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CONTENTS

Editorial

We are introducing a new segment in the magazine – a mystery photograph, which will test your powers of natural history observation. It should provide a little light relief from the excellent scholarly articles and Club reports which generally make up the journal. The photo has been provided by Trevor Pescott, who also has written the "solution".

"From Buckleys to the Break" has finally been published, and we hope you enjoy the book, which is a brief account, with many illustrations in both colour and black and white, of the natural history of the Barwon River as it flows through Geelong. We were pleased that the Hon. Joan Kirner, Minister for Conservation, Forests and Lands, was able to launch it, at a function in the foyer of the State Offices, on 22nd April. Text and pictures were supplied almost entirely by members of the Geelong Field Naturalists Club, and reflect the wide range of interests and expertise which we have in our midst.

Valda Dedman

Mystery Photograph No. 1 Scene: Anglesea River

The Mammals of the Brisbane Ranges

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This paper presents an annotated list of the mammals of the Brisbane Ranges (hereafter the Ranges) including modern, historical and prehistoric records. We have been surveying the modern fauna in the area since 1979 (Conole 1981a, 1981b), and have since 1983 been investigating a sub-fossil, mammal bone deposit near Steiglitz (Conole & Baverstock, 1985a). In addition we have collected information from other biologists and naturalists.

We have recorded 51 species of mammals occurring in the Ranges. However, only 36 species are known to occur there now, and 11 of these are feral. There are 20 species that occurred as sub-fossils, and some of these have survived locally to the present.

The topography and vegetation of the Ranges have been described adequately elsewhere (Hampton 1971, Scott 1987), and we will not reiterate that here.

SPECIES ACCOUNTS:

1. Platypus *Ornithorhynchus anatinus*

This species is widespread but of unknown abundance, and has been recorded in various locations along the Moorabool River, Little River and Sutherlands Creek. *O. anatinus* also occurs in the Werribee River to the north of the Ranges.

2. Short-beaked Echidna *Tachyglossus aculeatus*

T. aculeatus is very widespread in the area, occurring in all forest types and some disturbed/improved land. There are no measures of its abundance.

3. Southern Brown Bandicoot *Isoodon obesulus*

Elsewhere in the Geelong Otway area, *I. obesulus* still occurs as a predominantly coastal species. The species no longer occurs in the Ranges, but was abundant in the sub-fossil record.

4. Spotted-tailed Quoll *Dasyurus maculatus*
Known mostly as the Tiger Cat or Tiger Quoll, this species does not occur in the area now. It was recorded in country neighbouring the Ranges in the nineteenth century as one of a number of predators relentlessly exterminated during "Predator shoots".

5. Eastern Quoll *Dasyurus viverrinus*
As for *D. maculatus*, except that *D. viverrinus* is now presumed totally extinct on mainland Australia.

6. Brush-tailed Phascogale *Phascogale tapoatafa*
Sometimes known as the Tuan, see Conole (1987) for a discussion of the more appropriate use of this Australian Aboriginal word for either the Sugar Glider *Petaurus breviceps* or Feathertail Glider *Acrobates pygmaeus*. This species was uncommon in the sub-fossil record, but today is widespread and probably abundant in the Ranges. One of us (LC) spotlighted a *P. tapoatafa* in the picnic area at Lower Stony Creek. There are roadkill records from the north of the Ranges (Scott 1987), animals brought in by cats at Staughton Vale (Trevor Pescott pers. comm.), and probable nest predation by *P. tapoatafa* of Crimson Rosellas *Platycercus elegans* at Durdiwarrah (Gordon McCarthy pers. comm.).

7. Common Dunnart *Sminthopsis murina*
Peter Tremul (pers. comm.) hand-captured a *S. murina* at Elaine. A *Sminthopsis*, probably *murina*, is uncommon in the sub-fossil record.

8. Fat-tailed Dunnart *Sminthopsis crassicaudata*
Trevor Lumb (pers. comm.) recalls capturing *S. crassicaudata* on farmland on Sutherlands Creek over 20 years ago. The species is widespread in grassland around Geelong, and probably still occurs around the margins of the Ranges.

9. Brown Antechinus *Antechinus stuartii*
Abundant in the sub-fossil record, *A. stuartii* is still widespread and abundant in the area. Trapping surveys reveal that this is virtually the only native, terrestrial, small mammal throughout most of the Ranges (Hampton 1971, Scott 1987, Graeme Newell pers. comm.).

Brush-tailed Phascogale. Photo: Trevor Pescott

10. Dusky antechinus *Antechinus swainsonii*
Rare in the sub-fossil record, A. *swainsonii* no longer occurs in the area.

11. Common Brushtail Possum *Trichosurus vulpecula*
Very widespread and abundant in the Ranges.

12Common Ringtail Possum *Pseudocheirus peregrinus*
Uncommon in the sub-fossil record but now widespread and abundant in the area. It was the most frequently observed species in a spotlight survey of the Lower Stony Creek area (Conole 1981a).

13 Sugar Glider *Petaurus breviceps*
This species is very widespread and abundant now, but was uncommon in the sub-fossil record.

14. Squirrel Glider *Petaurus norfolcensis*
This species was rare in the sub-fossil record, and apparently is still locally rare. We have spotlighted only one *P. norfolcensis* in the Lower Stony Creek area. The modern record is the only one for this part of Southern Victoria, and the local status of the animal warrants investigation.

15. Eastern Pygmy-possum *Cercartetus nanus*
Uncommon in the sub-fossil record, and apparently no longer present in the area.

16. Feathertail Glider *Acrobates pygmaeus*
Uncommon in the sub-fossil record, but now widespread and abundant in the Ranges.

17. Koala *Phascolarctos cinereus*
Very widespread and abundant throughout the Ranges. The population is probably the result of reintroduction of Phillip Island stock, although it is unclear whether the original stock ever became totally extinct. The health and fertility of the population is good despite infection with *Chlamydia* bacteria (Kath Handasyde pers. comm.). The population may be unique in having the Powerful Owl *Ninox strenua* as a significant predator. Powerful Owls take young from the mother's back at an age after which survival would normally be ensured (Kath Handasyde pers. comm.).

18. Rufous Bettong *Aepyprymnus rufescens*
This species no longer occurs in Victoria. The sub-fossil record is from an undated (but less than 10000 years old) archaeological site at Parwan, on a creek flowing 10km to the site from the north-east Brisbane Ranges (Lawrie Conole unpubl. data.)

19. Long-nosed Potoroo *Potorous tridactylus*
Rare in the sub-fossil record, and no longer present in the Ranges.

20. Eastern Grey Kangaroo *Macropus giganteus*
Widespread and abundant in the Ranges.

22. Grey-headed Flying-fox *Pteropus poliocephalus*
Dead specimen found at Sutherlands Creek in 1981 (Conole & Baverstock 1983).

23. Yellow-bellied Sheathtail-bat *Taphozous flaviventris*
One observed at the wall of the Lower Stony Creek Reservoir (Conole 1981b). Apparently widespread but of unknown abundance on the plains west of the Ranges (Baverstock 1985, Conole & Baverstock 1985b).

24. White-striped Mastiff-bat *Tadarida australis*
Very widespread and abundant in the Ranges.

25. Southern Large Forest Eptesicus *Eptesicus darlingtoni*
Formerly known as *E. sagittula* (Kitchener, Brown & Caputi 1987).
Widespread and abundant in the Ranges.

26. King River Eptesicus *Eptesicus regulus*
Widespread and uncommon in the Ranges.

27. Little Forest Eptesicus *Eptesicus vulturnus*
Widespread and abundant in the Ranges.

28. Gould's Wattled Bat *Chalinolobus gouldii*
Widespread and abundant in the Ranges. The Chocolate Wattled Bat *C. morio* has not yet been recorded but almost certainly will be.

29. Common Bentwing Bat *Mimiopterus oceanensis*
Formerly known as *M. schreibersii* (Maeda 1982). Recorded at Steiglitz in an old gold mine (Martin Schulz pers. comm.). We have found bat guano in a gold mine at Steiglitz which is probably of this species.

30. Lesser Long-eared Bat *Nyctophilus geoffroyi*
Widespread and abundant in the Ranges. Gould's Long-eared Bat *N. gouldi* has not yet been recorded, but probably occurs locally.

31. Water-rat *Hydromys chrysogaster*
Widespread along watercourses such as the Moorabool and Little Rivers and Sutherlands Creek, and water storage areas at Durdidwarrah. There are no measures of its abundance.

32. White-footed Rabbit-rat *Conilurus albipes*
Rare in the sub-fossil record, and presumed to be totally extinct throughout its range.

33. Broad-toothed Rat *Mastacomys fuscus*
Rare in the sub-fossil record and no longer present in the Ranges.

34. "Basalt Plains" Mouse *Pseudomys sp.*
Abundant in the sub-fossil record in this area and elsewhere in western Victoria. This species has never been seen alive by European naturalists, and has not yet been described.

35. *Pseudomys* sp. nov.
Rare sub-fossil, now completely extinct. This appears to be a new species endemic to the Brisbane Ranges.

36. Plains Mouse *Pseudomys australis*
Abundant as a sub-fossil but no longer present in Victoria. The nearest populations of *P. australis* are in the Eyre basin of central Australia.

37. Smoky Mouse *Pseudomys fumeus*
Rare sub-fossil and apparently no longer present locally.

38. New Holland Mouse *Pseudomys novaehollandiae*
Rare sub-fossil and apparently no longer present locally.

39. Bush Rat *Rattus fuscipes*
Abundant sub-fossil. There is only one modern specimen-backed record from Durdidwarrah (Victorian Mammal Atlas data in Scott 1987). We observed what we believe to have been a *R. fuscipes* at Lower Stony Creek (Conole 1981a). Modern trapping surveys have not found *R. fuscipes* in the Ranges (Scott 1987, Graeme Newell pers. comm.). Sub-fossil material appears to be the small-species *R. fuscipes greyi*, but local populations in nearby areas are the large *R. fuscipes assimilis*.

40. Swamp Rat *Rattus lutreolus*
Rare sub-fossil and apparently no longer present in the Ranges.

41. Black Rat *Rattus rattus*
Introduced. Widespread and abundant in the Ranges.

42. Brown Rat *Rattus norvegicus*
Introducted. Several roadkills around Anakie, abundance unknown.

43. House Mouse *Mus musculus*
Introduced. Widespread and abundant in the Ranges.

44. European Rabbit *Oryctolagus cuniculus*
Introduced. Widespread and abundant in the Ranges.

45. Brown Hare *Lepus capensis*
Introduced. Restricted largely to farmland and very open habitats.

46. Sheep *Ovis aries*
Introduced. Substantial feral/semi-feral population around Steiglitz, and found by Scott (1987) at several locations.

47. European Cattle *Bos taurus*
Introduced. Scott (1987) found evidence of illegal grazing by cattle in several parts of the Brisbane Ranges National Park.

48. Pig *Sus scrofa*
Introduced. There are anecdotal accounts of feral pigs in the Ranges but we cannot vouch for their veracity.

49. Fox *Vulpes vulpes*
Introduced. Widespread and abundant in the Ranges.

50. Dog *Canis familiaris familiaris*
Introduced. There appears to be a small number of feral or semi-feral dogs in the Ranges. The Dingo *C. familiaris dingo* would certainly have occurred locally last century.

51. Cat *Felis catus*
Introduced. Widespread and abundant in the Ranges.

Discussion:

Although the modern mammal fauna of the Brisbane Ranges is somewhat depauperate due to a dearth of native, terrestrial, small mammals, the sub-fossil record shows that this was not always so. A large number of native rodents in particular have become extinct, probably at about the time of European settlement.

Of the modern fauna, several species are of significance as being either rare, vulnerable or little known in Victoria: *Phascogale tapoatafa, Petaurus norfolcensis, Taphozous flaviventris and Miniopterus oceanensis.*

Although the Brisbane Ranges are best known for their diverse flora and avifauna, our work shows the significance of past and present theriofaunas (mammal faunas).

Acknowledgements:

We would like to acknowledge the generosity of the Trustees of the M.A. Ingram Trust who made funds available for the purchase of electronic bat detectors and a bat trap used in this survey and others.

Also we acknowledge the information provided by Peter Tremul, Trevor Pescott, Gordon McCarthy and Graeme Newell. Thankyou also to Kerryn Scott for making available a copy of her unpublished Biology Research Project on mammal distribution in the Ranges. We

would also like to thank Kath Handasyde for information about Brisbane Ranges Koalas.

The excavation of subfossil material, and handling of protected bats were conducted under the auspices of permits issued by the National Parks and Wildlife Service of the Department of Conservation, Forests and Lands.

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Table 1:

SPECIES	MODERN	SUB-FOSSIL
Ornithorhynchus anatinus	*	
Tachyglossus aculeatus	*	
Isoodon obesulus		*
Dasyurus maculatus	*	
Dasyurus viverrinus	*	
Phascogale tapoatafa	*	*
Sminthopsis murina	*	*
Sminthopsis crassicaudata	*	
Antechinus stuartii	*	*
Antechinus swainsonii		*
Trichosurus vulpecula	*	
Pseudocheirus peregrinus	*	*
Petaurus breviceps	*	*
Petaurus norfolcensis	*	*
Cercartetus nanus		*
Acrobates pygmaeus	*	*
Phascolarctos cinereus	*	
Vombatus ursinus		*
Aepyprymnus rufescens		*
Bettongia gaimardi		*
Potorous tridactylus		*
Macropus giganteus	*	*
Wallabia bicolor	*	
Pteropus poliocephalus	*	
Taphozous flaviventris	*	
Tadarida australia	*	
Eptesicus darlingtoni	*	
Eptesicus regulus	*	
Eptesicus vulturnus	*	
Chalinolobus gouldii	*	
Miniopterus oceanensis	*	

Nyctophilus geoffroyi	*	
Hydromys chrysogaster	*	
Conilurus albipes		*
Mastacomys fuscus		*
Pseydomys sp.		*
Pseydomys sp. nov.		*
Pseydomys australis		*
Pseydomys fumeus		*
Pseydomys novaehollandiae		*
Rattus fuscipes	*	*
Rattus lutreolus		*
Rattus rattus	*	
Rattus norvegicus	*	
Mus musculus	*	
Oryctolagus cuniculus	*	
Lepus capensis	*	
Ovis aries	*	
Bos taurus	*	
Sus scrofa	*	
Vulpes vulpes	*	
Canis familiaris familiaris	*	
Felis catus	*	

Postscript

Recently completed work (by LEC) on the sub-fossil material from the Parwan archaeological site has yielded further data.

The Eastern Grey Kangaroo *Marcropus giganteus*, in addition to its wide modern range, occurred as a Holocene sub-fossil at Parwan. Two additional species were added:

52. Common Wombat *Vombatus ursinus*
The Parwan sub-fossils of V. *ursinus* bring its range further south than the modern records from the Wombat State Forest, to the north-eastern fringe of the Brisbane Ranges.

53. Eastern Bettong *Bettongia gaimardi*
This species is presumed extinct on the mainland. The Parwan sub-fossil and other such records throughout Victoria attest to its once more extensive distribution.

Geelong Field Naturalists' Club President's Report

In presenting the 1987-88 report I wish to immediately record my sincere thanks and appreciation to the numerous members and in particular the Committee, who have given encouragement, advice and support. The Group/Sub-Committee reports included herein are some examples of that support.

The position of 12 months ago which disturbed your then President, Valda Dedman, also disturbed me as it did many others, however – forever the optimist – I am now quietly confident that for the forseeable future we will have a full committee comprising members willing and able to take on the responsibility of running the Club and therefore prepared for the senior positions when those positions MUST be filled. Valda's comments were timely and appreciated.

Roy Whiteside will be overseas for a large part of the coming year and feels he should not remain on the Committee under those circumstances. Roy is a most helpful, reliable Secretary and hopefully will rejoin the Committee on his return.

He wisely prepared a Duty List for the incoming Secretary instead of a report; however I can tell you he received about 280 letters and periodicals and wrote about 70 letters.

Joy Pearce is unable to continue on the Committee. Joy kept the Committee well informed on what was happening around Geelong, was active on conservation matters, always made a cup of coffee at the appropriate time and assisted the Treasurer when needed. Thankyou, Joy – keep the tea and coffee flowing at our General Meetings.

Very early this club year editorship of the "Geelong Naturalist" passed from Margaret Cameron to an Editorial Committee. The work Margaret did in editing our Magazine over a period of seven years is appreciated and we thank her for that significant contribution.

The Editorial Committee, Valda Dedman convenor, Ted Errey, Dave King and Gordon McCarthy, hope members will continue providing a wide range of material for inclusion, particularly about the Geelong region. We thank them for maintaining the high standard set by their predecessors Margaret Cameron and Trevor Pescott.

A time consuming task largely carried out by Valda Dedman concluded on 30th June last when our Club became an Incorporated Association. Valda is the current Public Officer of the G.F.N.C. Inc. Thanks, Valda, for your work on Incorporation. Copies of the document are available from the library and a copy of the By-Laws is available for all members.

John Hunt, a foundation member, a Committee man for 13 years and President for 3 years, died on 9th January, 1988. An obituary appeared in the "Geelong Naturalist" 24.4 but because of the valuable contribution he made to our Club his passing must be recorded in this report.

At their Annual Meeting – Kangaroobie, 14th March – the V.F.N.C.A. asked Geelong, and we agreed, to host their camp and annual meeting over Labour Day weekend 1989 – host Club officers automatically become the V.F.N.C.A. officers. The V.F.N.C.A. agreed with the concept (ex Geelong) of an easily recognized sign and Club information be displayed at the entrance of each town in Victoria where a F.N.C. exists. Geelong, Timboon and Colac Clubs were asked to form a Committee (with power to co-opt) to research the concept with the view of implementation across Australia.

The W.V.F.N.C.A. which is very well organized (Ern Perkins of Castlemaine is Secretary) conducts autumn, winter and spring camp outs. We were represented at Warrnambool 18th-20th March where it was decided –

1. W.V.F.N.C.A. support the concept of F.N.C. signs at town entrances.
2. To hold a special meeting on Proposed Mining Legislation, prepare a response and circulate same to Clubs.
3. Ballarat host the winter camp 27th-28th August. Wangaratta – N.E.F.N.C. – host the spring camp 21st-23rd October – Warby Ranges. To join with the V.F.N.C.A. for a combined camp at Geelong – March 1989.

The current Meeting format of Speaker– Coffee Break– Mini-talk(optional) Observations– Specimens– Club Business– seems to be well accepted.

This format works best if we make a start on time and the Chairman restricts the speaker and question time to 1 hour. I am aware that this format allows only superficial discussion on general Club business and finance; if any member has any concern at all please let me or a Committee Member know. We could use a segment of Members' Night if discussion is needed.

We are indeed fortunate in being able to attract a diverse range of most competent Guest Speakers to address our General Meetings. Graeme Tribe has been most helpful in leading the observation and specimen table segment, but he or any other leader can only respond to the observations reported and the specimens displayed. Where are the specimens? Have we been leaving it to Ted or the other fellow? It is this segment that puts Geelong into the G.F.N.C.

Excursions are mostly well attended although weather does stop a few; our leaders prepare well and an enjoyable informative excursion follows.

Campouts at Castlemaine, Cavendish and the Baw Baws were very well attended. At Castlemaine and Cavendish guidance by local naturalists ensured very interesting outings. Whilst it is some time since Paul Chaplin was a local of the Baw Baws he knows the area very well and led a very successful campout. Records of guest speakers, excursions and campouts are kept and available.

The You Yangs bone-seed eradication program is an on-going annual Club project at the Saddle. Once again Trevor Pescott fired us with enthusiasm for the task and at the end of the day many plants were laid low. We are being successful in this area and obviously must continue. Trevor's dedication to the task deserves our gratitude and support for many more years.

There is a new project– one which should see a fairly quick, long lasting, pleasant result. We are to prepare a recommendation regarding plantings which will encourage bird life in the Grace

McKellar Centre grounds generally, and more particularly near the wards so that the residents may observe and enjoy the plants and be stimulated by the movement and colour of the birds.

"Buckleys to the Break", our book about the urban section of the Barwon River is virtually complete due predominantly to the efforts of Valda Dedman, Trevor Pescott and Gordon McCarthy with sketches by Joy Pearce and contributions also by Rolf Baldwin, Ted Errey, Dave King and Jack McCarthy. The book is being printed and will be launched on Friday, 22nd April by Hon. Joan Kirner, Minister, Conservation, Forests & Lands.

G.F.N.C. Brochures have been produced and distributed. An information day was staged at South Barwon's Leisure Day. A display at Market Square, signs and Club information on roads entering Geelong, Bicentenary celebrations, production of posters, are items pending. Updated Subscribers' Renewal Notices are about to be used. More use is to be made of local papers to publicize events. World Environment Day was recognized by conducting a Barwon River walk. Roy Whiteside addressed Belmont Rotary Club. We entered an Ocean Grove Road in the Victorian Roadside Environment Award. We will be forwarding 3 copies of our Newsletter to every Post-primary School in Geelong – we thank the Regional Education Office for facilitating the distribution. Of course the most effective publicity is "satisfied members telling their friends, their neighbours, their community, about the wonder and beauty of nature; the interesting, the informative and enjoyable time they spend at G.F.N.C. events".

Does your community know about the G.F.N.C.? Help our Club by placing brochures in libraries, community centres, halls and on information boards.

Effective publicity is important and John O'Neil's expertise in this field is most helpful.

The work Valda Dedman does in editing the Newsletter every month is I'm sure appreciated by every person who reads it and I thank her for the time and effort she gives that task.

The fact that our Club is well accepted in the wider community is largely due to the contribution made by members working on Committees either as Club representatives or as individuals putting factual cases for the Natural History cause. Many members serve in this capacity; they deserve our gratitude and they need our ongoing help in providing up to date information.

Our meeting place leaves a lot to be desired, the Committee is very aware of the problems faced and has officers briefed to meet with the Property Board of St. Davids.

Pat Russell is relinquishing the position of minute secretary, thanks Pat for a job done cheerfully and well.

Thanks to members who type letters and minutes, address and post newsletters and magazines, prepare the hall, welcome newcomers, attend to the projector and the P.A. system, write up records, visit and deliver newsletters to members who are unable to attend meetings and all who carry out other vital tasks for satisfactory functioning of our Club.

It is important, I feel, – well nigh essential – that your President is prepared for that office – the best preparation is a few years on the Committee carrying out various tasks and a year as Vice President.

Diana Primrose who is a great Committee person and diligent Treasurer has nominated as Vice President. I believe that is really good news for our Club.

Group/Sub-Committee Reports

TRADING TABLE

With two members who have been organizing and running the trading table for 10 years, and who have decided to retire, a few comments may be interesting.

After 10 or 11 years it is difficult to recall who first suggested a "stall" to raise funds but several women members met and decided to commence such a project which was first termed a work stall. The stall was initially run by the Poole sisters, but since 1978 has been in the hands of Norah Errey and Lily Sherwood.

Although the trading table is a small affair it is surprising to know that the table with some auxiliary events has raised more than $4,000 in the 10 years.

The trading table itself has raised $2,400. There were two stalls at Highton Shopping Centre, and catering was done for a visit by the RAOU largely based on the Board of works farm and Serendip. These three events raised a little more than $1,000.

There was a lot of enthusiasm by the way of recipes, etc. for the Recipe Book and this was quite successful and raised $700.

An unlikely event was a Fashion Parade and this raised $300.

Various items have been given by members to be raffled and these have raised $260.

Norah and Lily would like to thank all those who have helped over the years in any way and, of course, those who have made purchases.

Lily Sherwood

Our club is indebted to Nora and Lily for giving their time and skills for a decade plus more, and so adding some $4,000 to our finances. We are exceedingly grateful for their contribution.

PLANT GROUP

Formal activities have been limited whilst the group has been reactivated and consolidated since June 1987.

Experienced members have led discussions on local plants in flower at each monthly meeting and several excursions were made to nearer bushland areas during Daylight Saving Time.

Members have supported Paul Chaplin who organized a systematic survey of plants in flower each month along tracks at the Ocean Grove Nature Reserve.

Gwen Yarnold, Ted Errey and Paul Chaplin completed the Roadside

Conservation Survey of vegetation in the Shires of Corio and Bannockburn.

Plant lists for most local bush areas have been drawn up, but can never be regarded as final. There is always the possibility of adding to the lists. As an example of this a new spider orchid was reportedly found recently by a university botanist in the Inverleigh Common. Apparently this species was new, not only to our lists, but new to science.

Collecting and pressing activities eventually lead to storage difficulties but merely listing has no such problem.

Ted Errey and Dick Southcombe.

BIRD GROUP

The Bird Group has continued to hold meetings on each fourth Tuesday night, with an average attendance of 20 members and friends. At each meeting, a speaker talks about one aspect of bird study, varying in topics from a discussion of oystercatchrs to a description of the RAOU search for the Night Parrot, an expedition that was attended by several Geelong birdos. The speaker program is organized by Margaret Cameron, and thanks are extended to her for the effort she puts in to vary the subjects. Members' observations are recorded at each meeting, and these are included in the Annual Bird Report in "The Geelong Naturalist".

In October, the Geelong Birdwatch was held, and it is ironic that its success with over 160 lists returned has put a lot of time demands on those preparing the report, and consequently delayed publication of the final results.

Bird Group members have participated in wader counts (summer and winter), Orange-bellied Parrot surveys, a duck census, wetland studies and the December "Challenge Count".

The Bird Group has a bright future – we will continue to meet and talk about birds, and the field work mentioned above seems set as on-going programs that are building a valuable data bank on local bird populations.

Trevor Pescott

CONSERVATION

Conservation is an important aspect of the Club's activities, although it puts considerable pressure of work on a small work-force. In the main it involves the preparation of submissions on development projects, this year with an emphasis on Swan Bay, Sand Island, Marinas and Residential/Tourism Schemes in the Queensland/Pt. Lonsdale area.

In addition we have expressed concern over subdivisions at Batesford, the protection of the river banks near Buckley's Falls, the Otway Forest plans, waterways and wetlands, and various other conservation issues.

The Conservation Sub-Committee has had fluctuating levels of activity, and the extent to which it can be effective depends very largely on the time a small group of members can make available. This means an inconsistent level of response to the submissions asked for, however that fact has to be accepted, and it is not intended as a criticism of those who support the Sub-Committee.

Ideally, a data-bank of response material should be prepared for future use– but the very nature of conservation work is usually one of rear-guard actions, always trying to express adequately a point of view about a proposal. All too rarely can the club make conservation overtures ahead of a perceived or very real threat to the environment.

Trevor Pescott
Convenor, Conservation Committee

LIBRARY

Firstly I would like to pay tribute to Valda Dedman for the work she does in purchasing new books and cataloguing same, also to Betty Moore who carries out much of the behind the scenes work such as typing out cards for magazines and other publications as they came into the library.

Also thanks go out to members who assist at the table on Meeting nights.

Finding means of suitable presentation and storage is becoming an increasing problem. As accessibility time to the library is limited, better lighting and another storage cupboard allowing separation of books from magazines would greatly facilitate the use of this amenity for members.

Looking to the future:-

1. On going preservation of our records such as Newsletters, "Geelong Naturalists" – at present we have no satisfactory storage facilities for such as these.

2. We would welcome suggestions from members as regards new publications with a view to increasing and improving our coverage.

3. We feel that with the trend towards more extensive use of cassettes and videos that this subject will require future attention.

Leila Ramsay

Thankyou, Leila, I'm hoping our meeting with St. David's may resolve some of your problems.

I conclude as I commenced, full of gratitude and quietly confident for the future. The future of course is in the hands of every member BUT successful operation rests with the Committee; do support and constructively criticize them AND please encourage the new members Grant Baverstock, Rohan Bugg and Barry Redman as they settle in to play an equal part with those who have been a little or a lot longer on the Committee.

Let us pursue the stated purposes of the Geelong Field Naturalists' Club and in so doing enjoy the beauty and wonder of nature as we satisfy our curiosity and make some lasting friendships along the way.

Dick Southcombe

The Geelong Field Naturalists Club
Treasurer's Report

I am pleased to present this report for the year ending 26th February 1988.

This year it was considered necessary to raise our subscription rates for the first time in four years–1983/84 being the last increase. It has been decided by Committee that these rates shall be retained for the coming year.

Fund raising ventures have not been pursued so actively this year as in some previous years. Our main fund raising has been carried out by our members who conduct the trading table. Our sincere thanks must go to them for their consistent efforts over some ten years. This year the trading table added $180.96 to our funds.

Last March we transferred $10,000 from term deposits to the A.N.Z. Common Fund V2, which provided a higher interest rate and ready availability. We have subsequently transferred another $2,700.00 to this account, and over the year we have gained $1,239.02 interest. Our deposit stock, held with the State Bank, has been reduced from $1,000.00 to $200.00 to cover expenses over the year. This stock has yielded $228.37 interest.

A grant of $1,200.00 was received from the Department of Conservation, Forests, and Lands for the production of a pamphlet on the Belmont Common. The City of South Barwon Recreational Voucher Scheme gave us $343.75, and the booklet "The Care of Sick, Injured, and Orphaned Birds and Animals" brought in $330.25. This little booklet, by the late Jack Wheeler, continues to be very popular and we are currently having another 1,000 copies printed. Records indicate that 28,000 copies will have been printed since its release in 1975.

The release of our book "From Buckleys to the Break" gets closer, with the launch date set at April 22nd. The Club received a grant of $2,000.00 in 1984/85 to assist with the publication of this book.

The Club made a donation of $50.00 to the Royal Australian Ornithologists Union, and $118.64 was donated to the Marine Science Study Centre at Queenscliff.

The Club's paid up membership units in February this year were 188, compared with 197 a year ago. For a number of years now, new memberships have fallen short of resignations and lapsed memberships. In addition to paid up memberships, we have three Life Members and send out 29 free magazines – largely on a 'free exchange' basis. We must all be conscious of the need to keep our Club membership alive and thriving and, to this end, the Committee has been actively investigating forms of publicity. This has led to the production of an updated Club publicity brochure which is available for members to distribute as they see fit. We had 2,000 copies printed at a cost of $540.00. Other publicity ideas are being pursued.

Sincere thanks once again to Mr. Barry Redman for auditing our books.

DIANA PRIMROSE
Honorary Treasurer

Ted Errey *see Page 27*

The Geelong Field Naturalists Club – Year Ending 26/2/88
Receipts and Payments Account

Receipts		Payments	
Subscriptions	$2,781.50	Printing & Stat.	$3,861.40
C.F. & L. Grant	1,200.00	Postage	699.42
Interest	228.37	Club subscriptions	276.00
Trading table	180.96	Donations to projects	163.64
Excursion	233.60	Excursion	300.00
Sale of publications	526.25	Insurance	198.49
City of South Barwon	343.75	Use of Hall	330.00
Sundries	571.12	Purchase library	53.50
		Sundries	895.82
	6065.55		6,783.27
TFR term deposits	10,000.00	TFR A.N.Z. fund	12,700.00
TFR deposit stock	800.00		
TFR A.N.Z. fund	1,000.00		
	17,865.55		19,483.27
Cash Book balance at 23/2/87	1,799.17	Cash Book balance at 26/2/88	181.45
	$19,664.72		$19,664.72

A.N.Z. Common Fund V2

Receipts		Payments	
TFR term deposits	10,000.00	TFR to cehque a/c	1,000.00
TFR cheque a/c	2,700.00	Bank charges	4.82
Interest	1,239.02		
			1,004.82
		Balance at 26/2/88	12,934.20
	$13,939.02		$13,939.02

State Bank Deposit Stock

Balance at 23/2/87	$1,000.00
TFR to cheque a/c	800.00
Balance at 26/2/88	$200.00

Edmund George (Ted) Errey

The death of Ted Errey, on 23 April, was a sad event in the history of the Club. Life membership was conferred on him in July 1981 in recognition of his services, which continued until the day he died. He was a member of the Committee for 14 years, holding the office of Treasurer (1968-72), Newsletter Editor (1980-81) and President (1975-77). In 1972 he established the Botany (now Plant) Group, which has studied various aspects of our flora and carried out numerous field trips and surveys under his leadership.

Ted was our plant expert, and he knew and loved our native species both as a botanist and as a gardener. He collected representative specimens of our flora, and many of these have become part of reference collections, such as for the Brisbane Ranges National Park. They were more than merely type specimens; mounted they became works of art, such was Ted's skill and flair.

We came to rely on Ted for the display on our specimen table at general meetings. Although it was usually made up of plants collected from the bush or grown in his own garden, sometimes he brought along weeds, or even spiders, all correctly identified and labelled. Many of Ted's cuttings ended up as rooted plants on our trading table.

He assisted Cliff Beauglehole with field work for the preparation of Cliff's series of books on the vascular flora of Victoria based on the LCC Study Areas. He also wrote many articles for the Geelong Naturalist, on ferns, mangroves, local sundews, to name but a few. Because of his expertise he was asked to join the editorial committee for our Magazine.

His final published work appeared the day before he died. Ted wrote the section, "Barwon vegetation – then and now" in "From Buckleys to the Break". He could not be at the book launch in person; we know he was there in spirit. His spirit will live on through this last offering, and through all his work, and in our memories.

Valda Dedman

Eastern Barred Bandicoot. Photo: Trevor Pescott

Eastern Barred Bandicoot (*Perameles gunnii*)

Dick Southcombe

The first comments on conserving the mainland Eastern Barred Bandicoot *(Parameles gunnii)* were made in the late 1930's and early 1940's. In 1937 David Fleay said the species was bordering on extinction in Victoria.

The last specimen collected from outside the Hamilton district came from Port Fairy in 1971, and since then it appears that the mainland distribution has been restricted to the City of Hamilton and environs. In June 1980 Peter Brown began a research project on the ecology of the Eastern Barred Bandicoot at Hamilton.

In March 1983, due to growing concern for the species' survival, the project was expanded into a major research-management program funded by the Department of Conservation, Forests and Lands, the World Wildlife Fund Australia and a private donor.

Results of this research indicate that the Eastern Barred Bandicoot is now critically endangered on mainland Australia, and is in extreme danger of extinction unless active management programs are implemented in the near future.

Specific reserves have been established for conservation purposes, although the species is not known to occur in any national park or state wildlife reserve. In the City of Hamilton and the encircling Shire of Dundas the amount of suitable Crown Land available for management of the species is limited. Continuing alienation of this Crown Land acts as a major constraint on effective management.

Native tussock grassland of the Western District is the natural habitat of the Eastern Barred Bandicoot, but the last remaining large areas of natural vegetation were lost when soldier settlers added fertilizer and used clovers to increase productivity so that their small properties could become economically viable.

Hamilton has a "rural fringe" of unused and little used paddocks, farmlets and vacant house blocks, which are infested with weeds, and it is these weedy areas that have become the home of the Eastern Barred Bandicoot. Unfortunately these "weedy areas" are being increasingly utilised and so the remaining suitable habitat is being lost at an increasing rate.

Predation by feral and especially by pet cats is a major cause of mortality of the juvenile bandicoots at Hamilton. Cats also pose another threat, the transmission of disease.

In Peter Brown's study a large number of road-killed bandicoots was found; despite road signs advising motorists to beware and take care, the problem continues. Under-road culverts, as used to aid conservation of the Mountain Pygmy Possum may hopefully reduce road kill.

The population of the Eastern Barred Bandicoots at Hamilton is only in the low hundreds, despite the animals' very high reproduction rate. Gestation lasts 12.5 days, 55 days after birth the young leave the pouch, 10 days later they begin to leave the nest. Mating may occur during this ten day period, and thus a second litter is produced just after the first is weaned.

The female has the potential to produce 10 to 12 young per year. A population study at Hamilton showed juveniles remaining as residents.

Worms are an important food item, especially during the wetter months. Commonly observed food items included cockroaches, earwigs, beetle adults and larvae especially scarab larvae, moth and butterfly larvae, and the bulbs of onion weed.

Dick Southcombe
4 Peary Street,
Belmont, 3216.

Grampians Campout, Geerak Park, 16-18 October, 1987

Reptiles, Amphibians and Invertebrates

Dave King

A notable feature of the open woodland area was the number of Blue-tongue Lizards (*Tiliqua scincoides*) and Stumpytail Lizard (*Trachydosaurus rugosus*). In most instances each species was observed as a pair, and this was probable the peak of their breeding season. The Water Skink (*Sphenomorphus tympanum*) was observed in good numbers along creek margins. Other reptiles seen were the White-lipped Snake (*Drysdalia coronoides*) and the Marbled Gecko (*Phyllodactylus marmoratus*). Rohan Bugg observed the Golden Water Skink (*Sphenomorphus quoyii*) and the Little Whip Snake.

Amphibians in the wetland areas were noted, by the male mating calls, as the Common Eastern Froglet (*Crinia signifera*) and the Spotted Marsh Frog (*Limnodynastes tasmaniensis*).

Insects and Arachnids observed included a Ground Beetle (*Fam. Carabidae*) and a species of Short-horned Locust. The most notable ant was the Jumping Ant (*sp.?*). Several caterpillars were seen, but not definitely identified; they were probably a species of Archtiidae moth.

The primitive flat worm, or Planarian, was relatively common in the area, and mainly of the yellow-coloured form. A Scorpion was seen by Rohan Bugg.

Dave King
9 Traum Street,
Portarlington, 3223.

Birds

Barry Redman

Despite the sometimes inclement weather and the numerous other attractions, such as spectacular scenery, picturesque drives, a lot of time spent on hands and knees examining beautiful and occasionally rare orchids, plus socialising with good company, we still managed to see 103 different species of bird life. With such a wide variety of habitat areas and an abundance of food, I suppose it is not actually surprising.

Emu, Australasian Grebe, Little Black Cormorant, Little Pied Cormorant, Pacific Heron, White-faced Heron (+ two in nest), Intermediate Egret, Sacred Ibis, Straw-necked Ibis, Yellow-billed Spoonbill, Black Swan, Australian Shelduck, Pacific Black Duck, Grey Teal, Chestnut Teal, Australasian Shoveler, Maned Duck, Musk Duck, Peregrine Falcon, Brown Falcon, Dusky Moorhen, Purple Swamphen, Masked Lapwing, Black-fronted Plover, Black-winged Stilt, Silver Gull, Whiskered Term, Spotted Turtle-dove, Brush Bronzewing, Yellow-tailed Black Cockatoo, Gang-gang Cockatoo, Galah, Long-billed Corella, Sulphur-crested Cockatoo, Crimson Rosella, Eastern Rosella, Red-rumped Parrot, Blue-winged Parrot, Pallid Cuckoo, Fan-tailed Cuckoo, Shining Bronze-cuckoo, Southern Boobook (heard). Barn Owl, Spotted Nightjar (heard), Laughing Kookaburra, Sacred Kingfisher, Welcome Swallow, Tree Martin, Fairy Martin, Richard's Pipit, Black-faced Cuckoo-shrike, White-winged Triller, Blackbird, Pink Robin, Scarlet Robin, Eastern Yellow Robin, Jacky Winter, Rufous Whistler, Grey Shrike-thrush, Satin Flycatcher, Restless Flycatcher, Grey Fantail (nest with 2 eggs), Willie Wagtail, White-browed Babbler, Golden-headed Cisticola, Rufous Songlark, Superb Fairy-wren, Southern Emu-wren, White-browed Scrubwren, Brown Thornbill, Yellow-rumped Thornbill, Striated Thornbill, White-throated Treecreeper, Brown Treecreeper, Red Wattlebird, Little Wattlebird, Noisy Miner, Yellow-faced Honeyeater, White-eared Honeyeater, Yellow-tufted Honeyeater, White-plumed Honeyeater, Black-chinned Honeyeater, Brown-headed Honeyeater, White-naped Honeyeater, New Holland Honeyeater, Eastern Spinebill, White-fronted Chat, Mistletoebird, Spotted Pardalote, Straited Pardalote, European Goldfinch,

House Sparrow, Red-browed Firetail, Diamond Firetail, Zebra Finch, Common Starling, Common Mynah, White-winged Chough, Australian Magpie-lark, Dusky Woodswallow, Australian Magpie, Pied Currawong, Grey Currawong, and Raven sp.

Barry Redman
3 Stork Ave.,
Belmont, 3216

Flora

Betty Quirk

Geerak Park was a lovely setting for a camp and our hosts, Mollie and Laurie Herrmann made us so welcome. Molly took us to see a fenced paddock where a number of different orchids grew, including the Purple Diuris, and a tiny Pink Caladenia, which was new to me.

I was late on the Friday owing to car trouble, so I missed the Friday outings, first along the roadside verge at the entrance to our campsite, where 20 species of wildflowers grew, then to Brewis' property, and finally to the upper reaches of Brown Creek, where many speices of ferns were observed and the Showy Bauera really lived up to its name.

In the evening we went to the woolshed, where Molly showed us many photos of the flowers of the district.

On the Saturday we were led by Murray Gunn on a most interesting trip. The wildflowers were at their best, and in all my trips to the Grampians I have never before seen such a display of the Tinsel Lily.

We went to some bushland near the property on Sunday morning, and were able to "flower" to our heart's content, until we were driven home by rain.

Betty Quirk
2 Crimea St.
Drysdale, 3222.

Adder's Tongue. Photo: Frances Poole

Ferns

Blechnum nudum	Fishbone Fern
Gluchenia microphylla	Scrambling Coral Fern
Sticherus tener	Silky Fan Fern
Todea barbara	King Fern
Lindsaya lincaris	Screw Fern
Ophioglossum coreaceum	Adder's Tongue
	Club Moss sp.

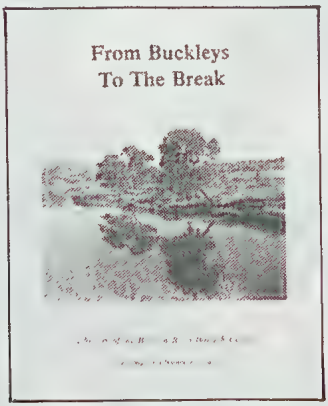
Other Plants

Callitris rhomboidea	Port Jackson Pine
Calactasia cyanea	Blue Tinsel-lily
Anguillania dioica	Early Nancy
Burchardia umbellata	Milkmaids
Thysanotus patersonii	Twining Fringe-lily
Stypandra glauca	Nodding Blue Lily
Dianella revoluta	Black Anther Flax-lily
Laxmannia sessiliflora	Dwarf Wire-lily
Hypoxis glabella	Yellow Star
Conospermum patens	Slender Smoke-bush
Conospermum mitchellii	Victorian Smoke-bush
Banksia marginata	Silver Banksia
Isopogon ceratophyllus	Horny Conebush
Grevillea alpina	Mountain Grevillea
Grevillea lavandulacea	Lavender Grevillea
Grevillea dimorpha	Flame Grevillea
Grevillea parviflora	Small-flower Grevillea
Hakea rostrata	Beaked Hakea
Hakea rugosa	Dwarf Hakea
Hakea nodosa	Yellow Hakea
Hakea sericea	Furze Hakea
Hakea teretifolia	Dagger Hakea
Amyema pendulum	Drooping Mistletoe
Clematis aristata	Australian Clematis
Ranunculus lappaceus	Austral Buttercup
Cassytha glabella	Slender Dodder-laurel
Bauera sessiliflora	Showy Bauera
Billardiera scandens	Common Apple-berry
Marianthus bignoniacea	Orange Bell-climber
Dillwynia sericea	Showy Parrot-pea
Dillwynia glaberima	Smooth Parrot-pea
Dillwynia hispida	Red Parrot-pea
Pultenaea hispidula	Rusty Bush-pea
Pultenaea mollis	Soft Bush-pea
Pultenaea humilis	Dwarf Bush-pea
Pultenaea scabra	Rough Bush-pea
Platylobium obtusangulum	Common Flat-pea
Daviesia brevifolia	Leafless Bitter-pea
Daviesia ulicifolia	Coarse Bitter-pea
	Common Hovea

Hovea heterophylla	
Kennedya prostrata	Running Postman
Acacia verticillata	Prickly Moses
Acacia armata	Hedge Wattle
Acacia myrtifolia	Myrtle Wattle
Acacia retinoides	Wirilda
Acacia mearnsii	Black Wattle
Acacia melanoxylon	Blackwood
Acacia mitchellii	Mitchell's Wattle
Acacia stricta	Hop Wattle
Pelargonium rodneyanum	Magenta Storksbill
Boronia parviflora	Swamp Boronia
Boronia pubescens, var. nana	Dwarf Boronia
Tetratheca ciliata	Black-eyed Susan
Comesperma volubile	Love Creeper
Spyridium parviflorum	Austral Dusty Miller
Spyridium vexilliforum	Winged Spyridium
Hibbertia stricta	Erect Guinea-flower
Hibbertia fasciculata	Bundled Guinea-flower
Correa aemula	Hairy Correa
Correa reflexa	Common Correa
Stackhousia monogyma	Creamy Stackhousia
Pimelia flava	Yellow Rice-flower
Pimelia humilis	Common Rice-flower
Pimelia linifolia	Slender Rice-flower
Pimelia octophylla	Downy Rice-flower
Eucalyptus baxteri	Brown Stringybard
Eucalyptus obliqua	Messmate Stringbark
Eucalyptus goniocalyx	Long-leaf Box
Eucalyptus cypellocarpa	Mountain Grey Gum
Eucalyptus camaldulensis	River Red Gum
Eucalyptus viminalis	Manna Gum
Eucalyptus ovata	Swamp Gum
Eucalyptus nitida (flowering)	Shining Peppermint
Melaleuca decussata	Totem Poles
Melaleuca squarrosa	Scented Paperbark
Melaleuca gibbosa	Slender Honey-myrtle
Melaleuca neglecta	Honey-myrtle
Calytrix alpestris	Snow Myrtle
Calytrix tetragona	Fringe-myrtle
Leptospermum juniperinum	Prickly Tea-tree
Leptospermum myrsinoides	Silky Tea-tree
Leptospermum nitidum	Shiny Tea-tree
Leptospermum scoparium	Woolly Tea-tree

Leptospermum lanigerum	Manuka
Epacris impressa	Common Heath
Sprengelia incarnata	Pink Swamp-heath
Brachyloma daphnoides	Daphne Heath
Astroloma conostephoiides	Flame Heath
Astroloma pinifolium	Pine Heath
Leucopogon ericoides	Beard Heath
Utricularia dichotoma	Fairies Aprons
Pratia pedunculata	Trailing Pratia
Brunonia australis	Blue Pincushion
Stylidium graminifolium	Grass-leaf Trigger-plant
Stylidium soboliferum	Grampians Trigger-plant
Brachycome aculeata	Mauve Daisy
Brachycome multifida	Cut-leaf Daisy
Olearia floribunda	Heath Daisy-bush
Helichrysum baxteri	White Everlasting
Helichrysum obcordatum	Grey Everlasting
Craspedia glauca	Yellow Buttons

Plant list compiled by Betty Quirk and Valda Dedman.



FROM BUCKLEYS TO THE BREAK

A history and natural history of the Barwon River through Geelong

Edited by Valda Dedman, Gordon McCarthy and Trevor Pescott.

Published by The Geelong Field Naturalists' Club Inc.
Available from the GFNC, P.O. Box 1047, Geelong, 3220.

PRICE $14.95 & $2.50 (postage and packing)

Purple Diuris. Photo: Frances Poole

Orchids

Frances Poole

A very successful weekend orchidwise was spent in and around Geerak Park, the property of Molly and Laurie Herrmann. Twenty-five orchid species were found, sixteen of which were in flower, the other nine were either leaves, buds or finished flowering.

Apart from the lovely Spiders and Greenhoods, the highlight of the weekend was the flowering of the Purple Diuris (*D. punctata*). On Friday morning we were shown the place where they were growing, but only an odd plant showed any colour. It was a different story on Sunday morning. This Diuris is a truly magnificent orchid. Also out in the sun were the Twisted Sun Orchids (*Thelymitra flexuosa*) and Rabbit Ears (*Thelymitra antennifera*).

In the same place as the orchids we also found the Adder's Tongue (*Ophiglossum coracium*). Although there were plenty of leaves, there were no fruiting heads.

We extend many thanks to Molly and Laurie for their hospitality and sharing their lovely orchids with us.

Orchids found were as follows:

Calochilus robertsonii	Brown beard
Diuris punctata	Purple diuris
Diuris longifolia	Wallflower diuris
Diuris maculata	Leopard orchid
Diuris peduculata	Snake orchid, or Golden moth
Pterostylis nutans	Nodding greenhood
Pterostylis pedunculata	Maroonhood
Pterostylis plumosa	Bearded greenhood
Thelymitra antennifera	Rabbit ears
Thelymitra flexuosa	Twisted Sun orchid
Caladenia gracilia	Musky caladenia
Caladenia catenata	Pink fingers
Caladenia pusilla	Miniature pink fingers
Caladenia dilatata	Green comb spider orchid
Caladenia patersonii	Common spider orchid
Caladenia filamentosa	Daddy long legs

Frances Poole, 134 Fitzroy Street, East Geelong, 3219.

Mystery Photograph – The Answer

The picture shows the tail of a female Musk Duck diving in the Anglesea River. Along with the Blue-bill, this species is called a stiff-tailed duck because of the nature of the tail-feathers.

Musk Ducks are rarely seen in flight, preferring to dive to escape detection.

The female is considerably smaller than the male, and she lacks the skin lobe that he has beneath the beak and throat.

Female Musk Duck. Photo: Trevor Pescott

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JOURNAL OF THE GEELONG FIELD NATURALISTS CLUB INC.

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EDITORIAL

The Geelong Field Naturalist Club has not embarked upon any special project to celebrate Australia's Bicentenary. The August Members' Night had a historical theme, when Margaret Cameron spoke about the development of Australian bird books and Trevor Pescott described the natural environment as it was when white settlers first came too Geelong district. Earlier this year we published "From Buckleys to the Break", which describes the history and natural history of the Barwon River through Geelong, but the timing was coincidental.

Our tribute to Australia began with the formation of the Club, and is an ongoing one. It is reflected in our statement of purposes, which indicates (among other things) that we will "stimulate the study and appreciation of natural history", and "preserve and protect Australian flora and fauna." Field Naturalists are aware of Australia's natural heritage; they love and appreciate it, strive to know it better and to share their understanding with others so that it will remain safe for future generations.

This issue of the Geelong Naturalist illustrates our commitment. Through the Geelong Garden Birdwatch last October we reached out to people through the Geelong region, inviting them to share their experiences with us, and the response was most gratifying. The comments we have published are very interesting, and the summary will form the basis of later surveys. Roy Whiteside's article gives one member's more detailed garden bird experiences, and Ray Baverstock's "At the Crossing" reflects his enjoyment of the environment.

The two articles by Louis Lane reminds us of importance of the culture of Australia's original inhabitants. Any proposal to develop a tourist facility at Bream Creek must take full account of the cultural and historical importance of the site.

Valda Dedman

GEELONG GARDEN BIRDWATCH 1987

Trevor Pescott

Summary:

The Geelong Garden Birdwatch (GGB) was held in bird-week between 18 and 25 October 1987.

Methods of counting varied from strictly-timed periods to casual observations spanning one day, several days or the full week, and the competance of the observers varied from novice to expert.

The two main objectives of the GGB were –
1. to encourage people in the Geelong region to take notice of garden birds and 2. to determine which bird species were most widely distributed and most plentiful.

In the former, the GGB was highly successful in that 163 lists from over 150 observers were received (several made lists at more than one locality).

The lists following summarise the most frequently recorded species, however it has not been possible because of the methods of counting, to assess species populations.

Replies to the questionnaire on the reverse side of the recording sheet have not been analysed at this time, however a comment about cats has been appended.

Many of the general remarks endorsed on the returned sheets have also been listed where they appear relevant to this summary.

I would extend thanks to all who took part in the GGB 1987, and look forward to their support when the next GGB takes place. And thanks to Priscilla for typing this summary.

Layout:

The 163 lists have been sorted into two groups. The first covers the urban (suburban if you prefer) areas of Geelong which are contiguous, with the exception of Leopold.

The second includes such residential communities as Lara, Ocean Grove, Torquay, Anglesea and Teesdale as well as rural and rural-residential areas. These have been grouped according to their

geographical position e.g., west of Geelong, north of Geelong.

Lists have been compiled for each suburb or area, and the number of times each has been recorded is shown.

There has not been any attempt made to summarize populations.

Species most frequently recorded.
Urban Geelong: 114 lists.

1 Blackbird 104 lists, 24 nests or young
2 House Sparrow 99 lists, 6 nests
3 New Holland Honeyeater 81 lists, 4 nests
4 Red Wattlebird 80 lists, 3 nests or young
5 Common Starling 78 lists, 6 nests
6 Spotted Turtle-dove 75 lists, 6 nests
7 Little Raven* 59 lists, 4 nests
8 Aust. Magpie 52 lists, 7 nests or young
9 Aust. Magpie-lark 50 lists, 1 nest
10 Silvereye 49 lists, 2 nests
11 Silver Gull 49 lists

Coastal, rural areas: 49 lists.

1 Aust. Magpie 43 lists, 6 nests or young
2 House Sparrow 35 lists, 5 nests
3 Red Wattlebird 34 lists, 1 nest
4 Common Starling 32 lists, 9 nests
5 Aust. Magpie-lark 29 lists, 1 nest
6 Blackbird 25 lists, 8 nests or young
7 Willie Wagtail 24 lists, 1 nest
8 Little Raven* 24 lists, 1 young
9 Welcome Swallow 23 lists, 2 nests
10 New Holland Honeyeater 23 lists, 1 nest

* Note: birds listed simply as raven, crow or black crow are included under Little Raven. It is possible some may be Australian Ravens.

Cats: Do you have a cat/cats:	Urban areas 35 Yes	79 No
	Coast/rural 15 Yes	30 No
Do your neighbours have a cat/cats:	Urban areas 80 Yes	31 No
	Coast/rural 21 Yes	21 No

Some comments are worthy of note:

About 3 or 4 weeks ago, heard a Pallid Cuckoo calling in the early morning. In the last weeks of winter, heard a Grey Butcherbird. Lots of Silvereyes when the fruit is about in late summer. (Margaret Higgs, Belmont)

The lopping of our manna gum has been a necessary evil, as branches died and became dangerous – but the diminished size and shelter has made our garden unattractive to birds. (Jean Lucas, Belmont)

White-plumed and New Holland Honeyeaters co-exist very well together, and with the wattlebirds. White-naped Honeyeaters visit each autumn. (Ruth Walters, Belmont)

Bird count in my garden very low this year. Usually many more Silvereyes and honeyeaters – food and water supply unchanged. (Val Moeller, Belmont)

New Holland Honeyeater often seen in summer feeding on Grevillea Robyn Gordon, but only rarely seen over winter. (Heather Leslie, Belmont)

The bird life appeared less than usual. Most of the native trees had finished flowering. Suggest another survey about February as the bird types are quite different then. (A.H. Brown, Belmont)

Over the last 10 years we have suffered an alarming reduction in the number of variety of birds in our garden. We used to have a large number of pardalotes and silvereyes, several varieties of honeyeaters, many more blackbirds, and for 2 years we had 3 pairs of blue wrens. In my opinion the reduction is mainly due to cats and crows. Hundreds of crows plunder the nests around here. Cats are continually on the prowl day and night, destroying nests and killing birds. (Norm Gilham, Belmont)

Less birds than earlier in the year. (Gordon McCarthy, Belmont)

Very few birds at present – perhaps because pet dog was absent for some weeks and neighbourhood cats (abundant) had free run. (Shirley Southcombe, Belmont)

A survey every year but at different times of the year (to) cover every season once every 4 years. When our green plum fruits in a couple of months, silvereyes come to the fore-front. It would also include migratory birds. (Steve and Tania Zuppin, Corio)

Four weeks ago there were more New Holland Honeyeaters and Red Wattlebirds. (Ray Stepehson, Corio)

New Holland Honeyeater, adult male had a deformed beak. He had grown two long soft beaks, just like hairs, to about half the length of his body. We first noticed him in October 1983, last seen November 1986. He raised 3 families (in) the summer 84-85, 3 families summer 85-86. He did not migrate during the winter months but lived on our bottles of sugar and water. (Meg Anderson, Corio)

Rose cuttings under low, dense shrubs discourage neighbour's cat from lying in wait for birds very effectively and cheaply. People seem to fear anything (i.e., tall trees, gums etc.) over 20 feet. (G. Larkins, Corio)

Since July there has been a thrush singing in the large garden of a neighbour. Since 10th October it has been silent. My fear is that it has been poisoned by snailbait. (Pieter Terpstra, Drumcondra)

Several native birds which frequently visit the garden were not seen this week. (M. Martin, East Geelong)

I've noticed that the birds never go to the tall trees when it's windy. They choose to line up along the fence instead. It was just by chance that today I caught a glimpse of the rosellas. They only come every few months and they don't stay very long. They seem to feed and then leave. (Simone Greve, East Geelong)

Blackbirds are a pest in the garden in late summer, as many as 12 at a time scratching out plants. (L. Vincent, East Geelong)

Not seen – Magpies. Had families around regularly, even hand-fed them in 1985, but they have left the area completely this year. Also not seen for several years – Eastern Spinebill and White-plumed Honeyeaters. These birds were quite frequent until about 2-3 years ago. Large flock of Galahs occasionally roost in tall gums in the neighbourhood. Fairly common, but sporadic visitor is King Parrot (about 3 or 4). (Colin Giles, Grovedale)

When we came to this (5 acre) block 2 years ago there was not a tree or bush on it. We have planted over 400, all Australian, and now with some of them blooming, the different birds that come in are lovely to watch. (Nola Rooke, Lara)

Have seen one cat last week in (the grounds of the Little River) cemetary, and observed cats' paw marks there in winter many times. All cats, except registered breeders, should be neutered. We have destroyed many feral cats during the last 10 years. (Marie Martyn, Little River)

Our cats *very* rarely manage to catch any (birds). Most (we have 5) are too old and the younger ones too lazy. If they do, they are (and so are we) very surprised and well chastised. (G. Martin, Queenscliff)

We have two cats (unfortunately) but they are excellent rat-catchers and they are a necessary evil out there. I must admit they have not seemed to bother the birds as much as I had expected. For the 12 months we have been here I have only seen one baby swallow (it fell from its nest) and one robin being taken so far. The robin was being very cheeky and annoying the cat and it was probably its own fault as the cat didn't seem all that interested anyway. (Adam Wilson, Stonehaven)

Blackbirds seem to be on the increase. They are now seen in the bushland around our property. Since Ash Wednesday (1983), the sparrow flocks have been absent, just small numbers. (Julie Oataway, Bambra)

We have a blackbird nesting in our fernery for the fourth year running; this is her second hatching this year, her other four young left 3/4 weeks ago. This time she had 5 eggs, today 4 babies hatched. Previous years their nest has been hidden away in ivy, this year their nest is out in the open in a birds-nest fern on a brick wall. (Aaron Casperson, Grovedale)

The most popular plant with native birds is the Grevillea (var. Robyn Gordon). It is a variety engineered to bloom all year (and) is much favoured by the honeyeaters and wattlebirds. It is a feeding station all year round. Our two Virgilias are also very popular as food for the parrots, and a roosting place for most of the other birds. (Patricia Smith, Grovedale)

We usually have a group of approximately 20 New Holland Honeyeaters and a similar size group of silvereyes visit the garden and feed in the native shrubs every day but unfortunately this week they were conspicuous by their absence. (Ken McKeown, Newtown)

We have been fascinated over the years by the increase in native birds at various times during the year – they have increased since the bushes etc., have become more established. New Holland Honeyeaters were never seen 5 years ago. The gum tree has been a great attraction for birds passing through, i.e., lorikeets are only here when it's in flower. (Margaret Rentland, Norlane)

Neighbours have large higher-than-rooftop trees in which magpies roost and blackbirds nest. (P. McCormick, North Geelong)

Since the crows appeared about 2 months ago, the number of other birds seems to have lessened. Doves were nesting in the lillipilli tree until the crows upset their eggs from the nest.

We usually have silvereyes feeding from the nectar bottle but they have not appeared as yet this season. Other birds we have had in our garden (not seen this week) are magpies, mudlarks and Willie Wagtails. (K. Hill, Geelong West)

Sparrows – nesting, also feed at bird table and look for spiders in cracks and insects on shrubs. (Margaret Higgs, Belmont)

Many visitors at other times including magpie, Crimson Rosella, Purple-crowned and Rainbow Lorikeets, Galah, Grey Fantail, Golden and Horsfield Bronze-cuckoos, and Striated Pardalote, while pelicans, swans, cormorants and plovers fly over. (L. Vincent, East Geelong)

Always a number of sea gulls flying around looking for easy food i.e., bread. Think they live on the dam below St. Augustines. They respect anything bigger than themselves e.g. magpies and ravens. Re magpies – in 1983 we had almost 2 dozen until someone in the area poisoned most of them. Also neighbours cut down some established trees and we don't see as many these days. They were quite tame. (Prue McCarthy, Highton)

TV aerial is a commmon perching spot for ravens, magpies, wattlebirds, magpie-larks and blackbirds. Gang-gangs have been lovely despite the mess they make dropping gum-tips, but they have just about gone now. (A. Davey, Newtown)

This is a heavily treed part of Newtown with many flowering gardens. We also have fruit trees that attract e.g. Silvereyes in droves. Our cat does catch the odd bird but does not exact a heavy toll. There are 5 cats in the immediate vicinity, also wild ones nearby. (Perry, Newtown)

Why is the survey restricted to just one week? Other types of birds are visitors at other times e.g., duck, snipe, quail, rosellas, thornbills and others. (M. Taylor, Fyansford)

Waterbirds, common on this property since 1980, have probably disappeared due to draining of reservoir 1 km south. (P. Gavens, Waurn Ponds)

Would like the same project at a different time of the year to compare notes. (Q. Wootten, Ocean Grove)

Cats (3) used to rule this garden but we are now trying to attract birds. We have very few flowering plants as yet, although the "black pea" climbing vine is popular with the wattlebirds, and seed etc, very popular with the sparrows. (Bronwyn Kelly, Ocean Grove)

I have noticed in the last few months a lot more black crows, after the wattlebird nests. (Caroline Kiss, Ocean Grove)

As the garden develops we hope to attract more birds and of different varieties. Presently they vary in dominance from Noisy Miners to a family of ravens and, some weeks ago, many currawongs. (Michael Metzger, Ocean Grove)

Was surprised to encounter such a few species (especially no sparrows!). Wrong time of the season? (P. Quinn, Clifton Springs)

At this time of the year we generally have a few Gang-gangs feeding on the Cootamundra seed-pods, though we've seen very few this season. We have also had pardalotes in the past looking for ground level banks for nesting, but since the neighbours have acquired a cat, I've hardly seen them. (Mark Smith, Anglesea).

New Holland Honeyeater. No. 3 on the urban lists. Photo Trevor Pescott.

During July-September, up to 17 Crimson Rosellas at one time in the neigbour's gums. (Robert Trott, Hamlyn Heights)

The birds are attracted to a quiet, fairly protected back garden. We have a shallow bird bath at ground level and the water is changed daily – the birds are particularly grateful for this, especially in prolonged dry spells. (Prue McCarthy, Highton).

I have noticed during the last 3 weeks, the wattlebirds and honeyeaters are not using my feeder– I presume they are feeding on blossom elsewhere. (Alan Tarr, Highton)

Some of the birds of the previous week were absent e.g., Spotted Pardalote, Grey Butcherbird, Pied Currawong. (Valda Dedman, Highton)

Raven noticed eating a goldfish taken from the garden pond – the fish was a bit frail and ventured too close to the shallow edge. (Roy Whiteside, Highton)

Disappointed in the count – normally see lots more varieties, some just passing through. Later observation – sparrows clinging to rough brickwork of house, cleaning up insects from cobwebs and starlings pulling dead leaves off Jacaranda for nesting material. (L. Sherwood, Highton)

Over the last 12 years that we have been in Leopold, native birds appear to be increasing marginally (about 50%-60%) e.g., New Holland Honeyeaters more prevalent. Although not spotted during this week, the following birds are frequent visitors to our garden – New Holland Honeyeaters (up to 8 at once), Mudlarks, Willie Wagtail. A baby Pallid Cuckoo once rested in a tree for about ½ hour, Crimson Rosellas sometimes land in the top of the gums, and plovers often fly over in the evening. Next door cats are often in our yard with various birds killed over the years. (A. Jennings, Leopold)

This (list) is NOT a true indication of the types of birds that visit this garden. We nearly always have White-plumed Honeyeaters (up to 6 or 7 most times during the year) also Spiny-cheeked Honeyeater (sometimes 3 or 4), Willie Wagtails sometimes drop in. For some years we had many silvereyes visit us, but for some reason we have not sighted them except 1 or 2 for the last 3 years. (P. Gibbs, Leopold)

Cats should have a bell around their necks to warn birds. I would encourage everyone to 'go native', but especially to plant some tall native trees over 6 m high (where they won't interfere with overhead wires, neighbours or buildings). We also see Galahs and Noisy Miners at times. (Joanne Heattie, Leopold)

Very few native birds compared to other days. Usually a lot more honeyeaters, wattlebirds and plovers. Often have a nest or two of Willie Wagtails. (Jamie Watson, Newcomb)

I think bird-baths are probably most important to the birds. (Theo Trickett, Newtown)

When I was growing up in the early 1930's there were goldfinches by the hundreds in Newtown and all around Geelong. Now I have not seen one for years (but) they always nested in our apple trees. In Eastern Park in the 30's they were plentiful. You will not see one now. I blame the Council with their weed sprays for killing them off. (Paul O'Halloran, Newtown)

Do we still have goldfinches? They used to be very common, but I've not seen them for years. (Other birds seen recently) Gang-gangs and silvereyes, and there are usually starlings around the blackbirds cleaning out the spouting and drains. (M. Henderson, Newtown)

	Bell Post Hill	Belmont	Corio	Drumcondra	East Geelong	Geelong	Grovedale	Hamlyn Heights	Herne Hill	Highton	Leopold	Newcomb	Newtown	Norlane	North Geelong	West Geelong	Whittington
No. of Lists	2	20	11	2	10	1	5	4	3	19	7	5	16	4	2	2	1
Australian Pelican		2	1						1	2		2	1				
Little Pied Cormorant					2												
White-faced Heron		1										1					
Sacred Ibis		4	4		5			1		5	4		4			1	1
Straw-necked Ibis		3	4		4		1	1	3	6	5	1	2				1
Black Swan		1			1												
"Hawk" (unidentified)					1					1							
Silver Gull	1	8	3		7	1		3	3	5	2	4	8	1	1	2	
Spotted Turtle-dove	1	13	8	2	5	1	3	2	3	13	2	4	11	3	2	1	1
Gang-gang Cockatoo										2			2				
Galah		1								3			3				
Sulphur-crested Cockatoo					1					1			2				
Rainbow Lorikeet		2								3			3				
Musk Lorikeet			1							1			1				
Purple-crowned Lorikeet		2								3			3				
Crimson Rosella									1	7			2				
Eastern Rosella		1								1	1						
Pallid Cuckoo		2															
Fan-tailed Cuckoo													1				
Shining Bronze-cuckoo		1															
Laughing Kookaburra													2				
Welcome Swallow	2	6	1				1	1	8	3		3	3	1			
Black-faced Cuckoo-shrike							1			1			1				
Blackbird	2	20	7	2	9	1	4	2	3	19	7	4	16	3	2	2	1
Song Thrush		4								3	1		4				
Golden Whistler													2				
Grey Fantail		1								2							
Willie Wagtail		3	5		2		1		3	6	2	1	3				
Superb Fairy-wren										1							
Brown Thornbill										1							
Yellow-rumped Thornbill												1					
Striated Thornbill										1							
Red Wattlebird	1	19	6	1	2		5	2	3	16	6	4	11	1	1	2	
Noisy Miner											1						
White-plumed Honeyeater		3	2	1	1			1	2	2	3		2				1

	Bell Post Hill	Belmont	Corio	Drumcondra	East Geelong	Geelong	Grovedale	Hamlyn Heights	Herne Hill	Highton	Leopold	Newcomb	Newtown	Norlane	North Geelong	West Geelong	Whittington
White-naped Honeyeater										1			1				
New Holland Honeyeater	2	18	5	2	5		4	2	3	13	4	4	13	3	2	1	
Eastern Spinebill						1							1				
Spotted Pardalote		4			1			1		4			1				
Striated Pardalote		1								2			3				
Silvereye	1	10	5	1	4	1	2	3	1	7		2	9	1	2		
European Goldfinch			1						1	1			3				
European Greenfinch		4	1		1					4	1		2				
House Sparrow	2	17	11	2	7	1	5	4	3	15	7	4	13	3	1	3	1
Tree Sparrow			2		4			1	1				3				
Common Starling	1	12	11	2	6		3	3	3	14	6	3	9	2		2	1
Common Mynah			4		1		2			1	4	1	2				
Aust. Magpie-lark	1	8	6	1	3	1	2		3	8	5		10		1		1
Grey Bitcherbird										1	1						
Australian Magpie	1	10	4				3	4	2	14	6		7	1			
Pied Currawong													1				
Australian Raven										1							
Little Raven	1	7	8		2	1	1	3	3	14	3		12	1	1	1	1

Silvereye. Common visitor to suburban gardens, where it often nests.

Photo Gordon McCarthy.

SUBURB	No. of Lists	No. of Species	(a) Most frequently recorded (b) Unusual species or unexpectedly low no. of sightings
Bell Post Hill	2	12 (a)	Wel. Swallow 2/2, Blackbird 2/2, New Holland Honeyeater 2/2, House Sparrow 2/2
		(b)	Nil
Belmont	20	30 (a)	Blackbird 20/20, Red Wattlebird 19/20, New Holland Honeyeater 18/20, House Sparrow 17/20
		(b)	Galah 1/20, Rainbow Lorikeet 2/20, Willie Wagtail 3/20, White-plumed Honeyeater 3/20, Shining Bronze-cuckoo 1/20, Pallid Cuckoo 2/20
Corio	11	24 (a)	House Sparrow 11/11, Starling 11/11, Spotted Turtle-dove 8/11, Blackbird 7/11
		(b)	Welcome Swallow 1/11
Drumcondra	2	9 (a)	Spotted Turtle-dove 2/2, Blackbird 2/2, New Holland Honeyeater 2/2, House Sparrow 2/2, Starling 2/2
		(b)	No Silver Gulls!
East Geelong	10	22 (a)	Blackbird 9/10, Silver Gull 7/10, House Sparrow 7/10, Starling 6/10
		(b)	Red Wattlebird 2/10, Tree Sparrow 4/10 No Magpies!
Geelong	1	8 (a)	Nil
		(b)	White-plumed Honeyeater 1/1
Grovedale	5	14 (a)	Red Wattlebird 5/5, House Sparrow 5/5, Blackbird 4/5, New Holland Honeyeater 4/5
		(b)	Black-faced Cuckoo-shrike 1/5
Hamlyn Heights	4	16 (a)	House Sparrow 4/4, Magpie 4/4, Silver Gull 3/4, Silvereye 3/4, Raven 3/4
		(b)	Nil
Herne Hill	3	19 (a)	Straw-necked Ibis 3/3, Silver Gull 3/3, Spotted Turtle-dove 3/3, Blackbird 3/3, Willie Wagtail 3/3, Red Wattlebird 3/3, New Holland Honeyeater 3/3, House Sparrow 3/3, Starling 3/3, Magpielark 3/3, Raven 3/3
		(b)	Crimson Rosella 1/3
Highton	19	40 (a)	Blackbird 19/19, Red Wattlebird 16/19, House Sparrow 15/19, Magpie 15/19
		(b)	Superb Fairy Wren 1/19, Brown Thornbill 1/19, Striated Thornbill 1/19, White-naped Honeyeater 1/19, Grey Butcherbird 1/19, Aust. Raven 1/19
Leopold	7	21 (a)	Blackbird 7/7, House Sparrow 7/7, Red Wattlebird 6/7, Starling 6/7, Magpie 6/7
		(b)	Sacred Ibis 4/7, Straw-necked Ibis 5/7, Noisy Miner 1/7, Common Mynah 4/7, Grey Butcherbird 1/7
Newcomb	5	16 (a)	Silver Gull 4/5, Spotted Turtle-dove 4/5, Blackbird 4/5, Red Wattlebird 4/5, New Holland Honeyeater 4/5, House Sparrow 4/5
		(b)	Yellow-rumped Thornbill 1/5

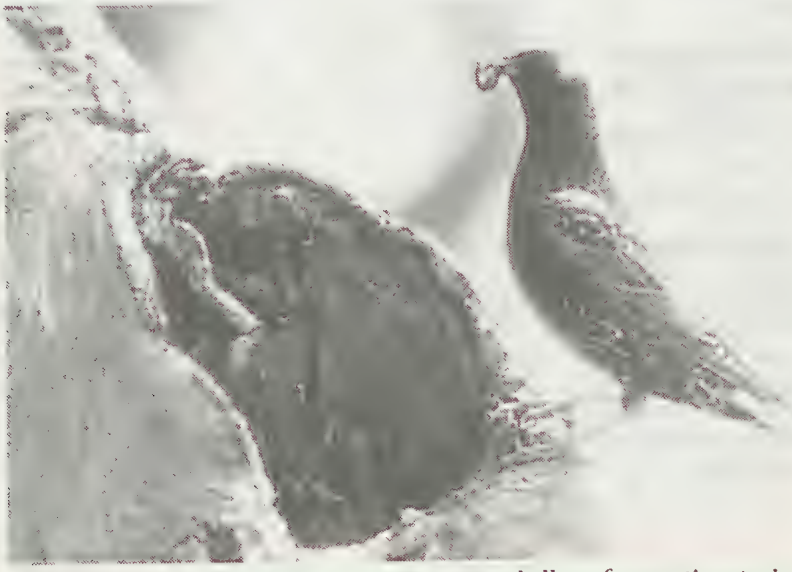
Newtown	16	40 (a)	Blackbird 16/16, New Holland Honeyeater 13/16, House Sparrow 13/16, Raven 12/16
		(b)	Song Thrush 4/16, Golden Whistler 2/16, White-naped Honeyeate 1/16, Eastern Spinebill 1/16, Pied Currawong 1/16
Norlane	4	10 (a)	Spotted Turtle-dove 3/4, Blackbird 3/4, New Holland Honeyeater 3/4, House Sparrow 3/4
		(b)	Nil
North Geelong	2	10 (a)	Spotted Turtle-dove 2/2, Blackbird 2/2, New Holland Honeyeater 2/2, Silvereye 2/2
		(b)	Nil
West Geelong	2	9 (a)	Silver Gull 2/2, Blackbird 2/2, Red Wattlebird 2/2, House Sparrow 2/2, Starling 2/2
		(b)	Nil
Whittington	1	9 (a)	Nil
		(b)	White-plumed Honeyeater 1/1

Red Wattlebird at nectar feeding-bottle. Common in all areas. Photo Trevor Pescott.

	West of Geelong	South West	West Coast	Ocean Grove	Bellarine Peninsular	North of Geelong	Waurn Ponds
No. of Lists	**6**	**4**	**8**	**8**	**11**	**10**	**2**
Australian Grebe							1
Australian Pelican					2		
"Cormorant" (unidentified)					1		
Little Black Cormorant			1				
Pacific Heron					1		
White-faced Heron		1	1		4	2	1
Cattle Egret	1						
Great Egret		1					
Sacred Ibis	1	3		1	2	1	2
Straw-necked Ibis	1	3	1		2	4	
Yellow-billed Spoonbill		1					
Black Swan			1	1			
Pacific Black Duck	1	1					
Mallard					1		
"Hawk" (unidentified)			1			1	
Black-shouldered Kite						1	
Whistling Kite					2		
Collared Sparrowhawk					1		
Wedge-tailed Eagle		2					
"Eagle" (unidentified)						1	
Marsh Harrier		2					
Brown Falcon	1				2		
Australian Kestrel	1					1	
Painted Button-quail		1					
Dusky Moorhen		1					
Masked Lapwing	1	1	1	1	2	2	
Silver Gull		1	1	3	3	2	
Feral Pigeon						1	
Spotted Turtle-dove	2		2	3	5	1	
Gang-gang Cockatoo			1				
Galah	5	1	1	4	4	2	1
Long-billed Corella	1						
Sulphur-crested Cockatoo	2	2	2	2			
Rainbow Lorikeet				2			
Musk Lorikeet			1				
Purple-crowned Lorikeet		1				1	
Australian King-parrot		1	2				
Crimson Rosella	1	1	4	2	2		
Eastern Rosella	3	1		5	2		
Red-rumped Parrot	4	1			1		
Pallid Cuckoo	1		1				

	West of Geelong	South West	West Coast	Ocean Grove	Bellarine Peninsular	North of Geelong	Waurn Ponds
Fan-tailed Cuckoo			1				
Horsfield's Bronze-cuckoo		1	1				
Shining Bronze-cuckoo		1					
Southern Boobook	1	2		1			
Tawny Frogmouth				1	1		
Laughing Kookaburra	2	1	2	1	1		
Sacred Kingfisher		1					
Skylark	3	2			1	1	
Welcome Swallow	4	3	6	2	3	3	2
Fairy Martin	1					1	
Richard's Pipit	1				1	1	
Black-faced Cuckoo-shrike		2	2		1	1	
White-winged Triller		1					
Blackbird	2	4	5	3	7	3	1
"Robin" (unidentified)					1		
Golden Whistler	1	1	1		1		
Rufous Whistler		1			1	1	
Grey Thrush	1	3	3			1	
Restless Flycatcher		1					
Grey Fantail		1	1	1	2		
Willie Wagtail	4	3	2	3	7	3	2
Clamorous Reed-warbler							1
Golden Headed Cisticola			1				
Superb Fairy-wren	3	2	1	1	5	2	
White-browed Scrubwren		1					
Brown Thornbill					1		
Yellow-rumped Thornbill		1	1		1	2	
Striated Thornbill		1					
White-throated Treecreeper			1				
Red Wattlebird	3	3	5	8	10	5	
Little Wattlebird		1		1			
Spiny-cheeked Honeyeater				2	1	1	
Noisy Miner	1			2	1		
White-plumed Honeyeater	3	2		2		3	1
White-naped Honeyeater		1	1				
New Holland Honeyeater	2	3	4	2	7	4	1
Eastern Spinebill		1	2	1			

	West of Geelong	South West	West Coast	Ocean Grove	Bellarine Peninsular	North of Geelong	Waurn Ponds
Spotted Pardalote	1	2	2				
Striated Pardalote	1	2	2				
Silvereye			1		2	2	1
European Goldfinch	3	4	1			4	1
European Greenfinch		1	1		1	1	
House Sparrow	5	3	5	4	9	9	
Red-browed Firetail	1		1	1			
Common Starling	4	2	4	5	8	8	1
Common Mynah				1	1	1	1
Satin Bowerbird		1					
Australian Magpie-lark	4	3	4	3	7	7	1
Masked Woodswallow				1			
Dusky Woodswallow		1		1			
Grey Butcherbird		1	1	1	4	1	
Australian Magpie	4	4	6	8	11	8	2
Pied Currawong			4				
Grey Currawong				3			
Australian Raven		1					
Little Raven	4	1	2	4	5	7	1



The introduced Starling will take over tree hollows from native species.

AREA	No. of Lists	No. of Species	(a) Most Frequently recorded species. (b) Unusual species or unexpectedly low No. of sightings. Habitat, comments.
West of Geelong (Pollocksford, Inverleigh, Teesdale, Stonehaven, Fyansford)	6	38	(a) Galah 5/6, House Sparrow 5/6 (b) Red Wattlebird 3/6 Skylark 3/6 Blackbird 2/6 (only 5 individuals) Long-billed Corella, Cattle Egret (only sighting), Southern Boobook, birds of prey (Brown Falcon, Kestrel) (c) Predominantly open country
South-west of Geelong (Waurn Ponds, Moriac, Winchelsea, Bambra)	6	59	(a) Aust. Magpie 6/6 (50 individuals in one location), Blackbird 5/6, Welcome Swallow 5/6, Willie Wagtail 5/6, Goldfinch 5/6, Ibis (large nos), House Sparrow (only 3/6 but 90 + birds) (b) Unusual Species included Aust. Grebe and Reed Warbler (both Deakin Uni.), Wedge-tailed Eagle, Marsh Harrier, White-winged Triller, Satin Bowerbird, King Parrot, Grey Butcherbird, Painted Quail, Southern Boo-book 2/6 (c) Several experienced observers, Otways influence
West Coast (Torquay, Jan Juc, Anglesea, Moggs Creek)	8	45	(a) Aust. Magpie 6/8, Welcome Swallow 6/8, Red Wattlebird 5/8, Blackbird 5/8 (b) King Parrot 2/8, Eastern Spinebill 2/8, Sacred Kingfisher 1/8, Grey Butcherbird 1/8 (Torquay), Gang-gang 1/8, Silver Gull only 1/8 (c) Coastal towns
Ocean Grove	8	36	(a) Red Wattlebird 8/8 (high no.'s of individuals), Aust. Magpie 8/8, Eastern Rosella 5/8, Starling 5/8 (b) House Sparrow 4/8 (but new individuals), Blackbird 3/8, Grey Currawong 3/8, Spiny-cheeked Honeyeater 2/8, Tawny Frog-mouth 1/8 (c) Ocean Grove township

Bellarine Peninsular (Curlewis, Drysdale, Mannerim, Bellarine, Clifton Springs, Pt. Lonsdale, Queenscliff, Portarlington)	11	46	(a) Aust. Magpie 11/11, Red Wattlebird 10/11, House Sparrow 9/11, Starling 8/11, Blackbird 7/11, Willie Wagtail 7/11, Magpielark 7/11, New Holland Honeyeater 7/11 (b) Pacific Heron, Red-rumped Parrot, Tawny Frogmouth, Spiny-cheeked Honeyeater, Whistling Kite, Brown Falcon, Collared Sparrowhawk (c) Mixed habitats from agricultural to suburban gardens
North of Geelong (Corio Grammar School, Lara, Little River)	10	36	(a) House Sparrow 9/10, Starling 8/10, Aust. Magpie 8/10, Raven ("Crow") 7/10 (b) Red Wattlebird 5/10, Blackbird 3/10, Silvereye 2/10, Common Mynah (one bird only), Spiny-cheeked Honeyeater, Black-shouldered Kite, Aust. Kestrel and "eagle" (c) 7/10 lists were from non-suburban areas, i.e., farms etc., hence raptores, lack of Blackbirds

Mystery Photograph No. 2 Trevor Pescott.

A Case Of Mistaken Identity

Roy Whiteside

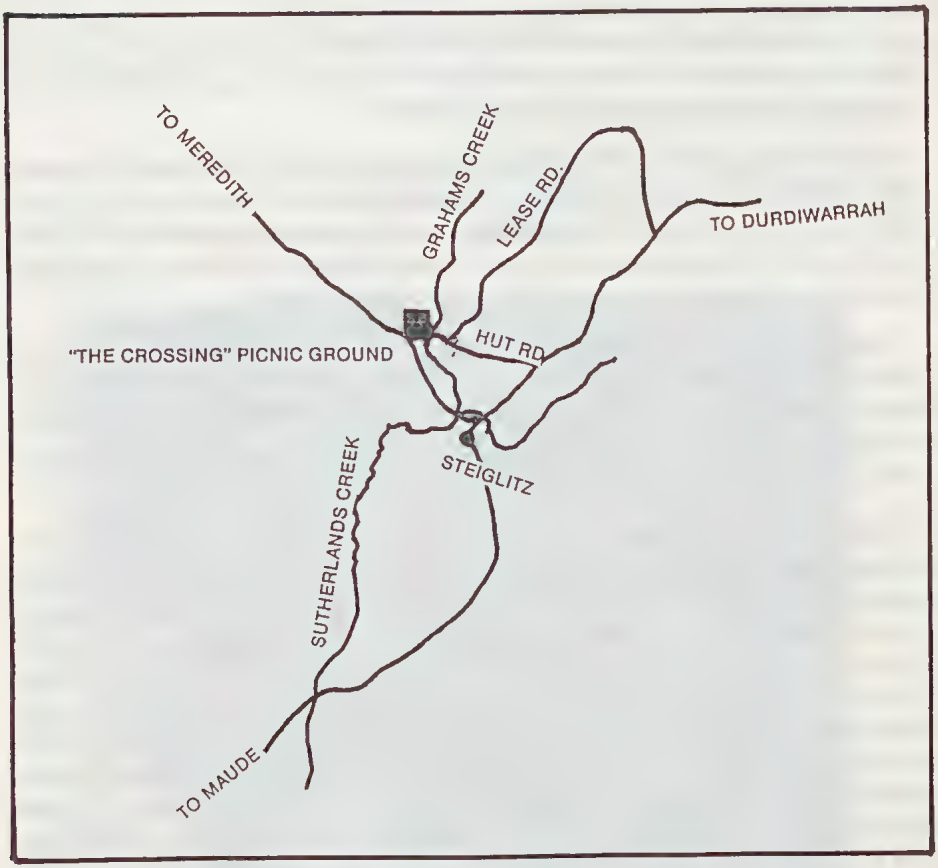
Following the observation of a male Rose Robin in a Highton garden in Sept. 1987 reported in the Nov. 1987 edition of the Geelong Naturalist, I observed a female (or immature) of the same species on Sun. 13 March 1988 which stayed for several hours. The identification of this bird was certain as it had the characteristic white on the sides and tip of the tail. The observations were made both through binoculars and with the naked eye at quite close quarters. The habits of this bird were virtually identical to those of the male of the same species seen 6 months before.

On Sat. March 26 I met an ornithologist from Swindon, England, Ken Beint, who was staying at a neighbour's house and he was anxious to see as many Australian birds as possible during his three week visit. I arranged to tell him if I saw the Rose Robin again so that he could observe it and add it to his species list.

On Mon. 28 March I observed (as I thought) a female or immature Rose Robin early in the morning, and Ken came to try to observe the bird but it had disappeared in the meantime. Ken was however able to see an immature Golden Whistler which I had been observing over the previous month.

On Tuesday 5 April "the bird" appeared again, and this time it stayed long enough for Ken to add "a female or immature Rose Robin" to his list of observations. At the club's AGM that evening I reported my observations had been correct as recent sightings of Pink Robins had been made in the Highton area. I was adamant at that meeting that my observations had been correct. On returning home I then started to have my doubts about my observations on 28 March and 5 April as these had been done without paying too much attention to detail and (for me) without the aid of binoculars. On the morning of 6 April a robin appeared again and I was able to confirm the sighting of a female or immature Pink Robin as that bird did not have the white tail markings characteristic of the Rose Robin. Unfortunately Ken had left to return for England that morning so I am asking him to correct his list of bird observations in Australia.

The Rose Robin observation of 13 March was definite but the other observations on 28/29 March were uncertain and the ones of the Pink Robin of 6/7 April were definite. The lesson I have learnt from the observations is to pay particular attention to the fine details when observing small brown birds!



Locality Map – "At the Crossing"

Roy Whiteside
2 Aringa Avenue,
Highton, 3216.

AT THE CROSSING

by Ray Baverstock

One of my favourite places is "The Crossing" Picnic Ground, which lies within the Steiglitz Historic Park.

The picnic ground is near the junction of Hut Road and Lease Road. Grahams Creek runs alongside, and another creek runs in from the east. Barbeques and tables are provided, but there are no toilet facilities. Even though the area is small, there is ample room for children to play, and even, half way up the hill, a small cave, which appears to have been formed within a large rock. If possible you should visit on a week day when you are likely to have the place to yourself.

"The Crossing" may be reached by travelling through Steiglitz on to the Durdiwarrah Road and turning left into Hut Road at the top of the hill. At the bottom of Hut Road you turn left over a concrete ford into the picnic ground. The road at the northern end leads out on to the main Steiglitz-Meredith Road; it is rough and narrow and care is needed in negotiating it.

Lease Road is also narrow at first and takes you through some unusual savannah grassland, dotted with numerous small acacias, and quite unlike the usual Brisbane Ranges habitat. It then passes through woodland, and eventually comes out on the Durdiwarrah Road. The savannah is not very good for birdwatching but kangaroos are often seen there.

Each time I have been to the picnic ground there has been water in the larger pools; however on my last visit, which followed an unusually dry autumn, these pools had almost dried up. Walking tracks follow Grahams Creek in both directions. If you walk upstream you cross the creek and can see vertical beds of slate in the creek bed. Other rocks have quartz veins embedded in them, sometimes forming unusual patterns. So far I have not been able to detect gold in them. Between Lease Road and the creek there is evidence that the ground was worked over many years ago in the search for gold. Unfortunately a mining company is now proposing to search for gold in the Steiglitz area.

A walk up Lease Road is rewarding. On several occasions my wife and I have observed up to six koalas in the trees. Flocks of feral sheep have also been seen.

In the picnic ground itself there are usually Superb Fairy-wrens hopping about, as well as Red-browed Firetails. On our first visit there was the largest concentration of White-naped Honeyeaters I have ever seen in the Geelong area. One time we saw a White-naped Honeyeater sitting on its nest suspended in a shrub right beside the upstream track. On another occasion a Little Pied Cormorant was disturbed from a large pool downstream. Other memorable sightings include a female Satin Flycatcher and the best view I have ever had of a pair of Striated Pardalotes.

Although walks up and downstream are interesting, it is usually more profitable to remain in the picnic ground and let the birds come to you. Most of our visits have been made during autumn, and visits between 19/5/84 and 27/4/88 have resulted in the following observations:

Birds

Little Pied Cormorant, Brown Goshawk, Common Bronzwing, Galah, Crimson Rosella, Eastern Rosella, Fan-tailed Cuckoo, Shining Bronze-cuckoo, White-throated Needletail, Laughing Kookaburra, Sacred Kingfisher, Black-faced Cuckoo-shrike, Scarlet Robin, Eastern Yellow Robin, Crested Shrike-tit, Golden Whistler, Grey Shrike-thrush, Satin Flycatcher, Restless Flycatcher, Grey Fantail, Willie Wagtail, Superb Fairy-wren, Brown Thornbill, Buff-rumped Thornbill, Yellow Thornbill, Varied Sittella, White-throated Treecreeper, Brown Treecreeper, Red Wattlebird, Yellow-faced Honeyeater, White-eared Honeyeater, White-plumed Honeyeater, White-naped Honeyeater, New Holland Honeyeater, Spotted Pardalote, Striated Pardalote, Silvereye, European Goldfinch, Red-browed Firetail, White-winged Chough, Dusky Woodswallow, Australian Magpie, Grey Currawong, Australian Raven, Little Raven, Welcome Swallow.

Mammals

Koala, Eastern Grey Kangaroo, Feral Sheep.

Ray Baverstock
13 Helena Street,
Highton, 3216.

Notes on the extensive kitchen-middens near Bream Creek outlet adjacent to Buckley's Well at Karaaf – a traditional camping-station near Point Impossible, Victoria

by Louis Lane

Where the estuary of Thompson's Creek (known locally as Bream Creek) finally meets the sea, 446.746. ANGLESEA (7721/2) Series R752.Ed 2. (Sheet No. 866, Zone 7) the river passes through a gap in an off-shore reef.

During the last three (3) kilometres of the stream's westerly flow, it meanders through an extensive swampy area which stretches for five (5) Km behind the fore-dunes.

The marsh is one and a half (1.5) kil. at its maximum and less than four-fifths (.8) Km wide opposite the river-mouth.

About 0.8 Km N.W. of Point Impossible, an easterly-flowing tributary joins Bream Creek at its last elbow, draining the western section of the swamp-basin.

Between this tributary and Point Impossible, separating the estuary from the edge of the swamp is a series of low humps and shallow blowouts – some as deep as the bedrock of calcarenite.

The blowouts contain several black residuals of cooking-mounds, revealing that this must have been a favourite camping-place over many decades (if not centuries).

It would, certainly, have been a favourable place to camp, sheltered as it is, from the S.W. cold winds and the Easterly blustering winds by dunes rising from eight (8) to fifteen (15) metres on either side of the outlet.

The tributary from the marsh may have carried potable water. In adddition, there was a sand-filter-well near the place where William Buckley (the Wild White Man) built his "fishing-hut" which provided his semi-permanent dwelling place.

It seems – reading between the lines of Morgan's biography – that Buckley spent a good portion of his life in Bengali Territory living by himself at Karaaf.

For some of the time he was host to two Aboriginal children belonging to the Bengali Horde; or, alternatively, he was occasionally accompanied by an Aboriginal woman introduced by his infrequent tribal visitors. The females mentioned (though their names are conspicuous by their absence) dwelt with Murrungurk, "the Spectre", awhile but were eventually taken back, not unwillingly, into normal tribal life.

When the sea mullet (Mugil cephalus) were running in the estuary, Buckley constructed a fixed kiddle to harvest the fish and practised drying the excess food for storage. He states that clansmen who visited his hut upon occasion were intrigued with his set fish-trap and were very glad to feast upon his harvest; yet he went on to say they made their way to the sea to spear fish in the surf. This is positive documentation of the fact that fish were readily available in and about the estuary of Bream Creek and along the nearby beach. It is safe to assume that the dwellers at Karaaf often dined off finny-fish. Meanwhile, the litter of shells in the blowouts bears undeniable testimony to the myriad meals made on shellfish obtained from the adjacent, off shore, basalt reefs.

Buckley told his biographer that there were a-plenty of edible roots to be found around the margins of the interdunal lake e.g. bulrushes and marshmallows, as well as the ubiquitous murnong (yam daisy) "the size, shape and taste of a radish" (when in season), and reiterated the permanent availability of an abundance of sea-food and roots in the locality whenever he resided in his "solitary abode – near the bend of the river where it branches off".

From his dwelling place, he had "a long vista over the plains and from his doorway a view out to sea".

The swamp is still habitat to water-fowl – swans, ducks, coots and sandpipers, as well as chats, reed warblers and herons. Their eggs, as well as their carcasses, would have also been a rich, seasonal source of protein.

The hinterland, the low dunes on the far side of the marsh, previously supported scrubby vegetation including tea-tree, acacias, banksias and boobiallas with sparse clumps of eucalyptus woodland which would have afforded habitat to the birds and animals native to the district.

In regard to this matter, Buckley stated that kangaroo were available in the hinder dunes and that he regretted having no dingo-dog to help him hunt them, though he heard dingoes howling at night. He awaited until some clansfolk came and erected shelters so that they might dwell awhile. A kangaroo-hunt was organized and the hunters also dug out a wombat and caught a possum.

The women harvested quantities of nourishing gum from the acacias near Lake Murtnaghurt and some tasty grubs (from eucalypts, and perhaps, the twiggy lignum, which grew there).

According to Buckley there were several filter-wells at Maamaart. A filter-well was a purifying-device, a round "well" habitually excavated by tribe people near salt or brackis water to remove or reduce the salinity by filtration. Sometimes, the shaft was lined with a woven mat of fine grass to further purify water for drinking.

This refinement of the filtering techniques was not recorded by Morgan and there is no way of telling if Buckley mentioned it or not. The digging of sand wells was probably women's work. There is reason to believe that Karaaf meant "long-grass" which may have been a reference to coastal spinifex.

But, Buckley made use of the long grasses to keep himself warm when he lay down to sleep after hanging his clothes to dry. This was in the earliest stage of his appearance in the district when he fled from the natives he saw at Fenwick by plunging into the Barwon estuary and swimming away from them, thus dowsing his fire-brand.

Buckley describes how he strengthened his hut, (providing himself at the same time with a chimney), with strong branches and roofed it with turf to make it weather proof.

The well near Thompson's Creek is 100 metres from the tributary stream and about the same distance from the bank of Thompson's Creek. There is no vestige of Buckley's house today (1988), of course, but the sand-well is still in existence.

It has been modified for modern use. The stock which are run on the property approach the water down a gentle ramp and the edge of the water-hole is protected by an iron railing.

Notes on the Aboriginal Living-sites among the fore-dunes near the debouchment of Thompson's Creek (known locally as Bream Creek) into Bass Strait, Victoria – adjacent to an off-shore reef at Point Impossible, Victoria

by Louis Lane

Point Impossible....448762 – 7721/2 Anglesea: Series R752. Ed. 2. No. 866 – Zone 7.

A gravel road to Point Impossible, running south of Bream Creek Road, skirts the ultimate curve of Bream Creek near its mouth after crossing an east-flowing tributary which (used to) drain water from an extensive interdunal lake which lies behind the fore-dunes. The access-road ends in a loop-terminus. Previously, a gravel road ran west-by-south to Torquay between the dunes and the lake. This road has now been blocked off, probably to prevent easy vehicular access to the "nude beach" from Breamlea, Bancoora, Barwon Heads, etc. Nature-lovers are obliged to approach this special beach from the Torquay end or to proceed on foot for about half a mile from the turnaround.

The fore-dunes commence near the turnaround-loop of Point Impossible Road, rising abruptly to eight (8) metres. This complex of dunes runs west-by-south for three (3) kilometres.

About halfway from the easterly end, the dune rises to fifteen(15) metres. The southerly margin along the strand is precipitous with piles of beach shingle at the foot of the cliff. Horizons of shell and lenses of black soil are visible on the cliff-face.

The summit of the dunes nearest the swamp is plateau-like with a flat "crust" of limey sand-stone-like material crowning the heights. Where this harder layer is eroded, it forms a precipitous sand cliff along a gully parallel to the general line of the dunes. From the seaward side, the dune is littered with a thick layer of root-concretions – the dune must have been covered, at some stage with woody vegetation. There is very sparse, low vegetation, including marram-grass, on the summit of the dune. Alternatively, a feature of the gully is the tall bushes of coastal everlasting (Helichrysum paralium).

Numerous camping-stations can be detected along the eroding slopes by residuals of burnt earth in a litter of reef-species shells and beach shingle. Many of the stones are a suitable shape to provide simple chopping-tools by striking off a few shards from one end or one side. Hundreds of the pebbles have been used as anvils. There are a few which show hammer attrition. Along the valley there were also a few scarce chipping-flakes of quartzite, chert and quartz.

About ½ mile from the eastern end of the dune (441754–7721/2–Sheet 886, Zone 7 – Series R752) APPROXIMATELY, the southerly winds have eroded the ridge nearest the beach. This gap is possibly where water formerly escaped from the gully to the sea. The material falling from the summit has been swept in a northerly direction into the gully leaving a rounded grume (hillock), the surface of which is strewn thickly with shells. There is ample evidence that many of these have been in a fire – calcined operculi, etc.

The vast majority of shells were Subninella undulata, Wavy Turbo.

On the hillock I collected:-
1 example of Policines sp. – Sand snails
1 example of Katelysia sp. – Cockles
1 example of Austrocochlea Sp. – Top shells (small)
2 examples of Notohaliotis ruber – Ear shells (Abalone)
1 Fragment of Scutus sp. – Elephant shells/Duckbills
1 *(only)* Patillanas – Scaley limpet
2 examples of Patilloida sp. – Tall limpets (?)
6 examples of Cellana sp. – *Many examples of these on the mound*
4 examples of Dicathais sp. – Dog-winkles (some burnt)
1 example of Dicathais Cuttle-fish gladius-spine (appeared calcined)
2 examples of Dicathais Land-snail shells (?)
1 example of Dicathais Sea-urchin "shell"
On the same scatter 1 chip red silcrete
2 chips milky quartz

Further towards the eastern end of the dune (travelling along the gully), the northerly sloping surface is littered with beach shingle and shells among which I collected:-
Milky quartz.....5 cores + 1 decortiflake
Silcrete (red & grey).....7 debitage
Flint (grey, fossiliferous).....5 debitage
Ferricrete.....1 buckshot pebble

Basalt (?).....1 waste-flake
Calcrete.....11 (eleven) artifacts as follows:

1 oyster-pick	number 1
2 pebble-choppers (unifacial)	2 & 3
3 pick-shaped anvil-stones (2 unifacially trimmed)	4, 5 & 6
1 hammer-stone (percussion-facet opposed to chopper-trimmed end)	7
1 lateral chopper (?) (unifacially trimmed)	8
1 convex scraper *(abrupt-trimmed)* opposed to a hammer-facet	9
1 cleaver *(abrupt-trimmed)*	10
1 muller (?) Amygdaloid pebble seems to be abraded on both sides	11

Description of two notable artifacts:-

Number 10 – *cleaver* is almost the same weight and size and shape as an abrupt-trimmed cobble-tool recovered at Apollo Bay in Katubanu: Territory, though the materials differ. Apollo Bay – Basalt/Pt. Impossible – Calcrete. No. 10 is weathered and the flake-scars are a little obscured.

L:	15.3 cm. (Point Impossible)	15.3 cm. (Apollo Bay)
W:	11.08 cm.	11.08 cm.
Th:	4.325 cm.	4.02 cm.
Weight:	.....1233.3 gr.	.....1105.6 gr

Number 9 – *scraper & hammer-stone* is a very neat, multipurpose tool found in the same general area where a dune has been blown out, sending a cascade of shells, shingle-pebbles and artifacts down a slope into the central gully. Much of the calcined earth appears to have been washed down the slope by water-action. Many heavy artifacts (many of a crude nature) were seen to be half-buried in the dark, limey wash at the foot of the slope.

L: 8.41cm
W: 6.35cm
Th: 2.78cm
Weight: .....2.81 gr.

Please note:- One coroid artifact of red-&-yellow silcrete was previously recovered there. One end was cleaver-shaped, the trimming abrupt. The opposite end, inverse-trimmed with shallower and longer spalls to a pointed end like a pick. The dimensions of this

remarkable implement are as follows:-
L: 16 cm
W: 13 cm
Th: 5.6 cm
Weight: .....1502.5 gr.

REFERENCE

Louis N. Lane
Barkly Street,
East Geelong.
Wedgers at work.
Morgan, John (1852). The life and adventures of William Buckley. Hobart, A. MacDougall.

Wedgie At Work

by Dianne Hughes

One morning recently, at about 7.30, I was feeding the lamb his bottle, when, suddenly, the birds alarm-called. Then there was complete silence, and a Wedge-tailed Eagle flew over from the direction of the Inverleigh Common. A large flock of Red-rumped Parrots feeding on the ground tried to disappear into the grass. The Wedge-tail glided down, took one parrot and flew off. There was total panic; Red-rumps took off in all directions.

Dianne Hughes
Kings Court,
Teesdale, 3328.

MYSTERY PHOTOGRAPH

What is it ..... a satellite picture of the countryside or a geological map gone wrong?

The photograph is of the wing of a Wood White Butterfly, a close-up but not into the microscopic detail that shows the detailed scale-structure of the insect.

Wood Whites are beautiful creatures with vivid red and yellow splotches of color set against black and white. Their larvae feed on mistletoe leaves.

They are not as common as the smaller Cabbage White and they are not subject to the same massive irruptions of the Caper White – never the less, they are often seen in the summer in Geelong.

The specimen in the photograph was found in Norlane early this year.

Wood White Butterfly. Photo Trevor Pescott.

SYLLABUS 1988

SEPTEMBER

6 General meeting. Tom Garnett. "National Parks of South West WA"
18 Bus trip to Blackwood. Leader: Valda Dedman. (Ph: 432374)
21 Committee meeting.

OCTOBER

4 General meeting. Bruce Knox. "Pollination".
15-16 Campout. Glenaire. Leader: Gordon McCarthy.
19 Committee meeting.
21-23 WFNCA Campout Warby Ranges (Wangaratta).
29-30 Boneseed eradication, You Yangs. Leader: Trevor Pescott. (Ph: 434368)
31 Evening excursion. Plant group, Anglesea. (Ph: 433916)

NOVEMBER

1 General meeting. Geoff Carr. "Weeds, a major crisis".
5 Half day excursion: Barwon River at Ceres. Leaders: Dick Southcombe & Rolf Baldwin. (Ph: 433916)
16 Committee meeting.
20 Excursion. Linton. Leaders: Barry Redman & Cecily Lawrie. (Ph: 435312)
29 Evening excursion. Plant Group, Inverleigh. (Ph: 433916)

DECEMBER

6 General meeting. Members Night. Estuarine ecology.

STATEMENT OF PURPOSES

1. To stimulate the study and appreciation of natural history by: (a) lectures, discussions and visits to areas displaying features of ecological interest
   (b) taking part in ecological surveys and field studies from time to time.
2. To preserve and protect Australian flora and fauna
3. To issue statements and comments on proposals regarding the management of areas of natural significance, so as to aid the conservation of natural resources and the protection of endangered species and habitats.
4. To faithfully record information, to disseminate knowledge on and to act as a source of information and opinion on matters relevant to the Association's purposes.

SUBSCRIPTION RATES

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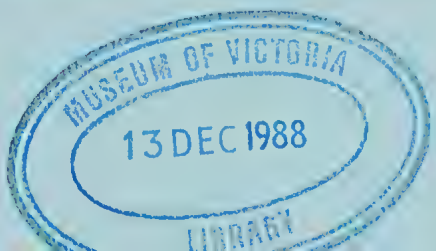

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Editorial

The most significant event for the Club over the past few months has been the construction of a bird hide at the Belmont Common Wildlife Reserve. Money for the project came from the City of South Barwon and the Club supplied the design and labour. The hide will be a great asset for bird watchers and photographers at the Common wetland. A public birdwatch was held there in Bird Week at the end of October to introduce the people of Geelong to the facility.

"Our" little wetland beside the road is only part of a potentially exciting wetland education area. Various wetland habitats could be developed and linked by walking tracks with interpretive material provided.

The Belmont Common is under threat from sports developers who would divert the river into a rowing course – straight sides, no vegetation for Reed Warblers or Little Grassbirds. The GFNC is currently producing a pamphlet about the Common to inform the wider community about its birds, plants and other creatures.

One of the most significant species which can be seen from August to March is Latham's Snipe. These birds like the rough grass adjoining wet areas. Internationally, the species is considered endangered. It breeds in Japan and is the subject of a treaty between that country and Australia. It is therefore important to preserve habitat required by the Snipe.

Valda Dedman

P.S. See p. 95 for a list of birds seen at Belmont Common during the public birdwatch and see p. 90 for a new regular feature.

"Bat, Bat, come under my hat"

by Louis N. Lane

The well-known canoe-tree on the tenth fairway of the Queen's Park Golf Links was recognized many years ago as a Eucalyptus camaldulensis from which the Wathaurung Indigenes had stripped a plaque of bark to provide themselves with dry transport over water. The tree was so labelled with a small noticeboard.

The shallow craft was, virtually, only an ellipsoid length of bark peeled off the cambium layer of the living wood, cured by setting the kino in the cortex after being heated over flames then moulded in an earthern pit to create a little more freeboard. It was, in effect, a bent-wood artifact.

The real success of the venture lay within the imagination of the manufactor, for he had to "see" the canoe in the curve of the trunk even before he commenced to strip it. Canoes needed to be stripped in spring or early summer when the sap was running, otherwise the plaque could not be slipped off.

The outline was "pinked" through the bark to the cambium layer with a chisel-ended yam-stick or a stone hatchet. The oval was battered all over with a hammer-stone or the butt of the hatchet to make it detach, then thin laths of wood were inserted between the cortex and the cambium layer. The bark was thereafter painstakingly prised from the glutinous living-surface. The tree did not bleed excessively from this wound as the bark had been crushed against the viscid surface where it commenced to grow again forming the characteristic, rolled scar.

A stripped tree was vulnerable to fire, however, because part of the corkwood of the heart was exposed. (See Geelong Advertiser, August 11th., 1988). The wound also shortened the life of the tree, sometimes causing it to die prematurely.

James Hawker of Moorundi, S.A. pointed out that a full measure of expertise culled from aeons of tribal experience was required to make a satisfactory Murrayian canoe for all its apparent simplicity. For instance, trees nurtured by having their "feet" in water on river-banks or the margins of lakes or swamps were more likely to bear suitable bark, thin and flexible. A parish map published in the 1860s reveals that our particular tree grew near a curved swamp or billabung.

Toeholds were first cut in the trunk with axe or yam-stick to reach the height required, after a tree with the appropriate bark (not too thick) had been carefully selected. A hollow, meantime, was scooped out of the earth nearby to the desired shape of the koo-ron. The freshly-stripped bark was heated then laid over this three dimensional template, weighted down with mud and clay and left to dry in an ideal shape with stem, stern and sides curved upwards. If the gunnels were still too shallow, they could be built up with a little rim of clay.

While it is true that a strip of bark could be carved in outline on a tree, wrenched off and used immediately under emergency conditions, such a float would perish quickly unless the slower method of curing and moulding were undertaken; after which a koo-run could be used over and again for at least two years.

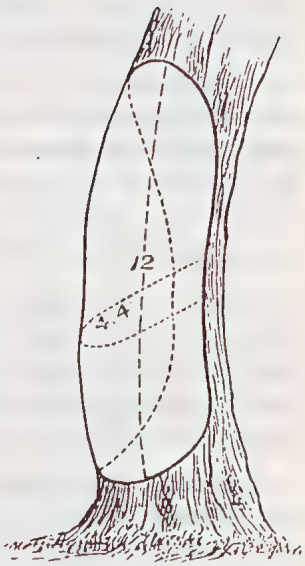
As the Queen's Park tree is quite dead and falling away to frass, an expert has advised that the tree should be cut off below ground-level, soaked in the chemical tributyl-tin-oxide for six months and then returned to the stump.

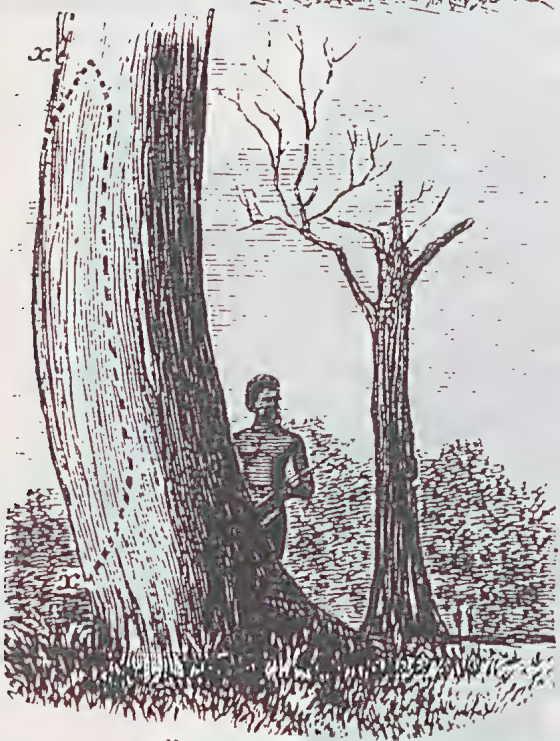
An alternative would be to cap the trunk with copper to prevent any further rotting at the summit. The hollow in the heartwood could be filled with polyurethane inserted as a liquid. When this solidified, it would prevent more rubbish being stuffed into the tree and would delay, for the time being, further deterioration of the scar.

Most of the canoes made hereabout are long since perished. Scars on certain trees which escaped land clearance in colonial days are all that is left today. These canoe-strips are our heritage, fragile, ephemeral – reminders of traditional aquatic industries of fowling and fishing which were an important economic factor in the lives of the hunting clans who camped in this district.

Our canoe-tree is a perfect example of the simplest watercraft which were manufactured by the Aboriginal people of Victoria. It typifies the custom of the natives who always made that which sufficed for the job in hand by the simplest method possible.

The canoe was a little over two metres long and about half as wide. One of this type was only capable of being used on calm waters of slow-flowing streams or lakes. It would have been a one-man punt though it could have carried a seated passenger if that person had a well-developed sense of balance.





Illustrations from "Victorian aborigines".

Recently, the upper portion of the dead tree was invaded by bees. An apiarist was called in to remove the hive lest a passing golfer should be bee-stung.

At one stage a "hat" of plastic was tied over the lopped trunk to prevent rainwater from entering the hollow in the heartwood. When this was removed a Gould's Lobe-lipped Bat (Chalinolobus gouldii gouldii) which had sought shelter under the plastic was discovered. It would have been a snug roost – quite dry and dark and relatively warm under the black canopy.

After a terrifying interval when it was seized and inspected by a gaggle of giants who marvelled at the transparent claws on its feet, the needle-like teeth in its gape and its rich, sable-brown fur, the mouse-sized creature was glad to creep into a crevice in the bark of a nearby stump of an ancient gum.

Three centuries ago, had a forager spied a colony of these little creatures hiding in a tree-hollow or huddled under a rock-ledge, into the coolamon they would have gone with other comestibles being gathered for the evening meal.

Gould's Lobe-lipped, or Wattled, Bat.

Photo: Trevor Pescott.

Scorched over flames to remove fur and wing-membranes, the tiny carcases would have been wrapped in melaleuca bark and the parcel baked in the cooking-pit with the rest of the food. (Alternativley, they could have been grilled directly on coals but this method was considered wasteful as most of the body fluids were lost.) The slashed bark formed a convenient platter on which to serve the "stew".

Hat on Canoe Tree at Queens Park, Geelong, 10/8/99. Photo: Lawrie Conole.

Glossary:-

Billabung – Billa = water. bung = dead.....oxbow lake
Coolamon.....bark vessel.
Koo-ron (alternative spelling, Korrong).....canoe.

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Geelong East

Note on White-Browed Scrubwren Feeding

by Dave King

On a visit to the Tower Hill Game Reserve, Koroit, Victoria, on 23rd July, 1988, a White-browed Scrubwren was observed feeding around the picnic area. During this time it was seen to approach a small specimen of fungi and repeatedly take bites out of the cap and ingest the pieces.

After the bird had moved on, the fungus was examined, and several triangular incisions were found on the cap. The precise species of the fungus was not determined, but appeared to be of the genus Cortinarius. The stem was spindle shaped, about 75 mm high surmounted by a cap 35 mm in diameter, golden-brown colour with gills of medium brown. Several specimens of the fungus were growing in the area close to the base of trees. Only the one specimen examined had the incisions in the cap.

Dave King
9 Traum Street
Portarlington

Bush Tucker

by Louis N. Lane

(The following list which was omitted from Louis Lane's article in kitchen middens Bream Creek (Geelong Nat. Vol. 25, No. 2), is of interest in its own right and we are happy to include it in this issue – Ed).

The following plants would have been a food-source for the dwellers at Karaaf. In addition, materials for other uses would have been provided by this vegetation.

Angular pigface	*Carpobrotus glausescens*	Medicament
Bulrushes	*Typha augustifolia*	Fibre for cord
Coastal wattle	*Acacia longifolia sophorae*	Kindling
Coastal boobialla	*Myoporum insulare*	
Coastal tea-tree	*Leptospermum laevigatum*	Honey
Golden wattle	*Acacia pycnantha*	Gum-matrix
Kangaroo-thorn	*Acacia armata*	
Marshmallows	*Lavatera plebeia*	Fibre for cord
Sea-box	*Alyxia buxifolia*	Leaf poultice
Silver banksia	*Banksia marginata*	Honey
Sea-berry salt-bush	*Rhagodia baccata*	
Twiggy lignum	*Muhlenbeckia cunninghamii*	Buds & grubs

These plants provided raw materials:-

Coastal everlastings	*Helichrysum paralium*	Tinder
Swamp-gum	*Eucalyptus ovata*	Timber/firewood
Swamp paperbark	*Melaleuca ericifolia*	Waddy-wood

Note:- Honey-bearing shrubs would attract honey-eating birds which could be snared. Low vegetation formed habitat for reptiles, etc.

Louis N. Lane
Barkly Street
Geelong East

Tube Worms & Estuarine Crabs

by Dave King

Whilst on a visit to Warrnambool in March, 1988, the writer was persuaded to do some fishing in the Merri River. The spot chosen was some 1.5 km upstream of the mouth. Here there were grassy banks on one side and dense bushes on the opposite bank. Every indication was that of a fairly normal freshwater river. This notion was soon dispelled; in the first instance the water current was observed to be in an upstream direction, obviously due to tidal inflow over the bar across the river mouth, and, secondly, as the result of striking a snag.

The snag finally gave way and when reeled in was found to be a whole colony of tube worms which had developed in an interesting fashion, *(Fig. 1.)* Close inspection proved them to be *Galeolaria caespitosa*. This species is commonly found encrusting rocks in the inter-tidal zone of the sea shore, rarely if ever growing vertically from the sub-strata because under high energy surf conditions the tubes would be snapped off. It is, therefore, interesting to note how under consistently calm conditions it will develop into a relatively tall worm-tube colony.

Whilst examining the Galeolaria several small crabs, emerged from the worm-tube fabric. These were small crabs, almost spider-like in appearance. Of these crabs the largest was taken for further study and found to be an estuarine crab of the family *Hymenasomatidae*, *(Fig. 2.)* It was finally determined to be *Halicarcinus lacustris*.

Several factors of interest arise from the finding of the Galeolaria. One is that the form of growth will vary in accordance with the environment. Another is that both the tube-worm and estuarine crab must be capable of tolerating a significant degree of variability in the saline content of the water they inhabit. This can be on a hemi-diurnal basis during dry period, when each tide will cause a slug of salt water to move upstream. Conversely, during wet periods, when the river is in flood, there would have to be prolonged periods when the saline content is close to zero.

What of the relationship between the Galeolaria and the *H. lacustris?* A commensal relationship would appear as obvious, but

might be there also one of the symbiotic nature. The worm tube structure could form a filter-like trap for plankton upon which the crab could feed. Alternatively, the crab could catch prey, devour it in the worm-tube structure and the Galeolaria feed on the scraps.

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Dave King
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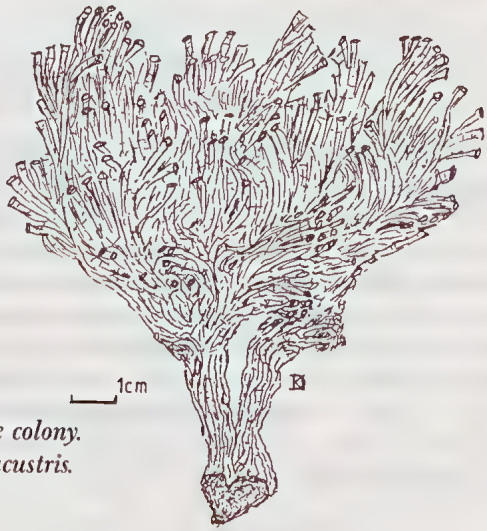
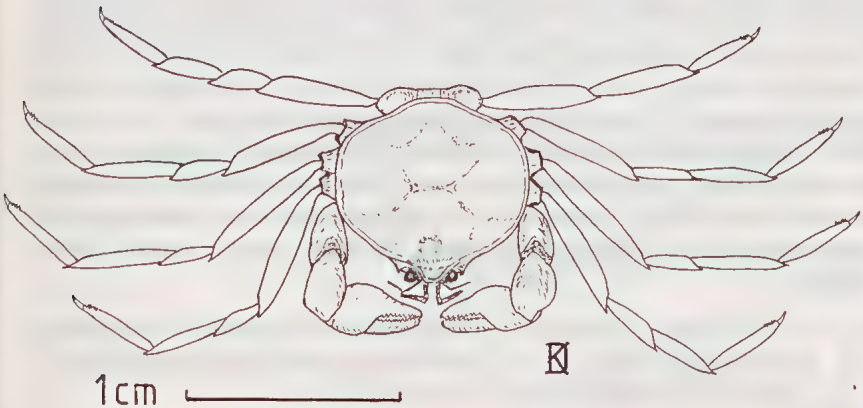


Fig. 1 Galeoria caespitosa worm tube colony.
Fig. 2. Estuary crab. Helicarcinus lacustris.
Drawings by Dave King.



There's More Down The Garden Than Cabbages & Herbs

by L.M. Lane

When I was young, more than half a century ago, we were used to discovering brush-footed trap-door spiders' burrows in an uncultivated strip of ground on the northern side of our dwelling between the house-wall and a thick, pittosporum hedge.

The vertical mouths of their burrows were protected with round covers lined with parchment-like silk. Once, the orange rind of a pittosporum-fruit was utilized as a cork-lid. The spiders were hairy, dark grey or dark brown with cryptic markings on their bodies.

We were aware they were venomous because of the way our pet magpies treated them. The birds, called Bill and Coo, hopefully accompanied anyone in the garden, gobbling up any grub, worm or spider turned up with the spade. They always answered the call of, "Spider, Bill!" They would pounce upon a common garden-spider and bear it off with all its legs still waving. Let it be a trap-door spider, though, and it was pinched and flung down over and again until it was dead: meanwhile the maggie clapped its feathers in tightly all over its body. I used to say they hitched their pants up! When the spider ceased to move, the abdomen was plucked off and the cephalothorax was abandoned.

We were occasionally permitted to find what we called an "emperor ant", the electric-blue wasp, hurrying alertly round the garden plots, and to trap it. (The "Blue Ant" is the wingless female of the *Diamma bicolor* wasp which is thought to prey upon mole crickets.) We then carefully raised the silk-lined trap-door on its hinge and herded that "ant" down the hole, all for the pleasure of seeing the intruder evicted but, more importantly, the way the hairy legs reached out to pull the circular lid down with a gentle, settling movement to correct any distortion of the precious cover which is a device for creating a micro-climate within its home. Barbara Y. Main explains that the creature holds the cover down with its leg-hooks (*tarsal claws*) when it feels threatened.

I haven't been able to detect any such burrows for at least two decades. The brilliant wasp is no more to be seen, more's the pity, though we still hear crickets trilling occasionally.

Of course, we are completely surrounded by suburban homes, now, while there were plenty of empty blocks in Geelong East in the twenties.

The *Mygalomorphae* is a sub-order of large, aggressive spiders, up to 50 mm. in body length.

They comprise a primitive group including varities of funnel-web and trap-door spider extending from Queensland to Tasmania (including the islands of Bass Strait), the tropical specimens tending to be larger than those in southern latitudes.

Mainly terrestrial burrowers, some construct tubular, silk nests in fissures in bark, among vegetation or at the foot of trees where the tunnels are protected by the root structures.

The earth-burrowers tunnel to a depth of 30 cm. and the females hollow out brood-chambers/nurseries in which the young hatch out and develop. This is a primitive method of reproduction (and child-care) in the spider-world.

The *Mygalomorph* is an ancient arachnid, a Gondwanaland relict, whose ancestors existed on the Miocene landscape. By virtue of its adaptability, it has been able to invade new habitat and extend its geographic range (although this may have been curtailed by unfavourable conditions during the Pleistocene Era).

Mygalomorphae are distinguished by the paraxial arrangement of the chelicerae which are hinged to the cephalothorax so the fangs strike forward and downward, parallel to each other.

The cehalothorax has to rise for the spider to strike. It must assume the typical, aggressive pose with the anterior legs and palps held aloft and the fangs unfolded.

USUAL MODEL OF A FEMALE'S BURROW

The *Mygalomorphae* of Australia include the Queensland Bird-eating spider *(Selenocosmia carssipes)* which more often eats tree frogs but has been known to attack and kill the chick of a domestic fowl. They also include the infamous Sydney Funnel-web spider *(Atrax robustus)* and the Mouse spider *(Missulena occataria)*, the male of which may sometimes startle a Victorian gardener because he scuttles round in broad daylight against the custom of all his kind who only go courting at night.

Mygalomorphae are generally long-lived — a female of the Atrax genus was documented as living for 17 years. By the same token, they are slow to mature. The spiderlings disperse about a year after their mother mated. Each establishes its own, permanent burrow by digging with its fangs, but will not mature for several years.

The male wanders at night, probably attracted by the female pheromone. He lures his bride from her tunnel for mating and must defend himself from her poison fangs to which he is liable to fall victim. After he has fulfilled his matrimonial duty, unless his footwork is fancy, the bridegroom supplies the wedding breakfast.

The Zoological Catalogue of Australia says the Brush-footed Trap-door spider (*Idiommata sp.)* is a velvety *Mygalomorph* which lives Australia-wide except extreme south-east Australia and Tasmania. It always builds a solid door in order to maintain an even and damp climate within its earthern nest. It has indistinct markings on its body.

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I've Got A Wild Stanwella In My Strawberry-Pot

by Louis N. Lane

In 1987, while clearing away a crop of grass under the rosemary shrubs (*Rosmarinus officinalis)* against an eastern wall of the house, I uprooted a great clump of garden soil.

In the hollow was a large spider whose black, shiny legs reared up in a menacing attitude before it scurried away. There were wisps of delicate, white web which had lined a tube protruding from the soil. On closer inspection of the narrow garden plot, I discovered five or six circular patches of silk at ground level deep among grass stems under the shelter of the bushes. Each silk circle, abut 1.5 cm. across, veiled the mouth of a shaft. Most of them supported a few drops of water.

The threatening stance reminded me of the Sydney Funnel-webs *(Atrax robustus)* which lived in my garden in Wollongong, though this creature was neither so robust, so shiny, nor so audacious.

I was sure I had never observed this ground-tunneller, here, before. A skin cast was identified at the Museum of Victoria (C. McPhee, Technical Officer Entomology) by the paraxial fangs as a member of the *Stanwellia* genus. These fangs are hinged to the cephalothorax to be able to move downward and forward when the spider attacks its prey. L. Crawford, of the Department of Agriculture tells us that there are no records of the Victorian Funnel-web causing serious injury to a human. A bite may cause a local reaction: e.g., swelling, burning and itching round the punctures: yet C. McPhee warns that there is some danger of allergic reaction or bacterial infection caused by rotting foodstuff on the fangs.

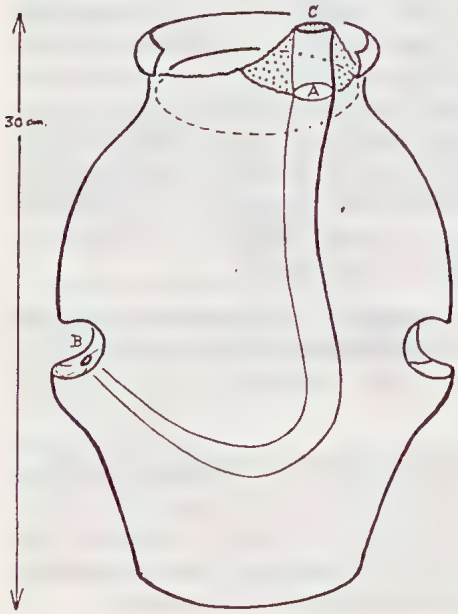
In autumn, the males wander in search of mates but females remain in their own shafts which have side compartments for brood-chambers/nurseries and back doors for ventilation (and maybe escape).

Here the female lives her life out unless her burrow is destroyed by the excavation of the soil or is flooded out in rainy weather. After dark, the female inmate removes the curtain over her front door and sits, motionless, within the entrance with four slim legs protruding over the silken edge as she waits for prey – mainly insects.

Helpfully (?), I trapped a grapevine moth *(Agarista agricola)* in a transparent, plastic container over one of the Stanwellia shafts and winessed the lightning emergence of the predator when the moth fluttered near the trap and saw the orange legs and black and white wings being drawn, inexorably, down the shaft.

That colony of Stanwellias received several assorted live moths this way. Blinded by the light of a torch, individuals could be lured out of their burrows by a blade of grass trailed past the trap so they could be measured. The largest was at least 5 cm. from the cylindrical, nigger-brown abdomen to the black "finger-tips" embracing the lure. When they found they had been deceived or when they detected some movement beyond the light, they returned into their burrows with all speed, sometimes backing down the holes.

This year, 1988, a flourishing plant of Oswego Tea (*Monarda didyma)* growing in a strawberry pot apparently promised sufficient shade and shelter to an adolescent, migrating spider-lady who burrowed into the soil with her fangs. The hunting portal was at the top of the pot and the air vent emerged into one of the surrounding lips on the bulging sides of the container. She was not much over 3 cm. long when lured out onto a scale.



A. Original hunting-portal on the surface of the soil.
B. Original ventilation-door.
C. Opening of the tower after the threat of flooding.

This nest was also near an eastern wall. Unfortunately for Ms. Stanwellia's plans, the Bergamot dies down in winter and her umbrella was gone. When drippings from the grapevine overhead threatened to flood the shaft, she responded by elevating the entrance to the tube, building a levee to bring it above the level of the water which collected in the rim of the pot. It is now a tower of silk-cemented sand grains selected from the soil and she still draws a curtain across the entrance to the tower before dawn each day.

The only other burrow yet discovered away from the original community also enjoyed an easterly aspect and was under the shelter-shade of permanent vegetation, this time the French Sorrel *(Rumex acetosa)* over-shadowed by an evergreen shrub. It seems Stanwellias do not relish heat.

McKeown reports that, to survive, they require a damp environment. Mygalomorphae are "always found in damp and shady haunts". Unfortunately, I unseated this home while digging the Giant Chives *(Allium tuberosum)* much to the aggressive indignation of the poor occupant.

Mrs. Stanwellia has vacated the locality. Perhaps her present shaft will turn up under the Salad Burnet *(Sanguisorba minor)* further along the herb garden although, according to the experts, fully mature females, if forced to leave their original burrows, are inclined to build a less secure substitute – merely a silken tube among vegetation.

Comment:- Their apparent connection with herbs must be entirely circumstantial as the plants mentioned are not indigenous and this sable arachnid certainly is. Besides, Stanwellia grisea, which has been recorded in Melbourne, is said to be in its natural ecological niche in tall, open forests in wet situations where they burrow in forest litter. Is our Geelong East specimen invading new habitat and extending its geographical range?

Louis N. Lane
Barkly Street
Geelong East

FOR JUNIORS

If you have trees near your house, you will probably have heard possums scampering over the roof at night. But have you ever gone out and watched them eating the new rose shoots or half-ripe apples?

Have you ever really looked at a bat up close (see p. 78 for a picture of one of Geelong's common species). Do you know where you might find an antechinus, or a dunnart? (Now, what are they? See if you can find out).

We don't often get to see many of our Australian animals, because, unlike us, they sleep by day and come out at night. Lawrie Conole, who with Grant Baverstock has been taking our Junior members on excursions recently, has written the following notes to help you to get to know more about our animals.

Surveying For Animals At Night

by L.E. Conole

Many of Australia's mammals are crepuscular or nocturnal – that means that they are active around dusk/dawn or during the night. Some birds, such as owls, frogmouths and nightjars are nocturnal too.

There are a couple of ways of detecting these nocturnal animals. One is to set special traps to catch them alive, and uninjured, while we sleep, and then examine then the next day. The other main way is to go out at night with a spotlight or strong torch to find and watch animals such as possums, koalas, wallabies, kangaroos, bats, owls, when they are active.

Normally it is a good idea to write down some notes about the conditions and animals seen. This information can be used for research into what animals occur in which places, and how weather conditions can affect their behaviour (and our ability to find them). So next time you go out spotlighting, try filling out these basic items of data.

Date:
Time Started:
Time Finished:
Wind: *Strong? Medium? Light? None at all?*
Rain: *Solid Rain? Just showers? Fine?*
Cloud: *Completely Covering the sky? About half? None at all?*
Moon: *Full? About half? About one quarter? None, or covered by clouds?*

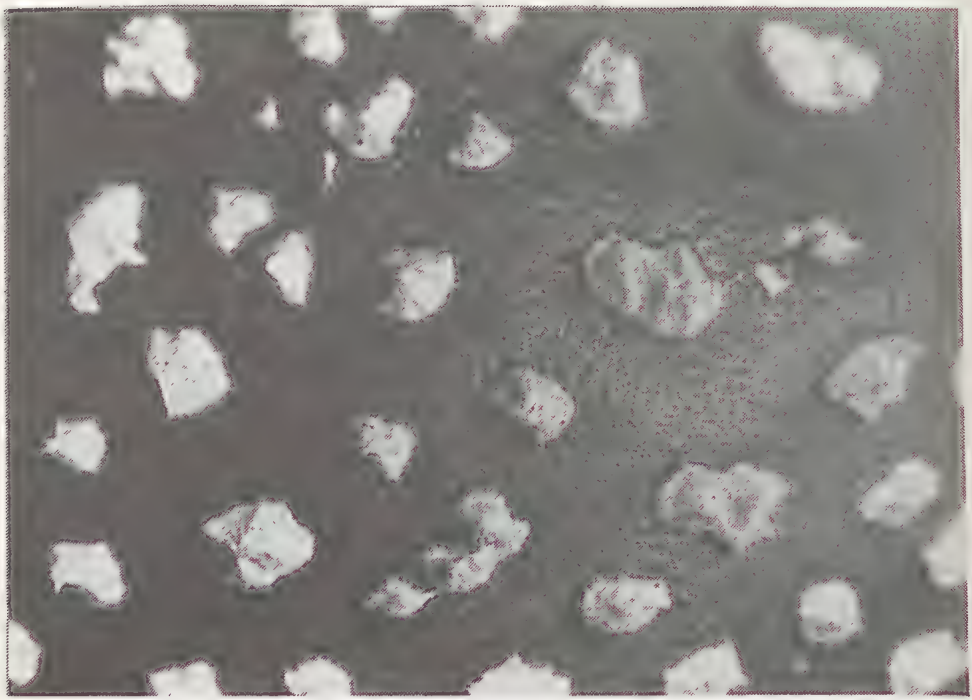
Results:

Species:	*How Many?*
Sugar Glider	
Common Ringtail Possum	
Common Brushtail Possum	
Koala	
Eastern Grey Kangaroo	
Swamp Wallaby	
Bats (Many Species!)	
European Rabbit	
Fox	
Cat	
Owlet nightjar	
Boobook Owl	
Other species	

How Many Species?
How Many Animals?

NOTE: For further details on the Juniors Group contact Grant Baverstock on 817256 (home).

(We would be very pleased to receive contributions from our Junior members. If you do go spotlighting, why not write and tell us about it? – Ed.)



Mystery Photograph No. 3

This photograph was taken last winter beside Cape Otway Road. Care to guess what is shows? See p. 104 for the answer.

NOTE:-

The Editorial Committee welcomes "Mystery Photographs" from all Club members. Photos should be good quality black and white prints, preferably 25 x 20 cm, and should be accompanied by a short "solution". Articles for inclusion in the magazine are always needed. Short observations, particularly on local subjects, are especially welcome. We prefer typed copy, but this is not necessary. Material for the February 1989 issue should reach the Committee no later than 31 December 1988.

Live Mammal Trapping – Moggs Creek Area

by Dave King

INTRODUCTION

During the period 21st to 24th September, 1988, inclusive, live mammal trapping was conducted at the G.F.N.C. study area at Moggs Creek, Angahook State Forest. This is the same area previously studied (King, 1987).

Weather conditions were variable, from calm warm nights, through gale force winds to slight rain. Phase of the moon was three quarter full.

RESULTS

A total of 61 trap-nights were achieved, for a total of six Bush Rats (*Rattus fuscipes*) and one Black Rat (*Rattus rattus*). Five R. fuscipes were taken adjacent to Moggs Creek along the old fire track, an area of dense undergrowth of wattle and grass tussock. One R. fuscipes and one R. rattus were taken along the creek bank opposite the Tallawalla Girl Guide Camp. All catches occurred on warm, calm nights. The night with gale force winds and that on which rain occurred failed to produce a catch.

Other fauna noted during this period were:-
Skink – *Leiolopisma guichenoti*
King Parrot
Sulphur-crested Cockatoo
Spotted Pardalote
Butterflies – Australian Admiral – Vanessa itea
Painted Lady – Vanessa kershawi

ACKNOWLEDGEMENTS

Acknowledgements is made of the assistance of Girl Guides from Portarlington, Healesville and Winchelsea helping transport, placing and retrieving traps.

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Obituary – Roy Wheeler

With the passing of Roy Wheeler, another of Australia's great old men of ornithology is gone. Roy was distinguished in his field, a fellow of the R.A.O.U., National History Medallion winner, author of several books about birds (see p. 100) and of many journal articles.

To the members of the Geelong Field Naturalists Club, however, he will be best remembered for his Hour Counts. Forty-eight of these articles appeared in the Geelong Naturalist between 1972 and 1984. Roy liked to travel Australia, and one of his pastimes was was to take a stool, sit in one place for an hour and note all the birds he saw in this time. So we have a record of his observations a fund of accurate information – in places as far apart as Darwin and Reedy Lake, Kangaroo Island and Carrum Swamp.

Roy had extensive knowledge of Australia's birds, yet he was a humble man and a good friend, happy to pass on his wisdom. My daughters remember him with affection from a campout at Mud Island when he took the time to talk with them as teenagers. He imspired and encouraged many naturalists in this way, one of them his younger brother, Jack.

He was a guest speaker at Club meetings on several occasions. Although he lived in Melbourne he remained a member of our Club.

Valda Dedman

Latham's Snipe – an important species at Belmont Common. Photo Trevor Pescott.

Bird List – Belmont Common
29th October, 1988

Compiled by Val Lloyd-Jones (and others)

Black-faced Cuckoo-shrike
Black Swan (with young)
Little Grebe (with young)
Pelican
Little Pied Cormorant
Cattle Egret
Little Egret
White Ibis
Straw-necked Ibis
Royal Spoonbill (in breeding plumage)
Black Duck
Grey Teal
White-eyed Duck
Dusky Moorhen (with young)
Swamphen
Coot (with young)
Masked Lapwing
Latham's Snipe
Silver Gull
Domestic Pigeon
Horsfield Bronze-Cuckoo
Skylark
Welcome Swallow
Blackbird
Clamorous Reed Warbler
Little Grassbird
Golden-headed Cisticola
Red Wattlebird
White-plumed Honeyeater
New Holland Honeyeater
White-fronted Chat
Silvereye
Greenfinch
Starling
Magpie Lark
Australian Magpie
Little Raven
One Magpie Lark's Nest

Glenaire Camp-Out 15/16 Oct. 1988

by Gordon McCarthy

Twenty members and friends travelled to the Camping Area near the mouth of the Aire River on Friday night and Saturday morning. Saturday morning the group walked the kilometre to the beach, and the newly opened mouth of the river.

After the high winds of several days the enormous seas were spectacular. A variety of coastal plants were flowering, but finds were keeping a very low profile. After lunch, several cars transported members to Cape Otway. From here cattle pads, were followed along the cliff line to Point Flinders; miles of rugged coastline and pounding seas could be seen, although it was difficult to face into the wind.

The way down followed a steep ridge to Station Beach and the unusual rainbow Falls. Several members decided to explore further while the others returned the 5 km to the cars. These colourful falls have apparently been formed by mineral laden water trickling over the cliffs. Calcium carbonate has built up into terraces at the bottom. Although half the area at the moment is dry, where the water is still running, 15-20 ft wide, the rock and limestone is coloured with green algae, orange, yellow, brown, black stains from the minerals in the water. The whole effect is very unusual.

Four of our members walked the beach back to Glenaire, hoping to see among other things Hooded Plover, as the State count was on the same weekend. One pair only were sighted on Glenaire beach.

One disturbing feature of the walk was the amount of oil washed up on the rocks and sand. One saturated feather was found. Many goose barnacles were observed, covering old flourescent tubes, bottles etc.

In the evening we took a spotlighting walk across the bridge and up the slope through the timber. Several unidentified bats, two ringtail possums, and several eels in the river were the total observations.

Sunday morning a clifftop walk towards the mouth of the river rewarded us with a different variety of plants. Unfortunately a south westerly change, with the wind and rain dampened the enthusiasm.

After a damp lunch and having packed up wet tents etc., a few of us went back up the road towards Lavers Hill, and were fortunate enough to find the Pink boronia *Boronia muelleri* flowering prolifically. The sun even came out for photographs.

This boronia which can grow to 10 metres high, but is only about two metres in this area, occurs only at Glenaire, and then in East Gippsland and adjoining parts of N.S.W. Despite the weather most of those attending appeared to enjoy themselves.

Birds Observed Glenaire (G. McCarthy)

Bristle bird
Yellow Faced Honeyeater
Singing Honeyeater
Grey Thrush
Grey Currawong
Blackbird
Yellow Robin
Yellow-rumped Thornbill
White Browed Scrubwren
Superb Blue Wren
White Fonted Chat
Australian Gannet
Silver Gull
Black Cormorant
Little Pied Cormorant
Great Egret
Calamanthus
Maned Goose
Reed Warbler
Little Grass bird
Boobook owl
Brown Thornbill
Welcome Swallow
Scarlet Robin
Starling
Silvereye
Wedge-Tailed Eagle
Brown Goshawk
White Goshwak
White-breasted Sea Eagle
Brown Falcon
Australian Kestrel
Swamp Harrier
Australian Magpie
Kookaburra
Little Raven
Hooded Plover
Black Cockatoo
Crimson Rosella
Blue-winged Parrot
Short-tailed Shearwater
Black-fronted Plover
Golden Bronze-cuckoo
Horsfield Bronze-cuckoo
Cisticola
Australian Pelican
Grey Fantail
Richards' Pipit
White-faced Heron
Goldfinch

Invertebrates (Dave King)

Australian Admiral	Vanessa Itea
Painted Lady	Vanessa Kershawi
Bogong Moth	Agrotis Infusi
Caper White	Anaphasis java teutonia
Scarab Beetle	Melolonthinae sp.
Weevil	Amycterinae sp.
Ichneumon Fly	Braconinae sp.
Garden Snail	Helix aspersa
Dune Snail	Theba pisana

Plants (Gwen Yarnold)

Clematis microphylla	Small-leaved Clematis
Tetratheca ciliata	Pink Bells
Billardiera scandens	Common Apple-berry
Acaena anserinifolia	Bidgee-widgee
Acacia verticillata	Prickly Moses
Acacia myrtifolia	Myrtle Wattle
Acacia longifolia var. sophorae	Coast Wattle
Pultenaea daphnoides	Large-leaf Flat-pea
Platylobium obtusangulum	Common Flat-pea
Pelargonium australe	Austral Stork's-bill
Boronia nana	Dwarf Boronia
Boronia muelleri	Pink Boronia
Correa alba	White Correa
Stackhousia spathulata	Coast Stackhousia
Hibbertia sericea	Silky Guinea-flower
Viola hederacea	Ivy-leaf Violet
Viola sieberana	Tiny Violet
Hymenanthera dentata (angustifolia)	Tree Violet
Pimelia axiflora	Bootlace Bush
Pimelia humilis	Common Riceflower
Pimelia flava	Yellow Riceflower
Eucalyptus obliqua	Messmate Stringybark
Eucalyptus viminalis	Manna Gum
Leptospermum myrsinoides	Silky Tea-tree
Melaleuca squarrosa	Scented paperbark
Haloragis tetragyne	Common Raspwort
Phebalium squameum	Satinwood
Epacris impressa	Common Heath

Leucopogon parviflorus	Coast Beard-heath
Myoporum insulare	Common Boobialla
Sambucus gaudichaudiana	White Elderberry
Wahlenbergia quadrifida	Sprawling Bluebell
Goodenia ovata	Hop Goodenia
Goodenia lanata	Trailing Goodenia
Scaevola pallida	Coast Fanflower
Lagenophora stipitata	Blue Bottle-daisy
Olearia sp.	Showy Daisybushes
Helichrysum apiculatum	Common Everlasting
Helichrysum scorpioides	Button Everlasting
Helichrysum dendroideum	Tree Everlasting
Cotula australis	Common Cotula
Cotula coronopifolia	Water-buttons
Senecio elegans	Purple Groundsel
Senecio lautus	Variable Groundsel
Lomandra longifolia	Spiny-headed Mat Rush
Kennedia prostrata	Running Postman
Xanthorrhoea australis	Austral Grass-tree
Caesia parviflora	Pale Grass-lily
Calorophus lateriflorus	Spreading Rope Rush
Phebalium squameum	Silvery Phebalium
Cakyle	Sea Rocket
Briza minor	Shivery Grass
Disphyma australe	Rounded Noonflower
Themeda australis	Kangaroo Grass
Eleocharis sphacelata	Tall Spike-rush
Scirpus nodosus	Knobby Club-rush
Calocephalus brownii	Cushion Bush
Pultenaea pedunculata	Matted Bush-pea
Comosperma volubile	Love Creeper
Veronica gracilis	Slender Speedwell
Bauera rubioides	Wiry Bauera
Leptospermun lanigerum	Woolly Tea-tree
Glossodia major	Waxlip Orchid
Lomandra filiformis	Wattle Matrush
Platylobium formosum	Handsome Flat-pea
Bossiaea cinerea	Showy Bossiaea
Dillwynea glabeeeima	Smooth Parrot-pea

Book Reviews

by Valda Dedman

Birds and Where to Find Them in New South Wales
W. Roy Wheeler. *Jacaranda Press, Milton, Qld, 1974.*
Birds and Where to Watch Them in New South Wales
W. Roy Wheeler. *Collins, Sydney, 1987.*
Where to Find Birds in Western Australia.
Noela Marr. *Kangaroo Press, Kenthurst, N.S.W., 1986.*
Birds of Port Phillip Bay.
Stephen Garnett *(et. al.) Ministry for Planning and Environment Victoria, Melbourne, 1986.*
Where to Find Birds in Australia.
John Bransbury. *Hutchinson Australia, Hawthorn, Vic., 1987.*
The Great Australian Birdfinder.
Michael Morcombe. *Lansdowne Press, Sydney, 1986.*

When I first started birdwatching, more than twenty years ago, there were few books available to help me. Cayley and Leach were the two standard field guides; bird biology and behaviour could be learned from "Elementary bird study" by P.A. Bourke (an excellent reference if you can still obtain a copy), but there was very little written about where to actually go and see the birds described.

Of recent years there has been a proliferation of Australian bird books – large, informative works such as "The Reader's Digest complete book of Australian birds", field guides by Peter Slater and Graham Pizzey, bird study by Rosemary Balmford and J. D. Macdonald, and now a number of "where-to-find-birds" books.

Roy Wheeler led the way back in 1974 with *"Birds and where to find them in New South Wales".* This has recently been revamped as *"Birds and where to watch them in New South Wales,"* but I prefer the format of the original version which is easier to follow and is enhanced by meticulous and attractive drawings by Margo Pedersen.

The earlier book divides New South Wales into fifty areas, one to a page. Each area has a map, is briefly described and has short notes on accommodation and vegetation, gives the total number of species, then lists the most conspicuous and then the highlights for bird-

watchers. Four birds typical of the area are illustrated. At the end of the book there is a comprehensive table with species listed alphabetically. One can see at a glance which species are rare or accidental, which are illustrated and in which district they occur.

Roy Wheeler's new publication has a more complete coverage, for instance, the north west is now included. The areas are more general, but a greater number of individual places are mentioned. The general format is less stylised, the text is more descriptive, and the illustrations, clumped together as plates in the middle, are of poor quality and do not have the precision of those in the original book. Compare the pictures of the Gang Gang or the Orange Chat.

Another state guide, published in 1986, is Noela Marr's *"Where to find birds in Western Australia"*. It is a handy little book, describing forty of the most accessible bird areas in the West, though it is a bit disconcerting, when you are happily progressing around the Western Australian coast from Esperance to Port Hedland, to find Cocklebiddy on the Great Australian Bight, suddenly inserted.

However, the book does not claim to be a tour guide and it certainly provides a good outline of places to visit, each being briefly described with notes on accommodation and vegetation, a list of common bird species and "Ticks for Twitchers".

The maps are clear if not greatly detailed and there is a coloured photograph which gives some indication of the character of each area. The species are listed at the back of the book in taxonomic order with a reference by number to the area where they occur.

It becomes evident at times with the books already described that a more detailed regional guidebook would be handy. A useful local book is *"Birds of Port Phillip Bay"*, by Stephen Garnett, Brett Lane, Martin Schultz and Kevin Wood, and published by the Ministry for Planning and Environment Victoria. It is based on an earlier technical report (for which this club supplied information) and is an attractive and accurate field guide to most of the good birdwatching sites around the Bay. It gives details of the importance of each site, notable species and access. The Appendixes describe criteria used to determine site significance, list bird and natural history organisations based around the Bay, common and scientific names of plants mentioned and provide a detailed up-to-date table of birds for each site with a key to status. Maps are clear and simple and the coloured photographs are a real bonus.

State and even regional guides become almost superfluous if you posses a copy of *"Where to find birds in Australia"*, by John Bransbury. This comprehensive book is written for the dedicated birdwatcher who will use it to plan a hundred holidays, or better still a five year trek around Australia.

The author aims "to produce an up-to-date, easy-to-follow guide featuring as many of the best bird-watching sites in Australia as possible, a guide giving details of where to go to look for birds, how to get to the places mentioned, where to stay, the ideal time to visit, and of course what species you can expect to see once you arrive at your destination" – and he does just that!

The book contains a wealth of information in its 539 pages. Bransbury's attention to detail will prove useful when seeking out particular species. For instance, "usually found in patches of marri" (Red-capped Parrot) or, "Ask the guard at the gate for permission" (to go on to Swan Island).

There is often a contact name and address included in the text, or useful tips about how to reach a good bird site: "The town's lobster fishermen sometimes organise charter fishing trips to the waters around the islands" (Houtman Abrolhos).

Other interesting information about a location may be included. Vegetation as part of habitat is always seen as important, but Bransbury also tells us how best to see a numbat, or that we need to be fit – and surefooted to climb to the top of the Gloucester Tree, or that the Bligh Museum at Adventure Bay "would be an excellent place to spend the inevitable wet day".

And herein lies one of the book's charms. The text is based on the author's own experiences as he journeyed around Australia collecting material for inclusion.

Each chapter of the book is devoted to a state or territory, sub-divided by region (53 in all) and further broken down into localities. Of course some fine bird-watching localities are altogether excluded; the Pink Lakes and the Sunset Country are omitted from the Victorian Mallee. On the other hand, many quite small spots, such as the Ocean Grove Nature Reserve and Point Henry, get a mention.

There are many maps, some of them quite detailed, the bibliography is extensive and the index lists both places and species. The

coloured plates illustrate habitat rather than bird species.

For the most part Bransbury lists only those species most likely to be seen in the locality he is describing; if noteworthy he will include rare or unusual sightings. And he does not mention introduced species at all, for he does not feel they are worth travelling any distance to see.

"Where to find birds in Australia" is a book to be used in conjunction with a good identification field guide, both of which would be located in your hand luggage as you travel in search of birds.

"The great Australian birdfinder", by Michael Morcombe, however, is not a book to carry with you. It tries very hard to be all things to all birdwatchers. Large, heavy, well-bound, lavishly illustrated with coloured photographs (mostly good) and drawings (not so good, alas), it is best kept on the coffee table and dipped into from time to time.

The text is in three sections– habitats, regions and bird reference, and if you use the numerical cross-referencing system intelligently you can amass a good deal of knowledge about each species' identification, behaviour, habitat requirements and maybe its occurrence within Australia.

Each species is numbered. So if you come across a picture of the Little Eagle in the Murray-Darling Region, you can use its number to locate it in the Bird Reference section, where it is described in field guide terms of the bird and its habits.

Every so often there is a Birdwatch page, describing a good birding area such as the Townsville Common. These are intended to give the reader a feel for a particular locality, and in this they are generally successful. Unfortunately, such pages are few and far between, and for the whole of south-eastern Australia the only Birdwatch is the Lamington Plateau! Hardly characteristic of the coastal districts. One wonders if Michael Morcombe has ever seen the coast south of the Queensland border.

The pale blue on the maps which accompany each species in the Bird Reference section is very difficult to see, and for birds with a limited distribution such as the Rufous Birstlebird almost impossible to distinguish, while the Western Bristlebird may as well not exist.

The positioning of some of the photographs is a little strange. Pictures of Royal Spoonbill and Intermediate Egret turn up among the cockatoos and parrots of Cape York. The regions are very large, so the regional birdlist in tabular form at the end of the book is very general.

Yet there is a lot of good reading in the book, enough to whet your appetite. However, considering its size and price, it could have been a much better book. I suspect it was hastily put together for the Christmas market.

If you haven't yet bought Bransbury's book, give yourself a present this Christmas. It is well worth the money, is a convenient size and shape, and should accompany you on your holidays. Buy the others if you have spare cash.

Mystery Photograph

The picture on p. 92 is a close-up of the pustles on the cap of the Fly Agaric toadstool. During the early part of the winter, scores of the beautiful scarlet fungi were growing beneath the pines at the Wurdi Boloc Reservoir. The Fly Agaric is always associated with conifers. With the reservoir enlargement these pine plantations will be removed, and hopefully indigenous trees and shrubs will be grown around the shores.
Trevor Pescott.

SYLLABUS 1988/89

DECEMBER

6 General meeting. Members Night. Estuarine ecology.

JANUARY 1989

18 Committee meeting.

28-30 Campout. Mt. Buffalo. Leaders: Aub & Val Lloyd-Jones. (Ph: 433704)

FEBRUARY

7 General meeting. Kevin Mason. "Lyrebirds".

15 Committee meeting.

19 Excursion. MMBW Sewerage Farm. Leader: Trevor Pescott. (Ph: 434368)

MARCH

7 General meeting. Tony Cavanagh. "Australian Plants in England 1771 to 1800".

10-13 Joint Campout of VFNCA & WVFNCA hosted by GFNC Bellarine Peninsula.

15 Committee meeting.

19 Excursion. Anglesea. Leader: Winston Huggins.

APRIL

4 Annual General Meeting. Members Night.

15 Committee meeting.

19 Excursion. Winchelsea Area. Leaders: Betty Moore, Geoff and Loris Mathison. (Ph: 887220)

STATEMENT OF PURPOSES

1. To stimulate the study and appreciation of natural history by: (a) lectures, discussions and visits to areas displaying features of ecological interest
   (b) taking part in ecological surveys and field studies from time to time.
2. To preserve and protect Australian flora and fauna
3. To issue statements and comments on proposals regarding the management of areas of natural significance, so as to aid the conservation of natural resources and the protection of endangered species and habitats.
4. To faithfully record information, to disseminate knowledge on and to act as a source of information and opinion on matters relevant to the Association's purposes.

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Editorial

Careful observation is one of the traits of a good field naturalist, and meticulous recording turns observation into valuable information which may be called upon as evidence to help save an animal, plant or site from extinction or destruction. Our contributors to this issue are all fine naturalists, and I know you will enjoy reading what they have written.

We are particularly pleased to include an article from one of our new junior members, Fiona Cavanagh. Ray Baverstock's comments on the "invasion" of two birds to the Geelong suburbs, caused me to wonder about those that have disappeared from my garden.

I used to have White-naped Honeyeaters feeding at the nectar bottle in the front garden (with the Red Wattlebirds) while the New Holland Honeyeaters used the bottle in the back. They have not been there since mid 1982. Do you know of birds that left your locality, or others, like the Sulphur-crested Cockatoos, that have recently come? Graham Pizzey makes some interesting comments about bird movements in his latest book, "A Garden of Birds". I would be happy to have *your* comments.

Valda Dedman

Currawongs and Cockatoos Invade Geelong

by Ray Baverstock

Pied Currawongs *(Strepera graculina)* were first sighted in our part of Highton in August 1979. From two or three birds the numbers gradually increased, and in July 1983 eleven were recorded, and they were then appearing more often and ranging over a much wider area.

I have recorded Pied Currawongs in all months of the year, but during the warmer months most birds depart, presumably returning to the bush for the breeding season. On several occasions juveniles have been recorded with the returning adult birds.

The summer of 1987/1988 was the closest to a "normal" summer for several preceding years, and one or two birds returned in the first week of January 1988. By 15th April the flock had increased to five. On 24th and 25th of June the flock numbered more than twenty five. (The local magpie and red wattlebird populations stoutly defended their territory but were outnumbered and forced to make a tactical retreat). The flock of currawongs from Newtown, Belmont, East Geelong, Herne Hill and Geelong West (where one ardent bird-watcher whilst following and observing the flock with binoculars ran foul of the local Neighbourhood Watch and had to do some fast explaining before being allowed to depart).

On 16th July a record number of more than thirty Pied Currawongs spent most of the day flying over and around Helena Street Highton. It was difficult to obtain an accurate count as the birds spent much of the time foraging in the local gardens and nature strips and flying back and forth to a couple of pine trees and a large eucalypt nearby. The noise the birds created was extremely loud and persisted for most of the day. The birds were feeding on lilly-pilly and pittosporum berries and bleeding heart pods.

Observations noted at the Club's September meeting showed that Pied Currawongs had been sighted all over the Geelong area, and it would seem that the birds seen in Highton may have been only part of a larger flock.

It will be interesting to see if the "invasion" occurs in future years and Pied Currawongs become an increasing and permanent feature of Geelong's bird population.

The second "invasion", of Sulphur-crested Cockatoos *Cacatua galerita,* commenced in our area on 12th December, 1988, when five birds flew over. A couple of days later six birds were seen at "Shoubra". Just prior to Christmas the birds were around our area all day, and by the end of the month more than eight birds were present. During the first week of January the flock seemed to be concentrated between Bellevue Avenue and Larcombe Street and was extremely noisy. Numbers gradually built up and by 11th January exceeded twenty, and the birds were ranging mostly between Iona Avenue and South Valley Road, but undoubtedly were venturing even further.

On Sunday 24th January I counted at least twenty five birds flying over and others could be heard calling. Although they have perched in eucalypts and pine trees around our home I have not been able to ascertain what they were feeding on, but presume they would be feeding on pine seeds. One of their favourite roosting spots is a row of pines and eucalypts behind the houses in Cobden Street.

Although flocks of up to twelve Sulphur-crested Cockatoos have been seen flying over in former years, this is the first time that I can recall them staying in the one area for so long.

It seems strange that the birds should forsake their normal habitat for a suburban environment. Only time can tell if this is an extension of their range.

Ray Baverstock
13 Helena Street
Highton, 3216.

Sulphur-crested Cockatoos. Photo: Trevor Pescott.

Some Aspects of the Biology and Ecology of Banksias Results of Recent Research

by Tony Cavanagh

Introduction

One of the most intriguing problems with banksias is the reason for the often vast discrepancy between the number of flowers on a *Banksia* spike and the number of seed set. In some species such as *B. grandis*, there can be up to 6000 flowers spirally arranged around a 40cm spike; yet such a spike or cone will contain at most several hundred seeds enclosed in hard, woody follicles and frequently few or none. The Spanish botanist Antonio Jose Cavanilles was probably the first to comment on this situation when he wrote in 1800-(Salkin 1986)

> "How prodigal nature appears to be in adorning each spike with so many flowers in order to produce some twenty seeds! And how admirable in enclosing these between such thick hard walls in creating such corpulent fruit from ovules so tiny they can hardly be seen".

Many others have speculated since on the reason. Cavanilles' second comment gives a clue to one physical reason– there is simply not enough room on the spike for more than a few hundred follicles as each is many times larger than the flower from which it develops.

Other reasons centre on the mechanism and efficiency of pollination i.e. how many flowers are fertilised, and on what creatures – birds, small mammals or insects – do the pollinating. Still another explanation involved the availability of nutrients to the growing spike. The relative size of follicle to flower means that the development of follicles will require a much higher proportion of available nutrients than are needed for the flowers. Salkin suggests that once an ovary in a certain position has been fertilised, nutrients to other flowers are cut off.

In the last 15 years, there has been a marked upsurge of interest in the genus *Banksia* and in many aspects of its biology and ecology. More than 80 papers have appeared covering such diverse aspects as – pollination and seed set, especially the relative roles of birds, animals and insects; the role of flower and seed predators in seed set; the mechanism of seed release, either by fire in the field or artificially; the ecology of banksias, particularly in relation to fire and the die-back fungus *Phytophthora cinnamonii;* and germination of banksia seed, the last being particularly relevant to an increasingly important banksia cut-flower trade developing both in Australia and overseas in South Africa, Israel and Hawaii.

In this paper, I will discuss four of these and give reference to relevant papers:

(1) The problem of pollination and seed set.
(2) The role of destructive insects and birds in limiting seed set.
(3) The mechanism of seed release.
(4) Maturation times of plants and the role of fire frequency in species survival.

Pollination and Seed Set

The mechanism of pollination in banksias has been discussed by George (1984, p15), Salkin (1986) and Collins and Spice (1988). The last describe the process as follows-

> "These species characteristically bear large, compact inflorescences (spikes), each consisting of numerous, small florets. Each unopened floret is tubular, comprising of perianth that surrounds four anthers and a single pistil. The anthers are adjacent to a specialised, subapical region of the style (the pollen presenter) and a terminal stigmatic groove. Pollen is released by the anthers, and deposited on the pollen presenter, just before the floret opens. Subsequently, the style straightens and elongates, thereby ensuring that the pollen presenter and stigmatic groove protude beyond the perianth and become accessible to potential pollen vectors."

The pollen on the presenter is removed by a foraging insect or animal. The stigmatic groove becomes receptive to pollen from other flowers after the pollen has been removed. If this new pollen germinates, the flower is said to be fertilised and both follicles and seeds develop, taking anything from a few months to up to two years (in the case of *B. grandis)* for the seeds to mature.

While on the face of it, the process is relatively simple, there are still several unanswered questions – are banksias capable of self-pollination i.e. can pollen on the pollen presenter actually fertilise that same flower?; what vectors are responsible – birds, animals or insects – and are particular species of banksia adapted to pollination by particular vectors?; and of course the problem of low or nill seed set.

On the question of self fertility, the answer seems to be that banksias require animals to transfer pollen and that most are outcrossing i.e. the pollen must come from the flowers of another shrub of the species. In most cases, seed set is very low, usually less than 3-5% of flowers being fertilised. Species studied include *B. ericifolia* (Paton and Turner 1985), *B. attenuata* and *B. menziesii* (Scott 1980), *B. paludosa* and *B. spinulosa* (Whelan and Goldingay 1988, Carthew et al 1988) and *B. prionotes* (Collins and Spice 1986).

Secondly, the majority of results implicate birds and insects although particularly in W.A. there is evidence that honey possums and similar small mammals also play a role – Hopper (1980) and Hopper and Burbridge (1982) for western species and Goldingay et al (1988) for eastern species. Turner (1982) summarised what was known of mammals as pollinators in Australia up to 1982. The overall impression left by these authors is that while some mammals have the potential to be effective pollinators, their role in comparison with spinebills, honeyeaters and insects is relatively insignificant. This is mainly because of their nocturnal habits (in some banksias such as *B. ericifolia* the majority of flowers open during the day), the honey possums feed at a much slower rate than do birds and, of course, birds are much more mobile and could affect pollination over many more plants. Additionally, honey possums preen considerable pollen off their fur, leaving less available for pollination.

Thirdly, probably because of experimental difficulties, the question of low or nill seed set has not been answered. The major explanation offered is the "lack of resources" previously indicated but destructive predation by insects and birds as discussed below may also play a significant role.

Little Wattlebird on Banksia serrata. Photo: Trevor Pescott.

The Role of Destructive Insects and Birds in Limiting Seed Set.

Most of our knowledge in these areas comes from the work of Scott and co-workers in Western Australia, Scott (1982), Scott and Black (1981), and Zammit and Hood (1988) in New South Wales.

Essentially, insects can limit seed set in one or both of two main ways –

(1) by eating young flowers before they are fertilised and
(2) by eating developing seeds inside the follicles.

Several further unwanted effects of the predation of insects and their larvae include loss of part or whole of a flowering spike due to tunnelling activities of larvae interrupting the flow of nutrients to flowers and seeds (they damage the phloem and xylem vessels of the woody central axis of the spike so that the spike often dies off above the point of damage, (Scott 1982) and destructive of infested and non-infested cones by White-tailed Black Cockatoos as they search for seed eating weevils inside the follicles and woody axis (Scott and Black 1981).

Scott found that over 30 species of banksias suffered insect damage to a greater or lesser extent. For six species he examined in detail, he found seven separate flower eating insects/larvae and eight seed eating larvae, many of them host-specific and all of them confined to *Banksia*. Up to one third of the flower spikes were prevented from setting seed due to insect damage and up to 60% of seed in follicles was destroyed by their activities. Zammit and Hood (1986) reported for *B. ericifolia* that use of non-systemic, persistent insecticide increased by 40% the number of seeds produced per flowering spike and doubled the number of spikes that set seed. The same treatment had almost no effect of *B. oblongifolia*, however. Hence it appears that insect predation can be a significant factor in reduced seed production in banksias.

The insects function in different ways. With the flower eaters, the female lays her eggs on or among bracts or flowers. Some eggs and larvae die but the rest continue their development among the flowers and bracts or burrow through to the central axis along which they tunnel. After pupation, the adults cut a hole through to the surface and emerge – the life cycle is usually about a year. Evidence for the activities of insects is usually seen in the form of burrows and frass on the surface. However, even though many flower spikes affected by

insects did not develop seed, the news is not all bad – many of these insects are parasitised at an early stage by various wasps and are killed.

The eggs of seed eating insects are generally deposited inside the developing follicles after the female eats a small hole through, or in some species, they are laid on the surface of the follicle. As the larvae develop, they consume the seed(s) in the host follicle and may then move to others, either by way of tunnels through the central axis or by eating through to other follicles. Pupation occurs inside follicles or the central axis and the adults emerge usually within a year.

The role of the White-tailed Black Cockatoo *(Calyptorhynchus funereus latirostris)* in predating these seek eating weevils is interesting in that it appears that the birds can choose, with a reasonable level of certainty, the spikes likely to contain weevils. The birds perch on a branch near the spike and pull the follicles out one by one with their beaks, eating only any weevils they find and discarding follicles containing developed seed. Follicles are removed until the birds can attack the central axis looking for weevils. In the process, the spike is largely destroyed, which may be of some concern as observations showed that the birds often persisted with particular spikes even when they contained no weevils and often destroyed the whole fruit. Scott's work suggested that three factors were significant in enabling the birds to distinguish between infested and non-infested cones – the infested cones tended to be longer, had a greater length with follicles and also had more follicles per spike.

To be continued.

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Tony Cavanagh
Woodlands Drive
Ocean Grove, 3226.

Banksia cone. Note how few seeds have set. Photo: Trevor Pescott.

For Juniors

I am delighted to have a response to my request for a contribution from a Junior member.

King Quails are native to Australia. found in coastal areas from north-west Australia to about Adelaide. Their natural habitat is swampy heaths, wet native and introduced rough grasslands and, in the Northern Territory, dry sedge-plains and rice stubble. They are seldom seen in the wild, so cage bred birds provide an opportunity to observe their behaviour. I wonder if wild King Quails are such poor parents as Fiona's birds. – Ed.

KING QUAILS

by Fiona Cavanagh

Recently I was given a pair of King Quail. These are small ground birds about 14cm high. The male has a fawn body, fawn wings, red legs and eyes. He has slate blue sides and chest with a rusty red rump and belly. The female is very similar to the Stubble Quail although smaller. She is mainly a dark brown streaked with white. The underparts are buff speckled with a darker brown.

When I first received my birds they were very frightened from the ride home from the pet shop. The male kept on jumping/flying against the wire at the top of the cage. They finally settled down and I was able to put the food and water in. After about a day I became quite worried, the quails had not eaten any of the chicken food which I had given to my previous Stubble Quails. My brother has budgerigars so I decided to try them with budgie seed. Luckily they ate this quite happily. I also discovered they love worms.

About a month later the mother laid her first eggs. It was almost as though the parents didn't know what they were and they definitely didn't know what to do with them. The female laid about fifteen eggs, which rolled all over the cage before she decided to sit on four eggs. In about three to four weeks the first little quail hatched. He sat in his nest and tweeted for a while and then decided that, if they wouldn't

come to him he would go to them. He spent the next half hour chasing his parents around, trying to snuggle up in their feathers. The parents were shocked at this behaviour and were careful to stay away from this strange creature! They would have gone on like this had not the baby caught its leg in some grass and dislocated it. As the parents showed no interest in its crying cheeps, I brought it inside with the other two eggs. The parents had rolled another egg out of the nest so I left that. After ringing up a few people, we decided the best thing would be to put the eggs on a cloth in a frypan turned down low as the mother would not sit on them, and return the baby to the cage.

Early next morning, I found the baby nearly dead with cold as the parents had still not showed any interest in it. I brought it inside again and put it with the eggs in the frypan where it soon recovered and began making its plaintive cheeping again. I looked at the eggs and one had a hole in it and was rocking slightly. I could also see a beak moving. Later on, when the egg was still intact, we decided to open it ourselves thinking the quail was too weak. When we opened it, a red, wet creature struggled out of his shell and over to his older brother who was exhausted and sleeping. We left them and when I came back an hour later, the chick was totally transformed. It was now a tiny little bird the size of a ten-cent piece, striped brown and black, and tweeting mournfully. I then put them back in the cage and watched for an hour or so but the parents still paid no attention apart from an occasional peck. I decided to put the mother and the two babies in a small box and leave them alone. After a while the mother stopped running away from the chicks and grudgingly allowed them to sit under her. Unfortunately, the one with the dislocated leg only lived for five days while the other was sat on and squashed three days later. The remaining eggs did not hatch.

About two months later the mother had laid another six eggs which she sat on, well hidden in the corner of the cage. This caused me panic as I thought she had escaped. After pulling the cage apart I finally found her looking innocently at me from the corner of the cage. Of this batch, all hatched but ants got to the youngest and it died. Another was sat on. Even with only four chicks, the mother still looked comical with lumps of moving feathers under her. The four still surviving grew up but two escaped. I still have the remaining birds now almost fully grown – one male and one female.

The mother recently laid another nine eggs.. She showed the young female how to sit on the eggs but she really wasn't very interested. Of these nine, one was rolled away and one didn't hatch. I think I have seven babies but I can't be sure as they move too quickly. The father helps look after the chicks (both old and new) but doesn't help with the incubating until some chicks have hatched and the mother is looking after them. The young male bird takes no notice of the chicks. When the chicks were newly hatched, the female young bird sat down next to the father who was sitting on the remaining eggs. Immediately three or so chicks snuggled under her. She didn't move but if she saw one emerge, she would peck it as if she didn't know what it was. She has a follower which, although she appears to dislike, it insists on snuggling underneath her.

I am hopeful that all these quails will survive now that the parents are used to them and seem to know how to look after them.

Fiona Cavanagh
Woodlands Drive
Ocean Grove, 3226.

Note

We always need contributions to the Geelong Naturalist from members (and non-members) both young and old. Scholarly articles, brief notes and comments, "ordinary" accounts, mystery photographs – all are acceptable. Items of local interest are particularly sought. It is much easier for the printer if material is typed. Assistance with typing would be appreciated. If you can help please contact Valda Dedman on 432374.

Copy for the May issue should reach the editor no later than 4 April.

Exploring the Point Lonsdale Rock Shelf – An Introduction

by Valda Dedman

Rocky shores are always wonderful places to investigate when the tide is out, and Point Lonsdale, below the lighthouse, is no exception. This almost horizontal shelf, which is part of the Harold Holt Marine Reserve, impresses me first of all for its seaweeds, spread all over the surface, creating colourful gardens in the tide pools, or battling the surge on the ocean side.

"Seaweed" is the term loosely used for both marine algae and sea grasses. You are likely to find only one sea grass at Point Lonsdale; that will be *Amphibolus antarctica* and it may have an alga, *Metagoniilithon stelliferum,* growing on it which occurs nowhere else. Amphibolus is a flowering plant, but true seaweeds, the algae, are lowly plants of simple structure without roots, stems, leaves or flowers, although at first glance many would seem to reemble the land plants of our gardens. So we need a new set of words to describe them; thallus for the whole plant, frond for the "leafy" part, and holdfast for the root-like appendage which may anchor it but is not used to absorb nutriment. The seaweed obtains its food, and oxygen, direct from seawater, and like other plants it requires light for photosynthesis, so seaweeds are never found growing in very deep water.

Marine algae are of four main types – blue-green (which are usually so small and inconspicuous that you need a hand lens or microscope for identification), brown, green and red. They are separated into these groups by internal structure, life history and reproductive conditions and not necessarily by their external colour, although colour is a rough guide.

At low tide the Point Lonsdale rock shelf is carpeted with a slippery brown seaweed, *Hormosira banksii,* commonly known as bubbleweed, sea grapes or Neptune's necklace because each frond consists of a row of beads connected together by small stalks. If you look closely you will notice that each bead is dimpled with tiny yellow spots. These are aptly known as "conceptacles", where reproductive products – tiny egg-like cells and spermatazoa – are produced. Neptune's

necklace usually looks more green than brown; it covers the mid-tide zone and forms the perfect hiding place for many kinds of molluscs, flatworms and small crustaceans which it protects from drying out. This seaweed was one of the first named from Australia and like the Banksia is named for its collector, Sir Joseph Banks.

Another common seaweed at Point Lonsdale is the bright green Sea lettuce, *Ulva lactuca.* It sometimes grows very luxuriantly, for, like its garden namesake, it responds well to fertiliser, in other words, to organic waste. It is not, however, regarded as a gourmet's delight. Widespread throughout the world, it has been used in Japan, Europe and Hawaii in salads and soups, but it is tough and indigestible even though the fronds are only two cells thick. A Frenchman once delcared it made him feel ill! Appearances can be deceptive.

In my estimation the most beautiful seaweed is *Chaetomorpha darwinii,* which consists of strings of translucent pale green round beads. They are really unbranched chains of large cells up to 8 mm in diameter, and grow attached to rocks or to other seaweeds.

By contrast, *Cladophora,* another green species, appears tufted, for the fronds are densely branched.

Cystophora species also have rather complex branching, but their "stem" is always flattened. Some have air bladders to keep them buoyant, but these may be absent when wave action is strong. They are plants of the sub-tidal zone and we see them only at very low tide unless they are growing in deep rock pools or are washed up on the beach. They are nevertheless very abundant in their habitat zone.

Plants that grow in the surge are specially adapted to withstand constant movement and battering. The thick rubbery strap-like kelps, such as *Eklonia radiata,* grip the rocks with sturdy holdfasts. After storms we may encounter great masses of Eklonia washed up.

A great number of algae grow in the sheltered intertidal pools and display a variety of forms, textures and colours. They may be spiky, velvety, fanlike or feathery, dark green, mid brown, soft pink or deep burgundy, standing erect or spread over the rock surface like a skin. Many of the red seaweeds occur in the pools, including the coralline group, which extract lime from seawater and use it to build up their

tissues. Such seaweeds feel hard and include the much jointed *Amphoroa* and *Corallina* species. What appears to be pink or mauve rock lining many pools is in fact an encrusting coralline alga which prefers a shady situation.

The diversity of both plant and animal life that is found in rock pools makes them a source of delight to the naturalist. One may see starfish of many colours – softest grey, purple, bright orange and pink, blue and brown – crabs, tiny fish, shrimps, sea anemones, elephant snails, chitons, and many more.

The most numerous Sea star at Point Lonsdale is the Common Sea Star, *Patirella calcar,* a colourful species which normally has eight arms. You may also find the five armed *P. exigua,* looking like a small cookie, or the Eleven-armed Sea Star, *Coscinasterias cala-*

Point Lonsdale rock shelf. Photo: Trevor Pescott.

maria, which is much larger and also more aggressive. One of its favourite foods is the Abalone.

Sea stars are remarkable creatures. To see them lying motionless on the bottom or sides of an intertidal pool, you would hardly guess that the undersurface was covered with hundreds of tiny tube-feet, with suckers at their tips. Sea stars can move quite a distance, and if you place one on its back, it will very soon turn itself right way up using these feet in succession. Some species, with well developed arms, also use them to force open shellfish, by pulling gently and persistently at both halves of the shell.

In the centre of the lower surface lies the mouth, through which the stomach can be extruded right over prey and food digested outside the body. Some species, such as the Common Sea Star, are omnivorous; they eat algae, detritus, living molluscs and other small animals.

Coscinasterias calamaria does not always have eleven arms; the number varies from seven to eleven arms, which may be of uneven length, because this Sea star can also propagate by self-division. It will not be destroyed, but multiplied, if it is broken in two and thrown back. Its upper surface is covered all over with spines, each surrounded with many snapping pairs of "jaws", known as pedicellariae, crowded together on a sort of platform which can be raised or lowered. It keeps small enemies at bay, and its surface clean, with these "pincers".

The shells of the Elephant Snail, *Scutus antipodes*, are often found washed up on the beach and give no hint of the real nature of the animal they come from. The shell is pure white and dull, while the animal is jet black and glossy, and has a pair of large black tentacles which it sways from side to side as it moves. The Elephant Snail is aptly named for it may be 15 to 16 cm long. It is often found under large stones or in crevices.

The Elephant Snail is related to the Abalone, *Haliotis ruber*, whose rough reddish shell, lined with mother-of-pearl, may be found in rock pools, although the complete animal is rarely seen there these days. It too has a fleshy foot, and several sets of tentacles. Both are vegetarians, grazing on seaweeds.

Sea Anemones may be found in pools, or lining the long cracks in the rock shelf. They may look like blobs of stiff jelly or feathery flowers, depending on the tidal level. They appear firmly attached, but most can move, some creeping along and others floating off to a new location. They are extremely simple animals, consisting of a base a column and a disc containing a mouth surrounded by tentacles. They have no blood system, and the mouth is the only opening. They are carnivorous, as you will discover if you "feed" them a small shellfish. The tentacles quickly close round the food item and some time later the empty shell is discarded. The tentacles may feel sticky and some have stinging cells, but they are harmless to man.

One of the commonest anemones at Point Lonsdale is the dark red Waratah Anemone, *Actinia tenebrosa*, which often occurs in colonies containing both large and small individuals. The young, tiny replicas of the adult, are born by being ejected through the mouth of the parent, and often settle close by.

Elephant Snail. Photo: Trevor Pescott.

Although it is quite common, you might not even notice another anemone, *Oulactis muscosa*, unless its pale greyish-white tentacles were showing, for it camouflages itself with sand or shell grit particles which are attached to the column by specialised adhesive suckers, the verrucae.

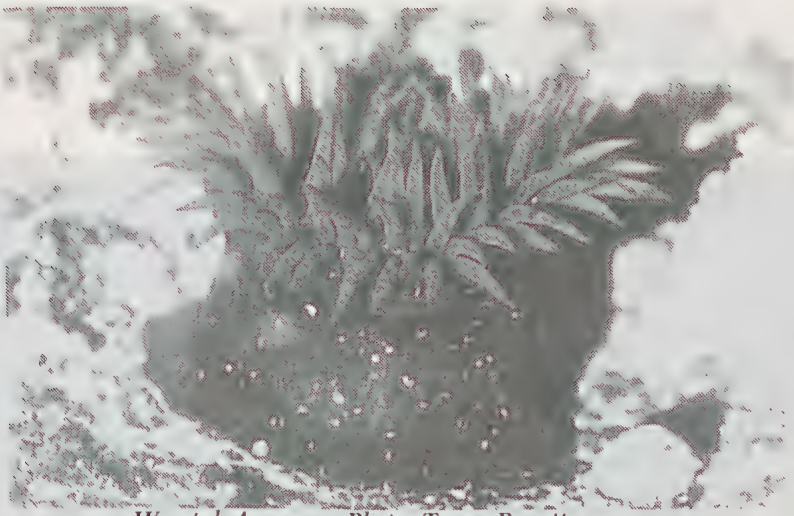
The Green Anemone, *Cnidopus verater*, lives in shallow pools and cracks in the upper tide level of the rock platform.

You might come upon a transparent Serene Shrimp, *Palaemon serenus*, in one of the intertidal pools. It can be identified by the wide band of red on the chelae (hands) on the second pair of legs. This shrimp may perhaps only be noticed when it moves, darting jerkingly about even in full sun light. It can be attracted by a piece of meat at the end of a string. Or there might be a Hermit Crab, *Paguristes sinuatus*, moving along with its borrowed Turban shell home. It needs the shell for protection, for although the front part of the body and the forelegs are covered with a hard exoskeleton, most of the abdomen is not calcified. Most of the usual crab abdominal appendages are missing and the last pair are mere hooks for holding on to the shell. As it grows it must periodically look for a larger home. It always uses an already empty shell; it never ousts the original occupant.

Chitons, or coat-of-mail shells, are visible on upper rock surfaces when the tide is out. However, they cling so closely to the rock that it takes a knife and a quick arm action to prise them off. They then curl up like a garden slater, which they are able to do because their "shell" is made up of eight closely fitting plates. Chitons can move relatively swiftly with a gliding movement caused by muscular contractions of the foot. They are very sensitive to light, which is sensed through "eyes" which are found in pores in their shell plates. There may be thousands of these tiny eyes.

The White Chiton, *Plaxiphora albida*, may be up to eight centimetres long, and is characteristic of horizontal surfaces over which the surf rolls except at very low tide. It is easily recognised by its furry girdle. The undersurface of its foot is a beautiful apricot colour.

I have mentioned so far a mere fraction of the plants and animals of the Point Lonsdale rock shelf. If you go there look out for the semi-



Waratah Anemone. Photo: Trevor Pescott.

resident seal, which is frequently seen sunning itself on the outer reef. It may move off only when the incoming tide threatens to submerge its platform. And there are the various "markers" for the ecological tide zones – the Banded Periwinkles of the splash zone which can survive long periods of desiccation, the Barnacles and Little Horse Mussels from high water to mid-tide level, then the white splatter of Tube-worms (who would guess the beauty of their feathery tentacles when the tide comes in?); the Hormosira covering the flat shelf, and the life of the associated pool and crevices, and the huge kelps of the subtidal area which are never completely exposed.

This brief introduction is based on an excursion by the G.F.N.C. in March 1986. We will be visiting the site again as part of the combined VFNCA/WVFNCA Campout to the Bellarine Peninsula on the Labour Day weekend this year.

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Valda Dedman
69 North Valley Road
Highton, 3216.

Mystery Photograph No. 4

Photographed near Warrnambool about ten years ago. The "fibres" are about 600 mm (two feet) high.

WE ARE MOVING!

As from the General Meeting on
TUESDAY 2nd MAY, 1989
meetings of the G.F.N.C. will be held at
KARINGAL COMMUNITY CENTRE
Humble Street, East Geelong

N.B. Change of venue for meetings – general, birdgroup, plant group, committee.

Linton and Clarkesdale Bird Sanctuary

Plant List

20th November 1988

Pimelea humilis	Common Riceflower
Helichrysum apiculatum	Common Everlasting
Helichrysum bracteatum	Golden Everlasting
Amyema pendula	Drooping Mistletoe
Phragmites communes	Common Reed
Bursaria spinosa	Sweet Bursaria
Acacia iteaphylla	Flinders Wattle
Triglochin procera	Water-ribbons
Dodonaea cuneata	Wedge-leaf Hop-bush
Scirpus nodosus	Knobby Club-rush
Euc camaldulensis	River Red-gum
Euc viminalis	Manna Gum
Euc leucoxylon var rosea	Yellow Gum
Euc ovata	Swamp Gum
Euc rubida	Candlebark
Ptilotus spathulatus	Pussy-tails
Eryngium rostratum	Blue Devil
Convolvulus erubescens	Blushing Bindweed
Kennedia prostrata	Running Postman
Acaena echinata	Phelps Burr
Acaena anserinifolia	Bidgee-widgee
Pratia penduculata	Matted Pratia
Themeda australis	Kangaroo Grass
Acacia mearnsii	Black Wattle
Acacia armata	Hedge Wattle
Acacia triptera	Spurwing Wattle
Acacia glandulicarpa	Hairy-pod Wattle
Acacia pravissima	Ovens Wattle
Acacia pycnantha	Golden Wattle
Acacia howittii	Sticky Wattle
Acacia melanoxylon	Blackwood
Grevillea punicea	Spider Grevillea
Grevillea chrysophaa	Golden Grevillea
Sollya heterophylla	Blue-bell Creeper
° *Briza maxima*	Shell Grass
° *Briza minor*	Shivery Grass
Poa australis	Tussock Grass
° *Bromus unioloides*	Prairie Grass
Daucus glochidiatus	Austral Carrot

° *Anagallis arvensis*	Pimpernel
Cares sp.	Sedge
° *Rosa rubingenosa*	Sweet Briar
Xanthorrhoea minor	Small Grass-tree
Exocarpos cupressiformis	Cherry Ballart
Dianella revoluta	Black-anther Flax-lily
Melaleuca decussata	Totem Poles
Melaleuca styphelioides	Prickly Paper-bark
Melaleuca halmaturorum	Kangaroo Island Paper-bark
Melaleuca wilsonii	Violet Honey-myrtle
Wahlenbergia sp.	Bluebell
Bossiaea prostrata	Creeping Bossiaea
Dichopogon strictus	Chocolate-lily
Hakea sericea	Silky Hakea
Banksia serrata	Saw Banksia
Banksia spinulosa	Hairpin Banksia
Banksia marginata	Silver Banksia
° *Centaury minus*	Common Centaury
Juncus pallidus	Pale Rush
Grevillea dimorpha	Flame Grevillea
Acacia acinacea	Golddust Wattle
Grevillea tridentiphthera	
Hydrocotyle hirtella	Hairy Pennywort
Burchardia umbellata	Milkmaids
Drosera auriculata	Tall Sundew
Myriophyllum propinquum	Water-milfoil
Senecio lautus	Variable Groundsel
Leptorhynchus squamatus	Scaly Buttons
Goodenia lanata	Trailing Goodenia
Acacia calamifolia	Wallowa
Pultenaea pedunculata	Matted Bush-pea
Stylidium graminifolium	Grass Trigger-plant
Correa lawrenciana	Mountain Correa
Sambucus gaudichaudiana	White Elderberry
Pteridium esculentum	Bracken Fern
Microtis unifolia	Common Onion-orchid
Chiloglottis sp.	Bird Orchid
Thelymitra sp.	Sun Orchid
Solanum sp.	Kangaroo Apple

Plants are listed in the order seen, and not in botanical order. Many plants are introduced, and a considerable number are planted non-indigenous, bird-attractive specimens.

Gwen Yarnold
38 Pride Avenue
North Geelong, 3215.

Barwon River Excursion Bird List

November 5th 1988

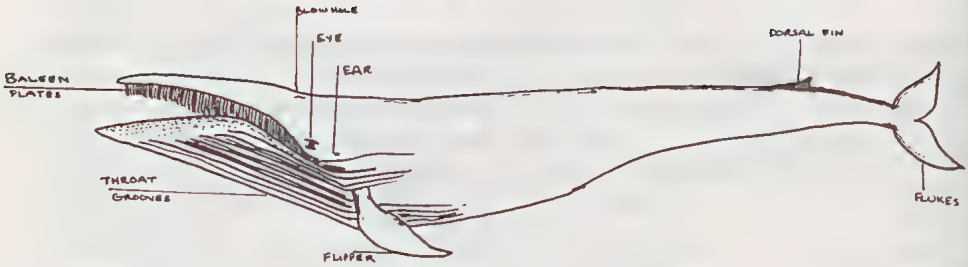
Fairy Martin
Long-billed Corella
Lorikeet sp.
Pacific Black Duck
Sulphur-crested Cockatoo
Magpie Lark
Chat
Galah
Goldfinch
Sacred Kingfisher
Red Wattlebird
Falcon sp.
Skylark
Red-rumped Parrot
Eastern Swamphen
Eastern Rosella
Welcome Swallow
Black-faced Cuckoo shrike
Australian Raven
Willie Wagtail
Blackbird
Rainbow Bee-eater
Grey Shrikethrush
White-plumed Honeyeater
Grey Fantail
Straw-necked Ibis
Little Raven
Australian Magpie

29 Species

Barwon River Excursion Plant List

November 5th, 1988

Acacia mearnsii	Black Wattle
Eucalyptus camaldulensis	River Red Gum
Hymenanthera dentata	Tree Violet
Gynatrix pulchella	Hemp Bush
Melaleuca ericifolia	Swamp Paper-bark
Geranium solanderi	Austral Crane's-bill
Phragmites australis	Common Reed
Triglochin procera	Water Ribbons
Dichondra repens	Kidney Weed
Convolvulus erubescens	Blushing Bindweed
Muehlenbeckia cunninghamii	Tangled Lignum
Velleia paradoxa	Spur Velleia
Themeda australis	Kangaroo Grass



Mystery Photograph No. 4 – The Solution

Blue Whale

The picture shows the baleen of a Blue Whale that washed ashore in a substantially decomposed state. The Blue Whale is the largest of all animals on Earth – indeed no larger has ever existed, even the giant dinosaurs were not as big as the Blue Whale.

Hunted to near extinction, Blue Whales appear to be recovering their population ever so slowly. They are occasionally sighted off the south-west coast.

Trevor Pescott,
4 Victoria Terrace,
Belmont, 3216.

SYLLABUS 1988/89

FEBRUARY

7 General meeting. Kevin Mason. "Lyrebirds".
15 Committee meeting.
19 Excursion. MMBW Sewerage Farm. Leader: Trevor Pescott. (Ph: 434368)

MARCH

7 General meeting. Tony Cavanagh. "Australian Plants in England 1771 to 1800".
10-13 Joint Campout of VFNCA & WVFNCA hosted by GFNC Bellarine Peninsula.
15 Committee meeting.
19 Excursion. Anglesea. Leader: Winston Huggins.

APRIL

4 Annual General Meeting. Members Night.
15 Committee meeting.
19 Excursion. Winchelsea Area. Leaders: Betty Moore, Geoff and Loris Mathison. (Ph: 887220)

MAY

1 General Meeting
(NB. Change of venue)

STATEMENT OF PURPOSES

1. To stimulate the study and appreciation of natural history by: (a) lectures, discussions and visits to areas displaying features of ecological interest
   (b) taking part in ecological surveys and field studies from time to time.
2. To preserve and protect Australian flora and fauna
3. To issue statements and comments on proposals regarding the management of areas of natural significance, so as to aid the conservation of natural resources and the protection of endangered species and habitats.
4. To faithfully record information, to disseminate knowledge on and to act as a source of information and opinion on matters relevant to the Association's purposes.

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Adult Membership	$12.00
Joint/Family Membership (one copy of Geelong Naturalist)	$18.00
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GEELONG NATURALIST

JOURNAL OF THE GEELONG FIELD NATURALISTS CLUB INC.

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CONTENTS

EDITORIAL

The Club has moved to a new "home", and the May General meeting saw us settle into the Karingal Community Centre with a buffet dinner followed by a night of nostalgia when through slides and movie film we relived excursions and campouts from the early years. It was a great social event and we were able to renew acquaintances and make new friends.

Excursions and campouts are an integral part of the Club's aims, as is the programme of speakers at general meetings. Our Statement of Purposes* makes this clear, for our first aim is "To stimulate the study and appreciation of natural history by lectures, discussions and visits to areas displaying features of ecological interest." The Committee welcomes your ideas for subjects and speakers, and places to visit. Ray Baverstock's suggestion of Cherrypool (see his article later in this issue) is an excellent one. Like Ray, I found the spot by accident, and camped there one Easter when we explored the western Grampians and Black Range. Perhaps you have a special place you would like to share with other members, or an area you would like to visit for the first time.

The Geelong Naturalist also fulfills our Purposes for it aims "to faithfully record information, to disseminate knowledge" and in this way we hope it will "preserve and protect Australian flora and fauna".

I believe we are a successful Club. Last year's achievements are set out in the Annual Report, published in this issue. Judge for yourself how well we met our aims. May we continue to flourish.

Valda Dedman

* The Statement of Purposes appears in full on the inside cover of this journal and on the Programme Card. The complete Rules of the Club, which set out its administrative details, are available from the Secretary.

The Dewdrop Spider – Argyrodes antipodianus

by Dave King

A recent visit to Ocean Grove's Kingston Park, in search of colonies of the ant, Iridomyrmx nitidus, provided the opportunity to re-discover specimens of the Dewdrop Spider, *Argyrodes antipodianus*. This was an enlightening experience as I had not come across this spider for some sixteen years, which at that time was found in the Ocean Grove Nature Reserve, a distance of 1 km from Kingston Park.

I was then prompted to have a search for the spider in the Reserve. In so doing, several specimens were found. Their body size, 3.5 mm for the female and 1.25 mm for the male, makes for some difficulty in finding specimens. As a commensal they are always to be found in the web of other spiders. Clyne (1969), describes them as found in the web of *Nephila,* and Main (1976) includes the web of the Garden Spider, *Araneus transmarinus.* In all instances described herein I found *A. antipodianus* in the web of the Leaf Rolling Spider, *Phonognatha wagneri,* and in no instance that of *A. transmarinus.*

Being commonsel *A. antipodianus* feeds on the small prey caught in the host's web which the host ignores as food. *A. antipodianus* seems also to have lost, to a large degree, the ability to construct a web. This was evident when placed in a container, for it struggled clumsily around apparently seeking a ready-made web system on which to reside securely.

The *A. antipodianus* belongs to the family Theridiidae, commonly known as Comb-footed spiders. Possibly the most well-known member of this family is the notorious Red-backed Spider, *Latrodectus mactans.* It is interesting to note the similarity in shape of dorsal pattern on the abdomen of each species, Fig. 1A. The term comb-footed derives from the series of curved spines or bristles on the tarsal segment of the fourth pair of legs.. These spines are known as the calamistrum and are used to come out silk from the organ called the cribellum

In the host's web, *A. antipodianus* seems to hang inverted, so that the silver-like dorsal surface of the abdomen is presented toward the ground. Whether this is a defensive posture by appearing to look like a small drop of water suspended in the web, is not certain.

Under the microscope the integument of the upper abdomen is seen as a transparent cuticle layer of chitin. Beneath this layer is a layer of cellular material which has all the appearance of aluminium foil that has been crushed and then flattened out again. This cellular layer is probably prismatic in form such that the

light is refracted to produce the silver-like glitter. At the same time this cellular layer can be seen to continually move or pulsate with the heart beat, and, no doubt contributes to the sparkling silver appearance of this spider.

Found on the ventral surface of the abdomen are two circular spots of brilliant gold colour. These are the two lung-books or respiratory organs. The golden colour appears to be produced by a thicker layer of chitin over the prismatic cellular layer. Remainder of the body surface is black in colour.

A. antipodian males when resting in the host web have the habit of placing the anterior pair of legs together and straight out in front of the body. This has not been observed in the female.

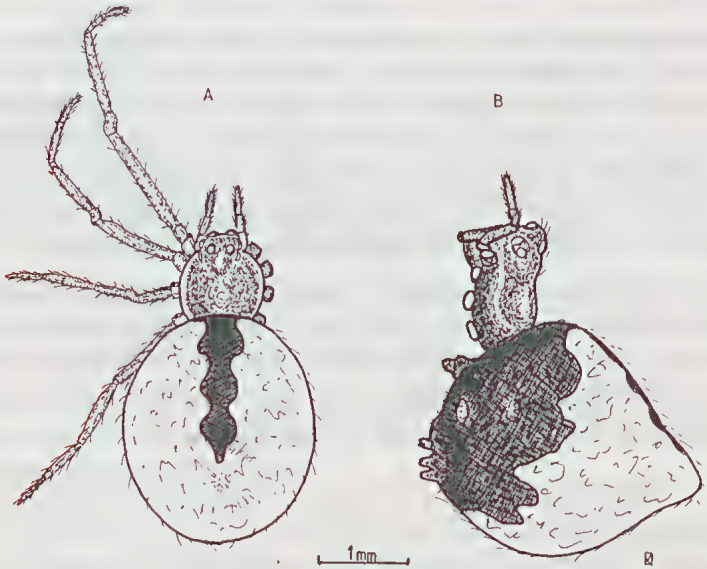

Fig.1. Argyrodes antipodianus—female.
A. Dorsal view, legs removed r.h.s.
B. Lateral view, legs removed.
C. Ventral view, legs removed.

Figure 1 Argyrode antipodianus

As a guest in other species' web the advantage to *A. antipodian* is obvious. The only advantage occuring to the host spider would appear to be that the web is cleared of snared insects not to the host's liking. The mechanism is not known by which the host spider recognises that the guest poses no threat or is not to be treated as prey, but is of mutual benefit. In the light of the fact that males of most species are at risk in the female's web makes this all the more interesting. It should, however, be noted that male and female Leaf Rolling Spiders do co-habit the curled leaf retreat, something that is possibly unique in the spider world.

REFERENCES: Clyne, D. 1969. A Guide to Australian Spiders, Nelson. Main, B.Y., 1964, Spiders, The Australian Naturalist Library, Collins.

Dave King
9 Traum Street,
Portarlington

Mystery Photograph No. 5

by Trevor Pescott

Whose beak is this? Birds' beaks are as diverse as the birds themselves – curved in the spinebill, spatulate in the spoonbill, tiny in the weebill, angular in the wedgebill, broad and flat in the boat-bill and sharp in the wedgebill. Or maybe it's not a bird's beak at all!

Mystery Photograph No. 5

New Holland Honeyeater on Banksia marginata Photo: Trevor Pescott.

Some Aspects of the Biology and Ecology of Banksias: Results of Recent Research

by Tony Cavanagh

PART II

In part I, I discussed the pollination of banksias and the role of destructive insects and birds in limiting seed set. Recent studies tend to indicate that banksias are not self-fertile, they require external pollinators; that birds, insects and small mammals are all responsible although the first two are likely to be more effective; and that there is no complete understanding of the reason for low seed-set in banksias although it is likely to be related to the availability of nutrients to the growing seed. Insects in particular can cause the loss of up to 40% of the seed crop, either by eating flowers or by consuming developing seed. Cockatoos, in seeking the grubs or larvae of these insects, are also responsible for significant destruction of mature seed cones in certain species.

Two other aspects to be considered in this part are: -

(1) The mechanism of seed release.
(2) Maturation times of plants and the role of fire frequency in species survival.

Mechanism of Seed Release

Probably the first major study of the opening mechanism of seed follicles was that of Gill in 1976 using *Banksia ornata* (Gill 1975). He treated both wet and dry cones in an oven at various temperatures and found that air-dry follicles opened at temperatures from 75°C upwards, the time required decreasing with increasing temperature. Moist cones opened more slowly and required a temperature exceeding 100°C before follicles opened. Gill hypothesized that "follicle rupture occurs when tension across the abscission zone exceeds its strength: moisture has a major role in affecting the tension, and temperature a major role in affecting the strength." (Gill 1976 p. 329).

It was left to Wardrop in a series of detailed studies in 1981-82 to elucidate the actual mechanisms which cause the follicles to open (Wardrop 1983). Using microscopic examination of thin sections and a range of X-ray and chemical tests, Wardrop showed that the valves of the follicles are held together by a resinous substance which is destroyed by heat. The structure of the valves is quite complex, consisting of three "layers" of long, tubular cells known as sclereids in various orientations. As the follicles dry, stresses develop in the valves due to structural differences between the sclereids in the layers; these stresses are relieved when the resin layer melts, causing the valves to open or reflex and allow release of seed.

However, as anyone who has tried to extract banksia seed knows, merely heating the cones does not guarantee that seed will fall out – often, all that happens is that the follicles "gape" slightly, but seed cannot be extracted. Cowling and Lamont (1985) followed up Gill's earlier use of moisture and found that wet-dry cycles, dunking a heated cone in water for a short period and then allowing it to air-dry, markedly increased the rate of release of seeds. (Fig. 1). In fact, in some species, unwetted cones showed no release of seeds after 77 days.

Cowling and Lamont (1986) suggested that the two-winged plate or divider. (Fig. 2) which separates the two seeds in banksia follicles, is hygoscopic and with alternate wetting and drying, acts like a layer and gradually draws the seeds out. They further found that more seeds released at lower temperatures (15°C compared with 30°C), a factor important for subsequent release of seeds in the field.

Many banksias species are killed by fire and plants subsequently regenerate from seed released from the plant after the capsules open. Release of seeds soon after a bushfire in summer could mean a high seed loss due to insect and animal predation and high summer soil temperatures. Delayed dispersal, until the first rains for autumn/early winter, also means that conditions will be more suitable for germination. The optimum germination temperature for many western banksias is 15-20°C (Cowling and Lamont 1987); for several eastern species, it is over a similar range although for B. "aemula" (now *B. serratifolia)* the range 25-30°C is probably more appropriate. (Sonia and Heslehurst 1978).

These studies have particular relevance for growers of banksias. An optimum procedure would be as follows: –

Heat follicles over an open fire until some begin to grow. Drop the hot cone into a container of water and leave for a few hours. Remove cone and allow to drain; then put it on a tray in a warm, sunny (not hot) position free from wind. The seeds will fall out in a few days and tweezers can be used to extract the divider and seeds in difficult cases. If some follicles still remain closed, the above procedure can be repeated. Seeds should be sown in early autumn (March, early April) or late winter (late August, September) in southern Victoria. Germination usually takes from four to eight weeks.

Maturation Times of Plants and the Role of Fire Frequency in Species Survival

Two terms are used to describe the different response of banksia species to fire in the field. Roughly half are obligate-seeders, that is plants are killed by fire and regeneration is from seedlings. The rest are resprouters, that is the foliage is burnt but plants regrow from epicormic buds beneath the bark or from underground lignotubers. (Zammit and Westoby 1988). Another term employed is serotiny, that is, retention of seeds in closed follicles held in cones on the plant (Cowling and

Lamont 1985). The latter term implies that most of the seed from which a new generation will grow if the parent plant is destroyed remain on the plant and the stock of soil-stored seed is negligible. This of course is in marked contrast to most acacias and plants such as boneseed where regeneration after a fire arises from a massive crop of seedlings which germinate from seed banks in the soil.

There has been considerable work on many aspects of the response of banksias to fire, notably by Lamont and Cowling in Western Australia and Zammit, Westoby, Bradstock and Myerscough in New South Wales. It is well known that our flora has developed in conjunction with fire (Gill 1975, Gill et al al 1981) but fire can be a double-edged sword. While many plants rely on fire to promote germination of seedlings and/or regrowth from lignotubers, the frequency of fires is critical to the survival of many species. If fires occur at too short an interval, plants may be destroyed before they have flowered and set seed. Ultimately, plants which are obligate-seeders may become extinct with too frequent burning and will tend to be replaced by those which are resprouters. Hence many of the studies have been aimed at providing basic data on behaviour of banksias in fire with a view to understanding regeneration limitations and/or to recommending fire frequency intervals where controlled burning is employed.

The following species have so far been examined in detail: -

asplenifolia - siddiqu et al 1976.
attenuata - Cowling et al 1987; Cowling and Lamont 1985, 1987.
burdettil - Lamont and Barker 1988.
ericifolia - Bradstock and Myerscough 1981; Bradstock and O'Connell 1988; Siddiqi et al 1976; Zammit and Westoby 1987, 1988.
grandis - Abbott 1985.
hookeriana - Lamont 1985.
leptophylla - Cowling et al 1987; Cowling and Lamont 1987.
menziesii - Cowling et al 1987; Cowling and Lamont 1985, 1987.
oblongifolia - Zammit 1988; Zammit and Westoby 1987, 1988.
ornata - Gill and McMahon 1988.
prionotes - Cowling et al 1987; Cowling and Lamont 1985, 1987.
serratifolia - Siddiqi et al 1976
tricuspis - Lamont and van Leeuwen 1988.

Both eastern and western species are included and because of the differeing purposes of the studies, there are few common results. In many cases, the "seed bank" is seed stored in cones on the shrub, declines with age while in others it may increase until the plant is quite old. Thus in *B. hookeriana,* seed quantity may decline after 12 years while in *B. burdettii* it can still be rising after 18 years (Lamont 1985). By contrast, seed quantity in *B. ornata* reaches a peak after 38 years and does not significantly decline until plants are over 50 years

old (Gill and McMahon 1986). The size of the seed bank at any given time will depend on such factors as growing conditions, predation by insects and birds and the time interval since the last fire. This last point becomes significant in relation to the time required for a plant to flower from seed. In many banksias, this period is from four to six years but in some species such as *B. solandri* and *B. tricuspis* it may be ten or more years (George 1984, Muir 1987). A plant will take several more years to produce a substantial seed crop so that, depending on species and the season of the fire, fires at intervals of less than between 10 and 18 years may well lead to local elimination of obligate seeders (Benson 1987, Gill and McMahon 1988). Even resprouters are unlikely to flower within two years of a fire and would probably be adversely affected by fires at less than five yearly intervals.

The other highly significant factor governing survival of banksia species after burning is the season in which the fire occurs. Almost all studies report that spring burns are highly unsatisfactory while late summer-early autumn burning leads to much increased germination and seedling establishment. The main reasons for this are that weather conditions are more favorable at this time for germination with cooler temperatures and more rainfall, whereas seed released after a spring burn will often not germinate until the following autumn. During the intervening months, it may lose viability or be eaten. In any case, seedling mortality is very high in the first two years after germination with probably only a few percent surviving to adulthood. For adequate regeneration, it is important that the plant's chance of survival is maximised.

Comment

The genus banksia is one of the few groups of Australian plants whose biology and ecology are being studied in any detail (Cavanagh 1988). However, much more needs to be learned, even on pollination and the role of fire which so far are the major areas of study. Probably the most important unknown is the cause of the observed low to nill seed set in many species. Unfortunately, this aspect is being little researched. An understanding of the reason could perhaps help to explain some of the unusual distributions of banksias and the apparent inability of certain species to survive fires.

Mechanism of Seed Release

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Another most useful reference on all aspects of the ecology of banksias is the recently published *The Banksia Atlas* by Anne Taylor and Stephen Hopper. Australian Flora and Fauna Series Number 8. Canberra, Australian Government Publishing Services, 1988. This summarises the results of a massive survey of banksias throughout Australia by over 420 keen observers. Every Banksia species and sub-species is covered including several newly discovered ones and the information is very detailed and up to date.

Cherrypool

By Ray Baverstock

It is more than fifteen years since we first discovered Cherrypool. Whilst holidaying at Hall's Gap we decided to go fishing at Rocklands Reservoir. We travelled via Zumsteins and at Laharum cut across to the Henty Highway. By this time fuel was running low, but not to worry, we could fill up at Cherrypool (after all it was clearly marked on the map – bound to be a service station and a shop or two there).

Soon the sign came up, "Cherrypool". Then came a shock. All that was there was an old toilet block, a large expanse of reeds and one or two farm-houses.

We pressed on towards Cavendish and eventually entered the Grampians State Forest and to our horror discovered that, instead of coming to a majestic stand of Australian bush, we had entered a eucalypt PLANTATION! The trees were set in orderly rows, with no lower limbs and no natural undergrowth. There was not much in the way of grass, either, although we did see one kangaroo.

We finally reached Cavendish, refuelled the car and travelled via Balmoral to Rocklands Reservoir. It was a very pretty spot indeed, but not very productive as far as fishing went. (Only later did I learn that the best spot to fish was in the Glenelg River below the dam wall). We returned on the Henty Highway as far as the State Forest and at Woolpooer cut across through the Victoria Valley and Serra Roads and back to Halls Gap on the Dunkeld Road.

November 1987 saw us once again holidaying at Hall's Gap during an unusually hot spell of weather. Once again we visited Rocklands Dam, but this time travelled via Dunkeld, Cavendish and Balmoral. On the way we saw numerous Long-billed Corellas, two small flocks of Yellow-tailed Cockatoos, a Yellow-billed Spoonbill, and just past Balmoral, an Emu crossing the road.

When we reached the dam a hot northerly wind was blowing. I tried to fish but without success. (History repeated itself as it was only later that I learned that the best place to fish was at Hines Road on the other side of the reservoir).

Birds observed at the dam were: Black-faced Cuckoo Shrike, Australian Raven, Magpie, Willie Wagtail, Welcome Swallow, Red Wattlebird, Laughing Kookaburra, Noisy Miner, Crimson Rosella and a flock of more than sixty Black Cormorants which flew over the reservoir towards the dam wall.

Grey crowned Babbler *Photo: Trevor Pescott*

Leaving the dam we retraced our route to the Henty Highway intending to turn off through the Victoria Valley as we had done years before. When we entered the State Forest we were unhappy to find sheep grazing in the plantation. They were still the same trees, but, like us, thicker in the girth and thinner on top.

Somehow I missed the turnoff to Victoria Valley so we decided to return via Zumsteins. We came out of the plantation and at a sign "Grampians National Park" a magnificent stretch of heathland began. As it was too hot to explore, we continued on past the historic Glenisla Homestead.

Eventually up came the signs "Cherrypool" and "Glenelg River" and we crossed the bridge. To my surprise, on the right was a large stretch of clear blue water.

"You beauty!" I exclaimed as I turned into the car park alongside a small but modern toilet block and parked in the shade of a big tree. Soon I was fishing in the large pool. Although the fish were not biting, the bird life was wonderful. I gradually moved upstream and in half an hour had twenty species listed.

A minibus and a car towing three racing shells pulled into the car park and soon the young oarsmen were swimming in the pool. I moved further upstream away from the noise and then walked along a gravel track to a large picnic and camping area amongst some shady gum trees. Judging from the length of the grass the area was not much used by tourists, and the bird life was great. It was here I sighted a small flock of Grey-crowned Babblers.

Later we discovered a couple of timber walkways built a couple of centimetres above the swamp. These led to teatree hides giving views across a magnificent stretch of wetland. Pelicans were swimming in the main stream and Sacred Ibis were landing amongst the melaleucas, where they appeared to be nesting. At the second hide we disturbed four Pacific Black Ducks.

In just over an hour at Cherrypool the following list of thirty four species was compiled:

Restless Flycatcher, Dusky Moorhen, Eurasian Coot, Welcome Swallow, Little Grassbird, Little Raven, Grey Shrike-thrush, Superb Fairy Wren, Crimson Roselia, Willie Wagtail, Yellow-tailed Black cockatoo, Rufous Songlark, Fantailed Cuckoo, White-faced Heron, Striated Pardalote, Sulphur-crested Cockatoo, Sacred Ibis, White-plumed Honeyeater, Straw-necked Ibis, Long-billed Corella, Sacred Kingfisher, Eastern Rosella, Black-faced Cuckoo-shrike, Grey-crowned Babbler, Gang Gang Cockatoo, Laughing Kookaburra, Australian Magpie, Magpie Lark, Brown Treecreeper, White Egret, Whistling Kite, Australian Pelican, Pacific Black Duck, White-naped Honeyeater.

This magnificent wetland area deserves greater recognition, for most of the tourist guides mention it only in passing. The Conservation Forests and Lands map and guide says simply: "Cherrypool - Highway Park. Electric barbecues". In her book, "A noble range", Jane Calder says of Cherrypool: "A corruption of Aboriginal name Jahrpool - Big waterhole in the Glenelg River. Early maps show Jerry's Pool reputedly after an old aborigine who lived there".

Hopefully we will be able to return and explore this area in greater detail and perhaps it could be the site for a future campout.

Ray Baverstock
13 Helena Street,
Highton, 3216.

Waterhole near Cherrypool. Photo: Valda Dedman

For Juniors

It has been a wonderful season for fungi. If you visited the bush this autumn you would have seen many different kinds, some of them brightly coloured. One of the most spectacular found on the April Club excursion was *Boletus multicolor,* thick-stemmed and red-capped with yellow flesh which turned first bright pink and then deep blue when it was bruised.

We also found the poisonous ghost fungus which glows in the dark, and the white-spotted crimson Fly Agaric, *Amanita muscaria* which can produce hallucinations, and its close relative, *Amanita unbrinella,* which was twenty centimetres tall with a satiny cream coloured cap. Both are poisonous and the Fly Agaric was formerly used, in milk, to kill flies.

We saw coral fungi growing out of the soil, bracket fungi attached to tree trunks, minute red toadstools almost hidden the grass, delicate orange cup fungi, and a variety of other toadstools in browns and reds and yellows.

The colourful toadstools and mushrooms are the fruit of the fungus plant, which consists of a mass on interweaving threads which grow in and feed on rotting wood, litter or even living plants. Fungi lack chlorophyll so cannot manufacture their own food.

Ghost Fungus Photo: Trevor Pescott

They germinate from spores, which are very tiny and are produced in enormous numbers. It has been estimated that a mushroom can liberate two hundred million spores an hour, and it goes on doing this for about three and a half days. Most spores die soon after release and very few ever grow into new plants. The world would be taken over if they did!

Under the microscope spore surfaces show a variety of forms – spiny, warty, ridged, wrinkled or smooth. Without a microscope a spore print may help to identify the species, since it shows the colour and pattern of the spores.

To make a print, cut off any stem and place the open cap, while still fresh, downwards on a piece of paper or plastic. Cover the specimen with an upturned glass or basin to prevent it from drying out and leave overnight. Next morning lift the cap gently from the paper. Spore prints may be pure white, yellow, pink, purple, brown or black. Use black paper for toadstools with white gills. As a rough guide, while gills produce white spores, but not always. Try it and see.

And have you noticed not all fungi have rayed gills like mushrooms? What other shapes hold spores?

Junior Group Programme 1989-90

June 18, 1989: Mammal trapping – Anglesea. Meet at "Eumeralla" Scout camp entrance at 8.00 a.m.

August 12: Beach walk/Sea birds. Meet at Geelong Post office, Gheringhap Street, at 9.00 a.m.

October 14: Serendip Wildlife Sanctuary, Lara. Contact G. Baverstock for details (Phone: 81-7256).

December 9: Fossils. Contact G. Baverstock for details (Phone: 81-7256).

February 10, 1990: Bats. Meet at Teesdale General Store car park. 8.00 a.m.

April 7: Aboriginal middens. Meet at Geelong Post Office, Gheringhap Street, at 9.00 a.m.

Junior Group Leader: Grant Baverstock (Phone: 81-7256).

Rainbow Bracket Fungus Photo: Trevor Pescott.

G.F.N.C. Inc. President's Report 1988-1989

Another year has gone by and it is my duty and pleasure to present our Club's annual report. Once again I have included reports from Bird, Junior and Plant Groups, the Conservation Sub-Committee and the Librarian. Their reports are as follows and my comments are in italics.

BIRD GROUP

The Bird Group has remained buoyant over the last year with a range of activities and meetings available to the 20-30 members who regularly attend each fourth Tuesday night.

Field work has included regular wader counts, both in summer and winter, and Orange-bellied Parrot censuses throughout the winter – both have been most successful. In addition to this, members have assisted in Hooded Plover and Pied Oyster Catcher counts in the Spring.

In October, the Group sponsored a public bird-watch on the Belmont Common to celebrate World Bird Week. Buckley Falls is another area that some bird counting has been undertaken late last year.

The Challenge Counts in December were also supported by members of the Bird Group.

Speakers have included Jon Starkes, Stephen Davies, Richard Loyn, Peter Higgins and Paul Peake, and of course our own members Marilyn Hewish, Margaret Cameron and Gordon McCarthy. Species discussed were the White-eared Honey-eater, Black-eared Miner and Golden Plovers, while Owls, Warblers, Thornbills, Ducks and Gannets, and the Eyre Bird Observatory and the Nest Record Schemes were all the subjects of talks.

Particular thanks should go to Margaret Cameron for her continuing efforts in teeing up guest speakers and other programs.

Trevor Pescott.

Thank you Trevor.

JUNIORS' GROUP

It was decided to start the Juniors' Group again, midway through last year. Earlier activities were well attended, however, a dramatic drop-off in attendance has occurred recently with numbers averaging three children. In view of this it was decided to hold the excursions every second month.

Topics covered in the excursions have included Wetland Ecology, Spotlight Surveys, Birdwatching, Aboriginal Artifacts and Bat Trapping.

To ensure that Junior members learn as much knowledge out of future activities, it is vital that club members with an interest or knowledge on the relevant subjects volunteer their help when possible.

It is hoped that interest in the Juniors' Group by both children and club members will improve in the oncoming year as an interesting program has been drawn up to try to attract greater participation.

Grant Baverstock

Grant is carrying out a very important club task in leading the reactivated Junior's Group. Please take note of the Junior's Program and support Grant and our Club by assisting at an activity in which you have an interest. Thank you Grant.

PLANT GROUP

We have had a successful year, with the same small group of people attending outings and meetings. The sad note of the year was the death of Ted Errey, who had done so much for the plant group. Each month a different member has been able to lead a discussion on aspects of plants, flowers, seeds and leaves.

We were pleased to have Bill Gunn from S.G.A.P., to give us a talk on local native plants, also a tour operator from the Northern Territory gave us a wonderful slide show on Kakadu and Arnhem Land. When daylight saving started we went on a number of early evening excursions to Anglesea, Inverleigh Common, a roadside reserve at Meredith, also a timber reserve at Teesdale.

A book has been started to record all plants seen during each excursion we go on.

Dianne Hughes

Thank you, Dianne.

CONSERVATION SUB-COMMITTEE

The Conservation Sub-Committee has had a less active year, although submissions have been made on the South-West Water Strategy and Swan Bay. Crown Land areas at Teesdale have been surveyed.

We have lodged objections to the outrageous proposal to develop the Atco site on the bank of the Barwon in Newtown.

The Corio Bay Protection and Development Committee has been formed and we have a representative (our Les Barrow) on that organization.

Late in March, we were represented at the Tribunal hearing in Melbourne to object to a proposal to develop land at Breamlea which would impact on the estuary and its flora and fauna.

An earlier hearing about land rezoning at Batesford (Belchers) at which we were represented by Valda Dedman is still unresolved.

Trevor Pescott

We were represented by Trevor at the Tribunal hearing. Thank you, Trevor.

LIBRARY

We are looking forward to having more space and better facilities for displaying our books and magazines in the new Club Rooms.

Unfortunately the binding of the more recent copies of the "Geelong Naturalist" has not been achieved.

Before we move to the new venue Betty Moore and I will carry out an inventory of the books in the Library.

We are grateful to all members who have made donations to the Library.

Mrs Nora Errey has given a large number of books on a wide range of subjects, some of which have been placed in the box of books now being taken out on excursions and already proving a useful adjunct to our trips.

Thank you also to the helpers who assist on meeting nights – more volunteers are needed in this field, especially during winter months when some of our regular members are away.

Leila Ramsay

Leila has been Librarian for about 9 years and she still approaches her task with enthusiasm and a desire to help all those who come searching for information. Thank you, Leila, for a job well done under difficult circumstances.

Although the committee and especially the office bearers have endured difficult times the messages I receive indicate general membership satisfaction with our 88-89 Club year. This is largely due to the willingness of a number of members carrying out whatever regular or occasional task they are asked to do promptly and effectively. A regular Helpers' List is attached. I thank them all on behalf of our membership and hasten to add my personal thanks to those who have given me support and encouragement during a difficult year.

Our General Meetings, excursions, and camp outs have been well attended, informative and enjoyable. Guest speakers have presented slide shows/talks of a very high standard on a wide range of topics. Our member nights have been full of interest and I especially thank those who shared their knowledge and experiences – what a vast store of information we have within our membership.

Some important extra happenings during the year were:

1. Launching of our book "Buckleys to the Break" by Hon. Joan Kirner, Minister for Conservation, Forests and Land.
2. Construction of a Bird Hide at the Belmont Common Wetlands.
3. An evening barbecue/social gathering on the banks of the Barwon when a framed print "Field Naturalists" donated by Heather Graf was won by Michael and Ida Benson.
4. Hosting the VFNCA/WVFNCA Campout at Ocean Grove.
5. Club excursions by Community Bus.
6. Reintroduction of Junior activites by Grant Baverstock.

Behind the scenes work included –

1. Rationalization of club duties – ongoing.
2. Preparation of guidelines for Officers and Helpers tasks – ongoing.
3. Categorization of Inward Mail.
4. Searching for a Club "Home" – from 1st May, 1989 – Karingal Community Centre.
5. Introduction of a book-keeping system for sale of books.
6. Introduction of a book-keeping system for club purchases.

It is important, in fact it is vital, for the well being of any club that there is good open communication between members and the President. Although this did not occur often during my first year as President – probably because I was not known so well – it is very pleasing that members are now indicating their feelings about many aspects of our Club's operation.

The plaudits are appreciated and other matters mentioned which I recall are: Name tags. A Mammal Group. A topical mini-talk at general meetings. Where are our Books. Articles in Newsletter for Juniors. Restructure Committee to make room for new members. Low cost booklets on local flora and fauna. Very

poor meeting conditions. Security and accessibility of equipment. Club policy files. More field studies. More excursions in the local bush at Springtime. Care of Club Records. An Inventory of Club Equipment. Improving Committee Agenda. Notice required when people discontinue positions. Use of Periodicals we receive. Copies of Club Constitution. Onerous duties of Officials when assistance not forthcoming. Non-completion of projects. Cost of Postage, "Buckleys to the Break" and Club Magazine. A January excursion. Reaching the Ethnic Community. Spread the work load. Duty guidelines.

Some of these matters have been attended to and others are being addressed.

Two matters which give me real concern are the unavailability of a proper booklet containing Club Rules, By-Laws, etc. and the unspent C.F. & L. Grant received in March 1987.

The Treasurer's duties have been rationalized, this means the appointment of a membership officer and two book despatchers. The book despatch system has been proven and I'm sure Alban Lloyd-Jones who has agreed to be our Membership Officer will carry out that task in a very efficient and proper manner.

I am delighted to report the incoming committee has a full complement of officers and members and others have offered to assist if and when required. Ray Baverstock and Barry Lingham are filling the positions of Treasurer and Secretary respectively; as they have not had the benefit of GFNC Committee experience, their initial task will not be easy and any help that can be given would be appreciated.

Cecily Lawrie is the other new committee member and has offered to edit our Newsletter. Cecily has very ably assisted the editors over recent months and is keen to produce an informative Newsletter. Prompt, accurate and complete reports and notices are necessary if we are to get full value from our Newsletter which is now distributed to all Primary and Secondary Schools in Geelong, is often our only regular contact with some members and second to "word of mouth" is the best means of communicating with potential members. Cecily has an important task, I wish her well.

Rohan Bugg, John O'Neil and Pat Russell have not renominated. I thank them each for their particular contribution to the Committee. John O'Neil, outgoing Secretary and Barry Redman who continues as Minute Secretary reluctantly accepted those positions last year with hardly any previous committee experience at all. I sincerely thank them for the work they did under very difficult circumstances.

The work that Diana Primrose has carried out as Hon. Treasurer each year since 1981 was so demanding it was unreasonable; that Diana performed her numerous tasks competently, without fuss and cheerfully is absolutely remarkable. Over the last year Diana was also Vice President and an editor of the Newsletter. We are indebted to her, thank you Diana.

A minute of appreciation seems quite inadequate but very appropriate.

Graeme Tribe, whose abilities are well known is our new Vice President Graeme does not see this as a fill in position, he accepts that being Vice President in all probability means being the next President. This is as it should be – best for the incumbents and best for the Club.

Quite a few of our members represent our cause on various Management Committees, Boards, Commissions, Hearings, etc. This is a very necessary function if future generations are to enjoy nature as we know it today. We appreciate the time and effort they put in.

As we are experiencing some difficulty in having our Magazine printed and ready for distribution in February, May, August and November, it has been decided to issue the Geelong Naturalist during Autumn, Winter, Spring and Summer. Thanks to our Magazine team of Valda Dedman, Editor, Davie King and Gordon McCarthy who need a continous flow of material if we expect to receive a high standard publication.

Although a fitting tribute to Ted Errey is recorded in the May 1988, Geelong Naturalist, No. 1 Vol. 25, the substantial and significant contribution Ted made to our Club over many years up to his death last April 23rd cannot go unannounced in an annual report. Ted is greatly missed and his books and plant pressings which Nora has donated will serve as a very appropriate reminder of the work Ted did for our Club.

Bob Sherwood, another popular member who was well known for his conversation on a wide range of subjects usually delivered at the tail end of an excursion and sometimes not on natural history, died on 15th November last year. Bob was a first rate club man and he is greatly missed too.

Attending Association campouts hosted by clubs throughout Victoria is an enjoyable and informative experience. As well as reminiscing and comparing notes with fellow naturalists it gives the opportunity to make new friends and learn where important natural history features can be best observed. It was good to be part of the Geelong team when we hosted the combined VFNCA/WVFNCA campout at Ocean Grove over the Labour Day weekend. On that occasion we provided the oppportunities and our visitors appreciated a special

part of our natural history scene. Surely this gradual ongoing acquisition of information about significant natural history features across Victoria must be beneficial to those who attend and the Conservation Cause. Thanks to all who helped.

In concluding, I make no apologies for dwelling on the HUMAN factors in my report. Although NATURE is our interest we are a club of HUMANS. Our Club needs to have its human resources operating effectively and smoothly if ALL OF US are to enjoy our interest. This can be achieved by involving more members, giving them reasonable tasks to do, reducing the officers workload, encouraging and helping members to accept positions, finding out where people feel they can help best, and most importantly, to have back-up people for all jobs that need to be done. Diana and I have been working along these lines and we are very pleased with the response so far.

Diana is your new President, you know her proven ability – let us apply all our human resources to make her term enjoyable for every member.

Regular helpers throughout the year include – Alban and Val Lloyd-Jones, Betty King, Penny Smith, Fay Wray – Typing. Cecily Lawrie, Joyce Ward – Newsletters. Laurie and Judith Drinnan, John and Bev Morwood – Magazines. Barry Redman, Shirley Southcombe – Booksales. Joy Pearce, Nora Errey, Lily Sherwood – Suppers. Gordon McCarthey – Reporter. Heather Chisholm – Recorder. Graeme Tribe – Observations. Rob Beardsley – Projection Equipt. Barry Redman, Roy Whiteside – Audio Equipt. Betty Moore, Jean Hoggart, Mary Arthur, Lauris Mathison, Betty Rushbrooke, Roma Julian – Library.

I am appreciative of the tremendous support given me during my term as President. Thank you for the opportunity to be of service in carrying out such a personally satisfying task for the Geelong Field Naturalists Club.

Dick Southcombe

The Geelong Field Naturalists Club Inc. Treasurers Report

I am pleased to present this report for the year ending 23/3/89.

This year has seen an encouraging increase in our Club membership for the first time in some years. Unit memberships totalled 205 in February 1989, compared to 188 at a similar time last yeare.

The major financial outlay during the year was the printing of our Club's book "From Buckleys to the Break" – 1000 copies being printed at a cost of $6,900. Associated costs of launching brought the total outlay to $7,142.58, of which $3,747.23 has, to date, been recouped. During the coming year we must all endeavour to push the sale of our book, and the assistance of members would be greatly appreciated.

The "Care of Sick, Injured and Orphaned Birds and Animals" booklet by our late member Jack Wheeler, continues to be much in demand and a further 1000 copies were ordered from the printer.

The Club pays a "peppercorn" rental to The City of South Barwon for the Belmont Common Reserve. This gives our Club a managing interest in its care. This year the Club built a bird hide overlooking the waterbird habitat, the major cost of materials being funded by the City of South Barwon with the Club supplying the labour and $107.50 extra costs.

This year the Club has again been the grateful recipient of a grant from the City of South Barwon Recreational Voucher Scheme. $310.75 was received.

The Geelong Field Naturalists Club subscribes regularly to other clubs and organisations. We subscribed to 15 such organizations last year, and have "free exchange" membership with a number of other field naturalist clubs.

A number of appeals were supported last year including The Australian National History Medallion Trust Fund ($20), the East Gippsland Coalition ($20), Australian Conservation Foundation against mining in Antarctica ($20), the Victorian National Parks Association appeals for the Alpine park, the mallee, and against mining in national parks ($75).

This year we closed our Deposit Account at the State Bank and transferred the remaining $200 to our A.N.Z. Common Fund V2. The Club now has two accounts only – our operating cheque account with the State Bank, and our reserve funds with the A.N.Z. Common Fund, which can be accessed as necessary.

Our fund balance at the close of our financial year is $3,693.26 less than at the same time last year. The majority of this is due to our unsold stocks of "Buc-

kley's to the Break" but a remaining amount of $297.91 is due to other expenses. In addition to this overrun some accounts are still to be rendered. Our basic income from subscriptions this year totalled $3,093.00, while our basic running costs for printing, stationery, and speakers came to $4,549.17. It is desirable that the basic running costs of the Club should be met by subscriptions, and anything over and above this used for extending Club activities and facilities. The Budget Sub-Committee has therefore recommended an increase in subscription rates for the coming year. The recommended rates being $25 Corporate membership, $23 Family membership, $15 Ordinary membership, $5 Junior membership, $15 Magazine Subscription only, and postage of newsletter $7.

Up to this time the position of Honorary Treasurer has involved both the treasurership and handling all duties associated with membership records, files, etc., among other duties. This has become a completely unreasonable workload for a voluntary position. To make the task less onerous the Committee has co-opted a membership officer who will relieve the treasurer of this area of duties. Guidelines have been drawn up for these respective positions to enable a close working relationship and to ensure no member is lost in transit between receipt of payment and being being entered on the membership files!

During the year much work has been done by member Alban Lloyd-Jones in listing Club members on a computer address file, enabling address labels for magazines and newsletters to be run off on self adhesive labels. This minimises the tedious work for those involved. A computer membership listing is also being developed which will enable quick access to sorting for statistics, for sending "reminders" to unfinancial members, etc., Our sincere thanks to Alban for his much appreciated assistance.

Our honorary auditor for the last four years, Barry Redman, resigned this position during the year, and we are happy that David Brunton has accepted this post. Our thanks to Barry for his help in the past, and to David for auditing our books this year.

Having held the position of honorary treasurer since 1981, I am absolutely delighted to hand over the reins to the incoming treasurer this year! I am sure that the new treasurer and new membership officer will find that the shared duties make for a pleasant, less arduous workload. My best wishes and thanks to them both.

Diana Primrose
Honorary Treasurer

Receipts & Payments Account for Year Ending 23/2/89

Receipts		Payments	
Subscriptions	$3,093.00	Printing, stationery	$3,672.69
Grants, donations	480.75	Postage	716.48
Sale			
"Buckleys to the Break"	3,747.23	"Buckleys to the Break"	7,142.58
Sale "Sick & Injured"	542.80	Use of hall	335.00
Excursions	535.00	Excursions	117.30
Fund raising	60.50	Donations to appeals	135.00
Re-sale of publications	189.00	Publications for re-sale	132.00
Interest	26.32	Bank charges	41.00
Sundries	297.56	Subscriptions to Clubs	310.00
		Speakers – travel	160.00
		Library	75.55
		Insurance	413.34
		Sundries	500.08
	8,972.16		13,751.02
TFR Deposit stock	200.00		
TFR ANZ V2 fund	8,000.00	TFR ANZ V2 fund	3,200.00
	17,172.16		16,951.02
Cash book balance 26/2/88	181.45	Cash book balance 23/2/89	402.59
	$17,353.61		$17,353.61

ANZ COMMON FUND V2

Receipts		Payments	
Interest	$1089.91	Bank charges	$4.31
TFR cheque a/c	3200.00	TFR to cheque a/c	8000.00
	4289.91		8004.31
Fund balance at 26/2/88	12934.00	Fund balance at 23/2/89	9219.80
	$17224.11		$17224.11

DEPOSIT STOCK - STATE BANK

Receipts		Payments	
Interest	$7.31	TFR to cheque a/c	$207.31
Cash book balance at 26/2/88	200.00	Cash book balance at 23/2/88	NIL
	$207.31		$207.31

DEPOSIT STOCK ACCOUNT CLOSED 21/7/88

BALANCE SHEET FOR YEAR ENDING 23/2/89

26/2/88	23/2/89
$200.00	NIL
12934.20	9219.80
181.45	402.59
$13315.65	$9622.39

FUND STATEMENT

Fund Balance at 26/2/88	$13315.65
Fund Balance at 23/2/89	9622.39
Fund Deficit 23/2/89	$3693.26

I certify that the statements of receipts and payments dated 23/2/89 is in accordance with the bank statements, invoices, receipts and other relevant records examined by me.

(Signed)
David Burton, A.C.I.S., M.N.I.A.
Honorary Auditor

Two Non-Marine Molluscs from Victoria's Semi-Arid Region

by Dave King

Molluscs in semi-arid regions are normally not to be found in great numbers and never very evident. This being the case, discovering molluscs can be interesting in such regions. During August, 1988, visits by the writer were to Wyperfeld National Park and Pink Lakes State Park, resulting in the finding of two species of mollusc.

In Wyperfeld N.P a specimen of *Semotrachia subsecta* was found at the Devils Pools, two kilometers north of Flagstaff Hill. Devils Pools are shallow ephemeral pools situated in a depression surrounded by sand dunes. The mollusc was under a log, lying at a point that appeared to be the highest level normally reached by the water. At this time the water level was very low and would probably have dried up within a few weeks. The specimen was already in a state of aestivation.

The shell is medium sized, having four whorls with a spine of low elevation. Slight keeling is evident on the body whorl, Fig. 1. Colour is dark brown and surface sculpture finely rugose covered with short fine hairs, each arising from a pustule when viewed under magnification. The 15 mm. size of this specimen suggested that it was mature. Molluscs of this genera are regarded as 'desert snails', (Smith & Kershaw 1979).

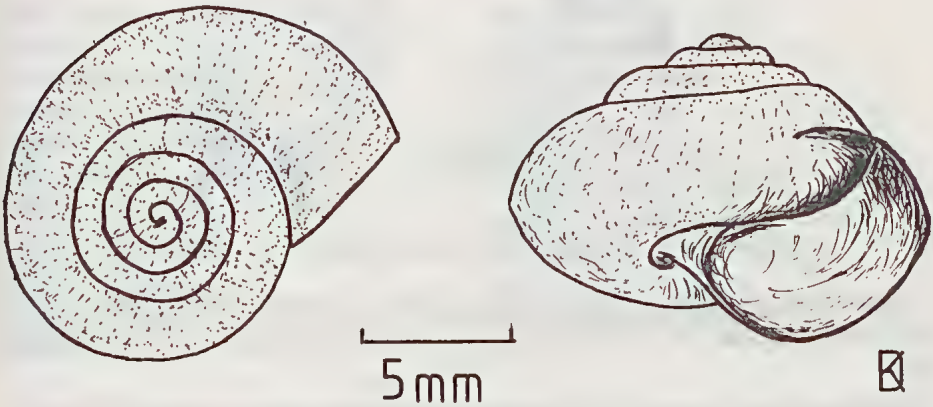

Figure 1 Semotrachia subsecta

The second mollusc, found in the Pink Lakes State Park, was *Succinia australis.* Smith & Kershaw, 1979, describe these as belonging to a world wide family, sometimes called 'amber snails', Australian members being found in widely variable habitats. They also state that no detailed taxonomic study has been carried out on the family Succinaidae, and that a number of undescribed species may exist.

This specimen of S. australis was found under ground litter, close to Lake Crosbie, 12 km north of Linga. Lake Crosbie is one of the saline lakes from which the Park takes its name, and from which salt was harvested for some years up until the 1970's.

The shell is relatively think, opaque, and horn colour, having four whorls, the body whorl being large. Growth lines are inconspicuous. White blotches and reticulations on the mantle area of the body can be seen through the shell, Fig. 2. Under examination the animal emerged from the shell, enabling it to be viewed closely. The upper area of the body was a medium brown, fading towards the extremities as a light beige, with numerous minute speckles of darker pigment. It had retractable tentacles with distally placed black eyes and along the entire dorsal surface a black streak which continued into the body. The size of the shell was 10 mm and, therefore, probably a mature specimen.

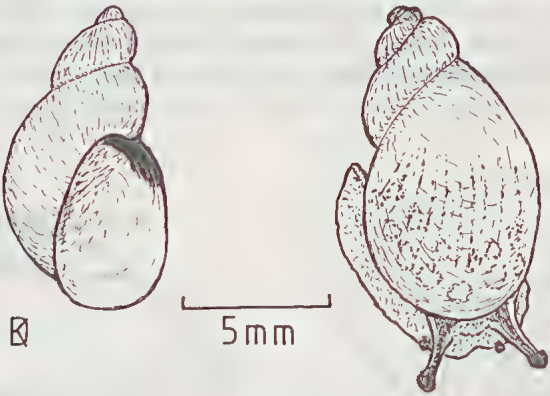

Figure 2 Succihea australis

ACKNOWLEDGEMENT: I am grateful to Ms Suzanne Boyd, Assistant Curator of Invertebrates, Musum of Victoria, for her confirmation of my identification.

REFERENCES: Smith, B. & Kershaw, R. 1979. Field Guide to the Non-Marine Molluscs of South Eastern Australia, Griffin Press, S.A.

Dave King
9 Traum Street, Portarlington

Bird List For Mt. Buffalo Plateau Jan 27-30, 1989

Bell Miner
Brown Thornbill
Crescent Honeyeater
Crimson Rosella
Eastern Spinebill
Flame Robin
Grey Fantail
Grey Shrike-thrush
King Parrot
Large-billed Scrubwren
Lyrebird
Magpie Lark
Noisy Friarbird
Olive Whistler
Pied Currawong
Pink Robin (female)
Red Wattlebird
Richard's Pipit
Rufous Whistler
Satin Flycatcher
Spotted Pardalote
Striated Pardalote
Wedge-tailed Eagle
White-browed Scrubwren
White-eared Honeyeater
White-naped Honeyeater
White-plumed Honeyeater
White-throated Treecreeper
Yellow-faced Honeyeater

Bird List For Ovens Valley Camp Area Jan 27-30, 1989

Australian Raven
Black-backed Magpie
Blackbird
Bronzewing Pigeon
Dusky Woodswallow
Eastern Whipbird
Grey Fantail
Grey Shrike-thrush
Horsefield Bronzecuckoo
House Sparrow
King Parrot
Magpie Lark
Orange-winged Sitella
Rufous Whistler
Sacred Kingfisher
Satin Bowerbird
Silvereye
Striated Pardalote
Sulphur-crested Cockatoo
Superb Fairy-wren
White-throated Treecreeper
Yellow Robin
Yellow-faced Honeyeater

Joyce Ward

Plant List For Mt. Buffalo Plateau, Jan 27-30, 1989

Acaena anserinifolia	Bidgee Widgee
Adiantum aethiopicum	Maidenhair Fern
Arthropodium milleflorum	Pale Vanilla-lily
Asplenium flabellifolium	Necklace Fern
Baeckea gunniana	Alpine Baeckea
Bauera rubioides	Wiry Bauera
Blechnum nudum	Fishbone Fern
Boronia algida	Alpine Boronia
Bossiaea foliosa	Leafy Bossiaea
Brachycome decipiens	Mauve Field Daisy
Brachycome nivalis	Snow Daisy
Brachycome rigidula	Hairy Cutleaf Daisy
Brachycome stolonifera	Tiny White Daisy
Bursaria spinosa	Sweet Bursaria
Callistemon pallidus	Lemon Bottle-brush
Callistermon sieberi	Alpine Bottle-brush
Caltha introloba	Marsh Marigold
Calytrix tetagona	Fringe-myrtle
Cassinia aculeata	Dogwood
Celmisia longifolia	Snow Daisy
Comesperma retusum	Mountain Milkwort
Coprosma hirtella	Rough Coprosma
Coprosma quadrifida	Prickly Coprosma
Craspedia uniflora	Handsome Golden Billy Button
Culcita dubia	Common Ground-fern
Dianella tasmanica	Tasman Flax-lily
Dicksonia antarctica	Soft Tree-fern
Dipodium punctatum	Hyacinth Orchid
Drimys xerophyla	Alpine Pepper
Drosera auriculata	Tall Sundew
Eucalyptus pauciflora	Snow Gum
Eucalyptus rubida	Candlebark
Exocarpos cupressiformis	Cherry Ballart
Gastrodia sesamoides	Cinnamon Bells
Gentianella diemensis	Mountain Gentian
Goodenia hederacea	Ivy Goodenia
Helichrysum acuminatum	Orange Everlasting

Helichrysum rutidolepis	Pale Everlasting
Helichrysum secundiflorum	Cascade Everlasting
Helichrysum semipapposum	Clustered Everlasting
Helichrysum wadell	Wadell Everlasting
Hovea longifolia var montana	Long-leaf Hovea
Indigofera australis	Austral Indigo
Kunzea muelleri	Yellow Kunzea
Kunzea parviflora	Violet Kunzea
Leptorhynchus squamatus	Scaly Buttons
Leptospermum grandiflorium	Mountain Tea-tree
Leptospermum phylicoides	Burgan
Thysanotus sp.	Fringe Lily
Microseris scapigera	Yam Daisy
Oreomyrrhis eriopoda	Australian Carraway
Oxylobium ellipticum	Alpine Oxylobium
Phebalium podocarpoides	Scaly Phebalium
Pimelea hookeri	Mountain Rice-flower
Plantago euryphylla	Plantain
Platylobium formosum	Handsome Flat-pea
Platysace lanceolata	Shrubby Platysace
Podocarpus lawrencei	Mountain Plum-pine
Podolepis robusta	Alpine Podolepis
Polystichum proliferum	Mother Shield-fern
Prasophyllum alpinum	Alpine Leek-orchid
Prasophyllum suttonii	Mauve Leek-orchid
Pratia surrepens	Mud Pratia
Prosanthera cuneata	Round-leaf Mint-bush
Prosanthera walteri	Monkey Mint-bush
Pultenaea tenella	Delicate Bush-pea
Ranunculus collinus	Strawberry Buttercup
Ranunculus graniticola	Granite Buttercup
Richea continentis	Candle Heath
Scaevola hookeri	Creeping Fanflower
Scleranthus biflorus	Twin-flower Knawel
Senecio lautus	Variable Groundsel
Sphagnum cristatum	Bog Moss
Stackhousia monogyna	Creamy Stackhousia
Stellaria pungens	Prickly Starwort
Stylidium graminifolium	Trigger Plant
Stypandra caespitosa	Tufted Blue-lily

Tieghemopanax sambucifolius	Elderberry Panax
Todea barbara	King Fern
Trachymene humilis	Alpine Trachymene
Utricularia dichotoma	Fairies Aprons
Veronica derwentia	Derwent Speedwell
Viola betonicifolia	Showy Violet
Viola hederacea	Ivy-leaf Violet
Wahlenbergia ceracea	Waxy Bluebell
Wahlenbergia gloriosa	Royal Bluebell
Westringia senifolia	Alpine Westringia

Betty Quirk

Mystery Photography The Solution

by Trevor Pescott

The skull and beak is from a Short-beaked Echidna, or Spiny Ant-eater. The Echidna does not have teeth at any stage of its life, its jaws developing into a long beak at the end of which is a small mouth opening. The elongated tongue sweeps up ants (and more than a little earth) which are first crushed between the tongue and the roof of the mouth, swallowed, then further ground up by the ingested earth in the stomach to aid digestion.

Echidnas are most active in the early mornings and late afternoons (that is they are largely crepsuscular in habits) and they become torpid in very cold weather, though this is said to be more like reptilian than mammalian hibernation.

Echidnas and platypuses (please, not platypi!) are Australia's two egg-laying mammals or monotremes.

Trevor Pescott
4 Victoria Terrace,
Belmont, 3216.

SYLLABUS 1989/90

JUNE 1989

6 General meeting. Ross Winstanley – "Crayfish"

10-12 Campout. Bendigo. Leaders: Dick Southcombe (Ph: 43-3916) and Ron Rixon (Ph: 03 749-4219)

18 Excursion. Royal Botanic Gardens & Herbarium Visitors Centre. Leaders: Diana Primrose (Ph: 50-1811) and Bev Morwood (Ph: 21-1983).

21 Committee meeting

JULY

4 General meeting. Laurie Conole and Grant Baverstock. "Fauna in isolated forest remnants in the Geelong area".

16 Excursion. Brisbane Ranges. Staughton Vale area. Leaders: Dave King (Ph: 59-3023) and Betty Quirk (51-2996).

19 Committee Meeting.

AUGUST

1 General meeting. Bill Middleton – "Effects of surfactants on coastal vegetation, and securing special habitats by covenant".

16 Committee meeting

20 Excursion. "Ainsbury" – Werribee, Melton area. Leaders: Rohan Bugg (Ph: 03 741-2257) & Bela BardBrucker (Ph: 03 749-1098).

26-27 Boneseed eradication and bird watch – You Yangs. Leaders: Trevor Pescott (Ph: 43-4368) & Valda Dedman (Ph: 43-2374).

STATEMENT OF PURPOSES

1. To stimulate the study and appreciation of natural history by: –
   (a) Lectures, discussions and excursions to areas displaying features of ecological interest.
   (b) Taking part in ecological surveys and field studies.
2. To preserve and protect Australian flora and fauna.
3. To issue statements and comments on proposals regarding the management of areas of natural significance, so to aid the conservation of natural resources and the protection of endangered species and habitats.
4. To faithfully record information, to disseminate knowledge on, and to act as a source of information and opinion on matters relevant to the Club's purposes.

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Photographs by Trevor Pescott

EDITORIAL

It has been said that history repeats itself.

I noticed in the *Geelong Naturalist* of August 1973 that conservationists were voicing their concern at a proposal to develop a marina at the southern end of Swan Bay. That marina did not eventuate, but now, sixteen years later, we are again worried about the effects that a "boat harbour" could have on the ecology of Swan Bay and in particular on the internationally significant wader habitat around the "Sand Island".

At present the Geelong Field Naturalists Club is working with the Steam Preservation Society to identify and, we hope, preserve the indigenous vegetation along the Queenscliff to Drysdale railway line. Recently, however, two important areas of remnant vegetation were destroyed along railway reserves, at Winchelsea and at Lara. The Club has protested, as it did back in 1978.

Tony Cavanagh's article in this issue highlights the interest that was shown in Australia's unique vegetation even before the colony was established in 1788, and which continued throughout the early years of settlement. Can history repeat itself once more, and could those in authority today display an appreciation of our flora equal to that shown by Australia's early governors?

Through its magazine, the Geelong Field Naturalists Club endeavours to make others aware of our natural heritage, and a wide range of topics - birds, plants, insects, reptiles, mammals - is covered in this issue. I am always amazed at the wealth of knowledge among our members, whose ability to observe and faithfully record what they have discovered is a source of great admiration to me. I believe we have a chance to influence the course of history by the dissemination of such information.

Valda Dedman

Natural History activities in Australia and the Introduction of Australian Plants to England; 1771 - 1800

By Tony Cavanagh

Introduction

The role of keen amateur naturalists in the early botanical and horticultural history of Australia is rarely appreciated, even though they contributed significantly to the collection of natural history specimens from before the settlement of Australia. When the First Fleet arrived in 1788, there was not a single botanist, naturalist or gardener on board. Yet by 1789, over 30 specimens of plants had been introduced into England as well as numerous preserved and live animals, due to the activities of the nineteen or so amateur naturalists (marines, surgeons, officials and even convicts) among the First Fleet people. (1). Although in later years professional botanists such as George Caley and Alan Cunningham were to put collecting on a more scientific basis, the work of amateurs was still significant well into the nineteenth century and indeed until this day.

In this article, I will briefly discuss early botanical exploration and voyages of discovery, European as well as British, and the importance of the First Fleet. I will also consider the people interested in Australian plants in Europe and will cover the method of transport of plants, the numbers sent and the methods of cultivation. The growing of Australian plants in England and Europe in the eighteenth and nineteenth centuries is still virtually unexplored territory although it now seems that as many as 3500 - 4000 species may have been grown.

Early Voyages of Discovery

The story begins on the 29th December, 1696 when the Dutch ship *Geelvinck* under Wilhelm de Vlamingh anchored off what is now Rottnest Island in Western Australia. He and his crew rowed some 50 kilometres up to the Swan River and it was here in early 1697 that the first collection of Australian plants was made. These were two shrubs, the wattle *Acacia truncata* and *Synaphea spinulosa*, a small member of the Proteaceae (Banksia) family. It is believed that the ship's surgeon was responsible and the dried specimens were taken to Batavia in Java. They were later described as ferns by the Dutch botanist Burman who thought they came from Java - only in recent years have they been positively identified and now assume an important place in Australia's botanical history.(2)

I mention these plants for two reasons - firstly they show that knowledge of Australian plants in Europe, although sketchy, existed before Cook's voyage; and secondly, our history books tend to gloss over the very important part that European nations apart from England played in both the discovery and exploration of Australia and especially in botanical exploration. We tend to forget that by 1845, something over 60% of Australia had been mapped, from Cape York to near Streaky Bay in South Australia. Considering the crudity of the available equipment, the maps produced are remarkably accurate (in outline at least).(3) Between 1608 and 1697 around 30 Dutch navigators explored the northern, western and southern coasts of Australia and it is possible that others collected specimens of plants which have now been lost.(4) The buccaneer and adventurer William Dampier visited our shores twice, in 1688 and in 1699, when he collected as many as 40 species of plants in Shark Bay and Dampier Archipelago, including the now famous Sturt's Desert Pea. Some writers have claimed that Dampier introduced this and other species into cultivation in Europe. Romantic although this sounds, Dampier was shipwrecked on the trip home and was lucky to save his dried specimens. These can still be seen in the Herbarium at Oxford University.(2)

Lieutenant Cook's exploration of the east coast of Australia between May and August 1770 virtually completed the mapping of Australia. But more importantly, for the first time, a detailed collection of plants was made by professional botanists, Josephs Banks and Daniel Solander, and plants and animals were painted or drawn by professional artists such as Sydney Parkinson.(5) About 400 plant specimens, most of them new to science, were taken from Australia and, more importantly, seeds of a number were gathered and were cultivated in the Royal Botanic Gardens at Kew where Banks was to become Director.(8) Cook made two further voyages to the Pacific, in 1772-1775 and 1776-1779,, but in neither did he visit Australia. However in each expedition there was a second ship which in both cases visited Adventure Bay on the south-east coast of Tasmania. On each occasion, seeds were collected and plants were subsequently grown at Kew. All told, before Australia was settled in 1788, nine plants had been grown in glasshouses in England and six had flowered by 1778. (Table 1). What is probably even more astonishing is that Australian plants were being sold as early as 1774 when the Tasmanian eucalypt. *E. obliqua* was sold to the Earl of Coventry who was later to grow many other Australian plants.(7)

After Australia was settled in 1788, vast amounts of the country's curiosities were sent back on returning ships. However, there were two other important expeditions before 1800 which involved the collection of seed and the introduction of plants to English and European gardens. Firstly, there was the Vancouver expedition to the South Seas and North America which called at King George Sound in 1781. The surgeon/botanist, Archibald Menzies collected a large number of plants and seeds and was responsible for introducing four species of

Western Australian Banksias, several Hakeas and Jarrah *E. marginata* into cultivation. Then, a year later a French expedition with the botanist Labillardiere visited the Esperance area of Western Australia, and Tasmania, and gathered several hundred plants and seeds including specimens of the first Kangaroo Paw and the first Dryandra. He is commemorated by a group of climbers known as Billardieras. His seeds and plants were grown at the Jardin des Plantes in Paris and at Josephine Bonapartes garden at Malmaison so it is quite likely that a number of Australian plants, especially callistemons (bottlebrushes), were cultivated in France before they were grown in England.

Undoubtedly the biggest boost to the introduction of Australian plants (and animals) into England was the arrival of the First Fleet in January 1788. Yet despite the fact that Joseph Banks had been actively involved with the selection of Botany Bay for the convict settlement, he had not arranged for a botanist or even a gardener to be sent. Hence the collection of specimens and seed was left to amateurs and surprisingly there were plenty of them, ranging from Governor Phillip down to the convicts (Appendix 1). For convicts and anyone who bought things from them, it was a dangerous game, for Phillip had given strict orders that no one was to purchase anything from convicts. However, barely one month after settlement, the steward of one of the transports was flogged for buying an opossum from a convict for a bottle of rum. Yet in spite of this, a very extensive clandestine trade in both plants and animals quickly developed.

Eucalyptus obliqua – the first Australian plant to be offered for sale in England (see Table 3), four years before Australia was settled. The non-symmeterical shape of the leaves on either side of the mid-vein, as illustrated here, explains the scientific name "obliqua".

The first of the ships returned to England in late March 1789, and seed and animals were aboard most of the First Fleet vessels.(8) Nearly all of this material went to Banks at the Kew Gardens but already some of the larger nurserymen were involved, the best known being Lee and Kennedy of Hammersmith although they had strong competition. (Table 2). Lee and Kennedy were advertising Australian plants for sale by the end of 1789. (Table 3). It seems there was no lack of interest among the well-to-do as the King, George III, was an avid collector and interest in foreign flora and fauna was at its peak. Table 4 lists some of the major growers of Australian plants during this period. Phillip and subsequent Governors supplied seed and live and stuffed animals to various members of government and to their patrons to maintain favour. One of Phillip's Kangaroos somehow got into the hands of a showman who claimed it was worth £500- the animal was put on exhibition for one shilling a visit and several others were given as gifts to the King. Many of the plants and animals which were either painted in New South Wales or sent back to England were used to illustrate some of the numerous books which were published about Australia in the 1790's.(9).

Details of Plant Cultivation

I will deal briefly with the aspects:

How was material transported?

How many plants were grown before 1807?

How were they grown in England, given the much colder climate?

How was material transported?

Initially, the main trade was in dried flowering plant specimens, seed, stuffed animals and/or their skins, or animals pickled in spirit. Later, plants in tubs and live animals became important. This latter trade became predominant as was shown by the cargo of the warship *Gorgon* which left Sydney in December, 1781 with 60 tubs containing over 220 plants destined for Kew. In addition there were another 40 tubs for private nurserymen and numerous animals and birds. Mrs Parker, the wife of the Captain, described the ship: "Our bark was now crowded with Kangaroos, Oppossums and every curiosity which that country produced. The quarter-deck was occupied with shrubs and plants, whilst the cabin was hung around with skins of animals. We had also procured a variety of birds". Mrs Parker described in her journal how it was her responsibility to look after the birds. Lt. Gardner, an officer of the ship, also gives us further insight into the trade in live animals: "some live Kangaroos and a number of Native Dogs were our present cargo". (10). These animals were presumably penned up for the trip.

The major difficulty was in keeping plants in tubs watered with fresh water during a voyage lasting from four to six months and in protecting them from salt. Banks issued instructions for the care of plants and the construction of "plant cabins" on several occasions but it seems highly likely that many, perhaps most, did not reach their destination alive unless the captain was particularly vigilant. Those that did survive were highly prized. The first Waratah to flower in England caused a sensation; it had been brought over as a tub plant in 1791.

The number of plants grown

By the end of 1800, about 170 species of Australian plants had been cultivated in England. They were distributed as shown in Figure 1. Many flowered and some set seed although viable seed was usually in short supply so that most propagation was by cuttings or by grafting once a plant had been established. The list is quite fascinating and includes 18 acacias, 11 banksias, 6 eucalypts, 8 hakeas, 7 leptospermum, and 11 melaleucas. All told, some 84

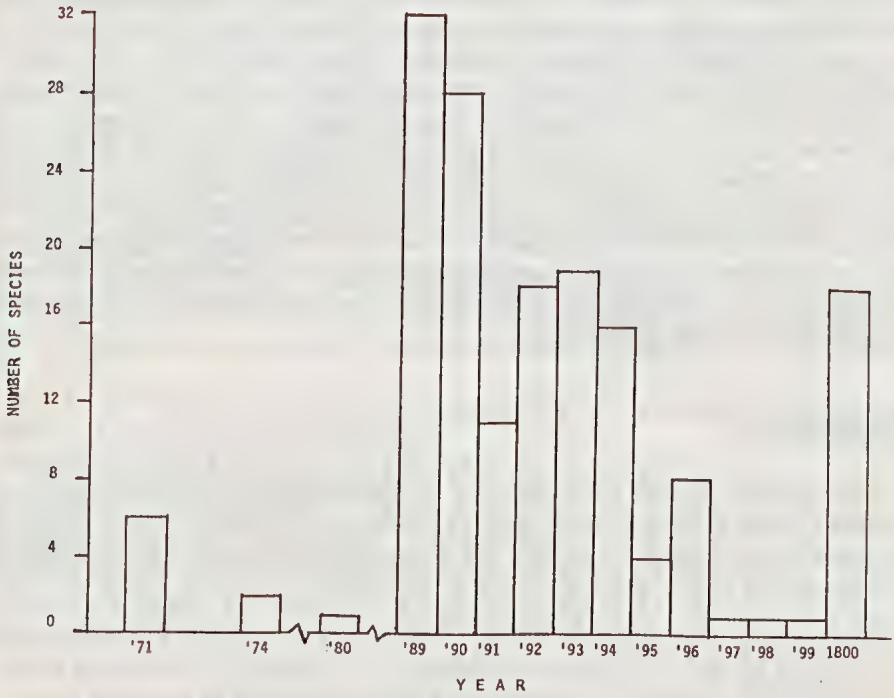

Figure 1:
Distribution of plant introductions into England between 1771 and 1800.

genera were represented, includinga number of tropical plants and many species now no longer cultivated. (11). Two that particularly intrigued me were two species of pelargonium which we tend to think of as introduced exotics. One species, *Pelargonium inodorum*, was highly prized as a hothouse plant and was recommended in a famous English book on geraniums published in the early 1820's.

How were plants grown?

Because of the rigours of the English climate, almost all plants were grown indoors in pots as glasshouse or hothouse specimens. Many of the gardening manuals of this time give considerable details about the cultivation requirements of New Holland plants. They recognise the need for a well-drained soil (using turf and sharp sand) and described how to propagate plants from cuttings. (12). I have found that many of their observations are still relevant today although I don't know how they grew eucaplypts from cuttings as some books claimed! Glasshouse culture using stove heating in winter was necessary and the glasshouses were very elaborate and expensive affairs. For example, that of the Duke of Bedford at Woburn Abbey was 85 feet long, 20 feet wide, and 25 feet high. Much of the roof could be removed during the summer to allow airing and natural watering of plants which were too large to move. Otherwise, most pots were taken outside during the summer months and the plants were repotted and pruned. As the Duke had over six thousand plants on his estate, many of them from Australia, it is evident that horticulture held a particular fascination for many of the English gentry. Rivalry between gardeners was intense and the first person to flower a particular plant often achieved fame in the press or had the flower painted for illustrating one of the many horticultural magazines that flourished in this period.(13).

Conclusion

The settlement and exploration of Australia coincided with a period of intense interest in foreign lands, both in England and Europe. The collection of natural history objects, especially the flora and fauna, and the cultivation of strange plants from these far-off countries became almost an obsession with many of the gentry. Although professional botanists and artists made many contributions to knowledge in natural history, we should always remember the part played by keen amateur naturalists in the collection of natural history specimens and in drawing so faithfully our countryside and its flora and fauna.

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(1) Whitley, G.P. (1938). Naturalists of the First Fleet. *Australian Museum Magazine,*6: 291 – 304
(2) George, A.S. (1971). The plants seen and collected in north-western Australia by William Dampier. *Western Australian Naturalist,* 11 (8): 173-178.
(3) Perry, T.M. (1982). *The discovery of Australia: the charts and maps of the navigators and explorers.* Melbourne, Nelson.
(4) Schilder, Gunter, (1988). New Holland: the Dutch discoveries. In Glyndwr Williams and Alan Frost (ads) *Terra Australis to Australia.* Melbourne, Oxford University Press, pp 83-115.
(5) Carr, D.J. (ed). (1983). *Sydney Parkinson: artist of Cook's Endeavour voyage.* Canberra, British Museum (Natural History) in association with the Australian National University Press.
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(7) Nelson, E.C. (1983). Australian plants cultivated in England before 1788 *Telopea* 2: 347-353.
(8) Four major books which carried many coloured and black-and-white drawings published in this period are:-
The voyage of Governor Phillip to Botany Bay -(1789). (55 plates).
White, John. *Journal of a voyage to New South Wales* – (1790). (65 plates).
Smith, James Edward. *A specimen of the botany of New Holland* - (1793).
Shaw, George. *Zoology of New Holland* - (1794).
(10) Cobley, J. (1980). *Sydney Cove.* Vol III, p 197.
(11) Cavanagh, Tony, (1989). Australian plants cultivated in England: 1771-1800. In Philip Short and Helen Cohn (eds) *Development of systematic botany in Australasia.* In press.
(12) The propagation and cultivation of proteaceous plants has been discussed in Cavanagh, A.K. (1982). Notes on the discovery and cultivation of dryandras in the nineteenth century. Part II - Cultivation. *Dryandra Study Group Newsletter* No. 3: 2-5.
(13) Four of the best known of these magazines which included full colour illustrations of all plants discussed were:-
Curtis's Botanical Magazine (began 1787).
Botanists Repository (began 1797).
Botanical Register (began 1815).
Loddiges Botanical Cabinet (began 1817).

Tony Cavanagh
16 Woodlands Dr.
Ocean Grove 3226

Table 1 – Plants Grown in England Before 1788

Species	Year Introduced	Seed Supplier	Notes
Abroma fastuosa (N. Qld.)	1771	Banks	North Queensland shrub
Eucalyptus gummifera (NSW)	1771	Banks	Grown by James Lee before 1777 Flowered before 1778
Allocasuarina torulosa (NSW) (Casuarina torulosa)	1771	Banks	Flowered before 1778
Allocasuarina verticillata (Casuarina stricta) (NSW)	1771	Banks	Flowered before 1778
Pouteria sericea (N. Qld.)	1771	Banks	Flowered before 1778
Cajanus reticulatus (N. Qld.)	1771	Banks	Creeper from North Australia
Eucalyptus obliqua (Tas.)	1774	Tobias Furneaux	Flowered before 1778
Laptospermum lanigerum (Tas.)	1774	Tobias Furneaux	Flowered before 1778
Acacia verticillata (Tas.)	1780	D. Nelson W. Anderson	The first Australian plant Illustrated in colour – 1790

Table 2 – Nurseries Specialising in Australian Plants

Lee and Kennedy, Hammersmith
Loddiges and Sons, Hackney
Colville and Sons, Chelsea
Wm. Salisbury, Brampton
Napier and Chandler, Wandsworth Rd.
Grimwood and Wykes, Kensington
G. Knight, Chelsea
Thomas Barr, Islington
Whitley and Brame, Old Brampton
William Curtis, Brampton

Table 3 – First Australian Plants to be offered for Sale in England

Species	When Sold	Notes
Eucalyptus obliqua	1774	Sold by William Malcolm Sold to the Earl of Coventry
Banksia serrata	1789	Advertised for sale
Banksia oblongifolia	1789	By the nursery firm
Lambertia formosa	1789	Lee and Kennedy of
Leptospermum laavigatum	1789	Hammersmith, London as
Melaleuca armillaris	1789	"The first plants from Botany Bay".

Table 4: Important Clients and Growers of Australian Plants.

Duke of Northumberland
Lady De Clifford
Rt. Hon. Charles Greville
Marquis of Blandford
Lord Cremorne
Viscount Lewishan
Lady Hume
E.J.A. Woodford of Vauxhall
J. Robertson of Stockwell
G. Hibbert of Clapham
John Ord of Waltham Green
J. Vere of Kensington – Gore

Appendix 1
Natural History Activities of Early Australian Colonists

NAME	OCCUPATION	NOTES
Arthur Phillip	Governor of the Colony	Sent seeds, dried plants and live and preserved animals to Joseph Banks and others in Government. Had many drawings of plants and animals made.
John White	Surgeon-General of the Colony	Sent seeds, dried plants, animals and drawings to England. These were used for illustrating books on New South Wales by him and several others.
John Hunter	Naval Commandant Later Governor of the Colony	Wrote about and drew plants and animals. Sent several parcels of seed to Banks. Observed the first platypus alive.
Watkin Tench	Marine Officer	Spoke glowingly in his journals of the flora and fauna, including the first published description of the emu. Expressed concern that no botanist had been sent.
William Bradley	First Lieutenant of HMS *Sirius*	Described plants and animals in his journal
Arthur Bowes Smyth	Surgeon	Made frequent excursions into the bush and collected seed. His journal contains the first drawing of an emu.
William Paterson	Captain NSW Corps Later Administrator of the Colony	Collected extensively in New South Wales, Norfolk Island and Tasmania and sent back much material to Banks and the private nurserymen Lee and Kennedy.
Phillip Gidley King	Naval Captain later Governor of the Colony.	Sent seeds and plant specimens to Banks, especially waratahs. Also made a number of drawings.
Dennis Considene	Surgeon	Sent seeds and plants to Banks. One of the first to notice the medicinal properties of eucalyptus oil.
George Bass	Surgeon	Sent seeds to Banks
Major Ross	Marine Officer, Lieutenant Governor	Sent material to Banks
William Hill	Captain of Marines	Wrote about the beauty of the flowers in his journal

John Harris	Surgeon	Regretted his ignorance of botany and natural history; described plants in his journal as "some of the most beautiful I ever saw.
Lieutenant Dawes	Engineer	Taught botany to Mrs Elizabeth Macarthur, wife of John Macarthur
David Blackman	Captain of the *Supply*	Made many observations of animals around Sydney and Lord Howe Island.
Ralph Clark	Second Lieutenant of the Marines	Kept a tally of the number of petrels killed for food on Norfolk Island; also carried out the first bird marking experiments in the Pacific.
David Collins	Judge Advocate	In his book, *Account of the English Colony in New South Wales,* Collins makes many references to animals and plants.
Daniel Southwell	Mate on the *Sirius*	Made observations on animals, especially sharks in Sydney Harbour.
Lieutenant John Watts	Naval Officer	Drew the first published picture of an emu which was used to illustrate Arthur Phillip's *Voyage of Governor Phillip to Botany Bay.*
David Burton	Convict Overseer and Surveyor	Collected for Banks and Lee and Kennedy. Sent 60 tubs of plants on the *Gorgon* in 1791 and a further 50 were sent by the *Atlantic* in December, 1792.
Port Jackson Painter (?Henry Brewer)	?Clerk to Arthur Phillip/Provost Marshall	Made many drawings of the landscape and birds and animals.
R. Atkins	Deputy-Judge-Advocate	Made many collections of insects, birds and plants; described the plants in flower as having "the most vivid and beautiful colours imaginable and many of them most delicately formed."
Thomas Watling	Convict Trained artist	Worked for Surgeon White. Made over 500 drawings from 1792, 400 of them being natural history subjects.
Major Grose	Commandant NSW Corps Later, Governor of the Colony	Collected seed for friends and members of Government.
Rev. Richard Johnson	Colonial Chaplain	Sent seeds to Banks and J. Stanard. Admitted he had little taste for botany but wrote "here is a great variety to feast the eyes and amuse the curious."

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Butterflies Around Anglesea District

by Mary White

I had a fascinating time last summer and autumn learning more about the local butterflies from John Landy. The Skippers fly so fast and in such an erratic manner that I could seldom see them clearly till I was shown how to search amongst the sword sedges for their pupa cases, then take them home to hatch out and later return them to their habitat.

One day we decided to look for the Bright Copper which I had previously seen on the Sweet Bursaria. There was a spot near Salt Creek where Sweet Bursaria was plentiful and we set out for that spot. Barely had we arrived when we saw the beautiful little brown butterflies with coppery orange colouring flying around and perching on the bushes, enabling us to see them very clearly.

Next we looked for an ant nest under a bush, and soon we came on one. John was lying flat out on the ground looking in, then he took a thin, but firm piece of dead grass and poked it gently into the hole. Soon he rolled out a little, creamy pupa about a centimetre in length. Handling it carefully I took it home, placed it in cotton wool in a clear container with not too much light and watched it for about 12 days.

One morning I checked. There was no sign of movement, though I thought that the pupa was a little darker. I looked again at midday and to my delight a dainty little butterfly was walking around. The pointed wings indicated that it was a male. After taking several photos outdoors I returned it to the Sweet Bursaria, where it perched for a moment then rose in the air and was soon lost to sight. I felt I'd just seen another miracle.

Mary D. White.
4 McMillan St.,
Anglesea 3230

Butterfly Conservation

by Gordon McCarthy

A new booklet on "Butterfly Conservation" written by T.R. New of the Zoology Department of the La Trobe University, has the support of the Entomological Society of Victoria. As insect and butterfly conservation is something of a new concept in Australia, the booklet outlines a number of conservation case histories in other parts of the world, where it is a readily accepted cause.

The book also covers the farming of commercial species, such as the New Guinea Birdwing.

Butterfly counts in the USA are carried out, much as we conduct bird counts.

Among endangered and recently extinct species overseas are the Blues, those butterflies which have an association with ants. This is of particular interest to the GNFC as the Small Ant Blue is our Club Emblem, and was one of the reasons for the fight to reserve the Ocean Grove Nature Reserve, where we are looking to start new colonies in suitable habitats. The Entomological Society of Victoria is considering listing the Small Ant Blue with the Flora and Fauna Guarantee, according to Tim New. This follows on from the issue of conserving habitat for the "Eltham Copper", perhaps the beginning of an awakening to the importance of insect conservation in this country.

Gordon McCarthy
26 Fairbrae Avenue,
Belmont, 3216

Butterflies of Anglesea and Nearby Coastal Areas

SCIENTIFIC NAME	COMMON NAME	FOOD PLANT
Anaphaeis java teutonia	Caper White	Capers
Argynnina cyrila	Cyril's Brown	Grasses
Candalides acastus	Blotched Blue	Dodder-laurel
Candalides hyacinthus hyacinthus	Common Dusky Blue	Dodder laurel
Danaus plexippus	Wanderer	Swan Plant
Delius aganippe	Wood White	Native Cherry
Delius harpalyce	Imperial White	Mistletoe
Dispar compacta	Dispar Skipper	Matrush, grasses
Eurema smilax	Small Grass Yellow	Cassia
Geitoneura acantha	Eastern Ringed Xenica	Kangaroo Grass
Geitoneura klugii klugii	Klugg's Xenica	Grasses
Hesperilla chaostola chaostola	Chaostola Skipper	Saw-sedge

Hesperilla chrysotricha	Chrysotricha Skipper	Saw-sedge
Hesperilla donnysa patmos	Donnysa Skipper	Saw-sedge
Hesperilla flavescens flavescens	Yellowish Skipper	Gahnia filum
Hesperilla idothea	Flame Skipper	Saw-sedge
Heteronympha paradelpha paradelpha	Spotted Brown	Grasses
Heteronympha penelope alope	Shouldered Brown	Grasses
Heteronympha merope merope	Common Brown	Grasses
Heteronympha solandri solandri	Solander's Brown	Grasses
Hypochrysops ignita ignita	Fiery Jewel (Ocean Grove)	Wattles
Lampides boeticus	Pea Blue	Peas, Dolichos
Neolucia agricola agricola	Fringed Blue	Native Peas
Neolucia serpentata serpentata	Chequered Blue	Saltbushes
Ocybadistes walkeri sothis	Yellow-banded Dart	Couch-grass
Oreixenica kershawi kershawi	Kershaw's Brown	Grasses
Oreixencia lathoniella lathoniella	Common Silver Xenica	Grasses
Paralucia aurifera	Bright Copper	Sweet Bursaria
Pasma tasmanica	Tasmanica	Grasses (Poa sp.)
Pieris rapae rapae	Cabbage White	Cabbages, Nasturtium
Precis villida calybe	Meadow Argus	Various, Grasses
Pseudodipsas myremecophila	Small Ant-blue (Ocean Grove)	
Signeta flammeata	Bright-shield Skipper	Eucalypts, Grasses
Taractrocera papyria	White Grass-dart	Grass
Tisphone abeona albifascia	Sword-grass Brown	Sedges
Trapezites eliena	Eliena Skipper	Matrush
Trapezites philgalioides	Phigalioides Skipper	Matrush
Trapezites phigalia	Phigalia Skipper	Matrush
Trapezites symmomus	Symmomus Skipper	Spiny-headed Matrush
Vanessa itea	Australian Admiral	Nettles
Vanessa kershawi	Painted Lady	Daisies
Zizina otia labradus	Common Grass Blue	Peas, Clover

Mary White
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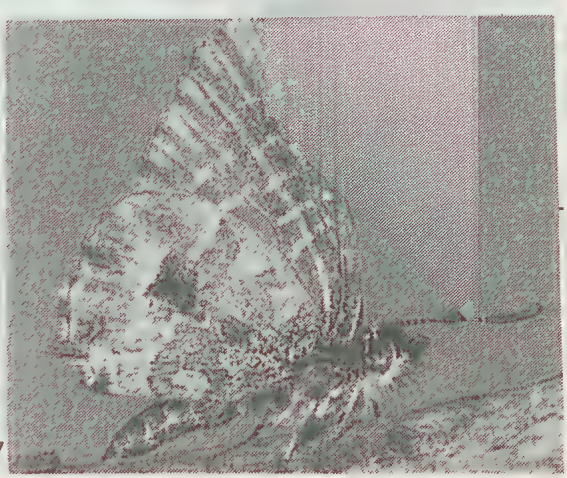
Anglesea 3230

John Landy
8 Christowel St.,
Camberwell 3124

May 1989



Blue butterfly – sp. not determined

Nesting Great Crested Grebes at Lake Modewarre

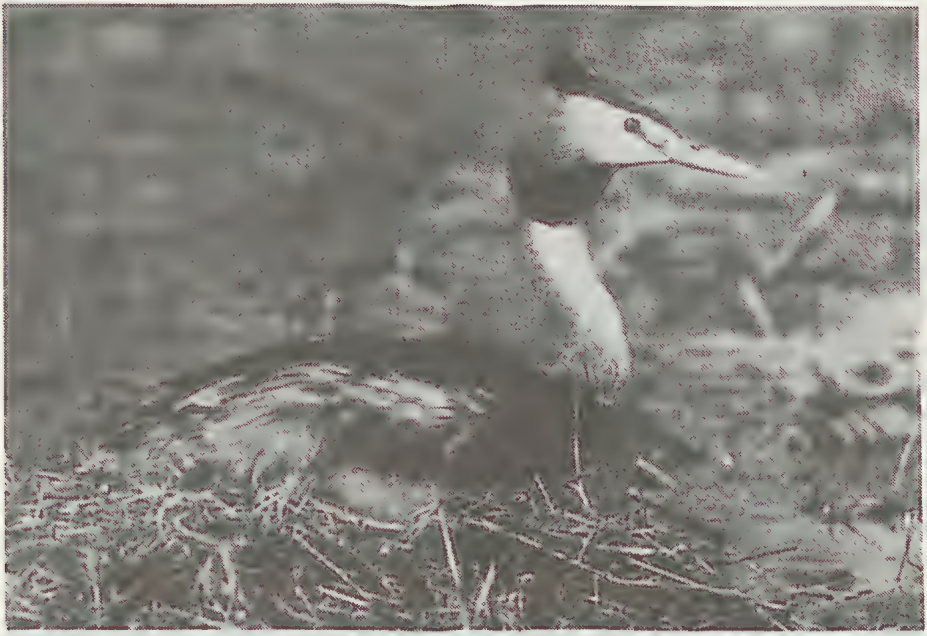
by Marilyn Hewish

On 4 February 1989, I counted ducks grebes, swans and coots at Lake Modewarre with Ian McLachlan, Bob Swindley and Bill Banfield for the RAOU's Summer Waterfowl Count. We were delighted to see 30 Great Crested Grebe nests at the lake, as well as a great variety and number of waterfowl.

Lake Modewarre is a large (414 ha.), open lake situated approximately 25 km WSW of Geelong at 38° 15'S,144° 07'E. It is surrounded by agricultural/ pastoral land; the banks are mostly steep and grassed, and the shore is muddy and narrow, except in the NE corner which has some low islands and bars extending out into shallow water from the edge. There is little emergent vegetation, but the lake supports a vigorous growth of the aquatic plant, Red Milfoil *Myriophyllum verrucosum,* which now covers a large proportion of the surface.

The nests of the Great Crested Grebes were in three fairly compact groups of 6, 5 and 19 nests each, floating far out from shore on a dense mass of Red Milfoil. They were in very exposed positions, with no emergent vegetation nearby. An adult sat on every nest but one. Many other Great Crested Grebe adults, but few of the other species of waterfowl present, were swimming around and between the nests in the area enclosed by each colony. The one nest without a sitting adult had a Silver Gull perched on the side, eating something within the nest. The distance was too great to see whether it was an egg or chick, but, as Great Crested Grebe chicks leave the nest soon after hatching, it was most likely an egg. The total number of Great Crested Grebes counted at the lake on that day was 170; many of these were young birds, which from a distance were very white with conspicuously -striped faces. Nesting had been in progress for some time during that season and these were the recently - fledged birds (R. Swindley, pers. comm.).

While I was watching, a Swamp Harrier made several passes over the group of 19 nests. I thought that at least one of the nesting birds was doomed, as they were so exposed from above. The Harrier made several straight passes over the nests at a height of about 2 metres without pausing. It then made a slow pass, hovering clumsily for several seconds over one nest, and dipping up and down with downstretched claws reaching for the adult -this is called the 'hover and drop' method of attack (Baker-Gabb 1984). But the Grebe sat tight, under the talons not more than a few centimetres above its body. The Harrier then moved on to try this tactic over several nests in succession, until finally, from the nest right on the edge of the group, the sitting Grebe leapt from the next into the water And then suddenly many of the adult Grebes, which had been swimming ran-



domly around the nests, turned and swam with great speed and purpose towards the deserted nest. The Harrier just as suddenly rose into the air and flew away and I did not see it again in that vicinity. I did not see it land on the nest, reach into the nest from the air, or carry anything as it departed, and so I assume it was unsuccessful. As I lowered the binoculars I noticed that there were jets of water squirting high into the air all around the group of nests; they proved to originate from Musk Ducks throwing water up behind them; an action which is a feature of their mating display, and which I have seen a bird perform when swooped by a Peregrine Falcon (Hewish 1984).

There are several points of interest about these observations. Breeding records for Great Crested Grebes are extremely rare in the Geelong region. RAOU and National Parks and Wildlife surveys, 1973-1986, indicated a limited breeding distribution in Victoria, concentrated along the River Murray system, and with scattered records elsewhere but not near Geelong (Emison *et al* 1987). Nesting was not noted in the Geelong region by either Belcher (1914) or Pescott (1983) in their comprehensive accounts of the birds of the area. Nesting has occurred about 80 km from Lake Modewarre, at wetlands near Ballarat (Thomas & Wheeler 1983) and at Lake Merrimu near Bacchus Marsh (a personal record of two adults with two dependent young on 6 February 1988). The Lake Merrimu record was also made during an RAOU Waterfowl Count. It seems that breeding at Lake Modewarre is a recent phenomenon; I saw no sign of birds nesting in the count of January 1987, but nesting was attempted in 1988; the outcome is not known (B. Edgar, pers. comm). Breeding may have

been stimulated by the spread of Red Milfoil in the lake, which has been very rapid in recent years. Aquatic plants are used for building, supporting and anchoring Great Crested Grebe nests.

I do not know why the Swamp Harrier was unsuccessful. The sitting Great Crested Grebe adults were very exposed, and Swamp Harriers are known to take other waterbirds, particularly Eurasian Coots, which are of comparable size (Baker-Gabb 1984). There was one deserted nest in the colony, where the sitting adult may have been taken by a Harrier, but predation had obviously not had a severe effect on breeding success up to that time, judging by the number of recently-fledged young on the lake.

Not only did Lake Modewarre provide this interesting breeding record, but also an impressive count of other waterbird species and individuals (listed below). The annual Waterfowl Counts have shown how important this lake is for waterbirds; in 1988 it was in the top five Victorian wetlands for Great Crested Grege, Australasian Shoveler, Blue-billed Duck, Musk Duck and Eurasian Coot, in terms of the numbers counted (Hewish 1988). While the discovery and monitoring of waterbird breeding locations was not among the primary aims of these counts, they clearly have great potential in this important area.

Waterbird species and counts at Lake Modewarre, Victoria, 4 February 1989 - (14 species, 6019 birds):

Great Crested Grebe (170); Hoary-headed Grebe (156); Australasian Grebe (4); Black Swan (510); Australian Shelduck (103); Pacific Black Duck (86); Grey Teal (328); Chestnut Teal (20); Australasian Shoveler (297); Pink-eared Duck (146); Hardhead (16); Blue-billed Duck (367); Musk Duck (85); Eurasian Coot (3730).

Present but not counted - (8 species);

Australian Pelican; White-faced Heron; Masked Lapwing; Red-capped Plover; Black-fronted Plover; Black-winged Stilt; Red-necked Stint; Silver Gull.

Acknowledgements

Bob Swindley, Ian McLachlan and Bill Banfield made a skilled and knowledgeable counting team, and I would like to thank them for their help and company. I learnt a lot. The annual Waterfowl Count was commissioned and funded by the Victorian Department of Conservation, Forests and Lands, and organized by the RAOU in co-operation with the department and the Victorian Field and Game Association.

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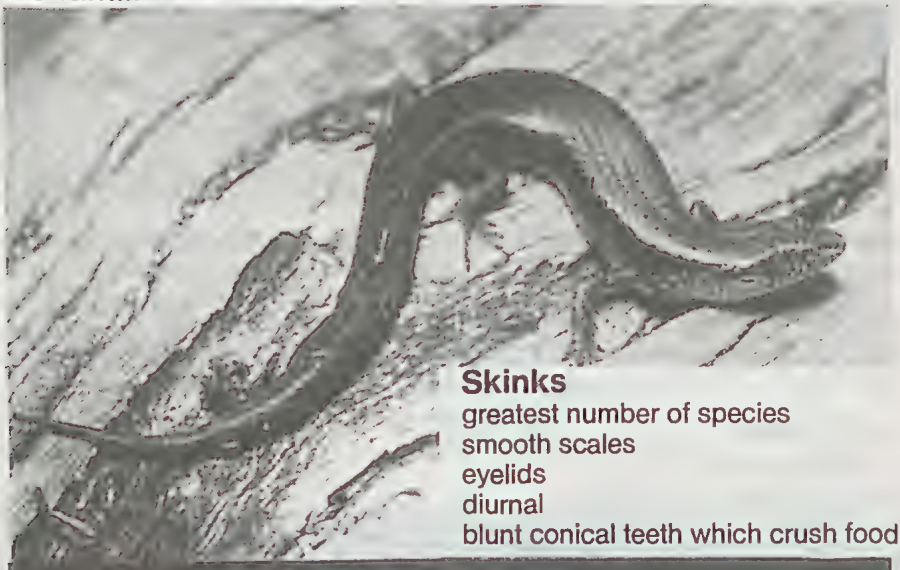
MYSTERY PHOTOGRAPH

A mound of grass, an old bale of hay, the remains of a swan's nest..... the photograph could have been tkan almost anywhere in Australia.

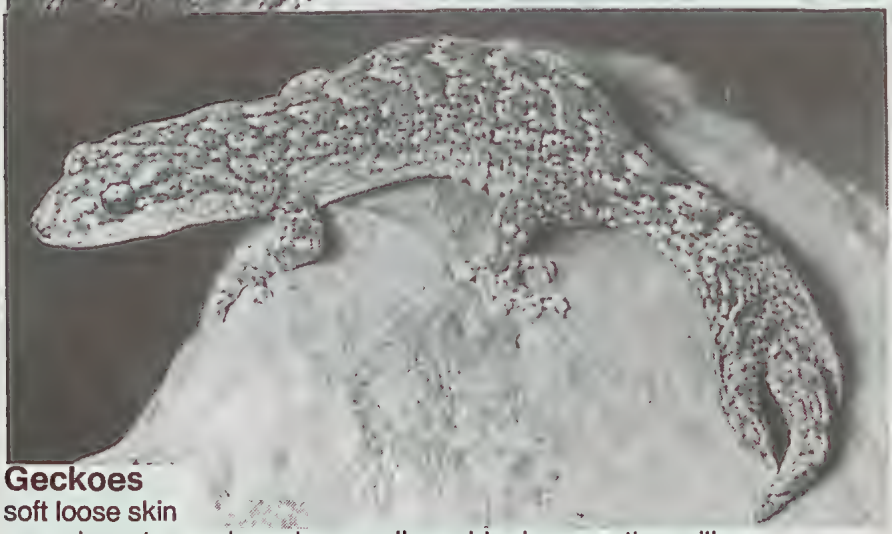
Junior Pages

Let's look at LIZARDS

Five families in Australia:



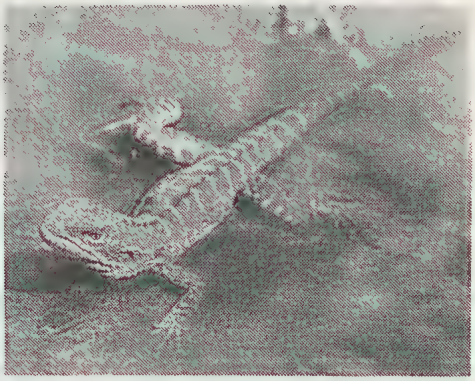
Skinks
greatest number of species
smooth scales
eyelids
diurnal
blunt conical teeth which crush food

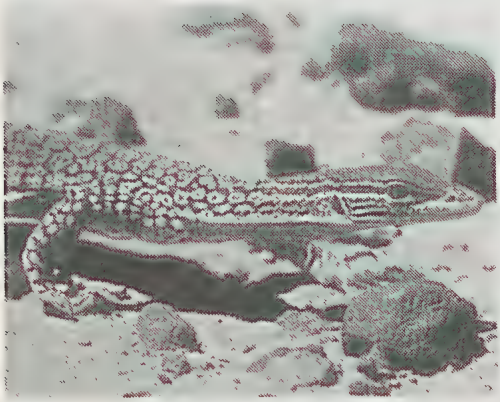


Geckoes
soft loose skin
many have toe pads and can walk upside down on the ceiling
large eyes and no eyelids
can lick their eyes clean
mostly nocturnal
some can bark or squeak

Dragons

can run on two legs
sharp teeth
during courtship wave their arms about and bob their head
small eyes with round pupils and eyelids





Goannas

some very large, up to 8 feet long
long forked tongue
strong claws
long tail
carnivorous

Legless

look like snakes but have tiny hindleg flaps
much longer tail than snakes
ear openings (snakes have none)
eyes with vertical pupils
no eyelids

A Lizard in the Whipstick

by Sarah McKenzie

While recently on the campout to the Whipstick State Forest I came across a rather strange lizard.

We were walking through the Kamarooka State Forest trying to find the Larger Striped Greenhood and the Autumn Greenhood (of which we found plenty). However, some of us were looking under some old sheets of corrugated iron. It was then that Dave King found a *Trachydosaurus rugosus,* commonly known as the Shingleback. As I have looked after sick lizards (Blue Tongues and Jacky Lizards) at home I was interested to find this one.

The Shingleback, also known as the Stumpy Tail Lizard and the Sleepy Lizard is a kind of skink. It is found widely in the southern half of Australia (but not in Tasmania) in dry inland areas. The coloration varies from mid brown with white markings to black. The Shingleback may grow to be 45 centrimetres in length. Its tail is used in hibernation as a store of fat which helps the lizard survive. It has 1-3 young and is viviparous, which means giving birth to live young. It feeds largely on blossom, grasses, insects, snails and it seems to have a preference for dandelions.

At the moment I have two Blotched Blue Tongues which I am looking after, one which has been run over by a lawn mower and one which has been attacked by a dog and is missing four toes and has a deep wound on its side. Blotched Blue Tongue Lizards and Jacky Lizards are common on our block. I feed them on minced meat with crushed up calcium tablets in it. I also feed them on cat's food, banana, tomato, snails, dandelions and raw egg. I have built a large brick cage for them and after they get well enough I let them go either in the bush up the top of our block or in the Ocean Grove Nature Reserve.

Although the Shingleback we found didn't seem to mind being woken up, handled and photographed, when we let it go it scurried thankfully back to its home under the corrugated iron!

Sarah McKenzie
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Ocean Grove

Thank you Sarah for your contribution. It's great to hear from our juniors. - Ed.

Notes on Marsh Harrier Behaviour

by Dave King

For a period of about 4 to 5 weeks from the beginning of September, 1988, two pairs of Marsh Harrier, *Circus Aeruginus,* were seen working over the Point Richards Reserve lagoon area, 2 kilometres west of Portarlington. Daily observations were made of these fine raptors. Each pair selected a patch of Common Reed, *Phragmites communis,* in which it was thought they intended to nest, as on one occasion a bird was seen to carry what appeared to be nesting material to the site. The two sites were separated by about 700 metres.

During the cooler morning and later afternoon period all four Harriers hawked low over the trees and shrubs, at a height ranging from zero to 10 metres. In the early afternoon when maximum temperatures were reached and thermals were present, the birds soared to considerable heights, anywhere from 100 metres to the point of disappearing from vision of the naked eye. This soaring was often accompanied by aerobatic displays between the paired birds.

The most spectacular aerobatic displays were executed immediately above the supposed nest site. This consisted of rolls and steep dives with the wings partially folded and pulling out of the dive into a vertical climb, ending in a roll-over loop.

There did not appear to be any territorial animosity between the two pairs who became closely associated during these aerial performances. The only birds that showed any animosity toward them were Magpies which occasionally harassed the Harriers when they approached too near to the Magpie nesting territory.

Prior to the Harriers taking up what appeared to be residence, the area was regularly visited by a pair of Little Eagles. It is still used by a pair of Black-shouldered Kites without any obvious interaction, although their favourite roosting tree has been substituted by one that is more remote, possibly because it was close to one of the Harriers' presumed nesting sites.

On one occasion an approach was made by the writer to one of the sites. No nest was found; instead, in winter 2 to 3 centimetres deep there was a circular area of about 2.5 metres diameter where the reeds appeared to ahve been flattened.

The only conclusion that could be drawn from the evidence was that Harriers were using it as a place to bring their prey, and feed in relative seclusion. No remains of prey could be found, nor signs of regurgitated pellets. It should be emphasized that their behaviour only occurred during the period when all four Harriers were using the Reserve area. In the normal course of events throughout the year, one pair or a single individual would be observed in the area almost daily.

Dave King, 9 Traum Street, Portarlington 3223

Mammal Survey - Moggs Creek

by Dave King

The opportunity again arose to do some live mammal trapping at the Tallawalla Guide Camp area of Angahook State Park. This is a continuation of the post Ash Wednesday fire recovery survey.

Trapping was carried out under permit 88-010 from the Department of Conservation Forests and Lands, for a total of 32 trap-nights. Both cage and Elliot type traps were used, baited with the standard mixture of rolled oats, honey and peanut butter.

Results

27th May - 10 traps along north boundary of Girl Guide Camp - three *Rattus rattus* of which two were juveniles. Weather - fine, very humid, minimum temperature 12°C, with full moon.
28th May - 16 traps along eastern boundary and six traps along Moggs Creek walking track – one *Rattus rattus.* Weather – rain, minimum temperature 13°C. European mice, *Mus musculus,* were also observed.

Birds observed were:-

Kookaburra
Red Wattlebird
Blackbird
Pied Currawong
King Parrot
White-browed Scrubwren
Sulphur-crested Cockatoo
Crimson Rosella
Blue Wren
Tree Martin
Grey Fantail
Welcome Swallow
Grey Thrush
White-naped Honeyeater
Yellow-faced Honeyeater
White-plumed Honeyeater
White-eared Honeyeater
Crescent Honeyeater
Brown-headed Honeyeater
New Holland Honeyeater

Acknowledgements:

The author would like to acknowledge the assistance and keen interest shown by the members of the 1st Portarlington Guide Company.

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Members Night Talk by Dave King and Graeme Tribe on the Ecology of the Barwon Estuary 6 December 1988

The definition of an estuary was taken as that zone where tidal sea water interacts with the fresh water flowing down the river. In the case of the Barwon River, this occurs as far upstream as the Breakwater which was originally constructed to limit the effect of tidal waters.

The whole estuarine zone with its salt marshes, creeks and shallow Lake Connewarre, is of tremendous conservation value. Productivity of the area is exceptionally great, not in terms of immediate high order biota, but as a consequence of its abundant and constant supply of first order food chain constituents.

The talk took us on a tour of the various ecological areas. We started at the Eel Grass meadows of the sand and mud flats near the river mouth, which are populated by various invertebrates and many water birds. We then went up the tidal creeks, passing the degradation caused by disregard for the environment, evidenced by a garbage tip and random disposal of unwanted rock spoil and redundant farm fencing materials. Beyond the banks lined with White Mangrove, the plant communities and their associated animals, mainly arthropods and gastropods, were described.

Returning to the main river channel and proceeding upstream, the various plants associations were explained and illustrated, with aerial photographs indicating the topography of the whole area and its surrounding hinterland.

Several charts were shown, some of which are of historical importance, as they indicate how the channels have changed during this century. Specimens of salt marsh plants were on view, and included a number preserved and beautifully mounted by the late Ted Errey.

Excursion;

19/3/1989. Areas visited - Anglesea Flora Reserve, Scout Camp Reservoir, Eumerella, Alcoa Mine. Leaders: Winston Huggins and Pat Quinlivian

On the slope leading down to the dam and around it, were the following plants, apart from the find of the day of the orchid lovers *Chiloglottis reflexa* - Autumn Bird Orchid.

MONOCOTYLEDONS

Gahnia radula - Thatch Sawsedge
Gonocarpus micrantha - Creeping Raspwort
Gonocarpus tetragynus - Common Raspwort
Juncus holochoenus - Joint leaf Rush
Juncus pallidus - Pale Rush
Juncus planifolius - Broad leaf Rush
Juncus subsecundus - Finger Rush
Phragmites australis - Common Reed
Pteridium esculentum - Austral Bracken
Lepidosperma longitudinale - Pithy Sword Sedge
Lepidosperma laterale - Variable Sword Sedge
Lepidosperma semiteres - Rapier Sword Sedge
Xanthorrhoea australis - Austral Grass Tree

DICOTYLEDONS

Acacia myrtifolia - Myrtle Wattle
Acacia pycnantha - Golden Wattle
Acacia suaveolens - Sweet Wattle
Acacia verniciflua - Varnish Wattle
Acacia verticillata - Prickly Moses
Acrotriche serrulata - Honey Pots
Amperia xiphoclada - Broom Spurge
Banksia marginata - Silver Banksia
Cassytha melantha - Coarse Dodder laurel
Dillwynia glaberimma - Smooth Parrot Pea
Dillwynia sericea – Showy Parrot Pea
Epacris impressa - Common Heath
Exocarpus cupressiformis – Cherry Ballart
Eucalyptus goniocalyx - Bundy - Long leaf Box
Eucalyptus obliqua - Messmate Stringybark
Gratiola peruviana - Austral Brooklime
Helychrisum dendroideum - Tree Everlasting
Ixodia achilleoides - Ixodia
Hibbertia prostrata - Bundled Guinea flower
Hibbertia sericea – Silky Guinea flower
Leptospermum juniperinum - Prickly Tea tree
Myriophyllum simulans - Water Milfoil
Olearea teretifolia - Cypress Daisy Bush
Olearea sp. (lirata?) - Daisy Bush
Persoonia juniperina – Prickly Geebung
Platysace heterophylla - Slender Platysace
Platylobium obtusangulum - Common Flat Pea
Pimelea humilis - Common Rice flower
Pultenea daphnoides - Large leaf Bush pea
Pultenea mollis - Soft Bush pea
Pultenea scabra - Rough Bush pea
Spyridium parvifolium - Australian Dusty Miller
Viminaria juncia - Golden Spray

The following birds were noted:

Gang-gang Cockatoo - *Callocephalon fimbriatum*
Blue Wren - *Malurus cyaneus*
Brown Thornbill - *Acanthiza pusilla*
Black Duck - *Anas superciliosa (Alcoa)*
Crimson Rosella – *Platycercus elegans*
Eastern Spinebill – Acanthorhynchus tenuirostris
Golden Whistler - *Pachycephala pectoralis*
Grey Currawong - *Streptera versicolor*
Grey Fantail – *Rhipidura fuliginosa (Nest also)*
Grey Thrush - *Colluricincla harmonica*
Magpie – *Gymnorhina tibicen*
Nankeen Kestrel - *Falco cenchroides*
Scarlet Robin - *Petroica multicolor*
Swamp Hen – *Porphyrio porphyro (Alcoa)*
Welcome Swallow - *Hirundo neoxena*
White-browed Srubwren – *Sericomis frontalis*
White eared Honeyeater – *Lichenostromus flaves*
White-throated Treecreeper – *Claimacteris leucophaea*
Yellow-winged Honeyeater – *Phylidonyris novaehollandiae*

Bird List by G. & L. Mathison.

Around the Scout Camp dam leaf curl spiders were more than plentiful.

A very recently killed White lipped snake -*Drysdalia coronoides - was found at the parking area above the Scout dam.*

After lunch at the Cubs Campfire area, a tour was made of the newly formed Cubs adventure trail. We then proceeded to the Scout Cliff Top parking area, from which a splendid view of the coast (and the just off-shore Ingolsby Reef) was enjoyed.

Plants additional to the previous areas noted were:

DICOTYLEDONS

Acacia acinacea - Gold dust Wattle
Acacia longifolia - Swallow wattle
Acacia longifolia – Sallow Wattle
Astroloma humifusum – Cranberry Heath
Allocasuarina misera (pusilla) – Dwarf Sheoak
Allocasuarina stritta – Coast Sheoak
Correa reflexa - Common Correa
Cryptandra tomentosa - Prickly Cryptandra
Dichondra repens - Kidney weed
Gompholobium ecostatum – Dwarf Wedge pea
Goodenia geniculata - Bent Goodenia
Goodenia ovata - Hop Goodenia
Hakea ulcina – Furze Hakea
Isopogon cerataphyllus – Horny Conebush
Leucopogon virgatus - Common Beard heath
Leptospermum myrsinoides - Silky Tea tree
Spyridium vexilliferum - Winged Spyridium
Villerophyton dealbatum - White Cudweed
Viola hederacea - Ivy leaf violet

MONOCOTYLEDONS

Dianella revoluta - Black anther Flax lily
Hypoleana fastigata - Tassel Rope rush
Lepidosperma filiforme - Common Rapier Sedge
Lomandra spp. - Mat Rush
Schoenus breviculmis - Matted Bog rush

The group assembled at Alcoa power station entrance at 1.30 p.m. Those present entered the mine area in two vehicles, and were escorted by Mr. Chris Rolland to the open cut area where the workings were explained, and position of fossil rich clay lenses noted. At this stage it is estimated that mining will take place for about the next fifteen years; but in any case it is envisaged that the open cut, on completion of mining, will be part lake and part wetlands. The Anglesea river will be returned to approximately its original course, it having been re-routed to allow mining to proceed. The area will then become available to the public.

The regeneration areas were then visited. The initial area was planted with tree species in the absence of top soil. This resulted in a treed area pretty well devoid of any understorey.

The later method is to plant with topsoil and add a mulch, part of which is taken from natural understorey. The area inspected, using the latter method, after approximately 10 - 12 years, appeared very similar to natural bushland; this from now on will be the preferred method. Fossil bearing material was then inspected, and any members who wished were allowed to take specimens - mostly of vegetation, i.e. leaves etc.

After afternoon tea at an observation area, outside the mine, the group dispersed at approximately 3.45 p.m.

Mystery Photography - The Solution

by Trevor Pescott

It is a back view of an Emu brooding his clutch of eggs. The male takes over incubation after the female has completed laying them, and remains on the nest for the many weeks it takes for incubation.

During this time he doesn't leave the eggs, and only when the chicks hatch can he resume feeding and regain a normal lifestyle.... or as far as his young allow. Once egg-laying is complete, the female takes no further part in family affairs. (The full story of the Emu is told in Pauline Reilly's book, "The Emu that walks in the rain".)

Trevor Pescott
4 Victoria Terrace,
Belmont, 3216.

VALE ERIC BOUND

Foundation member and first Vice-President of the Club, Eric Bound, died on 4 September. He will be remembered particularly for his beautiful bird photographs. He was a true naturalist, right to the end. Even when he was battling illness he insisted on getting outside to enjoy the natural world.

PROGRAMME

SEPTEMBER

5	General meeting. Mike Carter – "Albatrosses".
9-10	W.V.F.N.C.A. campout. Castlemaine.
17	Excursion. Bus trip to Yellingbo. Leaders: Craig Morley (Ph. 21-4604) & Barry Lingham (Ph. 55-4291)
20	Committee meeting
23	Half-day excursion. Ocean Grove Nature Reserve. Barbeque lunch. Leaders: Gordon McCarthy (Ph. 43-1826) & Leila Ramsay (Ph. 43-3661).

OCTOBER

3	General meeting. Members night.
14-15	Campout. Moorabool River – Meredith. Leaders: Graeme Tribe (Ph. 55-2302) & Gordon McCarthy (Ph. 43-1826)
15	Excursion. Moorabool River. Leaders: Graeme Tribe (Ph. 55-2302) & Gordon McCarthy (Ph. 43-1826)
18	Committee meeting
21-22	W.V.F.N.C.A. campout – Creswick

NOVEMBER

7	General meeting. Judy Barker – "Helichrysums"
15	Committee meeting
19	Excursion. Enfield Forest Park. Leaders: Barry Redman (Ph. 43-5312) & David Brunton (Ph. 9-7218)

DECEMBER

5	General meeting. Members night.

SUBSCRIPTION RATES

Ordinary membership (includes "Geelong Naturalist")	$15.00
Family/joint membership (includes "Geelong Naturalist")	$23.00
Junior/Student membership (includes "Geelong Naturalist")	$5.00
Corporate membership (clubs, organizations – includes "Geelong Naturalist")	$25.00
Subscription to "Geelong Naturalist" only	$15.00
Newsletter posted on request	$7.00

STATEMENT OF PURPOSES

1. To stimulate the study and appreciation of natural history by: –
   (a) Lectures, discussions and excursions to areas displaying features of ecological interest.
   (b) Taking part in ecological surveys and field studies.
2. To preserve and protect Australian flora and fauna.
3. To issue statements and comments on proposals regarding the management of areas of natural significance, so to aid the conservation of natural resources and the protection of endangered species and habitats.
4. To faithfully record information, to disseminate knowledge on, and to act as a source of information and opinion on matters relevant to the Club's purposes.

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Photographs by Trevor Pescott

GEELONG NATURALIST

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GEELONG NATURALIST

JOURNAL OF THE GEELONG FIELD NATURALISTS CLUB INC.

Vol. 26 No. 3
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Editorial

This issue contains another of our bird reports, that for 1988. Previous reports were for 1984 and 1985 and all are based on observations given by members at Bird Group meetings. They tend to be of unusual sightings – either less frequently seen species or large numbers of commoner species. A few are birds which catch the imagination, such as Pied Currawongs or Eastern Spinebills in the suburbs. The birds we expect to see, either at home, in the bush or by the sea, are rarely mentioned. Thus the Magpie, the Superb Fairy-wren and the Silver Gull are omitted.

It is interesting to compare these sightings with birds noted by C.F. Belcher in an article in the April 1987 issue of the *Wombat,* journal of the first Geelong Field Naturalists Club. Spinebills were seen in gardens in winter then, as now. The Yellow-faced Honeyeater stayed in town till October and the White-naped was an occasional visitor. And the now ubiquitous Red Wattlebird retired in August to the bush to breed and was less frequently seen than the Noisy Miner!

We welcome further observations and comments on the birds seen in the Geelong area in 1988 – or indeed at any other time.

We are also seeking feedback about the *Geelong Naturalist.* Rising costs have forced the Committee to consider the format and frequency of both the Newsletter and the magazine. The two publications have filled different roles. The Newsletter has dealt with Club activities but at present it does not reach all members who therefore cannot be kept informed of details of forthcoming events. The *Naturalist* has recorded natural history, particularly of the Geelong region, and is widely used for reference purposes. Can the two be combined? Do you want both? Are you prepared to pay to continue to receive the journal? Are you willing to compromise the quality of its production (that is, have a cheaper format) to ensure the magazine continues to be published? Please contact the Editorial Committee or write a letter to the Editor.

Your opinion counts.
Valda Dedman.

1988 Geelong Area Bird Report

Compiled from records noted at meetings of the Bird Study Group by Trevor Pescott.

Short-tailed Shearwater *(Puffinus tenuirostris)*
21.10.88 and 22.10.88 7000 Anglesea coast (AE)
Cattle Egret *(Ardeola ibis)*
26.1.88 30+ (Many in full breeding plumage) Balyang Sanctuary (TP)
Brown Bittern *(Botaurus poiciloptilus)*
22.5.88 1 Barwon River at Connewarre (?)
Glossy Ibis *(Plegadis falcinellus)*
14.2.88 1 Reedy Lake (MC)
19.5.88 4 Reedy Lake (?)
Royal Spoonbill *(Platalea regia)*
May 88 32 Moolap Salt Works (?)
Magpie Goose *(Anseranas semipalmata)*
6.2.88 1 Moolap (JW)
14.2.88 2 Reedy Lake (MN)
Cape Barren Goose *(Cereopsis novae-hollandiae)*
20.3.88 2 Werribee (MC)
Black-shouldered Kite *(Elanus notatus)*
21.11.88 Pair with 2 juveniles Barwon River (GM)
Black Kite *(Milvus migrans)*
3.3.88 1 Little River (TP)
White Goshawk *(Accipiter novaehollandiae)*
7.3.88 1 Thompson Creek (MC)
21.3.88 1 Buckleys Falls (TP)
15.4.88 1 Edsall Reserve Wallington (CA)
15.5.88 1 Pt. Addis (?)
24.5.88 1 Belmont (in garden) (GMcC)
Little Eagle *(Hieraaetus morphnoides)*
27.2.88 1 Buckleys Falls (TP)
23.4.88 1 Lethbridge (RT)
Spotted Harrier *(Circus assimilis)*
12.1.88 1 Werribee (MH)
25.1.88 1 Bacchus Marsh (MH)
6.2.88 1 Melton (MH)
28.2.88 1 You Yangs (MH)
1.4.88 1 Lethbridge (RB)

White Goshawk – unusual visit to a Geelong garden

Sulphur-crested Cockatoos – more frequently seen in the suburbs.
Photos: Trevor Pescott

25.4.88 1 Bacchus Marsh (MH)
November 88 1 Sand Island (Juvenile) (IS)

Black Falcon *(Falco subniger)*
20.4.88 1 Leopold (?)
24.4.88 1 Lake Connewarre (LR)
24.4.88 1 Marshall (MC)

Peregrine Falcon *(Falco peregrinus)*
22.10.88 Nest with 3 young in old nest of Wedge-tailed Eagle Long Forest (?)

Australian Hobby *(Falco longipennis)*
1.3.88 2 Highton (RB)

Australian Crake *(Porzana fluminea)*
January 88 4 Buckleys Falls (?)

Eurasian Crake *(Fulica altra)*
25.6.88 3000 Lake Martin Cressy (IS)

Brolga *(Grus rubicundus)*
August 88 Nests South-west of Elaine and Birregurra Creek (DH/GMcC)

Lesser Golden Plover *(Pluvialis dominica)*
19.5.88 3 Lake Connewarre (MH)

Hooded Plover *(Charadrius rubricollis)*
23.8.88 3 Breamlea (PR)
October 88 Nest Point Lonsdale (?)
October 88 8 Black Rocks to Breamlea (BE)

Double-banded Plover *(Charadrius bicinctus)*
21.5.88 600 Point Wilson (IS)

Red-necked Avocet *(Recurvirostra novaehollandiae)*
October 88 2 pairs nesting Moolap Salt Works (JW)
October 88 3 pairs nesting Werribee Sewage Farm (IS)

Little Curlew *(Numenius minutus)*
6.1.88 1 Werribee (MH)

Common Sandpiper *(Tringa hypoleucos)*
10.4.88 1 Barwon Heads (MH)

Bar-tailed Godwit *(Limosa lapponica)*
19.5.88 6 Lake Connewarre (MH)

Pectoral Sandpiper *(Calidris melanotos)*
30.10.88 1 Werribee Sewage Farm (RS/PH)

Ruff *(Philomachus pugnax)*
6.1.88 1 Avalon Salt Works (MH)

Gull-billed Tern *(Gelochelidon nilotica)*
13.2.88 13 Lake Connewarre (MH)
10.4.88 1 Lake Connewarre (MH)

Caspian Tern *(Hydroprogne caspia)*
23.8.88 Breamlea (PR)
Fairy Tern *(Sterna nereis)*
January 88 Have nested Mud Islands, Sand Island (VD/MC)
17.5.88 30 Lake Connewarre (MH)
Gang Gang Cockatoo *(Callocephalon fimbriatum)*
21.2.88 10 Belmont (TP)
23.2.88 Highton (VD)
24.5.88 Lots flying West to East Highton (VD)
Long-billed Corella *(Cacatua tenuirostris)*
3.2.88 4 Near You Yangs (TP)
Sulphur-crested Cockatoo *(Cacatua galerita)*
22.2.88 8 Highton (VD)
Scaly-breasted Lorikeet *(Trichoglossus chlorolepidotus)*
19.3.88 4 Newtown (CM)
Purple-crowned Lorikeet *(Glossopsitta porphyrocephala)*
Early November 88 Juvenile Newtown (CM)
Little Lorikeet *(Glossopsitta pusilla)*
18.11.88 and 21.11.88 Over Newtown (CM)
Crimson Rosella *(Platycercus elegans)*
March 88 2 Highton (LS)
20.5.88 Eating acorns Apollo Bay (IS)
Port Lincoln Parrot *(Barnardius zonarius)*
March 88 1 Anglesea (HK)
Blue-winged Parrot *(Neophema chrysostoma)*
24.4.88 61 Lake Connewarre (MH)
Orange-bellied Parrot *(Neophema chrysogaster)*
10.4.88 47 Lake Connewarre (MH)
24.4.88 73 Lake Connewarre (MH)
24.4.88 19 Werribee (MH)
22.10.88 10 Lake Victoria (?)
Pallid Cuckoo *(Cuculus pallidus)*
January 88 1 Juvenile being fed by both White-naped and White-plumed Honeyeaters (JW)
October 88 Belmont (last 2 months (?)
October 88 1 Highton (?)
November 88 Calling Brisbane Ranges (fewer seen and heard this year)
Fan-tailed Cuckoo *(Cuculus pyrrhophanus)*
15.5.88 Calling Anglesea (MC)
16.5.88 Calling Newtown (CM)

Horsfield's Bronze-cuckoo *(Chrysococcyx basalis)*
23.8.88 1 Breamlea (PR)
22.10.88 Calling at 4.00 a.m. (?)
Shining Bronze-cuckoo *(Chrysococcyx lucidus)*
8.5.88 Calling Lake Lorne Drysdale (MC)
23.8.88 1 Deakin University Waurn Ponds (MC)
Fork-tailed Swift *(Apus pacificus)*
29.1.88 Flocks over West Geelong, Belmont and Drysdale (TP)
5.2.88 50 Bacchus Marsh (MH)
7.2.88 Torquay (?)
23.3.88 Bacchus Marsh (MH)
Sacred Kingfisher *(Halcyon sancta)*
November 88 Pair Princes Bridge (?)
Rainbow Bee-eater *(Merops ornatus)*
19.3.88 1. Pollocksford (VD)
November 88 Nesting Ceres Bridge (?)
November 88 Back of Anglesea (MC)
White-backed Swallow *(Cheramoeca leucosternum)*
13.11.88 1 Anglesea (KR)
Song Thrush *(Turdus philomelos)*
26.4.88 1 Highton (RB)
23.5.88 Calling Newtown (CM)
Rose Robin *(Petroica rosea)*
20.3.88 1 Highton (RW)
Golden Whistler *(Pachycephala pectoralis)*
26.4.88 1 female Newtown (LD)
Rufous Whistler *(Pachycephala rufivenris)*
13.4.88 1 Highton (RB)
Grey Shrike-thrush *(Colluricincla harmonica)*
17.5.88 1 Deakin University (VD)
Rufous Fantail *(Rhipidura rufifrons)*
8.3.88 1 Belmont (JW)
14.3.88 1 Belmont (TP)
Grey Fantail *(Rhipidura fuliginosa)*
June 88 Highton (RB)
Willie Wagtail *(Rhipidura leucophrys)*
30.10.88 1 (White plumaged) Werribee (RS/PH)
Clamorous Reed Warbler *(Acrocephalus stentoreus)*
23.5.88 Calling Barwon River in Geelong (GMcC)
Southern Emu-wren *(Stipiturus malachurus)*
14.5.88 -15.5.88 "Area alive with them" Salt Creek in Bald Hills (MC)

Yellow-rumped Thornbill *(Acanthiza chrysorrhoa)*
20.5.88 Newtown (CM)
Novermber 88 Feeding fledgling young Botanic Gardens Geelong (CM)
Yellow-faced Honeyeater *(Lichenostomus chrysops)*
10.4.88 500 in small flocks Lake Connewarre (MC)
10.4.88 5 Newtown (CM)
14.4.88 100 East Geelong (CM)
17.4.88 Highton (RB)
White-naped Honeyeater *(Melithreptus lunatus)*
31.5.88 5 Belmont (SS)
Eastern Spinebill *(Acanthorhynchus tenuirostris)*
18.3.88 1 Highton (VD)
20.4.88 1 Highton (PS)
May 88 Several Highton (VD/RB)
June 88 Highton (RB)
Spotted Pardalote *(Pardalotus punctatus)*
22.3.88 12+ Belmont (DS)
Red-browed Firetail *(Emblema guttata)*
23.4.88 50 Lethbridge (RT)
White-browed Wood-swallow *(Artamus superciliosus)*
26-28.10.88 300+ You Yangs (?)
29-30.10.88 50 You Yangs (?)
2.11.88 6 (flying south) Newtown (CM)
13.11.88 300 Anglesea (KR)
Dusky Wood-swallow *(Artamus cyanopterus)*
10.4.88 7 Newtown (CM)
Pied Currawong *(Strepera graculina)*
January 88 Call Highton (RB)
23.2.88 Call Highton (BS)
Late April (very noisy) Highton (RB)
9.6.88 4 Herne Hill (IS)
June 88 6 Belmont (GMcC)
Late June 88 25 Highton (RB)
28.6.88 Eating Lilly Pilly fruit Highton (RB)

Observers:

JW	Joyce Ward	LR	Len Robinson
MN	Mike Newman	PS	Penny Smith
MC	Margaret Cameron	RT	Robert Trott
VD	Valda Dedman	LD	Lawrie Drinnan

BS Bob Sherwood
RB Ray Baverstock
CM Craig Morley
MH Marily Hewish
HK Harry Kroger
LS Lily Sherwood
TP Trevor Pescott
DS Dick Southcombe
RW Roy Whiteside
CA Colin Atkins
GMcC Gordon McCarthy
IS Ira Savage
SS Shirley Southcombe
DH Dean Hillman
PR Pauline Reilly
AE Anthony Eames
KR K. Rogers
RS R. Swindley
PH P. Higgins
? Observer not recorded

Trevor Pescott
4 Victoria Terrace,
Belmont, 3216.

Kookaburra Notes

by Gordon McCarthy

On several occasions recently I have observed a kookaburra along the Barwon River, upstream from Princes Bridge. It may possibly have been the same bird each time. On September 4th I saw it dive into the long grass beside the Stan Lewis Track and emerge with a very large and very vocal Golden Bull Frog, which after a few vigorous thumps on a branch, was swallowed with a bit of difficulty.

Then on October 16th in a red gum on the north bank I saw a kookaburra holding a tiger snake. That tail of the snake was hanging below the branch, even though the head had disappeared inside the bird's bill. After quite a few minutes of gulping, the snake gradually disappeared, leaving me wondering whether it was being coiled up neatly inside the kookaburra's stomach.

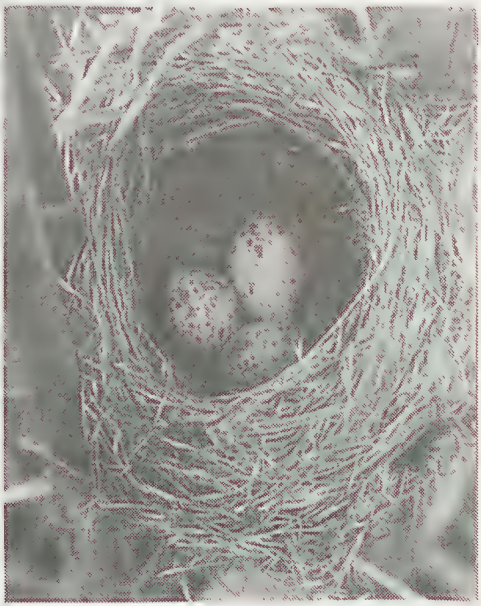
I have also observed one holding a yabbie, so apparently their diet is quite varied.

Gordon McCarthy
26 Fairbrae Avenue,
Belmont, 3216.

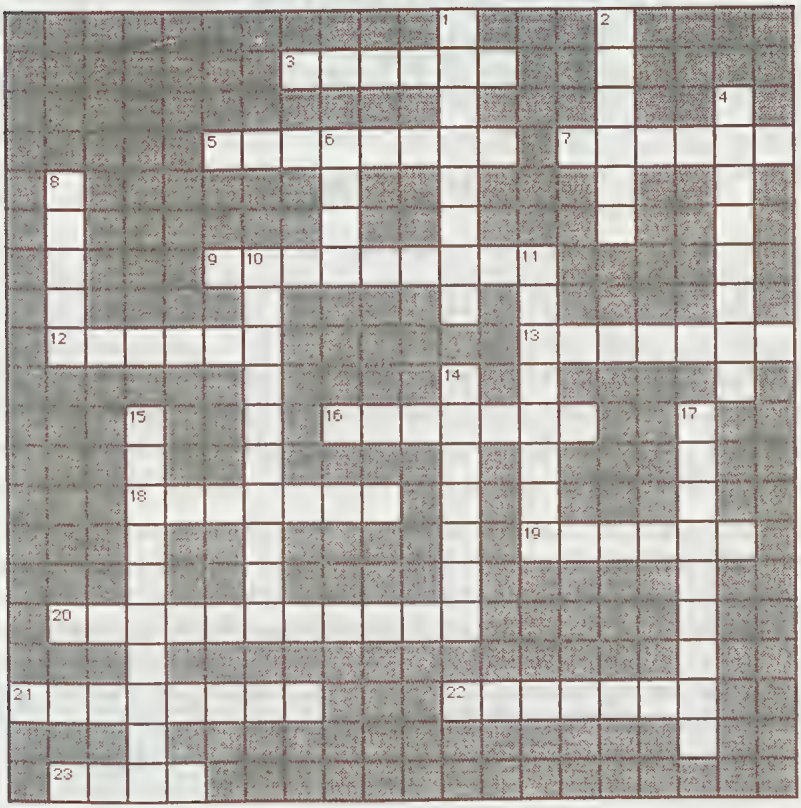
Photos: Trevor Pescott

Clamorous Reed-warbler

It was most unusual to hear Clamorous Reed Warblers calling in May. They usually leave Geelong in autumn and return in August or September to build a nest woven around reed stems.



Junior Page Nature Puzzle



ACROSS

3. Native Fuchsia
5. (& 15 d) Victoria's bird emblem
7. Geelong's river
9. Pouched animal
12. Digs a burrow
13. Common fern
16. Larval frog
18. Ant species
19. You are one
20. Greenhood
21. Ornithorhyncus
22. Type of lizard (plural)
23. Sea bird

DOWN

1. Large monitor
2. Volcanic rock
4. Too much at You Yangs
6. Lower plant
8. _____ necked Ibis
10. Marsupial mouse
11. Part of orchid
14. Heath
15. See five across
17. Ocean bird

Answers p. 82

The Fall At Sewanee, Tennessee, USA

Some Natural History Observations. 1 Oct to 18 Dec 1988

by Roy Whiteside

Sewanee is situated on the Cumberland Plateau which rests on the south-west margin of the Appalachian Mountain Range. The plateau is about 600 metres above sea level and about 300 metres above the surrounding valleys. Sewanee is in Franklin County and is about 140 km south east of Nashville and about 80 km west of Chattanooga. The name Sewanee is an old Indian name of unknown meaning which has been adopted as being synonymous with the University of the South.

This article is a brief account of some of the interesting natural history observations made by Roy, Helen and Simon Whiteside whilst Roy was on study leave at the University. The central education area and surrounding residences occupy about 500 hectares out of a total area of about 4000 hectares owned by the University. A number of lakes have been established on the campus and there are a number of small streams flowing through the forest. Over the edge of the plateau there are further streams which came out of rocky outcrops and further downstream disappear underground or spill over waterfalls. At the end of our stay in December these waterfalls were frozen. The region consists almost entirely of native forest with a vast range of different deciduous species and a few evergreen species. It therefore makes an ideal environment for the observation of trees, birds and mammals.

Flora

We arrived as Summer was ending and within a week there were signs of the Fall (Autumn) approaching. The leaves of the deciduous trees were starting to change colours and the colours reached a peak within a further two weeks. Taking photographs of these Autumn tints presented a dilemma similar to that of taking a picture of a sunset. We had to anticipate when the colours of the foliage would look the most spectacular. A strong wind could cause the leaves of a tree to shed in quite a short time.

The predominant genus of three was the Oak with 13 different species represented on the University property. With many of the trees being of the order of

40 metres in height it presented a perfect habitat for woodpeckers and squirrels because of the many hollows and acorns. At times it was somewhat hazardous to be standing below the taller oak trees for fear of being hit on the head by numerous falling acorns! Some weeks later following a fair amount of rain the majority, if acorns on the ground had sprouted but it appeared that only a few would eventually develop into mature trees as there were dry periods coupled with severe frosts in late autumn and winter. There was perhaps a percentage of acorns which would germinate in the following spring.

Depending on the species of oak, leaves changed from green to various colours ranging from red, copper and gold and some oaks retained their dead brown leaves into the winter season.

Some most vivid yellow and red colours were seen on the Sugar Maple, Red Maple, Liquidambar and Sycamore trees.

There was a range of nut producing trees including Black Walnut, and several species of Hickory which proved to have nuts which were very hard to crack!

Simon had a project for his Biology class at Franklin County Senior High School where his task was to collect, identify and press the leaves of 20 different species of tree. This he found to be relatively easy with the aid of appropriate reference books in the University library.

We did not make a detailed study of the smaller shrubs and plants as there were not many plants flowering at that time of the year. The Flowering Dogwood was a spectacular sight with its vivid red berries.

Two conifers which we identified were the Eastern Hemlock and Virginia Pine and a common shrub was the Wild Azalea.

We were warned to be wary of Poison Ivy because of the chance of getting a rash from the poison contained in the resin of these plants which either climbed up other plants or ran along the ground. The plant is also known as Poison Oak because individual leaf stalks resemble oak seedlings as they stick up from ground level.

Another interesting tree in the area was the Tulip Tree which had leaves up to 50 cm. in length, which were being shed.

At the height of the fall much of the lawn outside our flat was covered to a depth of about 50 cm. as a result of wind action.

Birds

We learnt that 175 different species have been recorded on the campus over the past 25 years but we identified only a small fraction of these species. Sewanee is on the principal path of birds flying between the Mississipi and the Atlantic coast and part of a chain of plateaus which provides updrafts used by migrating hawks.

The most fascinating species of bird for us was the Woodpecker (Picidae) We were able, during our stay to identify 6 of the 7 species of woodpecker recorded in the area. The most spectacular and brilliant one was the Pileated Woodpecker. This is the largest and seems prehistoric in form. These birds were usually in pairs and were observed throughout the 3 month stay. This woodpecker was unpopular with some of the local residents because of the damage done by pecking timber on the outside of houses. Another species was the Yellow-bellied Sapsucker which migrated into the region in November. These birds bore holes into the cambium layer letting sap exude which the birds then lick as it runs down the trunk of a tree.

We saw several woodpeckers grabbing acorns from a higher branch of a tree and then proceed to place them in a crevice (sometimes at the top of a power pole) and hammer away with their beaks. At other times the birds were observed whilst pecking the back of a tree to extract grubs. A long extendable tongue is used in this extraction. The pecking sounded like two blocks of wood being banged together. On several occasions we observed one of the smaller species (Red-headed Woodpecker) chasing away Pileated Woodpeckers which were nearly three times their length.

We were able to attract the small Downy Woodpecker by placing some dripping on a garden shrub.

It is interesting to note that the Woodpecker family is represented in most of the large land masses of the world except for Australasia and Madagascar.

We observed the Eastern Bluebird feeding on insects and the fruit of Dogwood trees. This bird belongs to the thrush family (Turdidae) but looks more like a Robin by virtue of its rusty red breast.

The American Robin (also of the thrush family) was seen sometimes in quite large flocks as the cooler weather approached apparently migrating to warmer parts of the south. It was seen either in the upper branches of the taller trees or after rain, feeding from lawns in the manner of a European blackbird. A number of Red-winged Blackbirds were seen beside a local reedy lake. The females of

this species look more like thrushes. On other occasions we saw vast flocks of Redwinged Blackbirds on their way to roost just before dusk.

Blue Jays were quite common and drew attention to themselves by their loud screeching. Small flocks of American crows were seen and these had a fairly quiet call.

Cardinals, Cedar Waxwings and Chipping Sparrows were observed eating fruits of wild rose hips and wild grapes.

Seed eating birds observed included the American Goldfinch. The male of this species had lost most of its spectacular yellow colour which it would have during the breeding season in spring. The Carolina Chicadee and Tufted Titmouse ate freely from a seed bell which we had hung outside our flat particularly as winter approached and natural seed food became scarce.

Dark-eyed Juncos were finch-like birds which we observed eating the seeds which fell to the ground from the feeder bell. A large flock of the Common Grackle descended on some dogwood trees close to our flat on one occasion and proceeded to devour the fruit. These birds are reminscent in habit to the European starling except that the two sexes when in flight appear to be two different species because of the considerable difference in length between them.

We noticed that the introduced European Starling appeared to be taking over some of the hollows in trees which would have been suitable nesting sites for Woodpeckers in the spring.

One of the smallest birds which we observed were Golden-crowned Kinglets. These were usually seen feeding around pine trees and are very much like the European Goldcrest both in appearance and habits.

Mourning Doves were seen in small numbers feeding from lawns. There is a season for hunting these as gamebirds. The Carolina Wren was seen quite frequently almost always singing sweetly.

The Northern Mocking-bird was observed on a number of occasions. This was a fairly tame bird with the distinction of being Tennessee's State emblem. In contrast the very timid Brown Thrasher of the same family (Mimidae) was seen only twice hurriedly making its way to the nearest cover.

During October and early November we observed a large number of Turkey Vultures and Black Vultures making good use of thermals rising from the plateau. They were apparently migrating to warmer parts to the south.

Mammals

We only observed 4 species of mammal during our stay. White-tailed Deer were seen a number of times feeding from lawns and one group made good use of a salt lick provided in a neighbouring garden. They were extremely timid but they were able to move freely because there were no fences between the land surrounding residences. Eastern Grey Squirrels were very common and became more noticeable after the majority of leaves had been shed. One squirrel was seen taking dead leaves into a tree hollow following a rather cold night. A number of Eastern Chipmunks were seen. These are small squirrel like mammals which run with the tail pointing vertically upwards. We also saw a few rabbits but were unable to identify the particular species. Sightings of the Mountain Cat and Bobcat were reported within 15 km. of the campus during our stay but we were not fortunate to see them for ourselves.

Deer shooting season

It was fortunate that deer shooting was not allowed on any of the land owned by the University but we were surprised to observe that elsewhere and even in public recreation areas certain trails were completely closed to the public except for deer hunters. Other trails had signs warning the public to travel at their own risk during the season. It appeared that the deer shooting season had several phases. A few weeks of bows and arrows only, followed by a few weeks using old-fashioned guns with a final period of general hunting. It was hazardous to venture onto walking trails at weekends towards the end of our stay. It was fortunate that much of the surrounding countryside was so rugged and much of it inaccessable by vehicle that many of the deer would have had a good chance of survival from the human predators!

Weather Conditions

Average maximum Celsius temperatures ranged from the low 20s in early October to about 5 degrees in December. The lowest minimum temperature recorded during our stay was minus 9 degrees. Some days the campus was shrouded in fog (low cloud) only to be followed by a clear cloudless day. On some nights the sky was as clear as inland Australia as we were a considerable distance from any industrial areas. We experienced one fall of snow to a depth of about 5 cm. in early December and a number of rather severe frosts.

Acknowledgements: – We wish to thank Rosemary Gillespie, George Ramseur and Harry Yateman (now retired) of Dept. of Biology and Chris Parrish of Dept. of Computer Science for imparting to us some of their wealth of information about the natural history of the region.

References:

Audubon Society Field Guide to North American Birds (Eastern Region) – Alfred A. Knopf, Inc.
A Field Guide to the Birds of Eastern and North America – Roger Tory Peterson – Houghton Mifflin Company
Under the sun at Sewanee. (2nd Edition 1978) – D. Cameron and James McCrady – The University Press, Sewanee, Tennessee.
Checklists of the Vertebrates and Vascular plants of Sewanee, Tennessee compiled by Harry Yeatman, Rosemary Gillespie and Chris Parrish, University of the South.

Roy Whiteside
2 Aringa Ave.,
Highton, 3216.

Editor's Note:

The Deakin University campus is small and still developing but 114 species of birds have been recorded since January 1977. A brochure has been produced and regular bird walks are now being conducted, on the first Monday of the month. The walks start at 1 p.m. at the lake behind the Library. Visitors are welcome. Meet at the back door of the library.

Unique Sighting?

'One hundred saw I at a glance' – a multitude of magpies – a magnificent sight, discovered at the corner of Eurack Road and Weering School Road, north east corner, approximately 60 km. from Geelong (as the crow/magpie flies) on November 4, 1989.

At least one hundred magpies were grouped together mostly perched on old timber stock yards and fencing posts nearby, surrounded by bare paddocks offering no tree protection or cover.

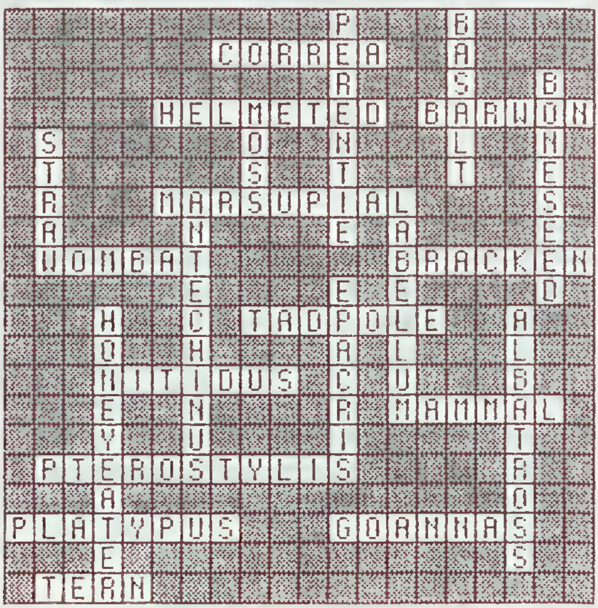
I personally find the Australian magpie a most interesting bird which displays a dominant, inquisitive, dutiful and courageous nature.

M.R. Romanis
Teesdale 3328.

Mystery Photograph

Photo: Valda Dedman
Where is it? When was it taken? Solution: Next Issue

Answers: Nature Puzzle



Winter In The Kiewa Valley

Friday 4th August 1989

by Valerie Lloyd-Jones

The Kiewa valley is green and lush at this time of the year and rich in birdlife.

We left the mountains and snowfields about 3 p.m. (temperature 1°) with the raucous squealing cries of a flock of Yellow-tailed Black Cockatoos ringing in our ears. Further down the mountain road a lovely male Lyrebird scrambled up the bank as we passed.

We were cosy and warm in our living room three quarters of an hour later, with a view down to our sloping back area with a backdrop of snowcapped Mt. Bogong. We were truly astounded at the number of birds that we recorded in the next quarter of an hour.

First recorded was a fat friendly Kookaburra viewing the scene from a corner fencepost. A female Satin Bowerbird flew in to the grass and moved around with her peculiar hopping walk. A flock of 24 Red browed Finches gathered and spent a lot of time feeding in the grass.

An Eastern Spinebill appeared briefly whirring from grevillea to fence and back again. A little family of Superb Fairy Wrens joined the party and flew in and out of the shrubbery.

A flash of orange/red and a pair of Scarlet Robins landed on the clothesline, their plump bodies and vivid colours cheering the wintry scene. The female's breast was so bright she demanded as much attention as her mate.

A pair of Brown Thornbills flew to a grevillea and busily fed in the branches before flying off again.

A pair of Galahs flew over and the Pied Currawongs called from the tall gums, while a Welcome Swallow circled low overhead.

Not to miss out, the last bird recorded in this time, the ever faithful New Holland Honeyeater landed cheekily on the fence. (11 species in all). Later in the afternoon a Fantailed Cuckoo visited us and sat quietly on the fence and a Grey Thrush wandered around our area of native flora.

The Crimson Rosellas called from the tall gums and the Sulphur-Crested Cockatoos flew back, over our house, from the river to their roosts in the forest behind us.

No wonder we call this area of north eastern Victoria paradise.

Valerie Lloyd-Jones. 6 Armitage Crt. Belmont, 3216.

Campout to Moorabool River, Meredith

14-15th October, 1989

On the Saturday morning in fine weather fourteen members and friends met on the rim of the Moorabool valley behind Meredith. Another family, who had read of the campout in the Geelong Advertiser, arrived to camp overnight. A walk down the steep slope, through mainly Manna Gum open woodland, was first on the agenda. Several koalas, one with a baby, were admired. A small colony of Dusky Woodswallows had moved in and were beginning to nest. Two Willie Wagtails were building, Jacky Winters had flying young, and the Restless Flycatchers were vigorously attacking a Kookaburra without success. Leila Ramsay and Roma Julien compiled a good plant list, although not a lot was flowering.

After lunch Lily Sherwood, who had contacted friends at a neighbouring farm, and they kindly allowed us to walk through to the cliffs overlooking the river, where the Wedgetailed Eagles have nested for at least 26 years, in tall trees growing on the valley floor. The nests were at eye level from the top of the cliffs. Unfortunately the birds had not nested this year, but we could "eyeball" a koala in the same spot. (Thanks Lily).

We spotlighted on the Saturday night, but with a full moon shining we had no luck. Very strong winds blew up about midnight, but we managed to keep the tents anchored.

On Sunday morning six members arrived to join us for the day. Strong winds were still howling, so it was not good for birding. After a walk down to and along the river we retreated further back into the messmate forest for a little more shelter. Several more birds were added to the list, and attractive colonies of Pink Fingers were admired. But alas, the rains came, so the party broke up about 3 p.m. and we headed for home.

Fifty two species of birds were recorded, not as many as on our visit of September 1982, when 64 species were recorded. However on our first visit in August only 35 species were seen (Morley. Geelong Naturalist, vol. 20, no. 2).

Gordon McCarthy
26 Fairbrae Avenue,
Belmont, 3216.

Photo: Trevor Pescott

Bird List Moorabool River October 1989

Gordon McCarthy

Little Black Cormorant	One flying upriver
Hoary-headed Grebe	One on dam on farm
White-faced Heron	One on dam on creek
Australian Shelduck	Pair on dam
Brown Goshawk	Pair being harrassed by other birds
Brown Falcon	One patrolling over valley
Galah	Common. Small flocks
Long-billed Corella	Singles and small flocks
Sulphur-crested Cockatoo	Common in small flocks
Crimson Rosella	Common flocks of adults and juveniles
Eastern Rosella	Pairs flying over
Pallid Cuckoo	Calling on morning of 15th
Fantailed Cuckoo	Calling along river
Shing Bronze-cuckoo	One heard calling
Southern Boobook	One calling over camp Saturday night
Kookaburra	One being attacked by Restless Flycatcher Sat. night and several calling in the morning.
Tree Martin	Several hawking for insects
Welcome Swallow	Over open country
Black-faced Cuckoo-shrike	Three observed
Scarlet Robin	Two found in vicinity
Yellow Robin	One along the river
Jacky Winter	Several pairs
Crested Shrike-tit	Two seen feeding
Restless Flycatcher	Probably two pairs in area
Grey Fantail	Several in vicinity
Willie Wagtail	Two pairs building
Superb Fairy Wren	Several groups
White-browed Scrub-wren	Numerous along river margins
Sacred Kingfisher	One calling along river
Yellow-rumped Thornbill	Common. One carrying nesting matter
Striated Thornbill	Common in eucalypts
Varied Sittella	Two parties
White-throated Treecreeper	Common

Brown Treecreeper	Common on lower slopes
Red Wattlebird	Two single birds
White-eared Honeyeater	Two seen away from river
White-plumed Honeyeater	Common
Brown-headed Honeyeater	One party moving through
White-naped Honeyeater	Feeding high up
New Holland Honeyeater	Several along river
Spotted Pardalote	Several heard calling
Striated Pardalote	Common
House Sparrow	Around adjoining farm
White-winged Chough	Two parties in messmates
Magpie Lark	Pair in farm paddock
Dusky Woodswallow	Party of about 20 on lower slopes
Australian Magpie	Common
Grey Currawong	Two in messmate area
Little Raven	Heard calling
Australian Raven	Common

Plant List Meredith 14/10/89

Acaenia anserinifolia	Bidgee-widgee
Acaenia echinata	Sheep's Burr
Acacia aculeatissima	Thin leaf Wattle
Acacia mearnsii	Black Wattle
Acacia paradoxa	Hedge Wattle
Acacia pcynantha	Golden Wattle
Bossiaea prostrata	Creeping Bossiaea
Bursaria spinosa	Sweet Bursaria
Caladenia carnea	Pink Fingers
Clematis microphylla	Small leaf Clematis
Cymbonotus preisianus	Austral Bear's Ear
Drosera auriculata	Erect Sundew
Drosera whittakeri	Scented Sundew
Eucalyptus obliqua	Mesmate Stringybark
Eucalyptus viminalis	Manna Gum
Geranium solanderi	Austral Crane's Bill
Glossodia major	Waxlip Orchid
Haloragis tetragyna	Common Raspwort
Hardenbergia violacea	Purple Coral Pea

Hydrocotyle laxiflora	Stinking Pennywort
Hypericum gramineum	Small St John's Wort
Hypoxis glabella	Yellow Star
Indogfera australis	Austral Indigo
Leptospermun phylicoides	Burgan
Lissanthe strigosa	Peach Heath
Microseris scapigera	Yam Daisy
Oxalis corniculata	Wood Sorrel
Pterostylis nutans	Nodding Greenhood
Platylobium obtusangulum	Flat Pea
Pultenaea daphnoides	Large-leaf Bush Pea
Senecio quadridentalus	Cotton Fireweed
Stellaria pungens	Prickly Starwort
Thysanotus pattersonii	Twining Fringe
Veronica derwentia	Derwent Speedwell
Veronica gracilis	Slender Speedwell
Wurmbea dioica	Early Nancy

STATEMENT OF PURPOSES

1. To stimulate the study and appreciation of natural history by: –
   (a) Lectures, discussions and excursions to areas displaying features of ecological interest.
   (b) Taking part in ecological surveys and field studies.
2. To preserve and protect Australian flora and fauna.
3. To issue statements and comments on proposals regarding the management of areas of natural significance, so to aid the conservation of natural resources and the protection and endangered species and habitats.
4. To faithfully record information, to disseminate knowledge on, and to act as a source of information and opinion on matters relevant to the Club's purposes.

P.O. Box 1047
Geelong, 3220.

PROGRAMME 1989-90

NOVEMBER

7 General meeting. Judy Barker – "Helichrysums"
15 Committee meeting
19 Excursion. Enfield Forest Park. Leaders: Barry Redman (Ph. 43-5312) & David Brunton (Ph. 9-7218)

DECEMBER

5 General meeting. Members' night

JANUARY, 1990

17 Committee meeting
20 Half-day excursion. Belmont wetlands walk. Leaders: Rolf Baldwin (Ph. 43-3763) & Dick Southcombe (Ph. 43-3916)
27-29 Campout. Marysville & Lake Mountain. Leaders: Cecily Lawrie (Ph. 43-4269) & Frances Poole (Ph. 21-1385)

FEBRUARY

6 General meeting. Brett Mitchell. "Caving at Mt. Gambier"
18 Excursion. Sorrento & Pt. Nepean National Park. Leaders: Ian Hunt (Ph. 89-1327) & Roma Julian (Ph. 48-1317)
21 Committee meeting

MARCH

6 General meeting. Peter Kelly. "Beetles"
10-12 V.F.N.C.A. campout. Bellarine Peninsula & environs. Hosted by G.F.N.C.
18 Excursion. Lake Elizabeth. Leaders: Glen McCarthy (Ph. 44-1780) & Grant Baverstock (Ph. 81-7256)
21 Committee meeting

APRIL

3 Annual General Meeting. Members' night
15 Excursion. Carlisle River heathland. Leaders: Geoff and Lauris Mathison (Ph. 67-2379) & Leila Ramsay (Ph. 43-3661)
18 Committee meeting

MAY

1 General meeting

EXCURSIONS AND CAMPOUTS

Contact excursion leader or Club secretary for details. Transport can be arranged for members without cars. Full day excursions depart from "Karingal" Community Centre at 9.00 a.m. Visitors are welcome.

SUBSCRIPTION RATES

Due on 1st April, 1989: –

Ordinary membership (includes "Geelong Naturalist")	$15.00
Family/joint membership (includes "Geelong Naturalist")	$23.00
Junior/Student membership (includes "Geelong Naturalist")	$5.00
Corporate membership (clubs, organizations – includes "Geelong Naturalist")	$25.00
Subscription to "Geelong Naturalist" only	$15.00
Newsletter posted on request	$7.00

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Photographs by Trevor Pescott