just over 1000 ha. They are situated in three main areas:

1. The Furneaux group of islands in the N.E.,
2. The Hunter group of islands and King Island in the N.W.,
3. The islands and coastline between Tasman Island and Port Davey in the S.E. of the State.

There is also a small concentration of rookeries near Macquarie Harbour on the west coast.

Between 1978 and 1981 the N.P.W.S. of Tasmania has conducted a study of the short-tailed shearwater and some 20 rookeries situated in all the major rookery areas were surveyed in detail. Burrow densities and occupancies were measured as well as the breeding success in each of these rookeries. Armed with that information and incorporating estimates of longevity and mortality rates from Serventy (1974), it was possible to calculate the total population of the short-tailed shearwater. The results of these calculations indicate that there are between 15 and 16 million birds (Naarding 1980, 1981). The number of birds breeding outside the State of Tasmania is probably less than 2 million.

However the accuracy of this estimate is only as good as the least accurate of the supporting figures from which it was calculated. The mortality of juveniles in particu-
lar is difficult to determine. Feeding and weather conditions during their migration to and from the northern hemisphere could affect the total population from year to year.

During the past 30 to 40 years there appears to have been a considerable increase in the area of some rookeries. From literature and long-time residents it was learned that large rookeries now exist where previously there were none. On King Island and along the west coast breeding grounds have extended in area and new ones have appeared even during the past few years.

New rookery areas do not necessarily mean an increase in the population, but it is currently thought that the short-tailed shearwater is more abundant now than in the past. Although changes in the population are certain to have occurred in the past 150 to 200 years, we must assume that Flinders’ report of 150 million short-tailed shearwaters in early 1800 in Bass Strait over-estimated their abundance at that time (Flinders, 1814). It is extremely difficult for anyone to assess the numbers of birds in flocks of more than 1000. It is known that the Trefoil Island population is about 1.8 million. When all these birds arrive at dusk, very early in the season, as far as the eye can see in any direction the air seems full of them. Confronted with such a large number it is almost impossible to estimate how many birds there are.

At present the short-tailed shearwater population appears to be fairly stable and there is no reason for concern. However to maintain this population it will always be necessary to protect the breeding colonies. They are very vulnerable to damage from humans. Trampling of burrows and grazing by cattle are the most serious threats. These destroy the vegetation and cause subsequent erosion, making the soil unsuitable for burrowing.

References:


Unlike Australian birds which have been well served by authors like Slater and Pizzey, Australian mammals have not been covered in a comprehensive field guide for many years. To a large extent this reflects the difficulty of finding readily identifiable features for the many species which are cryptic, nocturnal, drably coloured and superficially alike. With increased interest in the natural environment there is a need for a book which will enable naturalists and laymen to identify mammals in the field.

This new field guide attempts to fill the gap. Only the eastern states are included so the guide is suitable for Tasmania. It includes the marine mammals and introduced mammals. The book has a strong waterproof cover, and while it will not fit in the average pocket, it would not take up too much space in a haversack.

The book begins with the mandatory section on classification, followed by a brief summary of the origins of Australian mammals. It is organised into the three subclasses of Mammalia (monotremes, marsupials and eutherians) with a general description of each. A series of photographs show representative skulls of each order and a short summary of the features of the orders is given at the beginning of the appropriate subclass section. If these and similar summaries for families had been distributed throughout the text, the author would have saved much repetition in the description of species and would have increased the educational value of the book. It would then also be easier to find the entries for species. In the absence of this organisation the book allows the reader to make disconcerting leaps, for example from Weddell Seals to Brumbies, without warning.

The majority of species are illustrated with black and white sketches which are generally more decorative than diagnostic, although some have useful insets showing important features. Entries for each species are given under a list of standard headings:

Common Name. Disappointingly, the author uses his own choice of names and does not adopt (or even acknowledge) the list of recommended common names developed by the Australian Mammal Society in an attempt to resolve the problem that bedevils many areas of natural history.

Scientific Name. Occasionally subject to change, but essential.

Other Common Names. Very helpful, particularly in Tasmania where Bennett’s Wallabies are ‘kangaroos’.

Description. Detailed, with italics for characteristics which distinguish similar species.

Size. Gives average or maximum head/body length, tail length and body weight (sometimes) in metrics.
Dentition. A simple dental formula is repetitive within families and of limited use. For example it would not separate the Red-necked Wallaby and the Swamp Wallaby, but a brief description or sketch of their premolars would do so instantly.

Locomotion. Describes the feet and gaits, which are useful but again repetitive.

Habitat. Uses a modification of Specht’s classification which is widely accepted and should be used more in Tasmania.

Distribution. A vague geographical description. The author declined to provide maps on the grounds that distributions of many species are poorly known and liable to constant change. However, maps can provide a real incentive for naturalists to keep their eyes open and lodge specimens with museums to build up distribution data.

Status. A general statement, avoiding controversy, ranging from ‘very common’ to ‘almost certainly extinct’.

Dwelling place. A description of nesting and/or resting sites.

Food. Lacks detail, and is not necessary in a field guide.

Voice. Very incomplete, but vocalisations can be helpful at times, particularly for arboreal species.

Habits. Contains some interesting snippets (did you know that Koalas can climb 2 inch galvanised water pipe?), but many are of little use as field characteristics.

Reproduction. Apart from details of morphology (e.g. teat number) which could be included in the general description, other details of reproduction are of limited use in the field.

Indications of Presence. This is potentially the most useful and the most singularly disappointing section in the book. Mammal identification is often, of necessity, done indirectly by the examination of tracks, faecal pellets, skulls, etc. It is then extremely frustrating to be informed that the wombat for example has ‘very distinctive droppings’ without any description or inset sketch. Pellets are described for only a handful of species, though many more must be known to the author and photographs have been published for some species. The same objection can be levelled at ‘distinctive tracks’ and ‘characteristic diggings’. Other indications of presence border on the ridiculous: ‘frequent roadkills’ for wombats (but not for rabbits, possums or macropods), and ‘koalas crossing’ signs if you prefer not to get out of the car.

This field guide could have been far more valuable, without adding to the cost, with better organisation and generous use of maps and insets on the sketches. It also has a number of errors and omissions: for example the Eastern Quoll apparently does not occur on agricultural land, and the captions for the deer antlers are not in the correct order.

For the Tasmanian naturalist, the Fauna of Tasmania Committee will soon publish a field guide to the marine mammals, but the remainder of the mammals will not be covered for several years. R.H. Green’s booklet, ‘The Mammals of Tasmania’ is still a useful guide. For a wider coverage I suggest that the prospective buyer wait for a new field guide to be produced by Basil Marlow of the Australian Museum. At least then you will have a choice.

G.M. Coulson
SEASHORE SEARCHING
by Margaret Richmond, 1980
published by the Author
($5.50 incl. postage from M. Richmond, P.O. Box 272, Devonport 7310)

This is an unusual book designed to reach and stimulate the interest of young children visiting the beach. The author has seen the need for such a book and realised that it must be attractive to young children. She has seen also that it must be designed for use on the seashore. It is consequently reasonably small and durable. It is also clear, concise and beautifully scripted.

The twenty colour plates demonstrate both the author’s ability as a photographer and her ability to choose subjects likely to interest children. Each plate is the subject for questions designed to encourage the child to think about the subject matter, its nature and to some degree, the environment. The book has come from many years of teaching young children and understanding their needs. It is, nevertheless, as the author remarks, intended to be used in association with adult influence. Both she feels, will get enjoyment from this interchange of experience. But it can be said that more than this is involved. The child can be made more aware of the natural environment if such a book provides the right level of stimulation.

The author regards colour plates as essential for a purpose such as is intended in this instance. Consequently she has had to fund the work herself to keep it within reach of the average person. The cost of my copy direct from the author is within reach. Its justification depends on whether the person buying has or is working with young children. In order to obtain some idea of what this means it was shown to children between the ages of four and ten years and reactions noted. It is apparent that children with some beach experience are able to understand the material best. Apart from this the degree of interest increased with age, but all were excited by the illustrations. Only one plate should perhaps be criticised. This plate shows a specimen of the mollusc Austrocochlea constricta (Lamarck). It would probably be satisfactory if used in the real life situation where the child can observe activity.

There is almost certainly no book which cannot be improved. In this case there is a need for more explanatory text designed to take the child and the adult a further step. A person with appropriate knowledge would not experience difficulty. An adult without such knowledge may be stimulated to try and discover more information for the sake of the child. Much therefore would depend on the reaction of the child.

It is this interaction which is important if there are to be more interested and informed naturalists in the future. Understanding of the natural environment must surely be greater if it is stimulated at an early age. Because this book certainly arouses interest in children and is attractive and durable, it can be said to achieve its aim. It has merit as a first book for the potential child naturalist. It also has good quality and much appeal for any child.

R.C. Kershaw.
CLUB EXCURSION
HUNTING GROUND, 4th April 1981

Following his address on Dragonflies to the Club’s monthly meeting on 2nd April Piers Allbrook accompanied members on the excursion on 4th April to study aquatic life in the Jordan River. As a result of the mild autumn weather a good selection was seen, as indicated by the list that follows. We are very grateful to Mr. Allbrook for his assistance.

Porifera: Freshwater sponge
Fam. Spongillidae, probably Heterorotura nigra
An Australian endemic.

Bivalvia: Sphaerium sp.

Gastropoda: probably Hymnæa sp.

Decapoda: Paratya australiensis (shrimp)

Ephemeroptera: (mayflies) nymphs, dun
(first adult instar) and spinner (last instar)

Odonata: (dragonflies)
Fam. Leslidae Austrolestes annulosus
Fam. Coenagrionidae Ischnura heterosticta tasmanica “aurora
Fam. Aeshnidae Aeshna brevisyla
Austroaeschna longissima
Fam. Gomphidae Austrogomphus guerini
Fam. Corduliidae Hemicordulia tau

Hemiptera: (bugs)
Fam. Veliidae (pond skaters)
Fam. Corixidae (water boatmen)
Fam. Notonectidae (back swimmers)

Lepidoptera: (moths)
Fam. Pyriliidae

Trichoptera: (Caddis flies)
Fam. Rhyacophilidae (naked active carnivorous larvae)
Fam. Leptoceridae (active swimming larvae in a smooth case)
Fam. Calamoceratidae (flat cased caddis)

Coleoptera: (beetles)
Fam. Gryrinidae (whirligig beetles)
Fam. Haliphiidae (small beetles in decomposing wood)
MARINE RESERVES IN TASMANIA

National Parks and Wildlife Service has recently announced its intention, in association with the Tasmanian Fisheries Development Authority, to establish a small number of Marine Reserves along our coasts, with the following objectives:

1. To protect representative samples of marine habitats and ecosystems and sites of special significance for present and future generations, whilst facilitating public recreation including fishing, boating, water sports and nature study.

2. To protect underwater landscapes and features of archaeological and historic importance, including shipwrecks.

3. To protect key marine geological formations.

4. To establish scientific reference areas.

5. To educate the public in the resources, protection and use of the marine environment.

An initial survey of potential Marine Reserves in Tasmania has been carried out by G. Edgar and his report has been published as Occasional Paper No. 4 by the National Parks and Wildlife Service. Five areas have been recommended as Marine Reserves extending for a distance of one kilometre from the shore.

This concept should receive the whole-hearted support of all naturalists, but the present proposal that fishing should be allowed is in conflict with other aspects of the first objective stated. Protection of marine habitats and ecosystems cannot be complete while fishing (whether commercial or amateur) is permitted.
The Hobart Walking Club invited us to join them in a day trip by river steamer, leaving Hobart at 8 a.m. and returning by 6 p.m. We had very little more than two hours on the island.

The following lists were compiled on that occasion and on other short visits but are certainly incomplete.

Additions by other visitors would be welcomed.

**Botany (by M. Allan and M. Wall)**

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<td>+ Vinca major</td>
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<td>+ Viola hederacea</td>
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<td>+ Wahlenbergia sp.</td>
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+ = Introduced sp.

f. = flowering

**Birds**

A DESCRIPTIVE ACCOUNT OF THE FORESTS NEAR ROCKA RIVULET, EASTERN TIERS
F. Duncan, S. Harris and M.J. Brown
National Parks and Wildlife Service

INTRODUCTION

Compared to their west Tasmanian counterparts, the forests in the east of the State have not been effectively researched to any great degree. Roading associated with pulpwood extraction has opened up many scenically and scientifically interesting forest areas, which were difficult to visit in the past. It seems worthwhile that some of these forested communities be documented to provide a datum base allowing comparison with reforestation processes in nearby clearfelled coupes.

This article outlines the vegetation in an area of approximately one thousand hectares in the upstream catchments of Rocka Rivulet and Lisdillon Rivulet. Figure 1 shows the boundaries of the study area. Under current plans, logging is due to take place in the region in 1990-95.

The landscape is undulating, with an altitudinal range of 300 m to 700 m. Watercourses vary from steep-sided creeks and gullies which discharge into the major eastern flowing rivulets, to slower flowing streams which frequently diverge into marshes in areas of extensive plateau development (outside the study area). The bedrock is dolerite which forms yellow podzolic soils, usually with a gradational profile (Nicholls and Dimmock, 1965). As such it is typical of most of the Eastern Tiers State Forest area.

The vegetation of the region is broadly classified as dry sclerophyll forest (Jackson, 1965). Variation in community type is related primarily to variation in aspect and landform, factors which have been demonstrated as important in delineation of sclerophyll communities elsewhere in the State (Jackson 1973, Kirkpatrick 1981).

VEGETATION

The vegetation of the western section of the study area was examined by sampling representative communities identified from aerial photographs. Figure 1 shows the extent of the different forest communities. Sampling has not yet been conducted in the eastern section of the area, however the vegetation has been tentatively mapped on the basis of extrapolation from those areas already examined.

Seven communities were identified, based on structure and dominance and these are briefly described below. A species list compiled from the different sampling sites is included as Appendix 1.

1. Rainforest ± E. dalrympleana/E. delegatensis

On steep slopes bordering the upper reaches of Rocka Rivulet and Lisdillon Rivulet, and in the gullies associated with these streams, tall E. delegatensis and E. viminalis/dalrympleana emerge from a dense rain-forest substratum. This vegetation type, with E. dalrympleana the dominant, also occupies the headwaters of Anglers Creek.
October 1981  Tasmanian Naturalist  5

In some gullies pure rainforest is found, the emergent eucalypts being completely absent.

The rainforest stratum reaches a height of 20-25 metres, and is dominated by sassafras (*Atherosperma moschatum*), *Olearia argophylla* and *Pomaderris apetala*. *Acacia dealbata* is an occasional emergent. Under the dense rainforest canopy the understorey is sparse, with manfern (*Dicksonia antarctica*) and other ferns (*Blechnum wattsii, Hypolepis rugosula, Polystichum proliferum*) occurring near watercourses and in occasional openings. A small grove of the uncommon and poorly reserved rough tree fern (*Cyathea australis*) was found in Tiger Creek. Minor species of epiphytic ferns include *Grammitis meridionalis, Hymenophyllum labellatum, Tmesipteris billardieri* and *Ctenopteris heterophylla*. The litter layer is dense, and mosses and lichens are attractive colonisers of rocks, tree trunks and decomposing logs.

2. *E. brookerana* (tall) open forest

*Eucalyptus brookerana* open forest is restricted to fairly open gully and streamside habitats. It was sampled in the Tiger Creek/Kenneth Creek area, and near to the point where Rocka Rivulet is bridged by M-Road. The mesic understorey is dominated by blanket bush (*Bedfordia salicina*), woolly tea tree (*Leptospermum lanigerum*), native currant (*Coprosma quadrifida*), pinkwood (*Beyeria viscosa*), stinkwood (*Zieria arborescens*), dogwood (*Pomaderris apetala*) prickly mo (*Acacia verticillata*), and silver wattle (*Acacia dealbata*). Away from the immediate gully environment, the wet forest understorey species are replaced to some extent by *Goodenia ovata* (parrot food). The ground layer is generally sparse, with a thick litter layer punctuated by occasional clumps of hardferns (*Blechnum wattsii, Blechnum nudum*) and cutting grass (*Gahnia grandis*).

Tiger Creek is the type location of *E. brookerana* (Gray 1979) and is thus of considerable scientific interest.

The Tiger Creek *E. brookerana* community comprises second growth of excellent form. Individuals extend some distance into the south facing *E. delegatensis* forest but become less common as the ridge top is approached.

3. *E. delegatensis* (*E. dairympleana*) open forest

This community is the most extensive in the study area. Height and composition of both dominants and understorey varies considerably, depending on aspect and landform. From fieldwork four units can be recognised.

A. Wet sclerophyll/dry sclerophyll understorey

This unit occupies south and east facing slopes. Tall trees are found in the lower slope regions, where *E. brookerana* is the sub-dominant species. *E. brookerana* becomes progressively less common upslope, with *E. dairympleana* assuming the subdominant role. Tree height also decreases as the ridge is approached.

In the downslope region, the more common understorey species comprise *Bedfordia salicina, Pomaderris apetala*, musk (*Olearia argophylla*) and prickly mo (*Acacia verticillata*). These species are replaced by drier habitat
species such as *Goodenia ovata*, native olive *Notelaea ligustrina*), *Correa lawrenciana*, *Acacia mucronata* and native cherry (*Exocarpos cupressiformis*) in the mid-slope region. Apart from occasional thickets of bracken (*Pteridium esculentum*) the ground layer is vegetatively sparse, though considerable litter build-up has occurred. Soil development is minimal, with a dense coverage of rock and scree characterising all sampled sites.

**B. *Bedfordia* thicket understorey**

Tall *E. delegatensis* open forest with a dense *Bedfordia salicina* understorey occupies the fairly gentle slopes grading off the Moaners Tier ridge-line. This community is remarkable for its homogeneity, with little vegetative development occurring under the 2.5 — 5 metre *Bedfordia salicina* layer. Occasional clumps of *Blechnum nudum* and Woodsman sag (*Dianella tasmanica*) occupy more open areas created by windthrown trees. Guitar plant (*Lomatia tinctoria*) is the only regular undershrub.

**4. *Leptospermum lanigerum* scrub**

Small level areas at the headwaters of gullies and creeks are characterised by scrub and open woodland communities. The water table tends to be high, and the major species are those found in wet sclerophyll and swamp environments. The dense shrub layer is dominated by *Leptospermum lanigerum* with *Acacia verticillata*, *Bedfordia salicina*, *Pomaderris apetala*, *Coprosma quadrifida* and *Beyeria viscosa* also present. Tall sword-sedge (*Lepidosperma elatius*) is the major understorey species. The eucalypt component, where present, is variable though generally of poor form. In the headwaters of Tiger Creek *E. brookerana* and *E. delegatensis* are found in this community.

**5. *E. obliqua*, *E. amygdalina*, *E. pulchella*, *E. dalrympleana* open forest**

This community occurs on north and west facing slopes in the lower altitudes. Some variability is characteristic of the species composition of both the dominant layer and the understorey. Trees are often of poor form, possibly as a result of frequent firing. The understorey features a high species diversity, particularly in the shrub layer where many 'short prickly' species provide a colourful display in spring and early summer. Common shrub species include *Bedfordia salicina*, *Banksia marginata*, *Lomatia tinctoria*, *Pultenaea gunnii*, *Pultenaea juniperina*, *Tetratheca pilosa*, *Acacia myrtifolia*, *Boronia pilosa*, *Cyathodes glauca* and *Hibbertia riparia*. Eucalypt seedlings are reasonably common. Although the ground is rocky and the soil (where present) skeletal, a variety of herb species is present, but their overall ground cover is low. More common species include *Stylidium graminifolium*, *Galium albescens*, *Comesperma volubile* and *Helichrysum scorpioides*. Occasional sags (*Lomandra longifolia*, *Dianella tasmanica*) are also present.

**6. *E. coccifera* (low) open forest**

This community occupies the exposed ridge top of Moaners Tier. Trees average 10 to 15 metres in height, and are gnarled and twisted in appearance. The understorey is fairly sparse, being dominated by *Leptospermum scoparium*, *Callistemon pallidus*, *Acacia mucronata*, *Acacia dealbata*, *Lomatia tinctoria* and regrowth and seedlings of *E. coccifera*.
The soil is shallow or non-existent, with dolerite outcropping along much of the ridge line. Mosses and lichens provide a dense ground stratum on the rock surface, elsewhere the litter layer is reasonably dense.

This community is of considerable scientific interest, as it contains an outlying easterly occurrence of *E. coccifera*. It is also an extremely attractive community, the shape and colouring of the trees and open nature of the understorey having great appeal to visitors. The harshness of the exposed ridge environment, and the slow growth rate of *E. coccifera*, would place this community in some jeopardy if disturbed either by clear-felling or in a subsequent regeneration burn.

CONCLUSION

There is a wide range of plant communities in the area including examples of some communities which are becoming more restricted. The study area contains one small pocket of good examples of the rough tree fern *Cyathea australis*. This tree is presently reserved only on Maria Island and whilst it is probably scattered throughout the Eastern Tiers region, its distribution in Tasmania comprises occasional widely separated stands of a few individuals. Small stands of the endemic Tasmanian Snow Gum *Eucalyptus coccifera*, occur on small plateaux and some ridgelines in the proposed reserve. A particularly attractive stand is centred on GR 713236 (Little Swanport 1:100,000 sheet) on Moaners Tier, at an altitude of 680 m. The type locality of *Eucalyptus brookerana* is at Tiger Creek. This tree reaches fine form in the Tiger Creek headwater, Kenneth Creek and Rocka Rivulet headwater localities.

The study area is bounded by cleared land to the north and west. Further clear-felling coupes are planned east of the Lisdillon Rivulet for 1990. It is therefore important to describe as yet untouched areas to provide benchmarks against which adjoining regeneration forests can be compared.

REFERENCES

ROCKA RIVULET AREA

- Rainforest ± E. dalrympleana / E. delegatensis
- E. brookerana (tall) open forest
- E. delegatensis - (E. dalrympleana) open forest
  - A. wet sclerophyll/dry sclerophyll understorey
- B. Bedfordia thicket understorey
- Leptospermum lanigerum scrub with approximate inferred boundary
- E. obliqua, E. amygdalina, E. pulchella, E. dalrympleana open forest
- E. coccifera (low) open forest
### CHECKLIST OF SPECIES


Endemic species are prefixed by *e*, and introduced species by *i*.

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GOLDEN ORB-WEAVER SPIDERS (*Nephila* sp.) IN TASMANIA
by Alison Green
Tasmanian Museum, Hobart

The finding of a golden orb-weaver spider in Tasmania is a rare event. Prior to 1974 the Tasmanian Museum had no local examples of *Nephila* sp. in its collection.

On 21. V. 1974 John Wright, of Sorell, found a female of a species of *Nephila* in a caravan park at Sorell, S.E. Tasmania. This spider was given to the Tasmanian Museum where it was kept alive for several days. Overnight on 23-24. V. 1974 it produced an egg sac of golden-coloured silk. Because of the place where it was collected, there was speculation that the spider may have come to Tasmania, from the Australian mainland, hidden on a car or a caravan. When advised of the discovery, Professor V.V. Hickman told the author that he had seen only two specimens of *Nephila* in Tasmania during about fifty years of collecting spiders.

No more Tasmanian examples of *Nephila* were brought to the museum until 1981 when four females were received within two months, all from S.E. Tasmania. They were collected as follows:

- in a garden at Risdon Vale, on 13. II. 1981, by Mrs. M. Dunn;
- at Sandford, on 8. III. 1981, by Mr. J. Karimalis;
- at Sorell, early in March, 1981, by Mrs. H. Clarke;
- in a garden at South Hobart, on 7. IV. 1981, by Danny Knott.

The last example was the only one found west of the Derwent River.

In August, 1981, Professor V.V. Hickman presented to the Tasmanian Museum the two specimens of *Nephila* sp., both females, which he had collected. One of these was found on 24. III. 1928, in an orb web in wattle, eight feet from the ground, at Trevallyn, Launceston, N. Tasmania. The other was found on 19. IV. 1961, in an orb web in a eucalypt, at East Risdon, S.E. Tasmania.

The seven Tasmanian golden orb-weavers, now held by the museum, seem to belong to one species. They are close to *Nephila edulis* (Labillardière, 1799), a species which occurs in eastern states of mainland Australia. One spider has been sent to Mr. M.R. Gray, Arachnologist at the Australian Museum, Sydney, to obtain his help with its identification. Mr. Gray has reported that it is not possible to decide whether this female belongs to *N. edulis* or to some other species of *Nephila*; to proceed further with the specific identification he needs to examine a male spider. All of the Tasmanian Museum's specimens are females. Thus the identity of our spiders must remain as *Nephila* sp., close to *N. edulis*, until somebody finds a mature male which Mr. Gray can examine.

The largest of the museum's female spiders has a body length of 25 mm and a leg span of about 90 mm. The dorsal surface of the body appears to be silver-grey, with a crescent of off-white on the anterior part of the abdomen. Black spots on the cephalothorax are actually bare patches where the true body colour shows amongst a covering of silver-grey hairs. The legs are pink and black with prominent tufts of black hairs.
A golden orb-weaver’s web is unusually strong. It consists of a central orb, formed mainly of yellow silk, supported by an irregular framework of white silk. When disturbed, a female may shake her web so that it vibrates.

The male of a *Nephila* species is much smaller than the corresponding female. In *N. edulis* the male has a body length of about 6 mm. There is a photograph of both sexes of *N. edulis* in Mascord (1980, pl. 22, fig. 4). A male which is seeking his chance to mate with a female may wait near the upper edge of her web. Thus, if a female of *Nephila* sp. is observed, it is worth examining the web and the surrounding vegetation in case a male spider is stationed nearby.

The specific name, *edulis*, usually is given to animals which are edible, so its choice for a spider was intriguing. The explanation was found in Koch, L. (1871-1879), *Die Arachniden Australiens*. Koch reported Labillardière’s observations about specimens from New Caledonia, which he named as *N. edulis* in 1799. A rough translation from German is as follows:

The natives collect these spiders as articles of food. They throw them into a clay pot which they place on the fire in order to kill the animals, whereupon they roast them on the glowing embers and then eat them.

The author has not been tempted to try this recipe.

Mr. M.R. Gray’s work towards the identification of the species of *Nephila* found in Tasmania is acknowledged with thanks. It is hoped that mature males of *Nephila* sp. can be collected so that his investigation of the species can continue.

Reference


**AN AGGRESSIVE HERON**

A.M. Tagg

On 4 August 1981 I observed a White-faced Heron patrolling up and down the side of a waterhole driving back three Spurwing Plovers each time they approached the water. It kept this up for almost a quarter of an hour till the plovers left.

**RUDDY GREENHOOD (*Pterostylis rufa rufa*)**

M. Wall

In The Tasmanian Naturalist No. 65 (April 1981) I recorded progress in the flowering of one of these in a pot.

Since that was written in April another bud appeared, making ten in all, and that flower did not die until the end of June. The plant was blooming continuously for five months.

Now, in July, two healthy rosettes of leaves are well developed.
A BROODING CHITON IN NEW SOUTH WALES

Elizabeth Turner
(Tasmanian Museum)

Ischnochiton (Haploplax) lentiginosa

In June, 1979, Mrs. A.M. and Mr. J.R. Penprase, of Hobart, found a brooding chiton at Long Reef, Collaroy, New South Wales. A specimen of Ischnochiton (haploplax) lentiginosa (Sowerby, 1840) was brooding more than 120 metamorphosed (eight-valved) juveniles, half of these in each side of the mantle cavity. The adult chiton is 11.50 mm. in length and the juveniles are 0.40 mm. long. These specimens are lodged in the collection of the Tasmanian Museum, reg. no. E10768.

To the author's knowledge this is the first record of a brooding chiton found on the mainland of Australia.

Several species of chitons are known to brood in Tasmania. Ischnochiton (Haploplax) mayi Pilsbry, 1895, and Ischnochiton (Heterozona) subviridis (Iredale & May, 1916) both protect their juveniles to the metamorphosed stage. Callochiton crocinus (Reeve, 1847) broods its eggs but it is not known how far they develop before dispersal. Callistochiton mawlei Iredale & May 1916, has been found with metamorphosed juveniles attached to the dorsal surfaces of several adults. In the collection of the Tasmanian Museum an example of Eudoxochiton (Eudoxoplax) inornatus (Tenison Woods, 1881) has several eggs inside the mantle cavity. However, it is not known if the last two species are genuine brooders.

Reference


MOLLUSCS OF CALVERT’S LAGOON, SOUTH ARM

J. & M. Grist

Calvert's Lagoon is a brackish lake sheltered from the ocean and heavily covered with water weed. Recent rains following the drought of last year have rendered the previously nearly dry lake into a deceptively safe-looking place to walk on, but underneath the weed is very treacherous mud.

Undoubtedly the most numerous of the species present is the screw shell Coxiella striata. This little shell, about 10 mm long, is a brownish colour.

The second main species is Physostra gibbosa. Slightly larger (about 15 mm) this gastropod, unlike nearly all gastropods, is sinistral; i.e. it has its opening on the left side when it is held with the opening towards the holder. It is a very interesting and somewhat fragile shell.
The third species we found was a round flat gastropod under 10 mm across. On
the top surface are beautiful brown markings following the body whorl lines. It is an
introduced species named *Cernuella vestita*.

Two larger shells were found embedded in the bank. They were weathered speci¬
mens of the very common land snail *Caryodes dufresnii* more commonly found in wet
forests such as those on the slopes of Mt. Wellington. They often grow to a length of
40 mm.

**RONALD CAMPBELL GUNN**

by

Ron C. Kershaw

While looking at problems associated with the fossil land mollusc *Bothriembryon
gunnii* it seemed appropriate to look at information on the remarkable man whose name
it has. Ronald Gunn’s name is associated with a good many species particularly plants for
he was, of course, best known for his knowledge of botany.

It seems appropriate that some reference to this important naturalist should be
made in this year, one hundred years from his death on 13th March 1881. In the Pro¬
cedings of the Royal Society of Tasmania for April, 1881 (p. iv) Mr. T. Stephens paid
a tribute from which it is worth quoting a sentence.

"From the time of his arrival Mr. Gunn’s name appears associated with every
early attempt to cultivate a knowledge of the natural products and resources of the
colony; in the field of Botany he was one of the first pioneers, and for many years stood
alone."

The impact of this man is well demonstrated by the tribute paid him by Sir
Joseph Hooker in his introduction to the Flora Tasmaniae. This eulogy was quoted by the
then president of the Royal Society of Tasmania in his opening address read 12 April
1881. (Lefroy, 1882) A significant remark made by Sir J.H. Lefroy was that "Such men
... are rarely honoured as they deserve".

Having migrated to Tasmania in 1829 Gunn seems to have very quickly set about
studying the environment. His duties led him to many parts of Tasmania so that he had
much opportunity to collect and study. Some indication of his life in Tasmania can be
deduced from the entry in the Australian Encyclopaedia Volume IV, pp. 403-4, where his
place in Australian history is clearly established. For further information Reynolds
(1926) should be consulted.

SOME NOTES ON REGROWTH OF VEGETATION FOLLOWING A WILDFIRE IN FREYCINET NATIONAL PARK

R.G. Tyson

National Parks & Wildlife Service

A cursory inspection on 19th July 1981 of the vegetation along the Hazards Beach Track between Hazards Beach and the Quarry revealed some interesting species regrowing after the bushfires of February 1980, some 17 months previously. This area was subjected to an intense fire as the main fire front south of the quarry met the backburn from the Isthmus Track.

The most notable species observed was the relatively rare Tasmanian endemic Anthocercis tasmanica. A large patch of several hundred plants ranging in height up to 1 metre occurs between Fleurieu Point and Deep Gap Creek, with a smaller patch at Lousy Creek. The plants had not yet flowered.

Trachymene anisocarpa, is abundant, with flowering heads up to 2 metres high. This species is a biennial umbelliferous plant, flowering in its second year. It was apparently uncommon in the area prior to the fire, and had not been recorded from previous surveys of the area. Since the vegetation had not been burnt for 20-25 years, the species presumably has a high longevity. It is also growing in areas disturbed by the quarrying activities.

Solanum laciniatum, Goodia lotifolia and Indigofera australis are all particularly vigorous, forming dense bushes. Casuarina stricta has formed dense thickets, particularly in the area around Lemana Lookout. Individuals are up to 1.5 metres high. In June 1980 Margaret Allen reported seeing thousands of casuarina seedlings about 2½” high with their true leaves developing. (S.G.A.P. Newsletter 4(3).

Species List: Acacia botrycephala, Acacia myrtifolia, Acacia suaveolens, Acacia verticillata var. ovoidea, Acianthus exsertus (flowering), Anthocercis tasmanica, Baeckea ramosissima (flowering), Banksia marginata, Bossiaea cinerea (flowering), Bulbine semibarbata (flowering), Callitris rhomboidea, Carpobrotus rossii, Casuarina littoralis, Casuarina stricta, Cassinia spectabilis?, Correa reflexa, Dampiera stricta, Dampiera xiphiocladia, Dillwynia sericea, Diurus sp. (flowering), Drosera planchonii, Eriostemon virgatus (flowering), Eucalyptus amygdalina, E. viminalis, Galenia radula, Gonocarpus teucriodes, Goodenia lanata, Goodenia ovata, Goodia lotifolia, Hibbertia riparia, Indigofera australis, Kennedia prostrata, Kunzea ambigua, Lepidosperma concavum, Leptospermum glaucescens, Leptospermum grandiflorum, Leucopogon ericoides, Lomatia tinctoria, Olearia ramulosa, Opercularia varia, Pterostylis sp. (single flower, leafy stem, flower withered); Solanum laciniatum (flowering), Spyridium vexilliferum, Stackhousia monogyna (buds), Tetrarrhena distichophyllum, Trachymene anisocarpa (flowering), Xanthorrhoea australis, Xanthosia pilosa.
FORESTRY OPERATIONS

One of the most significant Tasmanian news items of recent times received scant attention from the media, possibly because of the emotive current issues of the South West. It announced an intensive study, particularly by National Parks and Wildlife Service staff, of the ecology of Tasmanian forests and the effects of current practices adopted by forest-based industries.

These industries are of the utmost importance to Tasmania, both financially and environmentally, but little has been done to monitor the effects of their practices on the State’s future. It is most heartening to see the growing realisation that the future of our forests could be in jeopardy and that firm steps should be taken now to safeguard them and their wildlife.

It is reassuring to learn that the industries themselves are backing financially the studies now under way and they should receive our full support. It is not widely known that the Forestry Commission and forest-based industries have jointly set up a substantial research fund for this purpose.

The recent Mant Report recommended the amalgamation of National Parks and Wildlife Service with many of the Lands Department functions without an increase in scientific staff; the additional workload now being undertaken by National Parks and Wildlife Service confirms our belief that the Service should be retained as an independent body and with more biologists at its disposal.
THE WEST COAST MONSTER, 1962

L.E. Wall

It is now twenty years since considerable publicity was given to the discovery of a large controversial animal on a remote beach on Tasmania’s west coast.

Although much was written at that time all the events which led up to that publicity received no attention, and it seems pertinent that those events should be made known so that the record is complete. The following notes were prepared then but not published.

Early in March 1962 public interest was aroused by Press reports of a strange monster, as the Press called it, washed up on a lonely beach on the West Coast of Tasmania. A report of the presence of this creature first reached Hobart during February, and a private expedition was organised to go in search of it. The purpose of this expedition was purely exploratory to find out whether the creature was still there, and, if so, to assess whether a full scientific investigation was warranted.

The remains of the creature were found and the party reported to the Press on its return early in March that it was unable to identify the creature and recommended that such a scientific expedition should be sent to the spot. So great was the interest shown by people all over the world that an official expedition was organised and despatched about a week later. This expedition spent about two days at the site and then returned to Hobart where it expressed the opinion that the remains on the beach were none other than old whale blubber. No further official action was taken, and it was accepted that another mystery of the sea had been explained. However the full story of this strange incident has not been told, and it appears appropriate while the details are still fresh in our minds they should be faithfully recorded.

In June 1960 the creature was first seen by Mr. Jack Boote and Mr. Ray Anthony, both of Smithton, who were droving cattle down the coast to agistment areas in the vicinity of the Interview River just north of the Pieman Heads. Both these men have had long experience of the West Coast, and are familiar with animals and fish washed up on the beaches, but they immediately realised that this creature was something quite new to them. Ray Anthony’s horse would not approach the animal closely, and he did not dismount, but Jack Boote was able to do so, and he examined the creature in fairly close detail and was able to supply an accurate description of it. It was about 20 feet long and 18 feet wide, and 4½ feet high, and he estimated its weight at about 7 tons. The highest part of the animal was at one end, and it tapered to the other where it was about 6 inches high. It had no recognisable head, tail or limbs, but at what is presumed to be the front end — that is, at the higher part, there were 4 distinct lobes of flesh, and these he examined in some detail. Between the middle pair was an orifice which he described as a mouth. It was smooth and gullet-like, but it had no evidence of teeth. Fatty globules were present in the orifice. As far as he could see there was no evidence of a skeleton of any sort, and the whole mass was composed of a tough tissue covered with hair or fur which he described as being like sheep’s wool with a greasy feel. They likened it to a 3-months’ growth of a Border Leicester sheep’s fleece.
On either side of the mass, and about 4 feet from the supposed mouth, were four slits which appeared to be like gills. They were about four feet long and terminated about 2½ feet from the edge of the mass. Mr. Boote inserted his hand into one of these but did not reach the bottom. The rear end of the animal had its margins scalloped giving the effect of cushion-like pads about 2 feet wide and 18 inches deep, and each of these carried a single row of quill-like spines, sharp and hard, and about as thick as a pencil. It was impossible to make any further examination of the animal because of its bulk, but the two men returned to Smithton convinced that as soon as they made their find known scientific interest would be aroused and experts would go to the spot to examine it in detail and to have with them all the equipment which might be needed.

Mr. Boote reported his find to Mr. E.O.G. Scott, a former Director of the Queen Victoria Museum at Launceston, but received a reply suggesting that the animal was a sea elephant, and enclosing a sketch of that animal. Mr. Boote is familiar with sea elephants which are cast up on that coast periodically and he is quite convinced that that is not right.

Mr. Boote then rang C.S.I.R.O. Regional Office in Hobart and gave his description to Dr. D. Martin. Dr. Martin recalls the telephone conversation he had with Mr. Boote, but states that no mention was made of a width of 18 feet, and he also came to the conclusion that it was a sea elephant. Subsequently he discussed the find with Mr. J.L. Davies, of the University staff, who is also a specialist in the study of seals, and Mr. Davies agreed that in all probability his assessment was correct, and the subject was not pursued further.

On August 3, 1960, Jack Boote and Ray Anthony on a return trip to the Interview River area brought back with them a specimen of the fur of the fanimal in a tobacco tin, and showed it to Mr. Ben Fenton of Temma. This tin was subsequently lost between Temma and Smithton. Jack Boote commented at this time that the quill-like spines on the pads were beginning to disintegrate. The animal was seen again on September 6, 1960, by Jack Boote, Ray Anthony and Jim Malley, and on October 5, 1960, by Jack Boote, Ray Anthony and Ben Fenton, this being the first time on which Mr. Fenton had seen it.

As requested by Mr. Scott, Mr. Boote forwarded him a letter enclosing 2 drawings which Mr. Scott found of extreme interest. It is unfortunate that pressure of work prevented Mr. Boote from arranging for Mr. Scott to visit the find.

From that time we pass to April 28th, 1961, when Ben Fenton says that 'We looked for it in the original position but didn't see it', and again on July 19th, 'It could not be found'.

Then on October 7th, 1961, it was seen by Ray Anthony and Ben Fenton but at this time further south along the same beach, a distance of about ½ mile, but no more.

The next information about it came from Mr. Rex Cowper, of C.S.I.R.O. Fisheries, Division, who was in Devonport on February 1st, 1962, aboard the fisheries patrol vessel 'Penghana'. At the home of Capt. Dick Burgess that evening, together with Dr. and Mrs. A.G. Nicholls, and Fisheries Inspectors Ray Taylor and Peter Douglas, Dick Burgess related the report he had heard either from Jack Boote or Ray Anthony of Smithton of...
their finding of an unusual animal almost 2 years previously. Mr. Burgess had in his possession a sketch which one of the finders had made from memory following questions which he (Dick Burgess) had asked concerning its appearance. On February 7th, 1962, the "Penghana" reached Hobart, and Mr. Cowper called at "Stowell", the headquarters of C.S.I.R.O. in Hobart, where he related to Mr. Max Bennett, of the Administrative staff, and Mr. Bill Mollison, of Wildlife Section, the information he had obtained from Dick Burgess. "Max Bennett made an appointment for me to call on Dr. Bryden at the Tas. Museum at 9 o'clock the following morning", writes Mr. Cowper. Dr. Bryden told him that he had heard previously of the reported find, and believed that a party that included Dr. Guiler had located an object at the reported place on the West Coast, and had identified it as the remains of a species of pigmy whale. At the time of Mr. Cowper's visit Dr. Bryden was organising an expedition to the West Coast, and stated his intention of including a further investigation of the animal in his expedition's programme. Meanwhile Bennett and Mollison had decided that an expedition should be made as soon as possible, and at Mr. Cowper's last meeting with them prior to his departure for Melbourne on February 8th, they were discussing ways and means of carrying this out.

They discussed this with a mutual friend, Mr. George Cramp, who was a Trustee of the Tas. Museum, and he agreed to finance an aerial search of the area to determine whether there was anything left. This was carried out in a light aircraft from Smithton on February 24th, with Mr. Jack Boote as a passenger, and the animal was found on the beach. Having satisfied themselves thus far the investigating party was organised, and left Hobart in the late afternoon of March 2nd, travelling as far as Wynyard that night. Next morning they continued to Smithton where they contacted Mr. Boote and arranged with him that he should join the party the next morning at Ordnance Pt., about 25 miles south of the Arthur River. The party then proceeded to the Arthur River, where its car was left in the charge of the ferryman, and the party was picked up by Mr. Ben Fenton of Temma, and taken in a 4-wheel drive lorry as far as Ordnance Pt. Mr. Fenton also made available a pack horse and a riding horse and with these the party left Ordnance Pt. at 5.45 p.m. on Saturday, March 3rd, to proceed to Sandy Cape, where they spent the night in a drover's hut.

Next morning Mr. Boote reached Sandy Cape just as the party was leaving to proceed south towards the Interview River, and he accompanied the party to the site of the animal, which is about 2 miles north of the Interview. Having located the animal Mr. Boote returned to Sandy Cape. The party remained at the site of the stranding and made a preliminary investigation of the animal the following morning.

The remains of the animal, embedded in the sand, proved to be about 6 feet long, 3 feet wide, and only a few inches above the sand level. It was impossible to reconcile the material that remained with the description given by the finders, except that portion of one lobe appeared to be recognisable on the shoreward or eastern side of the mass. The material appeared to be of a very tough rubbery consistency, brown in colour, with shredded fibrous material on the outside. Before Mr. Boote had left the site he had marked out on the sand what he considered to be the boundaries of the animal, and the next work was to dig test holes with a shovel to determine whether the material did
actually extend to that perimeter but below the sand. Just below the sand surface on all sides was black organic matter which was presumed to be decayed material from the animal and white fibrous strands were present throughout it. This black organic material extended almost exactly to the limits which had been marked by Mr. Boote on the previous day, and it gave off a very strong stench. Since leaving Sandy Cape the day before, the weather had been marked by strong N.W. winds with frequent driving rainsqualls, and either from this cause or from the tidal effect of the sea test holes which we dug were almost immediately filled with water, so that it was impossible to investigate the sand too deeply. Using an army machete we then cut a gash across the main mass of the flesh and removed small pieces to be taken home as specimens. So tough was the material that it took over an hour with a sharp machete to cut 10 inches deep into the flesh, which we found to be consistent throughout, and of a light cream colour. The flesh appeared to be composed of very tough fibres impregnated with fat, and it was apparent that the fibrous shreds on the outside was that part of the flesh which birds and animals which had been feeding from the flesh had not been able to tear away. It was obvious from the marks about the animal that both birds (probably seagulls) and Tasmanian Devils had been feeding quite freely from it, but apparently not making very much impression. The brown colour of the surface was the result of weathering of the material and it was in no sense an outer covering, or skin. There was no evidence of the fur which had been described by the finders in the early stages, and they had in fact told us that the fur had disappeared about a year before.

As it was apparent that we could not carry out any further investigations without adequate equipment to move the whole mass, and bearing in mind that the rain would be swelling the rivers and creeks we had crossed we determined to return to Sandy Cape as soon as possible and we left the sight of the stranding at about 11 a.m., reaching Sandy Cape hut before nightfall, a distance of about 15 miles. The following day we returned to Temma homestead, and the next, that is Wednesday, we continued our journey to Hobart, arriving very late that night.

During our return journey we debated very carefully what procedure we should follow next, and we were all convinced that no public statements should be made at that stage. However, on arrival in Hobart other counsels prevailed and we had an interview with the Press at 9.30 a.m. on Thursday, March 8th.

During that interview we stressed that what we had seen was but a small part of the original as described by the finders, but this point was not given the prominence it deserved so that the public generally believed that the whole animal was still lying on the beach. In other respects the local press report of the interview was a very fair one except that one of the headlines read "Nearly as big as a house", which of course was a gross exaggeration. The report also stated that the animal was initially covered with fine hair but it did not make it clear that this hair no longer existed. That may have been the fault of our description. We were careful not to claim that the animal was new to science, but to point out that the descriptions given to us by the finders, together with our inspection of the material on the beach, did not appear to fit any common animal or fish of the sea. We believed that the flesh that we inspected was not that of a whale bearing
in mind that it had been up on the beach for over 18 months and to the best of our knowledge whale blubber would have completely decomposed well before that period had expired, and this material was much tougher than whale blubber.

The speed with which the news spread, and the interest it aroused throughout the world, was remarkable, and within 24 hours it was making the headlines of the main countries of the world. Telephone calls were also coming in from as far afield as New York and London. The fantastic stories published in some newspapers caused a mass hysteria over the whole story, and at least two newspapers within Australia published aerial photographs of the animal lying on the beach which could not possibly have been true. In the two instances to which I refer the photograph was basically the same but the detail varied from one to the other, and neither was anywhere near correct. This gives some idea of the lengths to which some newspapers will go to present a good story. As we made clear during our press interview our main purpose in making this investigation was to arouse interest so that an official exploration would be made in an effort to ascertain its true identity.

The interest shown by the general public was so great that the formation of a scientific expedition was announced on Tuesday, March 13th. In the meantime one of the original party, Mr. B.C. Mollison, had returned to the "Monster" with a T.V. Cameraman, and he did some further digging, confirming what we had found on the first trip. He also cut further into the flesh with the aid of an axe and brought back with him another small piece of flesh. His further investigation confirmed the earlier belief that this animal was an invertebrate, there being no sign of any bone structure whatsoever.

The scientific expedition, consisting of Mr. J.H. Calaby of the Wildlife Section of C.S.I.R.O., Mr. A.M. Olsen of Fisheries Division of the same organisation, Dr. E.R. Guiler, Lecturer in Zoology in the University of Tasmania, and Dr. W. Bryden, Director of the Tas. Museum, was flown into the area on Thursday, March 15th, and the expedition returned to Hobart on Saturday, 17th. The report of their investigations was released that evening by the Minister in charge of C.S.I.R.O. (Senator Gorton) and the Premier of Tasmania (Mr. Reece).

Following this it was reported in the Press on March 20th (Tuesday), that the scientists had completed testing pieces of the "Monster". They believe that it is a big piece from a dead whale which could have fallen overboard from a whaling factory ship. They say there is no doubt that it is part of what once was a whale. So far as the scientific expedition is concerned the animal is now "dead".

LETTERS TO THE EDITOR

Short letters commenting on papers and notes previously published in this journal or any other items of natural history interest are always welcome. They should be forwarded to G.P.O. Box 68a, Hobart, 7001.
BIRDS CRASHING INTO WINDOWS

L.E. Wall

Casualties from this cause are frequently presented to the Tasmanian Museum, and the question asked, "Why does this happen?". There are believed to be two reasons.

Firstly, and this mostly applies to corner windows, the bird sees through the two panes to the garden beyond where it wants to go, takes the direct route, and collides with the glass often causing fatal injuries.

The second reason is that where windows throw bright reflections a passing bird holding a territory there, probably during the nesting season, mistakes its own reflection in the window for an intruder of its own species and attacks it to drive it away. In this case the collision with the glass is not likely to be so severe and less damage, if any, to the bird results.

GREAT CRESTED GREBES AT BRIDGEWATER

L.E. Wall

On 8 December 1981 a pair of these birds was seen near the bridge, not a common sight but not unique. I have previously seen them there in March 1960 and in October 1968.

It is well-known that Pittwater is a common refuge for them in the winter months particularly, but in other seasons they are seldom seen away from fresh water and have a strong preference for inland lakes.

BUSHFIRE CASUALTIES

L.E. Wall

Following the disastrous bushfires which ravaged much of Southern Tasmania on 7 February 1967 the Curator of Wildlife at that time, Mr. J.H. Hemsley, gathered as much information as possible on the effects they had on native birds. Unfortunately this has never been published except for a very brief comment in The Tasmanian Naturalist No. 9, May 1967.

As part of this survey I searched the eastern end of Clifton Beach, which is about ten kilometres N.E. of the mouth of the Derwent River and facing Storm Bay, on 18 February. In the whole of the afternoon I covered only about half a kilometre. My notes read:—

"Apparently spread over whole beach: no doubt many more are already buried under the sand following subsequent southerly weather."

Names of species and numbers of each found were:—

<table>
<thead>
<tr>
<th>Species</th>
<th>Number</th>
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<tbody>
<tr>
<td>Fairy Penguin</td>
<td>2</td>
</tr>
<tr>
<td>Short-tailed Shearwater</td>
<td>3</td>
</tr>
<tr>
<td>Common Bronzewing</td>
<td>1</td>
</tr>
<tr>
<td>Swift Parrot</td>
<td>6</td>
</tr>
</tbody>
</table>
Black Duck 1  Green Rosella 26
Spur-winged Plover 2  Welcome Swallow 1
Blackbird 1  Little Wattle-bird 2
Scarlet Robin 4  Yellow Wattle-bird 2
Spotted Pardalote 11  Goldfinch 4
Yellow-throated Honeyeater 5  Greenfinch ? 1
Black-headed Honeyeater 1  Starling 1
Crescent Honeyeater 3  Black Currawong 3
New Holland Honeyeater 7  Unidentified 25

Forest Raven 4

Total species 22, total birds 116.

It is assumed that nearly all of these came from the western side of the Derwent where the principal fires were burning, and it is likely that they fell exhausted into the water as they fled from the fires and were subsequently washed ashore, possibly from some distance out in the bay.

It is most pleasing to see that the populations of birds in the devastated areas have returned to their former numbers in almost all habitats; the only exceptions may be in the alpine moors and in the dense fern gullies where the regeneration of the vegetation is very slow.

**DISTRIBUTION OF THE DELICATE SKINK**

R.H. Green

Curator of Zoology

Queen Victoria Museum & Art Gallery, Launceston

The Delicate Skink *Leiopolisma delicata* was first recorded from Tasmania by Green (1965) who recorded its occurrence from several localities between Launceston, Greens Beach and Gladstone. Subsequent collecting (Rawlinson, 1974) has recorded it from near Sassafras, Mussel Roe Bay, Coles Bay, Triabunna and Hobart.

On 25 October 1981 an adult female (head and body length 40 mm, ovum undeveloped) was collected from beneath decaying timber on "Fairfield" 20 km south of Launceston. This record constitutes a significant extension to its known distribution and suggests the possibility that it may be found to occur throughout the midlands. Further collecting of small skinks is therefore desirable and can also be expected to produce interesting and useful information on many aspects of their life and habitats.

References:

