



NPA Bulletin

National Parks Association of the ACT

Vol 25 No 2

December 1987



*Can a little nature be saved before we 'improve' upon it all
Picnic Point, Toowoomba, Qld.*

NATIONAL PARKS ASSOCIATION OF THE AUSTRALIAN CAPITAL TERRITORY INC.

Inaugurated 1960

Aims and Objects of the Association

Promotion of national parks and of measures for the protection of fauna and flora, scenery and natural features in the Australian Capital Territory and elsewhere, and the reservation of specific areas.

Interest in the provision of appropriate outdoor recreation areas.

Stimulation of interest in, and appreciation and enjoyment of, such natural phenomena by organised field outings, meetings or any other means.

Co-operation with organisations and persons having similar interests and objectives.

Promotion of, and education for, nature conservation, and the planning of land-use to achieve conservation.

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Household Members \$20

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For new subscriptions joining between:

1 January and 31 March - half specified rate

1 April and 30 June - annual subscription

(up to 15 months membership benefit)

Membership Enquiries welcome

Please phone Laraine Frawley at the NPA office on 57 1063

The NPA of the ACT office is located in Kingsley Street, Acton.

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DEADLINE DATES for NPA BULLETIN contributions:

15 October, 15 January, 15 April, 15 July

*Articles by contributors may not necessarily reflect
Association opinion or objectives*

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Attention All Members !

Contributions of between 200 and 300 words, with or without photographs (black and white preferably) are sought eagerly for the *Bulletin*. Of course we need longer items as well, but short ones are popular ... with everyone !

Share with us your camps, trips and pack walks, your trials and tribulations and adventures of all kinds.



PRESIDENT'S FOREWORD

Kosciusko National Park has been a focus of committee attention in the last few months. We have prepared comments on the proposed amendments to the K.N.P. Plan of Management, and on the Development Study on the Eastern Approaches to the Park (Department of Environment and Planning, NSW). One thing is clear - development pressures are growing at an alarming rate for this area.

The Development Study outlines a 'preferred strategy' for the eastern approaches to K.N.P. (from Jindabyne), which is, in effect, a corridor of development at differing densities and standards, stretching from Jindabyne to the Park boundary on both the Alpine Way and the Kosciusko Road. This is clearly inconsistent with the widely supported view of recent years, that development should be concentrated in existing centres adjacent to the Park. Of particular concern is the proposal that major developments be allowed in the so-called 'Bullocks', 'Little Thredbo', and 'Penderlea' precincts which directly abut the Park.

In responding to this and the proposed Plan of Management amendments, we have taken the view that our guiding principle should be to aim for the maximum protection of natural values in the Park. For example, we have recommended that there be no camping, *including pack camping*, at or near Blue Water Holes because of the rapid degradation of this area in recent years. We have strongly opposed the suggestion that camping be allowed in or near the restored Coolamine buildings. Also in the northern part of the Park, we have supported the designation of the Bimberi Wilderness area, but recommend the area be extended to incorporate Mt Morgan and Half Moon Peaks and adjacent areas. In the Perisher area, we have expressed our concern at the potential for increasing environmental degradation with the proposed new down-hill ski developments in the Blue Cow area.

The problem of reconciling recreational use (especially that involving extensive infrastructure) and nature conservation in our National Parks is not a new one for NPA, as a perusal of past *Bulletins* shows. Currently, however, the Parks are facing a new level of threat, as governments and private developers attempt to make the most of the tourist/recreation boom and its resultant commercial opportunities. For the Association, the result will be the necessity for an increasingly vigorous role in supporting the preservation of natural values. At times this may confront us with challenges to our own thinking, as well as difficult choices and decisions.

Kevin Frawley

Red Spot

A red spot on the label of your Bulletin indicates that NPA records show you as unfinancial. To renew your membership see the Treasurer at the next general meeting of the Association, call at the NPA office in Kingsley Street, Acton (phone 57 1063) or post your subscription to GPO Box 457, Canberra 2601. The Bulletin distribution list will be revised in December by deleting any unfinancial members.

Speakers for General Meetings Wanted

The NPA holds general meetings on the third Thursday of each month from February to November inclusive.

These meetings are planned to provide a variety of guest speakers and films on conservation and national parks issues.

Volunteer speakers and/or suggestions for topics are always needed. If you would like to know more about a particular subject, or know someone who is willing to speak, we'd like to know!

Please contact Julia Trainor (phone 81 1195) with your ideas.

Committee News

NEW PURCHASE

The Association is now the proud owner of a microcomputer: an Opal Turbo PC/XT to be exact. Laraine Frawley, our Office Assistant, is already using it for word processing, and the next step is to create a membership database. The design of the membership database is underway, and Neville and Maxine Esau have entered a few membership records as a trial. Other future applications could include accounting and desk top publishing. If any members have any interest or expertise to offer, please contact the office or a member of the committee.

NAMADGI

Following the successful construction of the Yerrabi Track, several members have drafted an interpretative brochure which outlines the flora, fauna and natural features to be seen along the track. The Committee has approached the Parks and Conservation Service for assistance in publishing the brochure and agreement has been reached to work together on its preparation and publication.

With the Yerrabi Track receiving much use, some members have expressed interest in constructing additional tracks near the Boboyan Road. Committee representatives have met with the ACT Parks and Conservation Service to discuss procedures for future voluntary works in Namadgi. A set of procedures has been agreed upon, and will be used as a model for any future voluntary works by the Association in Namadgi. It describes all the steps involved in such a project, commencing with the preliminary discussion of the concept, and working through the formal proposal, approval, implementation, and finally the evaluation of the impact after a period of use.

The Namadgi huts have also received some attention lately. The ACT Parks and Conservation Consultative Committee has formed a subcommittee called the Huts Maintenance Working Group for Namadgi. The group will advise the Consultative Committee on the huts, and will be responsible for the

preparation of management briefs for which might be carried out by voluntary organizations.

Graham Scully, President of the Kosciusko Huts Association, was invited to attend our September Committee meeting. Mr Scully outlined the interest of the KHA in doing maintenance on huts in Namadgi.

ENVIRONMENT MATTERS

On wider conservation matters, the Committee has prepared responses to the *Eastern Approaches to Kosciusko National Park Development Study*, to the *Draft Amendments to the Kosciusko National Park Plan of Management* and to *Coolleman Plain Karst Area Management Plan*. All these documents and the Association's comments are available from the Office. The draft amendments cover alpine skiing facilities, the extension of horse riding into parts of some wilderness areas, and measures to reduce the impact on the Coolleman Plain Karst Area.

Another of our regular meetings was held with members of the NPWS (NSW). The discussion was (literally!) very wide ranging, covering the Australian Alps, Namadgi, Brindabella Range, and the Kosciusko and Morton National Parks.

The Australian National Parks Council held its Annual Conference in Sydney in mid-October, and our Association was represented by Neville Esau and Ross Carlton.

PUBLICITY

On the publicity front, preparations are well under way for Heritage Week in 1988, and an expanded walks programme is being developed. The proposed Environment Fair for 1988 has been cancelled.

★★★★★

Annual Report

The NPA of the ACT's Annual Report for 1986-87 is now available. Interested members may obtain copies from our Kingsley Street Office, or if preferred the Report will be posted to you. Phone Laraine on 57 1063.

New Members

The following new members are welcomed to the Association:

Peter BAYLISS, Charnwood; Carmel BELL, Jamison; David BENNETTS, Garran; Ashley and Joanne CROSS, Chisholm; Richard and Sally De FERRANTI, Deakin; Lesley FORBES, Wanniasa; P.A. GARDNER and B.W. BORRELL, Lyneham; Mr and Mrs R. GRAY, Campbell; Jennifer and Bartholomew HAND, Latham; Clive HUGHES and Kasuma NISHIGAYA-HUGHES, Hughes; Catherine JOHNSTON, Aranda; Tanya and Max KIERMAIER, Gowrie; Mrs J. KLOVDAHL, Curtin; Richard LANCASTER and family, Reid; J.A. and G.M. LESLIE, Garran; McMURRAY family, O'Connor; Susan and Robin MILLER, Garran; Suzanne O'CALLAGHAN, Giralang; Keith and Bronwyn OCTBORN, Red Hill; Ainsworth PATRONI, Downer; Miss A. PRITCHARD, Weston; Betty ROSS, Red Hill; Johanna VERBECK, Flynn; Chris WARE, Downer; Mr and Mrs R. WATKINS, Duffy; Eric ZURCHER, Tom; HATTON, Linda BROOME, Lyneham.

★★★★★



Try a different kind of holiday this summer!

The Australian National University will be conducting a **1988 Summer School on the Environment**. All courses are residential and will be held:

24-28 January Kosciusko in Summer, in Kosciusko National Park

3-6 February Rainforests of Southern NSW, at Kialoa, South Coast of NSW

8-12 February Native Plant Identification, at Jervis Bay, South Coast of NSW

12-14 February Nature and Landscape Photography, in Kosciusko National Park

FOR FURTHER INFORMATION
Telephone (062) 49 3016
49 4754

Centre for Continuing Education
Australian National University
GPO Box 4 Canberra ACT 2601

The Protection of Reserved Lands in the ACT

Andy Turner & Ian Garven

This article has been written in response to the article 'Namadgi Notional Park' by Reg Alder in the September 1987 Bulletin.

INTRODUCTION

The Commonwealth's direct interest, and ownership of land, in the Australian Capital Territory has required the evolution of a complex system of legal, administrative and planning procedures for land management in the Territory. For example, the system relies on the use of delegated legislation to an extent which is unique in Australia. One consequence is that the ACT's land management system is difficult to understand for both residents of and visitors to the ACT.

Recent debate, including the article 'Namadgi Notional Park' in the September 1987 Bulletin, has generated more heat than light around this complex subject. This article attempts to put the record straight on some of the issues and demonstrate how reserved lands in the ACT have a security of tenure at least equivalent to that available elsewhere in Australia.

LEGISLATION IN THE ACT

The law making process in the ACT was established by the *Seat of Government (Administration) Act 1910*. The Act delegates the legislative powers of the Federal Parliament concerning the ACT stating:

until the Parliament makes other provisions for the government of the Territory, the Governor-General may make Ordinances having the force of law in the Territory.

The Governor-General acts on the advice of the Minister responsible for the ACT in exercising this power. This means that most ACT laws are made by Ordinances, which are signed by the Governor-General and subject to disallowance by either House of Parliament, rather than by Acts of Parliament. The Commonwealth has the power to pass Acts relating to the ACT but it is its current policy not to do so and it has exercised this power only rarely, eg the *National Capital Development Commission Act*.

Federal Parliament has a range of other powers available to it for the control of land use in the ACT. It has the power, under Section 12A of the *Seat of Government (Administration) Act*, to disallow proposed variations to the Plan of the City of Canberra. The structure of the committees of the present Parliament has yet to be finalised but the Parliament has exercised its scrutiny of the Plan through the Parliamentary Joint Committee on the ACT (PJC). The PJC reports on all proposals for modifications or variations and monitors Canberra's environment, alterations to land use and other matters that have been referred to it by the responsible Minister. The Parliament also has the power to exercise this scrutiny through committees other than the PJC, such as the Standing Committee on Environment and Conservation which reported on Namadgi National Park.

The Senate Standing Committee on Regulations and Ordinances also plays a role in providing Parliamentary scrutiny of ACT legislation. The Senate Committee has members drawn from all political complexions, providing a non-partisan approach to the review of delegated legislation. The role of the Committee has been to make recommendations to the Senate on whether that House should exercise its power to disallow delegated legislation (Ordinances and Regulations under either Acts or Ordinances). In making such a recommendation the Committee considers the legislation against several well defined legal principles to see whether the proposed amendment or new legislation accords with those principles. The Committee does not consider the policy objectives of legislation.

The Senate Committee has a record of objecting to delegated legislation that either provides for wide ranging administrative discretions or acts retrospectively to the detriment of any person other than the Commonwealth. For

example, the Committee has commented on such matters as whether a particular exercise of ministerial power constitutes an entry into an area more appropriate for parliamentary action and whether delegated legislation contains material that should more appropriately have been played in an Act of Parliament.

There is some debate as to whether Parliament's positive power of passing an Act differs significantly from the negative power of disallowance of an Ordinance in providing security of tenure. The ACT Parks and Conservation Service's legal advice has not indicated that this is a significant issue.

Delegated legislation is the norm in the ACT. Territorial Ordinances are subject to close scrutiny by Parliament and even disallowance by its committees. Why should park management be treated any differently to all other matters affecting the lives of ACT residents (welfare, housing, traffic etc.)? Moreover, it is worth noting that an elected government can revoke the protected status of land reserved under either a Commonwealth Act or an ACT Ordinance if it has the necessary parliamentary majority and believes it has political support in the electorate. Legislation (both Acts and Ordinances) merely provides a process which must be followed to achieve statutory revocation or other amendments to protected status. That process has to occur in public (ie Parliament) under ACT or other Commonwealth legislation.

THE NATURE CONSERVATION ORDINANCE

The *Nature Conservation Ordinance 1980* is the principal legislation for managing natural areas in the ACT. The Ordinance is now equivalent to other Commonwealth and state legislation in providing for the preparation and/or amendment of

management plans for reserved areas, public participation in that process and management in accordance with the prepared plan. Proposals for the creation, amendment and/or revocation of reserves, as well as management plans for those reserves, must be tabled before both Houses of Parliament. This provides the public process for any alterations to the protected status of all lands affected by the Ordinance.

Any member of either House may move a motion of disallowance of any of these proposals within fifteen sitting days. Any motion made within this period and not subsequently withdrawn is debated by the House in which it was made and, if carried, the proposed legislation is withdrawn. The Namadgi Management Plan has been approved by Parliament and any amendments to it must be tabled in Parliament and be subject to the process previously outlined. The issuing of new leases or licences within reserves is precluded under Section 51(b) of the Ordinance.

These processes and provisions provide a rigorous and effective system of ensuring no unwarranted or incompatible developments or modifications occur in or to reserves in the ACT as well as providing security of tenure.

The September 1987 NPA Bulletin referred to the House of Representatives Standing Committee on Environment and Conservation recommendation relating to the declaration of Namadgi under the *National Parks and Wildlife Conservation (NPWC) Act 1975*. The Committee's recommendation reads:

Namadgi National Park be declared a national park under the *National Parks and Wildlife Conservation Act 1975* but that this declaration not proceed until the Department of Territories and the Australian National Parks and Wildlife Service agree to the Director of the Service delegating all his responsibilities and powers under the Act, as they apply to Namadgi, to the Department of Territories.

The only relevant reference to delegation in either the *Nature Conservation Ordinance* or the *NPWC Act* is Section 20 (3) of the Act, which states;

a delegation under this section

is revocable at will and does not prevent the exercise of a power or the performance of a function by the Director.

NAMING OF RESERVES

The *Nature Conservation Ordinance* neither prescribes nor proscribes the use of any classification or label for reserved areas. Whether this constitutes a weakness in the Ordinance is a matter of personal judgement. The issue appears to be whether the value of a park derives from its name or from the protection it is afforded through its management. There appears to be more to be gained from improving management practices than from improving the legislative basis for the name. Other amendments to the *Nature Conservation Ordinance*, therefore, have had a higher priority.

The use of the 'national park' label conforms to the criteria established by the International Union for the Conservation of Nature and Natural Resources (IUCN). These criteria are applied throughout Australia and refer to a reserve where management action has been initiated to protect a combination of conservation and recreation values. The label is used quite differently and more liberally in Australia than is the case in comparable overseas countries (eg USA and Canada). There are over 300 national parks in Australia while there are only 37 in the USA and only 28 in the whole of Canada. This is largely because land use control and management is a state rather than federal responsibility under the Australian Constitution.

The Council of Nature Conservation Ministers (CONCOM) has concluded that the existing classification of reserved areas reflects the diverse legal, political, social and other circumstances in Australia and does not easily lend itself to fit the IUCN Commission on National Parks and Protected Areas (CNPPA) Classification System.

CONCLUSION

The unique origins of the ACT have provided it with a political, legal and administrative framework different from that operating anywhere else in Australia at either Federal or State levels. This means that the role of Parliament in controlling land use cannot easily be compared to

models provided by state parliaments or even to the Federal Parliament's role in other Commonwealth issues. This should not be interpreted as a lack of parliamentary oversight of land use, including natural and cultural conservation, within the ACT. The facts are that the controls are different rather than absent. Areas of the ACT reserved under the *Nature Conservation Ordinance* enjoy a security of tenure and protection from inappropriate exploitation at least equivalent to the protection available under any other legislation elsewhere in Australia.



1989 Churchill Fellowships for overseas study

The Churchill Trust invites applications from Australians, of 18 years and over from all walks of life who wish to be considered for a Churchill Fellowship to undertake, during 1989, an overseas study project that will enhance their usefulness to the Australian community.

No prescribed qualifications are required, merit being the primary test whether based on past achievements or demonstrated ability for future achievement.

Fellowships are awarded annually to those who have already established themselves in their calling. They are not awarded for the purpose of obtaining higher academic or formal qualifications.

Details may be obtained by sending a self addressed stamped envelope to:

The Winston Churchill Memorial Trust, 218 Northbourne Ave. Braddon, ACT 2601.

Completed application forms and reports from three referees must be submitted by Monday 29 February 1988.

Building A Home To Tread Lightly On The Landscape

Trevor Lee^o

"Did you know that the perfect solar house site is coming up for auction in a fortnight?"

So said a friend one evening a little over a year after we had moved to Canberra from the Northern Territory. We had fondly hoped that being nearer to the kinship families would make the cold winters bearable but it was apparent now that better shelter was needed if we were to stay. This opportunity then was too good to let pass, and with such a clue the site of our new home was not hard to find.

At the eastern end of Fadden was a patch of ground with a northerly slope on the side of the knoll which separated that snug suburb from the broader sprawl beyond. Without legally protected solar access, the northerly slope was essential to ensure that our house would not be shaded out by neighbouring buildings or by inconsiderate landscaping. And, for passive solar design where the northerly windows are the solar collectors, it can also give a pleasant outlook beyond your own site if the house and landscaping are designed accordingly.

There was a group of a dozen or so unsold blocks which met the solar description but there was no confusion as to which one was perfect. The knoll was just high enough to be declared a nature reserve, so the highest blocks in the group were to have the bush for a neighbour for always. Moreover, one of them was a battleaxe block, isolated from the street and feeling attached to its natural setting. Standing there, we could easily see how landscaping could let us pretend that suburbia just wasn't there. We loved it.

It is, of course, a little euphemistic to call this environment "natural" when it had probably been intensively grazed for a century or more. Certainly it had scant topsoil and lacked the presence of young trees. Worse still, the three grand old ones left in the vicinity were "designed out" by the surveyors and the Electricity Authority which followed them. The resulting open grassland



The house as seen from the Nature Reserve Photograph by Trevor Lee



The house from the front Photograph by Trevor Lee

will be with us for a while now, along with its fire risk in summer holidays, but the planners have provided us with seedlings for the long restoration process and it gladdens us to know that it is actually happening in our wake.

We rather imagined that on such a perfect site the house would design itself, but it took three attempts before that happened. Judith and I were seeking four objectives beyond what most people want from their home:

1. To maximise the use of natural energy flows to achieve comfortable temperatures indoors with a minimum of fuel consumption;
2. To allude to the colours and forms of rural Australia, particularly as viewed from the nature reserve lying higher and to the south;
3. To retain as much as possible of the rainwater received to enrich the site's vegetation without the long term use of irrigation; and
4. To use selective planting and earthworks instead of fences to give privacy while creating the illusion of our home being an integral part of the broader reserve.

The first design decision was to nestle the house into the hillside. This reduces its apparent size and prominence while at the same time burying much of its southern walls, reducing the heat losses in winter and giving the coolness of a cellar in summer. The "spoil" generated by the excavation was spread to the north of the house to provide a small and relatively flat area of lawn enclosed by a low "dam wall". This traps the escaping rainwater and sends it down a slotted drain under the grove of fruit trees to let it soak deeply into the ground. But, perhaps more importantly, with its cover of dense shrubbery it forms the visual barrier between us and suburbia beyond.

Next came the building form. Judith hails from rural New South Wales and wanted our home to reflect that fact as well as respond to the rural setting it enjoys. And for thermal efficiency I wanted to build it of inside-out-brick-veneer so that the heat storage of the bricks would be snugly inside the insulation in the walls. These two themes came together in the decision to use curved corrugated iron wall cladding in an allegorical composition of rainwater tanks and on-farm silos capped with gently curved roofs.

"We don't want that sort of thing in Canberra", was the response of the National Capital Development Commission when they approved the design on the condition that we paint the walls to deruralise it. Sadly, they seemed unaware of the unsuburban niche their subdivision had created and were reluctant to embrace anything beyond their brick-n-tile norm. Fortunately, however, the Design and Siting Appeals Tribunal had a little more vision and the condition was duly removed.

Of course, the form had also to incorporate large northerly windows to admit the power of the low winter sun; and to retain flexibility in furniture placement we built three stub-Trombe walls of Masonry just inside them. These metre high walls work like solar-charged heat banks: being warmed during the day to about forty-five degrees and then, insulated from the night's cold by the glass and curtains, they give up their heat to the house when it is needed most.

The combination of northerly windows, stub-Trombe walls, inside-out-brick-veneer construction and earth-sheltering works beautifully. In two winters now, one of them getting down to minus nine degrees, we have only used our slow combustion wood heater for a total of forty hours. For the rest of the time the sun has kept us comfortably warm and often basked us delightfully.

Getting technical, our house heating is ninety-five per cent solar. Add that to the fact that eighty-five per cent of our hot water is solar heated and the result is a home which consumes only a quarter of the energy of conventional houses. And it's beautifully cool in summer, too. The maximum-minimum thermometer in the lounge has never read over 27 degrees even though we have yet to install the curved shades over the northerly glass.

As for our desire to be integrated into a re-treed reserve, we will have to wait a while. But what a glorious place to wait.

A solar house is a delight. Outside of the tropics, it's hard to believe that anyone could be happy in anything else.

Trevor Lee currently works as the Senior Architect for Energy Management with the Department of Housing and Construction and is also the

Honorary Secretary of the ANZ Solar Energy Society. He and his family are keen advocates of solar housing in wintry places and never miss a chance to tell people how it can be done.

The ANZ Solar Energy Society can be contacted through the Environment Centre for information on solar housing and other activities in the Canberra area. They also operate a very popular Solar House Tour every winter to help intending homemakers to appreciate and discern amongst solar housing concepts. Interested people are invited to register their interest now for future tours.

SOLAR PROGRESS

Want to keep up to date on this important subject? And perhaps even help the progress to happen? Join **ANZSEEN**

ANZSEEN exists to promote the use and development of all forms of solar energy throughout Australasia and publishes the magazine **SOLAR PROGRESS** to keep people informed of this rich and renewable source.

Want to know more?
(03)556 2242

Want to join ?
(\$A30/year, students etc \$A20/year)

Contact: ANZSEEN Administrator
PO Box 26,
Highett, VIC 3190
Australia.

*Australian and New Zealand
Solar Energy Society*

Conference Notices

Australia's Ever Changing Forests
CANBERRA
9-11 MAY 1988

Changing Tropical Forests
CANBERRA
16-18 MAY 1988

If you would like to submit a paper or if you require further information, contact:

Dr John Dargavel
Centre for Resource &
Environmental Studies
The Australian National
University
GPO Box 4
CANBERRA ACT 2601

The Fire History of Rotten Swamp

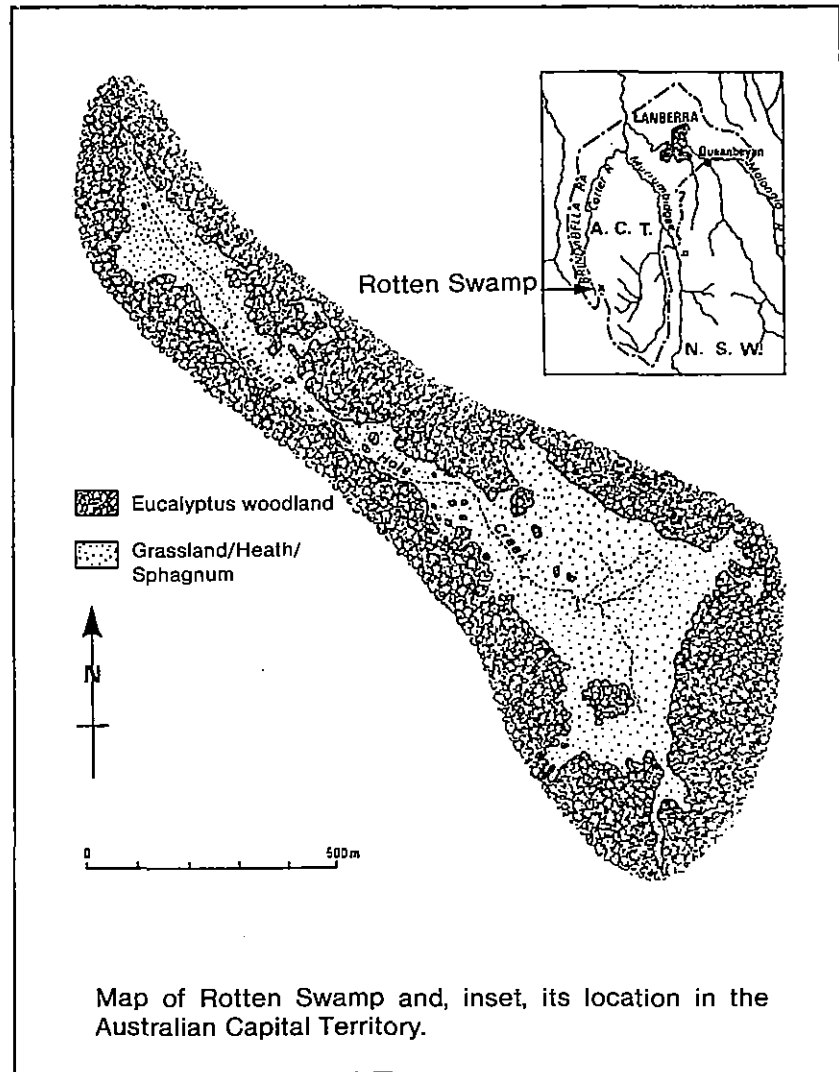
Robin L. Clark^a

Rotten Swamp is an open area of about thirty hectares, a cold air drainage basin within snow gum (*Eucalyptus pauciflora*) forest on the saddle between Mt Kelly and Namadgi Peak in the south of the ACT, see map. The swamp is at an altitude of about 1450 metres and forms the headwaters of Licking Hole Creek, which drains north-west into the Cotter River above Corin Dam. Base rock is granodiorite, with organic soils and peat on the gentle slopes of the clearing and skeletal soils on the steeper forest slopes around. Most of the clearing is covered by tussock grassland, with islands of Snow Gums on rocky outcrops.

Rotten Swamp is one of several sub-alpine bogs severely burned in the Gudgenby fire in the southern part of the ACT in January 1983. The bogs were exceptionally dry as the fire followed a long drought. On Rotten Swamp the fire was of sufficient intensity to burn into the margins of *Sphagnum* hummocks and, in some cases, to burn out the centres of hummocks by carrying down shrubs. Some areas of *Sphagnum* may have been completely removed by the fire.

Following the 1983 fire only one extensive area of *Sphagnum cristatum* could be found, but most of the stream courses were lined intermittently with *Sphagnum*. Earlier air photographs suggest that the area of *Sphagnum* was greater in the past.

Sphagnum bogs are common in the headwaters of streams in the ranges to the west and south of Canberra. Most are spring-fed and can cover large areas, as at Ginini Flats, or line streams where gradients are low. *Sphagnum* stabilises both the soils' surface and stream banks and acts as a filter, removing suspended sediment. *Sphagnum* bogs alter the hydrology of streams by impeding flow and retaining water, thus preventing erosion downstream in what would otherwise be extreme runoff events and by maintaining a more constant flow between events. These high mountain swamps are important in maintaining water quality in the



Map of Rotten Swamp and, inset, its location in the Australian Capital Territory.

Cotter River catchment for Canberra's water supply.

Following the Gudgenby fire, the question was asked: would the burned *Sphagnum* regenerate naturally or should measures be taken to encourage regeneration? To provide part of the answer it was decided to investigate the fire history of Rotten Swamp to find out if the swamp had burned before and, if it had, how long it took for *Sphagnum* to regenerate.

Regeneration of the vegetation following the fire is being monitored along permanent transects by the ACT Parks and Conservation Service. There are no historical records of fires on the swamp before 1983, but it is likely that early settlers

burned the area frequently to promote new growth of grass for stock moved into the mountains for summer grazing. Later, fires may have been set by rangers stationed at Cotter Hut. As well, small lightning fires may have burned the swamp without being noticed or recorded.

To discover whether the *Sphagnum* had burned before and, if so, how long it took to regenerate, cores were taken through the peat and samples analysed for pollen, charcoal and some plant remains. The cores were tied in to the general stratigraphy of the remaining *Sphagnum* area. Radiocarbon dating gave the age of the peat at eighty-three to eighty-eight centimetres depth as 4570 ± or - 110

BP (Before Present) From this date and the first evidence of European fires an age-depth relationship was established. The estimated time that peat accumulation began is about 10,000 years ago. Pollen analysis showed that at some time before 10,000 BP, alpine conditions prevailed at Rotten Swamp, with the tree-line well below its present level. Eucalypts were established around the swamp before peat began accumulating, and there has been little change in the surrounding vegetation over the past 10,000 years.

Changes in the vegetation on the swamp itself around 1500 to 2000 years ago suggest a change to wetter conditions, due to increased precipitation, decreased evaporation or local hydrological changes. Swamp vegetation changes about 60 to 100 years ago indicate a reversal to drier conditions.

These vegetation changes correspond to changes in fire regime as indicated by charcoal. Climatic change is sufficient to explain the earlier increase in abundance of charcoal although there might have been a change in Aboriginal fire pressure.

Large, unweathered charcoal fragments found above twenty-three centimetres in the peat core probably remain from fires lit by stockmen between about 1850 and 1880. The decrease in charcoal after about ninety years ago testifies to the success of fire prevention and suppression measures used this century.

The vegetation record suggests that Rotten Swamp is drier now than in pre-European times. This is probably because damage of stream banks by stock increased drainage from the swamp. Droughts as severe as that which preceded the 1983 fire must have occurred in the past, even if infrequently, but, if the swamp retained more water than it does now, it may never have dried out sufficiently for the *Sphagnum* to burn. Because of increased drainage, the effects of the 1983 fire were unique in the 10,000 year history of Rotten Swamp, but are likely to recur.

To maintain water quality in the Cotter River it is desirable that *Sphagnum* bogs, such as Rotten Swamp, be restored to something approaching their state before European settlement. The veget-

ation will continue to change through plant succession and in response to climatic change and extreme environmental events, but it is the regeneration and continuity of *Sphagnum* that is important for water quality. If fires at Rotten Swamp in the past destroyed *Sphagnum*, there is no evidence to suggest their effects were lasting. At Ginini Flats, an area cleared of *Sphagnum* in 1940 regenerated within thirty years and is now almost indistinguishable from undisturbed parts of the swamp. A long trench through the peat at Ginini was cut in 1938: *Sphagnum* is now growing over the trench near the upslope spring line, but downslope areas remain dry for some metres either side of the trench and there is no *Sphagnum*.

Regeneration of *Sphagnum* over large areas at Rotten Swamp may not be possible until regrowth on stream banks impedes drainage. Natural regrowth will take many years and will depend on the overall climate and on the frequency of intense rainfall, drought and fires.

Obstructions across stream courses, such as those being used by the ACT Parks and Conservation Service, could speed up this process by reducing stream flow and by water-spreading. These obstructions should be monitored to ensure they are not creating new channels. When the remaining *Sphagnum* along stream courses at Rotten Swamp regenerates sufficiently to impede drainage and to slow runoff, then the *Sphagnum* on the slopes should be able to spread from existing areas, and, perhaps, colonise or recolonise other parts of the swamp.

Dr Clark is a Research Scientist with the CSIRO Division of Water Resources Research, Canberra. The above article is an abridged version of a report prepared for the ACT Parks and Conservation Service in August 1986.



Core sampling, Rotten Swamp

Photography by Robin L. Clark

Aims and Objects of the Association

Promotion of national parks and of measures for the protection of fauna and flora, scenery and natural features in the Australian Capital Territory and elsewhere, and the reservation of specific areas.

Interest in the provision of appropriate outdoor recreation areas.

Stimulation of interest in, and appreciation and enjoyment of, such natural phenomena by organised field outings, meetings or any other means.

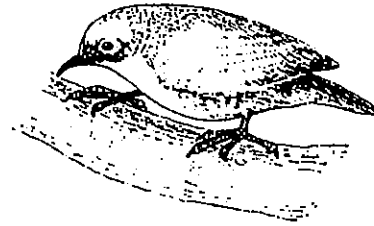
Co-operation with organisations and persons having similar interests and objectives.

Promotion of, and education for, nature conservation, and the planning of land-use to achieve conservation.



Happy

Holidays



POINTS TO NOTE

New faces to lead, new places to go!
Please help to keep our Outings Program alive by volunteering to lead a walk occasionally.
Contact Walks Convenor Ian Haynes on 51 4762 (h).

All persons joining an outing of the National Parks Association of the A.C.T. do so as volunteers in all respects and as such accept sole responsibility for any injury howsoever incurred and the National Parks Association of the A.C.T., its office bearers and appointed leaders are absolved from any liability in respect of any injury or damage suffered whilst engaged in any such outing.

The Committee suggests a donation of FIVE cents per kilometre (calculation to nearest dollar) be offered to the driver by each passenger accepting transport. Drive and walk distances quoted in the Program are for approximate return journeys.

OUTINGS PROGRAM

December 1987 - February 1988



OUTINGS GUIDE

Day Walks - Carry lunch, drinks & protective clothing
Pack Walks - Two or more days, carry all food and camping requirements. CONTACT LEADER BY WEDNESDAY.
Car Camps - Often limited or no facilities. Vehicles taken to site can be used for camping. BOOK WITH LEADER EARLY.
Other activities include Nature Rambles, Field Guide Studies, Ski Tours, Snow Crafts, Tree Maintenance and other projects.

DAY WALKS - GRADING

- A Up to 15 km, mainly on tracks or forest roads, relatively flat terrain or shorter distances through trackless open bushland.
- B Up to 20km, mainly on tracks or shorter walks through trackless open bush.
- C As for 'B' may include rougher terrain, i.e. heavy scrub, rock hopping or scrambling or steep terrain.
- D Up to 30 km, relatively easy terrain or less over trackless or steep terrain.

PACK WALKS - GRADING

- 1 Up to 14 km a day over relatively easy terrain.
- 2 Up to 20 km a day, may involve long ascents.
- 3 As for '2' may include rougher terrain, i.e. heavy scrub, rock hopping or scrambling.
- 4 Strenuous long distance or much steep climbing or very difficult terrain.
- 5 Exploratory in an area unfamiliar to the leader.

Additional information will be contained in the actual walks program. If necessary contact leader.

DECEMBER

- 5/6 December - Pack Walk (1/2)
Shoalhaven
Leader: Neville Esau 86 4176
Contact leader by Wednesday for details of this walk to the Shoalhaven River for a walk/swim weekend.
- 6 December - Sunday Morning Walk (A)
National Botanic Gardens Ref: Canberra Street Map
Leader: Barrie Hadlow 88 1168
Contact leader as numbers limited. NPA members only. Stroll around part of the Botanical Gardens viewing the flowers and possibly the glasshouses. People may choose to stay and have lunch in the gardens.
- 9 December - Outings Sub Committee Meeting
Meet at 1930 with ideas and details of outings for March, April, May. Anybody with ideas or who would like to lead an outing please contact Outings Convenor ASAP. Ph 51 4762.
- 12 December - Saturday History Tour (A)
Various Sites Ref: ACT 1:100 000
Leader: Doreen Wilson 88 5215
Meet: Chisholm Shopping Centre 0900 for tour of Axe Grinding Groves, Canoe Tree, Rock Shelter and Farrers Grave. Bring Lunch. 40km drive.
- 13 December - Sunday Annual Xmas Party
Orroral Ref: ACT 1:100 000
Leader: President
Meet: Orroral picnic grounds at 1500 for annual NPA Xmas Party. Members and friends welcome.

JANUARY

- 9/10 January - Pack Walk (4)
Tuross Gorge Ref: Belowra 1:25 000
Leader: Philip Gatenby 54 3094
Contact leader by Wednesday for details of this walk in Wadbilliga National Park. Plenty of rock scrambling and swimming with packs to get through the gorge. 320km drive.
- 16/17/18 January - Pack Walk (2/3)
Brassy Mountains Ref: Khancoban 1:50 000
Leader: Nick Gascoigne 51 5550
Contact leader early for details of this walk in the central area of the KNP. See the flowers and alpine scenery. Numbers limited.
- 16/17 January - Car Camp
Kangaroo Valley Ref: Kiama 1:100 000
Leaders: Ray and Joan Hegarty 81 3973
Contact leaders early for details of this car camp and walks in the Kangaroo Valley. A 400 km drive.
- 23/24 January - Pack Walk (3/4)
Brogo
Leader: Garth Abercrombie 81 4907
Contact leader early for details of this walk in the Brogo River area.

FEBRUARY

- 6/7 February - Pack Walk (3/5)
Ettrema/Shoalhaven Ref: Touga 1:25 000
Leaders: Pat & Eric Pickering 86 2128
Contact leaders by Wednesday for details of this walk. Steep 300m ascent and descent, rock hopping, swimming in Water Race Ck to Shoalhaven or Ettrema Gorge depending on conditions. 350 km drive.
- 7 February - Sunday Walk
Swamp Creek Ref: 1:100 000
Leader: Dianne Thompson 88 6084
Meet: Cotter Road/Eucumbene Drive 0930. Walk, swim, blackberry picking. Bring containers. 4 km walk and 40 km drive.
- 5/6/7 February - Lodge Weekend
Charlotte Pass Ref: Kosciusko 1:100 000
Leader: Ian Haynes 51 4762
Contact leader early for details of this weekend among the alpine flowers.
- 13/14 February - Pack Walk (2)
Styles Creek Ref: CMW Budawangs
Leader: Philip Gatenby 54 3094
Contact leader by Wednesday for details of this walk to the head waters of Styles Creek. Either on tracks or through open country. 300 km drive.
- 14 February - Sunday Walk
Tidbinbilla Nature Reserve Ref: ACT 1:100 000
Leader: Laurie Adams 58 1048
Meet: Tidbinbilla Visitors Centre 1000 for Tree Guide instruction in the use of keys. Group I (and perhaps one or two wadies and eucalypts). 70 km drive.
- 18 February - Thursday Weekday Walk (A)
Tidbinbilla Nature Reserve
Leader: Gladys Joyce 95 6959
Meet: Cotter Road/Eucumbene Drive 0930 for this walk in the nature reserve. 70 km drive.
- 20/21 February - Pack Walk (1)
Goodradigbee River Ref: ACT 1:100 000
Leader: Fiona Brand 47 9538
Contact leader by Wednesday for details of this easy 2 km walk for beginners and children. 160 km drive.
- 21 February - Sunday Walk (A)
Uriarra Crossing Ref: Act 1:100 000
Leader: Beverly Hammond 88 6577
Meet: Cotter Road/Eucumbene Drive 0900 for this morning walk along the river from Uriarra Crossing. 30 km drive.
- 27/28 February - Pack Walk (2)
Corang River Ref: CMW Budawangs
Leader: Babette Scougal 48 7008
Contact leader by Wednesday for details of this walk, swim and lilo trip along the Corang River, weather permitting. Base camp, but numbers limited. 300 km drive.

*The President and Committee
wish all members*

A MERRY CHRISTMAS AND PROSPEROUS NEW YEAR

and invite all to the

CHRISTMAS PARTY

*Orroral Valley Picnic Ground at 3 p.m.
on Sunday 13 December 1987*



**WINE, CHEESE, BISCUITS AND CHRISTMAS CAKE PROVIDED
BRING AN EVENING MEAL**

Managing Firewood Gathering In Parks

R. Phillips^o

Firewood usage is becoming a problem in many parks, particularly in high use areas. By gathering firewood, visitors are having a detrimental effect on vegetation in and around these well frequented park areas. Not only fallen branches are gathered for firewood, but also twigs, bark and even leaves, thus removing the natural mulch layer. This layer is important for seed germination, as habitat for ground-dwelling reptiles and soil micro-organisms, and essential for the soil nutrient cycle.

The issues

Banning campfires is an unpopular measure with visitors, particularly in cold weather, and can be ruled out in many parks. Providing firewood is not the long term answer either, unless you have a charitable or service organisation to provide and sell wood. Firewood supply can be a useful additional tool in reducing the woodgathering impact, but supplying firewood to all campers by park staff is a chore that takes away valuable time from other areas, and in any case the wood still has to come from somewhere. Parks are for people to recreate in, but natural area managers are supposed to maintain the conservation values of parks in perpetuity. Firewood gathering must be having a long term effect on parks. Therefore how do we reconcile the issues of campfires and firewood gathering, and conservation in parks?

There are no perfect solutions but there are a number of measures that can alleviate the problem.

Some strategies

Firstly, in high visitation parks, camping needs to be strictly controlled. This means only allowing bushcamping in certain areas. This can be unpopular, particularly with many bushwalkers, who like the freedom of camping where they want to. But in parks that are heavily used for bushwalking, it means that woodgathering will be confined to the immediate surrounds of those areas. This removes or reduces woodgathering in the rest of the

park, and makes monitoring and management of the problem easier, through interpretation and other measures.

Secondly, woodgathering can be effectively reduced by limiting the number of campfires allowed. This applies mostly to car-camping areas where proper fireplaces or firepits can be constructed. These firesites are constructed with benches placed strategically from the fireplace, so that if too big a fire is built, users cannot sit down at the benches. The firesites are also designed so that more than one group of campers can share them. This can be unpopular as many campers are individualistic and want their own campfire, next to their tent. This is where some interpretation of the problem to visitors comes in, either via leaflets or personal contact. By pointing out the possible long term effects of woodgathering and the need to balance visitors' needs with conservation, people may better understand the problem.

The fireplaces must be cleaned out regularly by parkstaff to enable continued use of them.

Mt Remarkable National Park as a case study

Firstly, there are only four defined camping areas. If bushwalkers want to camp elsewhere they have to ask permission from staff. This is only given in certain cases and camping in some sensitive areas is prohibited. Enforcement of this requires foot patrols of walking trails by staff, particularly in busy periods.

Secondly, campfires are limited to fireplaces built by park staff in the main car-camping area at Mambray Creek. Fifty-four defined campsites accommodate approximately five campers per site, and two school sites together accommodate approximately sixty to seventy students and teachers. There are only six campfire sites to service the main campground area and one campfire site for each of the two school sites. The school site fireplaces are simply concrete pits

with seats positioned strategically close to discourage blazing bonfires.

The fireplaces in the main campground are designed to allow three groups to cook at once on the one fireplace. Campfires are strictly confined to these sites and some firewood is supplied only to school groups, with the source usually being from firetrack works. Woodgathering is controlled to an extent by the number of fires able to be lit. Other measures used to reduce woodgathering in the park, are the banning of wood barbecues in the day visitor area at Mambray Creek with three gas barbecues having been built.

Problems are encountered in the form of the odd complaint from campers about insufficient fireplaces, and from day visitors regarding the banning of wood barbecues. Another problem is the collecting of trailer and boot-loads of wood from other areas of the park by campers during busy periods.

Most of these problems can be surmounted via interpretation, telling people why these measures were undertaken.

The future

There are other methods by which woodgathering can be reduced:

- Campers may be able to bring some wood from home, and some already do;
- By not having campfires when unnecessary (for example, in the middle of a sunny day).

The camping public can be educated away from these practices by interpretative leaflets and by park staff detailing ways in which firewood usage can be reduced.

The methods in use at Mt Remarkable National Park do reduce firewood gathering, stop popular areas in parks from becoming ecologically poorer, and help retain campfires as an acceptable part of park use.

^o Ranger, Mt Remarkable National Park, South Australian NPWS
Reprinted from Australian Ranger Bulletin, Vol. 3, No. 4 1986, p19.

Just Briefly –

It is always interesting to hear about National Parks in various parts of this country, as for most of the year, a large percentage of NPA members are limited to weekend visits to Namadgi and close NSW Parks. Sometimes the 'travelling ones' favour us with descriptive articles and photographs. Sometimes they are generous enough to contribute to *Just Briefly!*

Audrey and Charles Hill were accompanied by Barbara and Sid Comfort on their most recent northerly tour which took them fossicking at Lightning Ridge before relaxing in some northern NSW National Parks. Fossicking produced no world famous 'opal extraordinaire' but a few interesting stones with *some* colour. However, later on in Kyogle, Barbara hit the jackpot by winning a large tray of very welcome fruit and vegetables.

The travellers visited Washpool National Park which adjoins Gibraltar Range National Park (between Glen Innes and Grafton) and consists of varied forest types. Curiosity doesn't always 'kill the cat'. Charles tells of a track in this Park which took them onto a wooden platform, to one side of which was a very pretty waterfall. The platform, built over a creek to a side gully, had a trapdoor in it, but with no explanatory notice. Fascinated by this, Charles lifted the trapdoor to discover... two mugs and a soup ladle on a long chain – the means of obtaining a drink from the clear stream below.

In a rainforest in Washpool National Park, they came across a very old tree. About five feet up the trunk was a lyrebird's nest complete with chick. Along came one of the adult birds which started a display performance, probably in an attempt to distract the onlookers away from the nest. It then began scratching for food, followed closely by a tiny scrub wren scavenging insects in its wake. Charles thinks that the birds were possibly the *Albert's Lyrebird*, distribution of which is confined to extreme SE Queensland and NE NSW.

★ ★ ★

On another lyrebird note – Beverly Hammond and others on Ross Carlton's walk in August were astonished to see a lyrebird rock-hopping its way up the straight sides of the Big Hole from way down. Incidentally, only one ducking occurred during the Shoalhaven crossing, and that fortunately was on the way back!

★ ★ ★

Once again the President's BBQ was marred by rain. Last year only four hopefuls arrived at the venue, and two others got lost seeking it in constant heavy rain. At least this year, the rain held off until after the forty or so picnickers had BBQ'd and eaten. Then as intermittent showers became heavier, so did the enthusiasm fade, and the gathering gradually broke up as more and more small groups hurried to their vehicles. Do we have a *Nostradamus* or an *Inigo Jones* willing to predict the weather for the President's BBQ next year? By the way, *did* you see La Campbell's latest chapeau? Another Canadian import, it claims to be *regarde de birdeaux officielles!*

★ ★ ★

The familiar sight of stately *Eucalyptus mannifera* ssp. *maculosa*, even in our city streets, and those stark old stalwart 'scribblys' on Black Mountain – *E. rossii* – are privileges of living in the 'bush capital', as is the rich diversity of parrot life in this city. These familiar sights we take for granted. However, on the morning after a warm October weekend, an *unexpected* treat was in store for Canberrans. To the delight of young and old, the first sight for the day was a curtain of large snowflakes falling gently onto a thick white carpet later be-jewelled in some backyards, by the arrival of crimson rosellas. It was truly the 'icing on the cake', and a sure cure for 'Monday-itis'. The Bureau of Meteorology informed us that this freak October occurrence was caused by a meeting of NW winds with a cold front from off-shore Tasmania. We were fortunate indeed that the meeting took place over our part of Australia.

When the snow ceased to fall and the clouds cleared sufficiently to reveal Tidbinbilla Mountain and Peak, it was evident that the Nature Reserve was the place to be. When contacted a day later, Julie Crawford (Acting Manager) described the scene at Tidbinbilla on Monday morning. The valley looked superbly beautiful, she said, the kangaroos contrasting against the vast white areas, and the koalas looking strangely out of place in snow-laden boughs. The clear blue sky was a perfect backdrop for the picture.

★ ★ ★

The outbreak of spring has brought its usual results at Tidbinbilla – an increase in the population. There are several batches of emu chicks in the Reserve – as usual, they are some of the earliest arrivals. Unusual though, is the fact that some pairs were still mating after other parents had hatched their brood. Down in the waterbird area, the black swans, grey teal, chestnut teal, and black ducks are proudly *parading* their young, whilst Mr and Mrs Musk Duck are occupying the honeymoon suite – hoping to convert it to a nursery later.

★ ★ ★

By the time this is published, there will have been many weeks of activity in the Tidbinbilla snake communities (already evident in October), and visitors are warned to be on the lookout for them.

★ ★ ★

Finally, from sometime in November, Tidbinbilla Nature Reserve will open between 9 a.m. and 9 p.m. Two similar, but separate ways of taking advantage of this are:

(a) The very popular guided tours by spotlight, for which booking is essential, as they fill up fast. Dates will be advertised in the Canberra Times.

(b) Summer Saturday Nights – enjoy a leisurely evening bushwalk between 6.30 and 8 p.m. as the bush cools down in the twilight. Ring the Reserve for date of commencement.

Letters

Jean and Ian Currie report seeing some quite exciting fauna during their recent tour of some of the more distant Australian National Parks. Two places where these sightings occurred were on the Atherton Tableland – at Lake Eachem, where they were lucky enough to see a tree kangaroo and *tame* catbirds, and at Palmerston National Park, where they saw rifle birds and glimpsed a quickly re-treating cassowary.


★ ★ ★

By now, Joan and Ray Hegarty are probably in that strange state of transition when – whilst it's good to be home, a kind of unsettled feeling persists, as the momentum of months on the move gradually slows down. Welcome home to you both – bet there's an interesting log book!

★ ★ ★

Welcome home also to Barbara and Sid Comfort and any other members recently returned from 'far-away places with far-away names'. Just imagine the interesting conversations floating about the Orroral Valley on this December's annual get-together! See you there.

Meliodora



FOR HOLIDAY RENT

Large isolated house adjacent to **Wadbilliga National Park** and on the **Tuross River** west of **Bodalla, N.S.W.**

DETAILS:

A. & C. TYRREL,
BODALLA, 2545
PHONE: (044) 73 5453 OR
(044) 77 9314

Ian Haynes
Outings Convenor
NPA

Dear Ian,

As Oliver Cromwell once said, "No man goes further than he who knows not where he is going." I would like to suggest through the *NPA Bulletin* that after a walk, someone should provide a brief description for the edification of all members.

I joined the NPA not only to lend support to an organisation which constructively lobbies against threats to our natural environment but also to participate in leisurely bushwalking jaunts around Canberra with other people of similar persuasion. However, one rarely sees an article in the *NPA Bulletin* which recounts a member's experience of a particular outing. By contrast, other newsletters or magazines which cater for outdoor enthusiasts include reports of bushwalks as a regular feature. Often such reports are quite entertaining but more importantly, very informative.

An informative description would do much to promote national parks. It could recommend to members the easiest route to take, interesting features along the way, good camping spots, even expose the quirks of leaders or the idiosyncracies of fellow walkers. In Namadgi NP, for example, it would be particularly useful to know the degree of difficulty encountered when walking through areas which were scorched by the Gudgenby fires in 1983. If I have the time I like to loiter through the bush so I can appreciate a different environment from that in my office during the working week. However, I'm sure other members have also stumbled, sweated and cursed their way through a tangle of regenerated scrub, wondering "if only I'd known ..."

Like most people, I can't participate in as many scheduled walks on the Outings Program as I would like to because of other commitments. However, if I could refer to a description of a walk it might encourage me to lead it myself another time for NPA. So often it is the same individuals leading the

same walks. How about a few new leaders coming forward to offer to break new ground!

I urge members to share their bush-ranging experiences to induce others out of their armchairs into the mountains where the panoramic views or delicate alpine flowers will offer renewed enthusiasm for our environment. Verily

"... whoso walketh wisely, he shall be delivered". – Proverbs

Margus Karilaid

The President
National Parks Association
of the ACT

Dear Mr Frawley,

I have been visiting the Australian National University since February, and through Jack Smart I became a member of the NPA. On the eve of my return to New Zealand, I am writing to convey my appreciation for the NPA activities in which I participated during my stay in Canberra. By temperament I am not a 'clubby' person – and indeed, when it comes to outdoor activities, I am distinctly anti-social. Nevertheless, I thoroughly enjoyed my NPA outings, not least because I met so many nice people on them.

It has occurred to me that perhaps I could be of assistance to NPA members who wish to do some bush-walking (=tramping) in New Zealand. My knowledge is not extensive, but there are certain areas about which I can give first-hand information and advice. One such area is Arthurs Pass, where I have a cottage which NPA members might wish to use as a haven from New Zealand's all-too-frequent rain and all-too-plentiful sandflies. Some members might care to try alpine climbing of a modest standard: Arthurs Pass is ideal for that, and I can recommend various other places for exciting but not excessively dangerous mountaineering.

I would be grateful if you would pass this message on to other NPA members. Unfortunately I shall be overseas till next February, but mail sent to my home address will be forwarded.

This address is: 3 Candy's Road, Christchurch 3, New Zealand. My telephone number is 227-582.

Yours sincerely,

Robert Stoothoff

The Dedicated Traveller

Val Honey

Australia's greatest botanist of the nineteenth century was also a highly regarded explorer and geographer. Small of stature and not very robust, he made his arduous way on horseback over difficult terrain for many months at a time, mostly on his own. Preceding his arrival in this country, and contributing to the shaping of his life, were the tragic circumstances of the early years of one of Victoria's most eminent citizens.

Born in Rostock, Germany in June 1825, Ferdinand von Mueller was ten years old when his father died of tuberculosis. Five years later his mother died, and in 1843 the disease also claimed the life of his eldest sister. Concerned for the health of the older of his remaining sisters, for whom the doctors had ordered a sea voyage, and with his own health impaired as a result of years of intensive study, Ferdinand felt compelled to make a decision. His consuming interest from the age of eight had been botany, his most prized possession being an ever-widening collection of specimens. Following the seven years in which he completed his chemist's apprenticeship were three years of studying botany under Professor Nolte of Kiel University, culminating in the writing of a thesis on the common shepherd's purse and gaining him his Doctorate of Philosophy. Inspired by reports of Australia's climate and astonishingly different flora and fauna as described by Dr Priess, a noted botanist and family friend, Ferdinand and his sisters sailed from Bremen in July 1847, arriving in Adelaide on 18 December.

He secured a position as an assistant chemist, devoting all his spare time to the pursuit of new specimens. Later, having exhausted the botanical possibilities of Adelaide and the Mt Lofty Range, Mueller, gaining in strength, went further afield. He almost drowned whilst exploring the Murray scrub, and went alone to the practically unknown Flinders Ranges, climbing Mts Brown and Arden and investigating country around Lake Torrens. Following these excursions, scien-

tific publications appeared in London and in Germany relating to his finds.

By 1852, hoping to widen his explorations, and spurred on by the gold rush, Mueller decided to open a chemist's shop in Victoria. However, he arrived there when Governor La Trobe was about to appoint a Government Botanist, and received the appointment in January 1853, having been highly recommended by Sir William Hooker of Kew Gardens in London. Immediately after his appointment, Mueller set out on the first of many hazardous journeys undertaken during the first ten of his forty-three years as Victorian Government Botanist.

Accompanied by John Dallachy, Superintendent of the Botanic Gardens, he travelled with pack-horses to the hitherto unexplored Buffalo Mountains, where they discovered the beautiful *Grevillea victoriae*. They ascended the Horn, which at the time Mueller named Mt Aberdeen. As Dallachy had to return to Melbourne, Mueller continued on alone, travelling from Buffalo to Mt Buller. This was the first time any part of the Australian Alps had been botanically explored. From Mt Buller he travelled to the Goulburn River, following it to the junction of King Parrot Creek. He then followed this creek to its source near present day Kinglake. Crossing the Plenty Ranges in the Yarra watershed, and going around the Dividing Range, he turned south to the head of the Latrobe River, eventually reaching the coast between the Gippsland Lakes and Port Albert. In Gippsland he spent four days and nights without food, having been delayed by winter rains. From Port Albert he went to Wilson's Promontory and back to Melbourne by the coast. On this first expedition he had covered 1500 miles and added 936 plants to the list of Victorian flora.

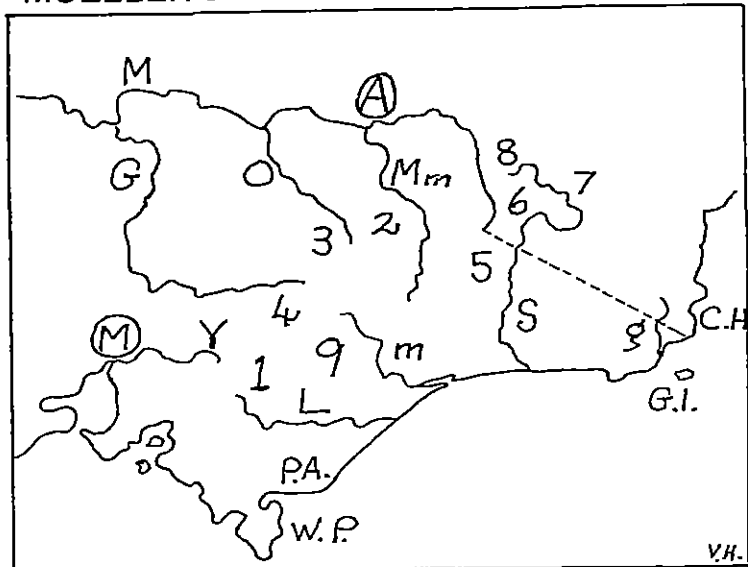
Mueller's second Victorian exploration which began on 1 November 1853, took him through much unexplored country where dense scrub and forest greatly impeded progress. Climbing every mountain in his way, he traversed the Gramp-



ians through which Sir Thomas Mitchell had come in 1836. Originally he had intended to reach the Mallee from the Grampians and to continue towards the Murray River, but due to excessive heat and lack of water, he had to follow the Avoca River almost to the Murray. Still determined to explore the Mallee, he turned west to Lake Lalbert and went through the Mallee fringe until reaching the Murray River just below Swan Hill in December. Travelling past the site of present day Mildura, he continued to the Murray's junction with the Darling River. Now, as if to compare the great diversity of Victorian landscapes, he set off in an easterly direction, reaching Albury in mid-January 1854, on his way to the high country.

Proceeding along the Mitta Mitta Valley, he visited the Gibbo Range, crossing it at an elevation of 5000 feet. From Omeo, he attempted to reach Bogong, but was prevented from doing so by fierce bushfires. Instead, he explored the Cobberas Mountains near the New South Wales border. Then going east to the Snowy River, he crossed it and turned back to the Tambo River, following it for some distance. He again crossed the Snowy River and reached Cabbage Tree Creek, which is the southern limit of palms in

MUELLER'S JOURNEY



LEGEND

- RIVERS:** G - Goulburn, g - Genoa, L - Latrobe, M - Murray, Mm - Mitta Mitta, m - Mitchell, O - Ovens, S - Snowy, Y - Yarra.
- MOUNTAINS:** 1 - Baw Baw, 2 - Bogong, 3 - Buffalo, 4 - Buller, 5 - Cobberas, 6 - Kosciusko, 7 - Mueller's Peak, 8 - Townsend, 9 - Wellington.
- PLACES:** A - Albury, M - Melbourne, C.H. - Cape Howe, G.I. - Gabo Island, P.A. - Port Albert, W.P. - Wilson's Promontory.

Australia, the creek taking its name from the only Victorian palm species. Travelling along the Buchan River, Mueller then returned to Melbourne along the main Gippsland track, arriving there half-way through April. During his five and a half months away, he had travelled 2500 miles and added almost 500 species to the Victorian flora list. In a report written for the Legislative Council, which included comments on the utility of some plants, Mueller specifically recommended bluegum (*Eucalyptus globulus*) as being excellent timber for ship-building, blackwood for furniture and callistemon as hardwood.

On 3 November 1854, Mueller left on his third expedition, going through the Dandenong Ranges to the head of the Latrobe River and following it as far as the Avon River. He went up the Avon to Mt Wellington where he stayed for about a week. From here his progress is described in a special despatch sent from Omeo:

"Left Avon on Nov. 22, thence up Mitchell, Wentworth and Dargo Rivers, crossed Dividing Range between waters of Gippsland and Murray near upper part of the

Cobungra... traversed the grassy tableland in a north-easterly direction, along the Cobungra downwards until the country appeared practicable towards the north to reach the highest part of the Bogong Ranges... On 3rd Dec. ascended the south-east of the two highest mountains of Bogong Range... (6th Dec.) ascended the more abrupt summit of the north-westerly mountain from upper Mitta which skirts base..."

The despatch also mentions finding the source of a main branch of the Mitta Mitta, and the sources of the Ovens and Mitchell Rivers. This part of the journey added sixty species to the flora list of Victoria. Leaving Omeo in mid-December, Mueller went north-east towards Mt Kosciusko, ascending Mt Tambo on December 17. Reaching the Snowy Mountains, the peak which he climbed and described on New Year's Day 1855 was possibly Mt Townsend (7357 feet). The next highest peak (7272 feet) is now known as Mueller's Peak, in his honour. From Kosciusko, he returned to the Buchan River on his way to revisit Cabbage Tree country, beyond the Snowy River. After this, he travelled along the coast to Lake

King, part of the Gippsland Lakes and back to Melbourne, apparently by the ordinary Gippsland track, regretting that he was unable to ascend Baw Baw on account of illness.

During the summer of 1858-59, Mueller spent a few weeks in the mountains along the Macalister River, examining vegetation and making geographic surveys of the south-western Alps, Mt Wellington and Mt Useful, and predicting that a leading spur would be found to extend to the hitherto unapproached alpine elevations of Mt Baw Baw. He decided to settle the question during the next season. The following appears in the 1860-61 Government Botanist's Annual Report:

"Mount Wellington, inasmuch as it can be reached by a path accessible to horses from the Avon Ranges, may be regarded as the southern key to the Australian Alps, from whence along the crest of the main ramifications of the high land, a journey with horses seems possible in most directions. Otherwise, the dense underwood frustrates any attempt to traverse the tracks through the jungle, whereas the main range, at elevations exceeding 4000 feet, is usually destitute of these impediments."

In mid-December 1860, Mueller set out for some quite unexplored country in the south-western parts of the Alps, and found on reaching Good Hope Creek that he could not take his horses any further, as even a man on foot would have needed to cut a track as he went. Eventually, on 23 December, he left Good Hope Creek, accompanied by John Russell, William Randell, Robert Morrison and Louis Quaas. They traversed the ranges adjacent to the Tyers (now Thompson) and Tanjil Rivers, and on travelling north and then north-east, crossed these rivers several times. The progress was very difficult until they reached the level of 4000 feet where the vegetation became much less dense. They descended into the main valley of the Upper Tanjil River and noticed that replacing the Baw Baw stringybarks were beech forests interspersed with "... highland white gum-trees under which luxurious ferns grew". On Christmas Day, they camped on the summit of the highest eastern mountain of the Baw Baws and spent several days exploring this region. The party

travelled the whole length of the Baw Baws and then descended to the narrow Yarra Glen, passing through ferns and gigantic eucalypts, and discovering the Wittsteinia, the Baw Baw berry. They found that the descent from Mt Useful was gentle and that beech forests covered some of its lower regions. Retracing their steps, they arrived at Good Hope Creek on 30 December. On returning to Melbourne, Mueller immediately left for a visit to the upper Tarwin (now Tarago) River, and discovered the *Grevillea barklyana* in this area. He travelled on prospectors' tracks and thus suggested in his report that tracks be cut along the Baw Baw Mountains to enable miners and pack-horses to travel more easily. This was done two years later by an expedition in the charge of Angus McMillan, known as 'Victoria's Pathfinder'. Over 200 miles of tracks were successfully cut and constructed. In March 1861 McMillan accompanied Mueller on his second visit to Mt Wellington and the sources of the Macalister River.

Two months before the Baw Baw expedition of December 1860, Mueller had conducted a short exploratory trip to the 'south-eastern frontiers of the colony', crossing the country from Twofold Bay to the Genoa River and travelling along it towards the coast. He visited Cape Howe and the adjoining freshwater lake, and ascended the Genoa River again, following it to its sources, and examining the surrounding highland and Nungatta Mountains en route. During this trip he discovered the Gippsland Waratah (*Telopea oreades*) and found many NSW plants. Potential economic value of some species was commented upon in the copious notes taken during these expeditions.

(Based on biographical material from Margaret Willis' *By Their Fruits*. Part 2 will appear at a later date. It will cover Mueller's journey of sixteen months as the appointed botanist to Augustus Gregory's 1855-56 expedition to north-western Australia, and how he assisted other inland explorers. Included in references used are the journals of the Gregory brothers.



Box Vale Walking Track

Trevor Plumb

On a car trip to or from Sydney have you ever wanted to walk the Box Vale Track near Mittagong but reluctantly decided against doing so because you could not spare three hours? If so, here is a shorter version that may interest you.

But first, some information about the Track and its locality. It is sign-posted on the northern side of the Hume Highway between Berrima and Mittagong. Currently this section of the Highway is being widened. According to a brochure published by the Crown Lands Office and available from the Tourist Information Centre at Mittagong, the turn-off into a carpark is located 0.8 km east of the Wombeyan Caves Road and 3.7 km west of Mittagong.

After leaving the carpark, the Walking Track follows the formation constructed for a railway to a coal mine. Both mine and railway operated briefly late last century. The Track passes through cuttings and an 84 metre tunnel and along embankments, with small deviations where bridges have disappeared. At the far end of the formation a short path leads to an impressive view over the Nattai Gorge, where the Nattai River can be seen winding its way about 180 metres below.

The natural vegetation along the route is mostly dry sclerophyll forest,

with shallow soils on Sydney Basin sandstones. Near the lookout we found (in August) many wildflowers blooming between the sandstone outcrops. Of special interest is the regrowth in the cuttings - a grove of casuarinas in one and ferns, including *Dicksonia* in another - and along the embankments, where some sizeable eucalypts are now growing.

For a shorter walk that still includes most of the attractions it is possible to join the Track at Kells Creek Ford. To do so, take the Wombeyan Caves Road and the minor (unsealed) roads shown on the accompanying sketch. (See also Mittagong 1:25 000 Central Mapping Authority.) The total driving distance from the Hume Highway is only about 2.8 km. At the end of the road, just past 'Stone Ridge' farm, there is room to park and a stile gives access to the Track. At the ford, take note of the rock holes that once provided footings for the vertical timbers of a trestle bridge. I believe this bridge and another across Nattai Creek were destroyed by bushfires in 1939.

From Kells Ford to the Lookout and return takes 1½ to 2 hours, depending on your fitness and the time you take gazing into the gorge and examining features along the route.

Heysen Trail

Syd Comfort

Whilst in Adelaide recently, I asked at the offices of the South Australian Department of Recreation and Sport for published information on the Heysen Trail and was both pleased and stimulated by the response to my request.

The concept of a long distance walking track from Cape Jervis (adjacent to the eastern tip of Kangaroo Island) to the Northern Flinders Ranges was proposed by Mr C. Warren Bonython in 1969 and subsequently accepted by the South Australian Government under the name, "Heysen Trail". It was officially opened in 1976 although only nine kilometres of trail had been constructed at that time. Today, 780 kilometres of trail are

available in four sections of what will eventually be an 1800 kilometre trail. These sections are: from Cape Jervis through Mount Lofty to Tanunda; from Crystal Brook through Mount Remarkable to near Wilmington; a short section near Mount Brown, east of Port Augusta; and from Hawker through Wilpena to just west of Blinman. The trail is essentially a walking trail and is not available for horse riding but is subject to some restrictions because some parts pass through private land and because of the need to impose some limitations during the bushfire season.

Sounds like a good idea for autumn '88.

Reference:

SA Department of Recreation and Sport: Information Sheet No 5. The Heysen Trail

Grunting up to Gudgenby

Mount Gudgenby Day Walk 30 August 1987

Margus Karilaid

Members assembled in the carpark at Kambah Village Shops at 8.30 a.m. In the future I suggest it be no later than 8.00 a.m. because we didn't start walking from the carpark at Boboyan Pine Plantation until 10.00 a.m. It's a shame that the carpark can't be relocated to the southern end of the plantation at GR774378 because I find walking through this carrot patch a big yawn, especially on the return leg. However, I expect the managers of Namadgi NP have good reasons.

From the flats to the top of Mt Gudgenby is a rise of 700 metres in elevation. Aply led by Reg, once we had ambled through the pines, the party of twenty made its way through the bush south of Bogong Creek. Although the 1983 Gudgenby bush-fires touched on this part of the bush, the scrub was still relatively open and low to make progress fairly easygoing. This was assisted by the numerous animal tracks which traverse the contours as we plodded upwards. Our pace gave us ample opportunity to enjoy the variety in vegetation (still too early for flowers) and the granite boulders, and to catch glimpses of Mt Gudgenby through the tree canopy.

A fine drizzle kept the temperature cool but even so everyone had worked up a sweat by the time we reached the saddle at GR732384 by 12.30 p.m. We rested briefly here to have a guzzle and gobble before heading straight up the slope to the peak.

The rain made the undergrowth, litter, logs and moss-covered rocks

quite slippery, but puffing and panting we reached the base of the sheer-faced granite which makes Mt Gudgenby and other peaks such a feature in the Park.

It was here that the party disintegrated into a number of splinter groups depending on fitness and the urge to be the first 'peak buster' for the day. My heart leapt to my throat when I saw one person silhouetted on the skyline of a broad slippery rock face. I had a vision of him clawing his fingernails on the rockface if his jogging shoes lost traction. Thankfully he negotiated the face without mishap. The length of webbing which I'd borrowed from Tom Rhymes proved to be invaluable in assisting some members clamber up some of the more slippery sections.

We all made it to the cairn at the top (1735m) by 2.00 p.m. The drizzle abated for the half hour while we had a late lunch, enjoying the fine views of the surrounding peaks, some of which were dusted with snow.

Before we became too chilled, the descent was made directly down the steep eastern slope. At first the regrowth was thick and somewhat difficult but gradually opened up. Although it is steep: I still think it is the best way down to the flats if care is taken. However, I wouldn't recommend going up this way to Mt Gudgenby as I had done with a party of three friends the previous weekend. It is too tough on the legs for those who aren't

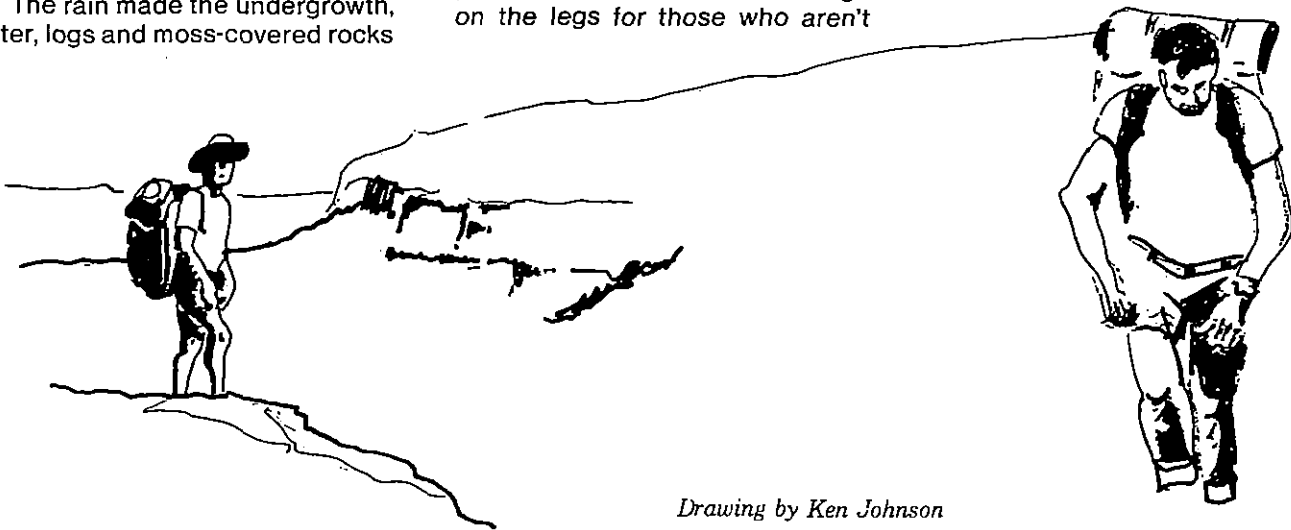
very fit and it is also very demoralising when you can't see the peak until you are within half an hour of finally making it to the top. We also tended to punish the Sigg bottles on this route up which can be disastrous if you run out on a hot day as there is nowhere to replenish your water along the way.

I pushed the pace on the way down because I didn't want to get back too late. As a consequence, I learnt a lesson in leadership because a large rock was dislodged under someone's foot, tumbling down heavily onto Regina's calf causing it to swell quickly. Olive promptly applied some HIRUDOID ointment from her first-aid kit which reduced the swelling. After applying a crepe bandage we continued. It was quite amusing to see everyone leap to one side after a warning bellow of 'Rock!' when the same thing happened soon afterwards. Good idea.

Despite this incident we reached the open meadow of Bogong Creek safely at about 5.00 p.m. and made it back to the cars as it was getting dark at 5.45 p.m.

I dropped off my passenger at Kambah Village at 6.45 p.m. and went home feeling contented with the day's outing.

All in all, the weather could have been better, but then again we were lucky that it wasn't any worse. I hope all enjoyed themselves. I did.



Drawing by Ken Johnson

Flora and Fauna: Special Protection Measures

Part 4

Keith McRae

In three recent editions of the Bulletin, a code of behaviour for bushwalkers and other people who use natural environments for leisure purposes has been outlined. It is considered that human beings who venture into the bush have a responsibility to behave in a way which will ensure that natural communities and entities are protected. In this final part of the code, additional measures designed to protect flora and fauna are outlined. It is suggested that people:

(a) Resist the temptation to feed birds and animals which appear curious or hungry. Even in low-impact areas, the feeding of wildlife can have serious long-term effects on patterns of behaviour. In addition, left-overs may carry bacteria harmful to the wildlife.

(b) Respect the needs of birds and animals for undisturbed privacy. Observe animal behaviour but do so with care, common-sense and restraint and with a minimum of noise, movement or encroachment.

(c) Leave undisturbed all insects and reptiles including those which bite and cause pain. Apart from being acceptable behaviour towards the inhabitants of a visited area, it will also lessen the risk to the visitors.

(d) Avoid damaging plants, particularly in fragile areas, eg in the shade of some forest floors, plants have a very slow growth rate; in sub-alpine areas, marshes and meadows may be fragile and slow-growing; and in sand dunes, plants may be surviving precariously. It may take years to repair damage caused by just walking through such areas.

(e) Refrain from picking or uprooting plants. If a record is required, photographs will usually be an adequate substitution for a real specimen. Field guides should be used *in the field* for all identification purposes.

(f) Refrain from using natural materials for shelter except in emergency situations and never cut down vegetation for unnecessary purposes such as furniture or bedding. Sleep on a single-cell foam mat or other soft material brought for the purpose.

(g) Try to avoid difficult and persistent 'bush bashing' since this can cause considerable damage as well as placing a strain on inexperienced members of the party.

(h) Refrain from leaving messages for other people if this involves damage or alteration to the environment, eg broken branches, stone markers.

(i) Keep to tracks when they exist even if this involves walking in muddy sections. Unnecessary trampling of the vegetation may cause erosion or damage to plants.

(j) Avoid descending steep slopes if possible, as a descent can cause more damage to soil and plants than an ascent. An easier route should be sought.

(k) Leave pets at home, and finally and in summary ...

(l) Avoid wilfully damaging or destroying any living or non-living part of the ecological community in which you are a fellow-traveller, a visitor, a member of a community charged with the responsibility for protecting all other entities.

SOME FURTHER THOUGHTS

Reasoned and detailed explanation in support of the guidelines has been deliberately restricted in the interests of brevity, although an attempt has been made to make the code coherent, logical, consistent and justifiable. There is substantial support for the guidelines in the considerable research which has been undertaken although, as

one would anticipate, there are conflicting research findings and there is a need for further research and for the continuing use of commonsense in the application of the guidelines. It is anticipated, however, that strict adherence to the code by all people will result in decreased impact and damage to and increased protection of natural environments and particular natural entities. It may still be necessary for individuals and groups to adopt even stricter measures in certain circumstances. For example, if the conditions to be encountered on a particular trip are such that there is real risk of damage to the environment, the activity should be cancelled or postponed until conditions improve. During a trip, it may be necessary to change plans for particular activities as a result of unanticipated or altered conditions. Generally, there will be circumstances in which particular guidelines in the code will need to be applied more rigidly. The ability to determine behaviour appropriate to prevailing conditions will be developed as a result of increased experience and sound educational programs.

ADDITIONAL READING

Anyone interested in reading further about environmental ethics or minimum impact camping or in discussing the guidelines should contact Keith McRae at the Canberra C.A.E. on 52 2474 (message on 52 2973) or at home on 47 8181.



ABC of Bushwalking^o

- A for Anorak – garment designed to allow rain, cold and wind to penetrate from outside, while retaining body moisture inside.
- B for Boots – instruments of torture, efficient in creating blisters and twisted ankles, guaranteed to slip on any known surface and to take in and retain water.
- C for Camp – a piece of ground affording maximum discomfort for sleeping. Usually rocky, boggy or on a forty-five degree slope. Sometimes all three, chosen by leader to ensure pre-dawn start next day.
- D for Defector – Ex-bushwalker now enjoying self at weekends.
- E for Easy Walk – leader’s description of forthcoming assault on South Col of Mt Everest.
- F for Fly – an ability wished for by all bushwalkers when faced with near vertical ascent or descent. Also piece of cloth erected over leaking tent in vain hope of keeping the rain out.
- G for Ground sheet – fragile material laid on swamp or rocks in hopelessly optimistic belief it will keep camper dry and comfortable. Attracts all insect life.
- H for Heavy – property of all walking and camping equipment which gains weight in proportion to distance covered and state of exhaustion of walker.
- I for Injury – tactic adopted by slower members of party to frustrate leader and faster members.
- J for Junk Food – quickly devoured at Fast Food shop after long day(s) of pretence of healthy living.
- K for Knee – favoured area of anatomy for bandaging. Turns into jelly on downhill grades.
- L for Leader – sadist who sets impossible tasks at impossible speeds. When lost, has been heard to say ‘Of course, I know what I’m doing. It’s just that I don’t know where I’m doing it.’
- L for Leech – affectionate creature who, it is said, can last up to a year without a meal, but who always appears to be questing for sustenance from wary and unwary walkers alike.
- M for Map – strange document decorated with marks and squiggles which bear no resemblance to location walkers find themselves in.
- N for Numbers – head count which for various reasons fluctuates.
- O for Odd – word appropriate when describing other bushwalkers.
- P for Photography – pastime associated with hysteria which supposedly justifies destruction of fauna and flora for a better shot. Can be countered by false birds’ nests and other red herrings.
- Q for Quicker – one of the leader’s favourite words. One of the rabble’s most feared.
- R for Rest – period of time never of sufficient duration, which becomes shorter in time and more frequent in direct proportion to one’s increasing fatigue.
- S for Survey – quick look at map by prospective leader the day before a walk in vain hope that ‘something familiar’ will appear on the day.
- T for Tent – ridiculously expensive piece of easily torn material. Similar properties to Anorak. Specially designed to give smallest internal space for largest amount of material used. Always one size too small for the number of occupants. Usefulness reduced if poles, pegs, ropes are left at home.
- U for Undergrowth – vegetation often as thick and impenetrable as average bushie.
- V for Vertical – type of walk favoured by leaders. Fortunately usually modified to eighty-nine degrees on the day.
- W for Water – something in plentiful supply when not needed but seemingly non-existent when weather is hot. Has been declared to be better than beer on a hot day. Nickname Adam’s Ale, aqua pura or H₂O.
- X for Xhaustion – most common state of average walker before, during and after a walk.
- Y for Younger – dim memory of what it felt like before a walk.
- Z for ZZZZ – favourite sound made by bushie when asleep under a shady tree, a situation guaranteed to attract squadrons of flies and mosquitoes. Incenses leader who wishes to be making tracks.

ZZZZZZZZzzzzzzzzzz

^o Courtesy of the Brisbane Bushwalker, March 1986 and the Illawarra NPA Newsletter, October 1986.



Field Guide to the Native Trees of the A.C.T.

This pocketbook describes 60 species of trees of four metres or more that are known to grow naturally within the boundaries of the ACT. It is written for the non-specialist and has instructions on how to use a botanical key. For easy reference it is divided into three parts – Eucalypts; Acacias and other species, with trees that are similar placed side by side.

Each species is treated separately and is fully illustrated, with a thumbnail map to show where authenticated specimens have been collected. A key to all species, index and glossary are provided.

The Field Guide is useful in the neighbouring Southern Tablelands (Goulburn, Cooma, Kosciusko National Park).

Price \$4.00
(plus \$1.00 to cover postage and packaging)

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GENERAL MEETINGS

Held at 8 pm, Room 1, Griffin Centre, Bunda Street, Civic

DECEMBER – No meeting

JANUARY – No meeting

FEBRUARY – Thursday 18

Roger Treagus, an active member of the New South Wales National Parks Association, will give an illustrated talk about his recent holiday and fact finding tour in South America. Roger will discuss rainforest management and land management in general as he observed them in Chile, Peru, Ecuador and Argentina. Roger is currently preparing a film about his trip.