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BULLETIN

NATIONAL PARKS ASSOCIATION A.C.T.



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Aboriginal stone arrangement – Gudgenby Nature Reserve

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PRESIDENT'S FORWARD

Namadgi: As you will have noticed our bulletin has a new cover, a fitting way to bring in 1981. Namadgi is the aboriginal word for the southern ACT ranges. High in those ranges lies this tangible reminder of the first people to live in this area. A recently published book, "The Moth Hunters", by Josephine Flood, brings us many fascinating details of the life and culture of the aboriginal people of this area; knowledge of these things adds considerably to our enjoyment and understanding as we walk and camp throughout the southern highlands. It is particularly appropriate for the NPA to honour our cultural heritage in this way. A number of significant aboriginal art and ceremonial sites lie within the Gudgenby Nature Reserve, and more may be found. Members could assist researchers into these past cultures by being alert to the possibility of discovering further aboriginal ceremonial and camp sites in the Reserve. We must ensure that these elements of our cultural heritage are properly protected and conserved.

I would like to pay a tribute to Reg Alder, our hard-working editor, for conceiving and preparing the design of the new cover. I am sure you will agree that it is a worthy successor to our previous one.

Tasmania: As I write this the fate of the Franklin River is again in the balance. The Tasmanian Upper House has voted to endorse the Hydro-Electric Commission scheme for flooding the Franklin, thus placing the Upper and Lower Houses in conflict over this issue. As concerned conservationists we must be alarmed at this development. To us the value of the Franklin, as an outstanding natural area, is beyond question; I believe that many concerned people, both in this country and throughout the world, share this view. The arguments for preserving the Franklin, for recognising its natural beauty, its wilderness and habitat value, have been presented, argued over, and finally accepted by the Lower House. The NPA has been active in providing support for the Tasmanian Wilderness Society in presenting its case, as have many of us as individuals. Now, this decision has been challenged by the Upper House. We stand to lose one of the finest natural areas left in Australia.

Let us redouble our efforts to preserve the Franklin. Although it is a long way from our local area, and local issues, I hope you will see this issue as vital to the cause of Australian conservation. As individuals, and for the NPA, can I urge your support, in every possible way, in fighting the battle for the Franklin.

THE CONSERVATION STATUS OF KOSCIUSKO

NATIONAL PARK

During August 1980 the Canberra College of Advanced Education and the NSW National Parks and Wildlife Service organised a seminar for the presentation and discussion on "The Conservation Status of Kosciusko National Park". Approximately 80 delegates registered for the seminar and papers on conservation aspects of the park were presented by six speakers.

Mr Bruce Leaver, Regional Director of the Southeast Region of the NSW National Parks and Wildlife Service opened the seminar with remarks on the reasons for the involvement of the public in the review of the Kosciusko Plan of Management. The implemented strategy involved the release of various publications, discussions with interest groups and the invitation to the public to make submissions on the various interest statements. At that time, which was prior

to the closing dates for submissions, the trend in remarks by the public was becoming apparent and showed that over three-quarters supported the general view that the summit area required special protection and for the summit road to be closed to vehicular traffic. Likewise over three-quarters were opposed to the general view that some of the huts be removed and about half supported the view that no further accommodation be permitted at resort areas within the Park.

A census approach is not being taken on submissions as planners are after discussion and analytical input on the important issues that need to be grappled with. For example, resort area submissions have no value unless the basic problems of their increase have been discussed. A deficiency in the strategy is that the debate (by design) is issue and recreation-user oriented and very little discussion given to the overall

values of the Park and its importance as a conservation resource. These latter issues are a statutory requirement in the preparation of a plan of management and it was expected that the seminar would help to provide a balanced perspective for the planning process. It is necessary to re-evaluate management practices with any new understanding of the natural systems a park is required to conserve.

Mr Dane Wimbush, in his paper on "Vegetation", said a great deal is known on the vegetation in the Kosciusko National Park and that as a sample of Australian alpine, sub-alpine and montane environments it could hardly have been better located. The Lower Snowy is an essential adjunct with many features of its own. Altitude zonation and steep climatic gradients provide easy recognisable changes in both tree and understory species. Rain shadows cause some species to be found in only small pockets. With the reduction of the burning of grasses by stockmen, there is evidence now of grass increasing in favourable areas and shrubs are colonising areas of bare ground. A century of burning-off has left some deep scars to herbfields on high ridges and bogs on lower slopes. Work by the NSW Conservation Service on the high ridges has now caused the treated areas to be recolonised. Careful planning of tracks is essential to prevent damage and erosion. The natural downward movement of shrubs is halted by a track running across their path. The spread of weeds has been greatly accelerated by road and fire trail construction. Exotic plants and animals will continue for some time to be a problem in the Park. Research is urgently needed into methods of reclaiming old tracks and eroded areas with native species and on the effects of the concentration of people.

Peter Catling and Dr Alan Newsome's paper addressed points on what is known about the fauna in the Park, what is not known and some indications of important research requirements for management decisions, and on some sensitive issues requiring consideration in the management of the Park. Research is needed to determine the habitat requirements of most Australian animals, their abundance, ecological needs or desirable stages of plant succession. There are many unknowns on the effect of fire on fauna with many salient questions still outstanding. Further research is required on the dingoes' habitat requirements and very little is known about the Mountain Pygmy possum.

Aquatic ecosystems were discussed by Peter Cullen and Dr Peter Greenham and they showed that our lack of understanding of aquatic ecosystems of the Park is of some concern. There have been no attempts to interpret the aquatic features of the Park for visitors. The impact of

dispersed recreation on the streams and lakes of the Park needs to be investigated as well as the greater issue of the effect on water quality by large resort areas. A comprehensive survey needs to be taken on the distribution and abundance of fish species and the impact that recreational fishing has on fish populations.

Dr Bob Galloway discussed landscape and concluded that Kosciusko is one of the most interesting and significant areas in Australia for the student and general public in the study and observation of geology, landforms and past climates. Management policies will need to take preservation into their account, while some man-made disturbances could be left for public viewing rather than obscure them by reclamation procedures.

Dr Josephine Flood in her paper 'Cultural Resources' traced the movements of aborigines and the evidence of them having been in the Kosciusko area for many thousands of years. No intensive archaeological search for aboriginal sites has yet been made within the Kosciusko National Park and there is every reason to believe that sites found to date are but a fraction of what lies waiting to be discovered. Surveys should be made before new developments are commenced, rangers should be trained to recognise stone tools and aboriginal sites. Interpretive signs, and in some instances, fences, should be put up to protect stone arrangements, camps, quarries etc., whereas campsites or cave deposits with artifacts should not be advertised. Rock art sites must be treated on a case by case basis and it is considered that interpretive signs do help to prevent graffiti. The public should be encouraged to visit Bogong moth aestivation localities as they are a fascinating phenomenon. There is a strong case for establishing a visitor's centre and local museum to display mining relics from the gold rush era. Visits to old mines can bring history to life. Pastoral relics, such as homesteads, need to be preserved and protected and keeping the public out seems neither to be desirable nor possible. Dr Flood argued quite strongly that all cultural features such as homesteads, stockmen's huts, skiing relics, Snowy scheme buildings etc. should be preserved and problems from their use by Park visitors solved by means other than demolition. They would be maintained under a three-tier system of Park and various user groups. Research is urgently needed into the history of the huts. Historic features are present but scarce in the Park.

In three discussion sessions the papers evoked extensive discussion and in the proceedings there is too much detail for a precis to be made in this summary. A full copy of the proceedings is available from the Association library.

Reg Alder

NATIONAL PARKS ASSOCIATION
of the A. C. T.

"A National Park for the National Capital"

VOL. 1 No. 1	April - May 1963	Subscription b/-
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The committee hopes you like the "New Look" of our Newsletter and approve a bi-monthly production. The activities for April and May will be found on the back page, so this page may be torn out and placed in a convenient place for reference.

You will note in this publication an article by Mr. Wilson, one of our members. The publications committee would be very pleased to receive articles, letters or interesting quotations from conservation publications, from members of the Association. Interest will be added if members contribute accounts of their outings with the Association rather than the general account now given.

Kosciusko Primitive Area. It has been reported to the Association that 250 letters supporting the Trust's decision to stop spoliation of the Primitive Area were received by Mr. Compton, N.S.W. Minister for Lands and Chairman of the Kosciusko State Park Trust.

Apparently the S.M.H.E.A. will not take no for an answer. The Trust plus three members of the Academy of Science have been invited by Sir William Hudson to view the area again on 19th April, and hear his "on the spot" case.

If the Trust stands firm by its decision, as we hope it will, and the S.M.H.E.A. insists on carrying on with its plans, the matter will shift to a council representing State and Federal Governments.

If you have not voiced your support for the Trust's decision, write immediately to the chairman of the Park Trust, Mr. Compton, Minister for Lands, N.S.W. Lands Department, Sydney.

Remember, these are the facts of the case

1. The Summit Area of the Kosciusko Plateau is unique in Australia. It is extremely beautiful in its natural condition. This natural condition depends upon the shape of the landscape and drainage patterns as have developed over thousands of years.
2. All waters from the Summit Area are utilized in their lower reaches for power generation and for irrigation diversion.
3. Value from the S.M.A. work will be less than 5% increase in power and no extra water for irrigation. Cost will be £15,000,000.
4. The Snowy Mountains Authority has commenced early stages of work that will finally create new drainage patterns for the Summit Area. This work will entail aqueducts and tunnels. Spoil from the work will be tipped into the valleys.
5. The Trust adopted the recommendation of the Academy of Science in December, 1962, that the Summit Area be left in a primitive condition, as it's an area of such delicate stability that it is easily destroyed by development.

As a final word on this matter, here is a quote from a statement of Theodore Roosevelt regarding protection of one of the unique areas of the United States. If only this feeling was widespread amongst authorities in Australia!

FURTHER CONSIDERATIONS - Theodore Roosevelt

Speaking of the Grand Canyon, May 6, 1903 . . . "I want you to do one thing in connection with it in your own interest and in the interest of the country . . . to keep this great wonder of nature as it now is. I was delighted to learn of the wisdom of the Santa Fe Railroad people in deciding not to build their hotel on the brink of the canyon. I hope you will not have a building of any kind, nor a summer cottage, a hotel, or anything else, to mar the wonderful grandeur, the sublimity, the great loneliness and beauty of the canyon. LEAVE IT AS IT IS - YOU CANNOT IMPROVE IT. The ages have been at work upon it, and man can only mar it. What you can do is to keep it for your children, your children's children, and for all who come after you, as one of the great sights whichevery American, if he can travel, should see.

"We have gotten past the stage, my fellow citizens, when we are to be pardoned if we treat any part of our country as something to be skinned for two or three years for the use of the present generation, whether it is forest, water or scenery."

MARCH ACTIVITIES

Meeting - The presence of Mrs. Stead (Thistle Harris), the noted writer of books dealing with Australian wildflowers, at this meeting resulted in many visitors attending.

Mrs. Stead gave a history of the Wildlife Preservation Society of N.S.W. and its work since 1909 to safeguard the flora and fauna of Australia.

The second half of her talk dealt with the alpine flowers of the Kosciusko State Park. Mr. Ed. Slater showed Mrs. Stead's excellent slides of the flowers and the area.

Mrs. Stead praised the work of the Superintendent and Rangers of the Kosciusko State Park and their effort to preserve the area while allowing visitors to see it to the best advantage.

Outing - A beautiful Autumn day made this a popular outing with 60 people attending. Mr. R. Slunn led the group from Pirrama City Circus to Mt. Coree where members walked up the Teep track to the summit or were taken in a "land rover" by Mr. Murray.

The view from the top was magnificent, looking into the Cotter Valley, then east and south-east to the Canberra area and the Tinderry Mountains, and south to the Mt. Kelly region. While returning down the mountain several members searched diligently for Corroboree Frogs but none were to be seen.

The party proceeded back to Canberra via the Two Sticks Road, passing through beautiful forest country. Our thanks to Mr. Slunn and Mr. Murray for their leadership and help.

Library Additions - The following books are available for borrowing

- "The Alpine Flowers of the Kosciusko State Park"
- "National Parks - a World Guide"
- "Australian Waterfowl"
- "Peaks and High Places" - Cradle Mt. - Lake St. Clair National Park, Tasmania.

Several volumes of:-

- "Australian Wildlife" - Journal of the Wildlife Preservation Society of Australia.
- Victorian N. P. A. Newsletter.
- Queensland N. P. A. Bulletin.
- N. S. W. N. P. A. Journal.

Two Australian News and Information Bureau publications:-

- "Native Flowers of Australia"
- "Birds and Animals of Australia".

AUTUMN BIRD NOTES

- Prepared by Mr. S. Wilson.

Many species of birds that are found in the A. C. T. in summer are either totally migratory or partly so and ornithologists are very interested in a variety of problems associated with these movements. Most of the species concerned leave this area during late March to early May, but to some degree the season seems to play an important role. Last Autumn and early winter were mild and this appeared to cause some species to linger longer than usual.

Typical of the unsolved problems involved are :-

Where do individual birds go to?

Some species, e.g. yellow faced and white naped honey-eaters occur from the coast to the dividing range from about Adelaide to Brisbane in summer but except for small flocks, move well north into Queensland and coastal N.S.W. in winter. Do the southern birds migrate to Queensland, leaving coastal N.S.W. populations stationary, or do they all move?

Do all birds return to their breeding areas?

How long do these migration flights take? Do the birds fly direct or drift to their destinations over a period of many weeks?

Do the birds fly as flocks or as individuals?

Do they fly by day or by night?

How do the birds find their way?

Little work has been done in Australia on these matters, but in America where migrant species of perching birds are more numerous than in Australia, some surprising information has been revealed. It has been proved that some species which during the non-migratory season are seen during the day, migrate at night. Large scale investigations have been carried out in the vicinity of high television towers where as many as 1000 birds have been killed in one night by striking the mast or the supporting guy wires.

MEETINGS

The majority of local migrant species are not seen to form flocks prior to leaving and one is merely aware of the fact that the species is no longer with us. The dollar-bird, rufous song-lark, pallid cuckoo, horsefield bronze-cuckoo and rainbow-bird are typical of those that simply disappear and are not seen leaving. The dusky wood-swallow has been noticed in flocks in autumn and could migrate as a group. This species and the noisy friar bird are found only 100 miles north of here in winter.

The yellow faced and white-naped honeyeaters are common breeding birds in many local areas, particularly in the Brindabella Ranges. Banding of birds under the Australian Bird-banding Scheme(CSIRO) has shown that a considerable proportion of the birds return to their breeding area each year. In autumn flocks of these birds congregate in suitable feeding areas and as the time for migration draws near they can be seen flying in excited flocks from tree to tree in the relatively small feeding areas. This has been observed at Lake George, along the Murrumbidgee and along the creeks in the Ranges. These species migrate in flocks in daylight and in normal seasons the flights can be seen in the A. C. T. for a period of about six weeks from the beginning of April. It is probable that millions of these birds pass through the A. C. T. each Autumn and spring. The migration has been seen at various places between here and the coast.

The flocks move at tree-top height along any suitable line and are in effect channeled by unsuitable terrain into fairly well defined routes. The flocks have been observed in this area coming north along the Murrumbidgee, north-east down the slopes of the Brindabella Range north is the Snowy Mountains areas, north along Black Mountain and the nearby suburbs, north-east over Campbell and Mount Ainslie, north along the western shores of Lake George and skirting the built up area of Goulburn. The general direction of flight is north-east.

Flocks may be up to 100 birds and individuals or whole flocks may pause to rest in suitable high eucalypts. Flocks may form an all but continuous chain in suitable areas on good days, and if an individual pauses for rest it appears to join in with a later flock so that the composition of any flock is constantly changing. Migration appears to be halted by bad weather.

The yellow-faced honeyeater appears to move before the white-naped honeyeater, but mixed flocks are often seen. Small numbers of fuscous honeyeaters migrate through also and during resting times the migrant species associate with sedentary species such as the white-plumed honeyeater and red wattle-bird.

PLANT NOTES

Since we are now in autumn nearly all the wild flowers have finished blooming. At the higher levels in the mountains, as we saw on Mt. Corree on 31st March, a number of the summer flowers can still be found.

Some people can go into the bush and see nothing, others find every rare flower there is. It is a case of "Eyes" and "No Eyes". Nearly everyone starts as a "No Eyes" but if they are interested they can learn enough to join the "Eyes". To help some people here is a little about a few flowers to be seen even during the cold winter months. One of these is the common Guinea Flower(Hibbertia obtusifolia) which is a low grey-green leaved bush with golden-yellow flower about 2 inch across. It is common in woodland and open forest country near Canberra and occasional plants often carry a flower or two even in the winter. A figure is given to help you recognise it.



OUR FIRST BULLETIN

This reduced size copy of our first Bulletin in 1963 gives an indication of the growth of activity in the Association by the size of the present bulletin and the variety and number of outings. It also shows the origin of the phrase 'EYES OR NO EYES' as related to Nancy Burbidge's flowers.

Recently I came across a 1946 magazine which had a similar heading relating to flowers - 'He that has eyes to see....' (Editor)

APRIL

Date : 23rd. April at 8 o'clock

Place : Institute of Anatomy

Feature : Talk and slides by Dr. D. Walker, Reader in Biogeography in the A. N. U. Dr. Walker's talk "Five Thousand Years of Destruction" will discuss the change of vegetation of Europe by human cultural practice traced with the study of fossil pollen.

MAY

Date : 28th May at 8 o'clock

Place : Institute of Anatomy

Feature : Films - "White Clay and Ochre" - a record of Museum Field Research on Australian Aboriginal Cave Paintings in Western N. S. W. - "The Black Swan" - a film showing swans on a nest, defending nest from an intruder, cygnets from 2 days old to 6 weeks, nesting site flooded, birds flying off in search of a new place. - "Escape the City" - Showing national parks in N. S. W.

Remember - visitors are always welcome.

OUTINGS

APRIL

Date : 28th. April - Sunday

Place : "Strathairn"

Meeting : Corner Dryandra St. and Weetangera Rd. at 11 o'clock.

Feature : This is a visit to the property of one of our members Mr. Baird. We hope this will be a day when old and new members get to know each other. There will be fires for cooking a meal at midday. During the afternoon there will be walks beside the Murrumbidgee River, and view the Biology of the stream. Special interest for children.

MAY

Date : 26th. May - Sunday

Place : Blue Range

Meeting : Road in front of Uriarra Homestead, Uriarra Crossing Rd. at 10.30 a.m.

Feature : Led by Mr. A. G. McArthur, Forestry and Timber Bureau, to inspect the Pine Plantation at Blue Range and nearby bushland. We may be fortunate enough to see Lyrebirds and their mounds, but will certainly see other wildlife.

THE GALAPAGOS ISLANDS

At our General Meeting on 20 November 1980 Dr Robert Boden gave an illustrated talk on the Galapagos Islands based on a private visit he and his wife made in 1979. The following is an abridged version of the talk.

In the morning (17th) we landed on Chatham Island, which, like the other, rises with a tame and rounded outline, broken here and there by scattered hillocks, the remains of former craters. Nothing could be less inviting than the first appearance. A broken field of black basaltic lava, thrown into the most rugged waves, and crossed by great fissures, is every where covered by stunted, sunburnt brushwood, which shows little signs of life. The dry and parched surface, being heated by the noonday sun, gave to the air a close and sultry feeling, like that from a stove; we fancied even that the bushes smelt unpleasantly.

Thus wrote Charles Darwin after his first visit ashore in the Galapagos. Little did he know then the impact his five weeks stay would have on his own thinking and through him on the thinking of the scientific and ecclesiastical world. The Galapagos flora and fauna provided the 26 year old naturalist with much of the evidence for the 'origin of species' in which he established the theory that species are not unchangeable specially created entities, but are subject to evolutionary change through natural selection.

Recent television epics such as 'Voyage of the Beagle' and 'Life on Earth' have brought the Galapagos into millions of homes; however, there is no substitute for the awesome fascination of a personal encounter with the 'Islas Encantadas' as they were described by the early Spanish navigators. Enchanted, in the sense applied to the Galapagos, was not to denote a tropical paradise of sandy beaches and waving palms, but meant 'bewitched', arising from the bizarre landforms and treacherous sea currents.

The Galapagos Islands were first officially discovered accidentally in 1535 by the Bishop of Panama, Bishop Tomas de Berlanga, when his ship was caught in a calm and carried off course between Panama and Peru.

The Galapagos consist of a group of 13 major islands and 6 minor islets situated astride the Equator 1000km off the west coast of South America. They are a province of Ecuador and carry the official name of Archipelago de Colon in honour of Christopher Columbus. Most of

the islands in the archipelago now carry both an English and a Spanish name with the latter regarded as the official name.

The history of human contact with the Galapagos is associated with piracy, sealing and whaling during the 16th, 17th and 18th centuries. In the 19th century the islands were used as a penal colony and as small subsistence farming settlements. During World War II the United States of America was permitted to build a strategic air base on one of the islands, Baltra. The Ecuadorian government now maintains an air base and naval station and there is a permanent population of about 4500 people engaged in subsistence farming and tourism.

The impact of man on the native wildlife through direct exploitation in the case of seals and tortoises or, indirectly, through the release of exotic plants and animals, has been enormous. The impact of man as a tourist is one of the major new threats.

In 1959, the islands, apart from small farming settlements, were declared a national park, but active park management began only in 1968. The national park has recently been listed by UNESCO in the World Cultural and Natural Heritage Convention. The Charles Darwin Research Station was established in 1962 with the financial assistance and cooperation of the Ecuadorian government, UNESCO and other scientific and conservation organisations.

Like many national parks throughout the world, the staff and resources are inadequate for the task. The special problems of the Galapagos National Park, arising from its dispersed island nature, enormous number of feral animals and fragile environment, desperately require international help if this remarkable heritage park is to be preserved.

Landform and Geology

Two distinct classes of landforms are evident, reflecting their age of origin:

- (a) the older formations (comprising the smaller part of the archipelago), e.g., Espanola, Baltra are uplifted lava flows of submarine origin.
- (b) the young formations (comprising the larger part of the archipelago) e.g., Isabela, Fernandina are volcanoes and associated cones formed above sea level. The central vent is commonly surrounded by hundreds of smaller parasitic cones.

Seismic activity is intense. Earthquakes and volcanic eruptions are common and evidence of these is apparent in recent uncolonised lava flows and

uplifted areas.

Radiochronology provides an estimated age of 5 million years for the base rocks on Baltra and 1 million years and younger for active volcanoes. Reports of volcanic activity include a vivid account of an American sea captain whose sailing ship was becalmed in the channel between Fernandina and Isabela in 1825 while the volcano on the former erupted, heating the air and sea to almost unendurable temperatures. A small eruption by the same volcano in 1973 was first noted by Skylab personnel circling the earth.

Due to the volcanic nature of the archipelago there is no fossil record of its organisms.

Climate

The archipelago is equatorial but its climate is influenced by the interactions of several sea currents:

- (a) the Humboldt current originates in Antarctic waters and flows north along the west coast of South America. This is a very cold current which exerts strong climatological and biological effects throughout its extent.
- (b) the El Nino carries warm tropical water from the Gulf of Panama.

The weather in Galapagos is determined by the convergence of these currents. There is a cooler misty season, May-November/December known locally as the garua, and a warmer wet season January-April. Essentially rainfall is very low, apart from the higher altitudes on the larger islands, and air temperatures warm to hot. Ocean temperatures are cool. Few islands have permanent fresh water, the scanty rainfall disappearing rapidly into the scoriaceous rock.

Biology

There is no geological evidence indicating a land connection to the nearest continental land mass, South America and pioneer organisms are presumed to have arrived from Central and South America. The flora and fauna of Galapagos show affinities to species found in North, South and Central America as well as the Caribbean.

Flora

The flora of Galapagos is disharmonic, with gymnosperms lacking and many monocotyledonous families either poorly represented or lacking. More than 40 per cent of the vascular plants are endemic, i.e., found nowhere else in the world. This disharmony of the flora is used to support the hypothesis that no bridge has ever existed linking the

archipelago and the mainland.

If this is so, then one would expect to find plants whose spores and seeds are easily dispersed by wind, ocean currents and migratory birds. Such is the case, and ferns, grasses and sedges, together with members of the Compositae family which have light, wind borne seeds, are the best represented groups on the islands. Mangroves, which have seeds which resist salt water, are well represented along the coastline. Other common species are those likely to be carried in mud on the feet of migratory birds, attached to their feathers or borne internally.

Although the higher parts of the larger islands carry vegetation typical of humid climates, the outstanding impression in areas of low elevation near the coast is of plants adapted to harsh arid conditions. Thorny or spiny plants typified by cactus, some reaching tree size, are common. Other species, characterised by the Palo Santo (*Bursera graveolens*) are deciduous during the long dry season and give a stark appearance to the landscape.

Fauna

The invertebrate fauna has received far less study than its vertebrate counterpart. The range of species is limited and the role of insect pollinators in the evolution of flowering plants poses many questions. There is only one species of bee and it is assumed to be the major pollinator.

There are no freshwater indigenous fish or frogs as would be expected from oceanic islands lacking earlier land connections.

Reptiles are prominent, and the most famous is the giant tortoise, 'galapagos' in Spanish. This animal is now extinct throughout its earlier range in Europe, Asia, Africa and the Americas, and only two species remain: one in the Galapagos and a second on Aldabra, a small atoll in the western Indian Ocean.

Fourteen subspecies of Galapagos are recognised: those of Floreana and Santa Fe are definitely extinct and one on Fernandina may be extinct. Of the eleven surviving races, five are found on the different volcanoes of Isabela, an example of adaptive radiation, the lava flows between the volcanoes acting as barriers to migration. The subspecies are divided into three groups based on carapace shape, the extremes being the saddle-necked types of Pinta and Espanola and the dome-shaped types of Santa Cruz and Volcano Alcedo. The tortoises were subjected to massive harvesting by whalers and other sailors, as a source of meat and water (from their dilute urine). It is estimated that more than 100,000 tortoises or more than 10 times the present population were taken.

Harvesting by man now rarely occurs, but the domestic animals he introduced compete for food, compact the nests and eat the eggs and young of the Galapagos.

The Ecuadorian National Park Service and the Charles Darwin Research Station have begun a captive breeding programme with the aim of restocking depleted populations.

Marine iguanas are represented by seven subspecies of the one endemic genus, the world's only marine lizard. They are herbivorous, feeding on seaweed and returning to land when not feeding. Adaptations for camouflage, heat conservation, salt excretion and grasping steep rock faces against the swirling tide have assisted this species to survive.

The land iguana are larger than the marine species growing to more than a metre in length. They form colonies on drier parts of only two islands although they were formerly widespread. Hunting by man for their skins, and wild dogs, rats and pigs have had a major impact on this harmless and defenceless animal.

There is only one species of snake, - a non-poisonous type - represented by seven island races, further support for the concept of adaptive radiation.

Native mammals are poorly represented on the islands with rice rats and bats being the only indigenous terrestrial species. By contrast, marine mammals are a major feature. These include sea lions, fur seals, dolphins and whales, all of which are present at the Equator as a consequence of the cool Humboldt stream.

Much of the bird life is unique with two thirds of the resident species and subspecies being endemic. North, Central and South American species add to the diversity. The cold Humboldt current which allows seals to survive is also responsible for the presence of the Galapagos penguin just a little bigger in size than the Australian fairy penguin.

Sea birds are abundant providing great interest for birdwatchers and spectacular opportunities for photographers. They include the magnificent and great frigate birds, red-footed, blue-footed and masked boobies, the extraordinary flightless cormorant represented by a total population of 800 pairs, and the lava gull limited to 300-400 pairs.

Perhaps the most attractive sea bird is the waved albatross with a wingspan of almost two metres. This is the largest seabird found in tropical waters of the eastern Pacific and breeds nowhere else than on one small island in the Galapagos.

Land birds include the endemic Galapagos hawk, mocking birds, vermilion

flycatcher, yellow crowned night heron, and Galapagos duck.

Darwin's finches, consisting of thirteen species of the same ancestry, are famous for the part they played in the development of Darwin's theories. The species differ in the size and shape of their bills which are adapted to feeding habits. One species, the tool using finch, uses a twig held in the beak to dislodge insects from beneath the bark of trees. A truly remarkable species.

Impact of Human Settlement

Much of the archipelago is unsuitable for settlement due to limited availability of fresh water and poor soil development. In many areas direct human impact is not profound, due to the difficult and inhospitable terrain.

There is massive impact from feral animals, e.g., pigs, goats, dogs, cats, leading to predation of indigenous species and competition with them for food supplies and breeding space.

At present, the feral animal populations are the greatest cause for alarm. In 1958, two female goats and one male goat were released on to Isla Pinta, a small island in the north of the archipelago. In 1968 an expedition visited the island and estimated the population to be between 3,000 and 4,000 animals. By 1972, the goat population had exploded to at least 20,000. Within a period of two weeks, 100 men shot 9,000 goats. The island's flora had been affected drastically. The 1968 expedition took five hours to penetrate the thick vegetation to the summit. In 1972, using the same route, the journey took only one and a half hours. The undergrowth that had always been dense was sparse; the cactus zone had been demolished, and by 1968 eight species of plants had vanished.

Scientific tourism has the potential for either devastation or the ultimate preservation of the islands. Properly controlled it can provide income for local inhabitants living under poor conditions and the national park authority is well aware of this. Unfortunately the advent of large self-contained cruise ships, victualled in foreign parts, may bring people but no financial benefit to the local inhabitants.

Stringent rules relating to disturbance or removal of plants, rocks or animals, prohibition of pets, removal of litter, and camping on the islands have been introduced. An active ranger training programme is in operation and all registered tours are accompanied by dedicated, trained rangers able to interpret the natural history of this most fascinating group of islands. In addition, the total numbers and length of stay in the Park are strictly controlled.

On leaving Galapagos, Charles Darwin wrote 'It is the fate of most voyagers, no sooner to discover what is most interesting in any locality than they are hurried from it'. I echo these sentiments, but they are a small price for the modern tourist to pay if it assists in the conservation of this unique part of our cultural and natural heritage.

Dr Robert Boden

BIRDS OF BOOLIGAL

Five NPA members participated in this ANU Centre for Continuing Education week held in October. Ross Carlton, Sheila Kruse, Mavis Michell, Pam Swaffield and Margaret Aston together with Pam's Sydney sister and thirteen others shared the shearers' quarters on Toms Lake Station on the Marrowie Creek about 40 km. north of Booligal in mid-west NSW. Shirley Kral from the Centre was in charge of stores and Sonia Tidemann, Tutor in Zoology at the ANU, was our energetic, charming and enthusiastic leader.

Getting there presented some problems for a number of carloads since an afternoon thunderstorm had deposited 40 points (yes, they still talk in points in the west) across the unsealed road from Booligal to Toms Lake. They slipped and turned, the wheels clogged with gluggy black soil, one or two cars almost left the road, and others bogged. That trauma over, we reached our destination to find our quarters alive with a plague of Bogong moths. It is fashionable to complain of these creatures in Canberra when they invade our homes and offices, but have you ever seen them clustered an inch deep all over your bathroom door frame as they do in the rock caves on Mt Ginini? Or tangling in your hair as you go from one side of your kitchen to the other?

But the rain settled the dust - for half a day - and the first morning was warm and clear when we arose at 5 a.m., quickly breakfasted, and made for the very peaceful and beautiful Marrowie Creek with its cover of aquatic plants and ample bird life. Here we spotted ducks of various kinds, native hens (locally named Booligal Bantams) red-kneed and black-fronted dotterels, coot, and pied stilts to name a few. The creek at this time of year is a string of ponds, but lined with fine stands of black box and clumps of lignum. In one of the latter, a colony of straw-necked ibis had battered down the growth and built an ibis rookery. There were dozens of nests with eggs and chicks in various stages of development while hundreds of noisy adults watched from the trees above.

The daily programme had been arranged by Sonia to be a useful learning

experience as well as varied and interesting. The early rise meant that bird watching could be done in the cool of the day when the birds are most active. After a few hours in the field we returned for a cup of morning tea, and those not on lunch duty were free to rest, read, or talk as they pleased. A short siesta followed lunch and then came a tutorial session for an hour or so when Sonia explained such things as methods of censusing, nesting habits, ecology and general behaviour of species we had seen. Again a cup of tea (it is dry country) and then we would go out birding until dusk. This latter session found us at times on the dry open plains where we delighted in emus, red kangaroos, the orange chat, Australian pratincole, and the banded lapwing. Slater's "Field Guide to Australian Birds" was a constant companion from dawn till dusk.

Some of the outdoors sessions were taken up with mist netting when caught birds could be examined closely in the hand, e.g., the tiny weebill (Australia's smallest bird) the brown tree creeper, and the sacred kingfisher. Sonia explained and demonstrated the methods used for weighing and measuring birds and banding them. One morning we broke into groups and conducted a census of species and numbers along the creek. Another split group morning was a search for the red-capped robin. Some of the party spent time in hides scanning for the elusive white-winged wren and great was the joy when we at last spotted some.

A different day was an excursion to Angora Swamp about 40 km. to the north-west, where great river red gums are growing in a swampy area about a mile in diameter. The many waterways were a haven for waterfowl and a navigational hazard for those who ventured forth in a rowing boat and a canoe. There was a spill from the latter and clothes were hung to dry before a roaring fireplace in a deserted house on the edge of the swamp. This day ended with a never-to-be-forgotten 'dinner' at the Booligal pub - beer and a pie, minus a plate but with plenty of sauce.

The evenings were taken up with a late dinner provided in turn by rostered cooks. Competition in the kitchen was fierce and the culinary results would have satisfied the most discriminating gourmet. Our final dinner was a splendid repast announced with a French menu and the shearers' table decorated with jugs of Patterson's Curse. Conversation and joviality, together with some poetry readings, continued until the power went off at 9.30 p.m. By then most of us were ready to slide into our sleeping bags.

We greatly enjoyed this ANU school because with a small number of participants it was possible to get to know each one personally, we proved a

congenial group, and our tutor Sonia, besides her professional knowledge, was an inspiring teacher and a delightful person. The week improved our understanding of ornithological ecology and behaviour and added to our list of bird species. It was too a most relaxing and refreshing holiday.

Margaret Aston

DOWN UNDER CENTENNIAL FOR WORLD'S SECOND
NATIONAL PARK

This spot on Australia's Hacking River, south of Sydney, was a long way from Yellowstone National Park. And, Southeast Regional Director Joe Brown was a long way from his office in Atlanta, as he stood here viewing the newly unveiled plaque. But the distance in this case was less significant than the occasion - the centenary of the world's second national park (honoring Queen Elizabeth's visit to Australia in 1954), now known as Royal National Park.

On Apr. 26, 1879, just 7 years after the establishment of Yellowstone National Park, the New South Wales Secretary for Lands, James Hoskins, announced the dedication of 7,200 hectares of Australian coastal bush as a 'national park' and reported the appointment of a board of trustees to administer the newly created reserve. A century later these 'wild lands' of Royal National Park, now including 14,944 hectares, became the scene of a rededication, in a ceremony which paid tribute to the legacy of Yellowstone.

Actually, the gala centennial occurred on Apr. 28, 1979, a Saturday that could take advantage of weekend crowds and represented the culmination of the week-long South Pacific Conference of National Parks and Reserves in Sydney, at which Joe Brown had been representing our National Park Service. During the day visitors had been arriving in the park by private vehicle and on the special suburban trains from Sydney that dead-ended at Royal National Park Station, newly renovated for the occasion. But the anniversary mood was set by the arrival, mid-afternoon, of an old-time steam train filled with dignitaries from, indeed, all over the world.

Down in the eucalyptus-wooded valley of the Hacking at Audley, where the placid river had been broadened into a lake, the 4th Battalion Royal Regimental Band was beginning to play as the buses swung in from the railhead above. Backed against the river was a covered speaker's stand, then row upon row of folding chairs for the anticipated audience, and finally a

large pavilion tent to shelter the flowing Aussie spirits and anniversary cake (later to be cut by the Governor's wife). To the side beyond the band a line of tall staffs flew colourful ensigns, including Old Glory. Hostesses in vintage crinoline gowns and a small contingent of army engineers decked out in 1870's scarlet and white uniforms with spiked helmets helped transport the genial crowd back into the era of the park's inception.

As the last strains of "Waltzing Matilda" drifted out across the valley, the grey Rolls Royce of the Governor of New South Wales, Sir Roden Cutler, swung into Reid's Flat, the band struck up "God Save the Queen"; and the official anniversary celebration began.

Governor Cutler, in his reflective dedicatory remarks, observed that at its initiation Royal, '...unlike Yellowstone, the first national park in the world...was designed really to be a garden park'. To illustrate the philosophical change in management and use through the years, Governor Cutler quoted the famous lines from "Thanatopsis" by the American poet William Cullen Bryant: 'To him who in the love of Nature holds communion with her visible forms, she speaks a various language'. 'Thus', he added 'there's been a various language spoken to those of us who have enjoyed the park....I think that our view of the park is clearer. We want to see it not developed but maintained as a place for generations to come. So I rededicate this park and unveil the plaque to commemorate the event'.

As a finale to the unveiling of the plaque, which reads 'To mark the centenary of Royal National Park, the oldest national park in Australia', the Royal Engineers relayed the message of rededication by heliograph - the sun making a timely appearance - to the top of a high ridge and on to Victoria Barracks in Sydney, from whence came the quick and apropos reply: 'Message received. Congratulations!'

Twice during the ceremony the deafening fly-by of four Australian Air Force jets had reminded everyone that this was a late 20th century occasion. But another flight, unobserved by most, was perhaps more appropriate to the celebration of 'wilderness' which had weathered a century, despite the current two million visitors a year and proximity to a metropolis of three million. In late afternoon a solitary wedge-tailed eagle leisurely winged across the valley and disappeared into the dusk towards historic Wattamolla Cove, whose beauty graces one of Australia's newly issued commemorative national park stamps.

("Courier" - United States National Park Service Newsletter.)
Richard G. Beidleman, Dept of Biology,
Colorado College USA. (Richard is a member
of this Association.)

ADVENTURES IN SOUTH AMERICAN NATIONAL

PARKS

Early in 1980 I spent four months in five of the 13 countries which make Latin America, trekking, walking, climbing and camping in many National Parks in Peru, Chile, Argentina and Brazil. I stayed in many other places and another country - Bolivia - but feel space must be given to just some brief memories of the 'Parks' side of my adventures.

My first 'taste' was a wonderful 12 hours crossing from Puerto Montt - a small, old port settled by Germans some 800km south of Santiago (Chile) - by four coaches and three launches, first on Lake Llanquihue, then along a constantly shifting road made from volcanic ash from mighty Osorno and Cabbucoz - whose worst eruptions in 1833 and 1961 formed the magnificent Estacionamieta Falls over a wide river of volcanic rock - a fascinating National Park. Hours on Lake Todos Santos were followed by crossing the lowest pass in the Andes (976m) through Vincent Perez Rosales National Park, with its delightful scenery and Arctic beaches (Nothofagus) - to enter Argentina with passport and customs control on the shores of Lake Fria. A short launch trip followed, another coach, then came a long and very beautiful 'fiord like' launch trip down Port Blest - an arm off the vast Lake Nahuel Huapi - a huge National Park area with Bariloche its main centre on the south shore.

Finding simple accommodation out of the town - on little Lake El Trebor - I was soon putting on my boots and plunging into the Argentinean 'bush', knowing full well there were NO snakes or spiders! My first joy was masses of vines with large orange or pink daisy-type flowers trailing everywhere; views of lakes; islands and snow-capped mountains. Here, near Llao Llao, I spent over a week of happy days walking amid magnificent scenery, climbing Cerro Lopez (2,076m) - staying at the Andino hut and reaching the ridge next morning. There were breath-taking views almost 360°, especially of Cerro Tronodor (3,554m) always snow-covered and taking its name from the continually thundering avalanches. Incidentally, Cerro Tronodor has three peaks: the 'International' - the highest, and the 'Chilean' and 'Argentinean' a few metres lower. Round then to Osorno and other volcanoes to ridge upon ridge of snow-capped peaks with deep green lakes and islands at our feet. For a whole week I explored this 'Little Switzerland' area, including a delightful day with a family from Buenos Aires to Lake Mascaradi and up Catadral, the famous ski area of the country.

Some days (and interesting experiences) later, I joined a U.S.A. group in Santiago, and we flew 2,500 km south to Patagonia - the wild, desolate, but

incredibly beautiful 'tip' of the South American continent, 10° latitude further south than the southern most part of Tasmania - to stand on the Straits of Magellan looking across to Tierra del Fuego - 'Antarctica next stop!' Here we had 19 wonderful days among the Andes and the Patagonia ice-cap (largest in the world outside the North and South Poles), and outstanding memories are: a launch trip on the Last Hope Sound to the foot of two beautiful 'hanging' glaciers on the Balmaceda Range; days in Torres de Paine National Park - with its massive of the same name (granite with black sedimentary 'cap') and comprising 'Grande' 3,050m, the Cuernos (or 'horns') 2,670m, Admirante Nieto 2,160m - and (way around the back) the three 'towers' - the central one first climbed by Chris Bonnington in 1963. 'Peace' and 'grandeur' would be two of many superlatives of our days there (with less than a dozen people around) and an outstanding memory is an over-night back pack to Grey Lake and Glacier - the vast ice-cap being almost overwhelming with its size, colours and coldness. Fauna and flora abounded - especially the vast herds of Guanaco of the Llama family; condor; water birds of all kinds, in particular the Magellan swans with their red beaks, black necks and white bodies; a delightful pair of Torrent ducks battling in a magnificent waterfall on the Paine River; to say nothing of the 'flash' of a puma crossing the road - a rare sight indeed!

Crossing into Argentina, we entered Los Glaciers National Park and camped west of Calafate. The outstanding day here was to sit and watch the Moreno Glacier - the only large advancing one in the world. Some three years ago, part of its three kilometre frontage joined the mainland and the water in the southern arms of Lago Argentino rose some 30m. Only one month before we were there, the pressure 'broke through' very dramatically and quickly (we saw it on 16 and 8mm film), leaving a huge mass of weather sculptured shapes on our side - a weird feeling, as it had advanced into a dense wooded area. We sat for hours looking across the narrow channel - fascinated by its sheer vastness and beauty, plus the constant thundering, crushing, crashing, tumbling of vast blocks of ice sending up huge jets of water as they slid into the lake and raising the level of the water one or two feet.

Moving on - northwards over the vast pampas areas with their huge flocks of sheep herded along by colourful gauchos - the Andes and the ice-cap slowly came back into view. We drove into another part of Los Glaciers National Park - the beautiful massive of Fitz Roy - with its 'spires', 'towers', 'fingers' and 'domes' - all well snow-capped and up to 3,375m. We camped with this magnificent view on our doorstep; some of us braved the four arms of the Fitz Roy River - ICY COLD, very deep, and very swift and STRAIGHT off the

glacier of the same name - to trek around and into the centre of the area - a beautiful, memorable day.

About a month, and many interesting travels later (including a long stay in our sister capital Brasilia), I spent two days in the Iguacu National Park - both Brazilian and Argentinean sides - walking MILES to view the magnificent 275 cataracts of the Iguacu Falls - much higher, and many times more lovely than Niagara. Memories of: rainbows through the water; a canoe trip to stand on a rock right above the rushing water of the 'Devils Throat'; hundreds of brightly coloured butterflies - often half a dozen on my arm 'sucking up the perspiration'; noise of water falling in cascades for nearly a mile either side of the gorge etc.

More travels and adventures, then my last National Park - or more correctly the Machupicchu Archeological National Park in Peru. Joining another U.S.A. group, we had three days in lovely Cuzco and the nearby ruins - the old capital city of the Incas - hardly changed since the Spaniards took it in 1533. We then drove 100km west to start a six-day trek - first following the old Lima-Cuzco 'royal' road to camp under mighty Salcantay (6,271m), then next day a struggle up a pass of over 4,650m - dropping to camp by skirting the Salcantay Glacier through sleet and snow. One day later we joined the old Cuzco-Machupicchu Inca road with another long, long pass of 4,250m, then three wonderful days of magnificent rugged scenery (and many ups and downs!); old ruins of fortresses; towns; resting places; roads built up by massive Inca walls; tunnels through rocks; steep hand carved stairs etc., to finally DESCEND into the 'Lost City of the Incas' - Machupicchu - a breathtaking view denied the thousands of tourists who must arrive by train and bus. After a day and a half back into an amazing civilisation - train to other ruins, then a torturous eight-hour drive east of Cuzco, into the Vilcanota area. Here I trekked the first day to camp at the foot of huge, beautiful Auzangate (6,372m) then (on trip physician's advice) left the group to trek around it for four days - all between 4,350m and 5,400m - and I returned to the little highland village of Ocangate COMPLETELY off ANY tourist route. Here I lived in very primitive conditions for three days - saw interesting activity as 5,000 Indians poured into the square (me the only 'white') for the first Peruvian election in over 17 years(!); climbed the nearby hills to soak in the sun and the 'mighty Andes' met the group again for

me as a speaker for any organisation (especially if raising money for charity). To a long list of talks already very popular on Nepal, Rafting the Colorado, Trekking New Zealand National Parks etc., can be added: 'Travels and Treks in Peru' - ditto 'Chile' - ditto 'Argentina' and 'Travels in Brazil and Bolivia'. Telephone: 733017.

Olive Buckman

WHO DECIDES LAND USE AFTER MINING?

Mining is becoming a significant land use in Australia through the expanding use of surface-mining methods. The significance does not lie in the extent of the land utilised, it is relatively small, but more in the economic and political importance of the industry requiring it. Already our mining industry has a very considerable effect on our way of life, and over the next decade the influence will be even greater. Private citizens are becoming more interested in the proceeds of mining, and in the jobs and wealth it creates; and they are also becoming interested in its effect on the natural environment. The disturbance of land by mining is small in area, but some people, for whom it is an exaggerated 'giant quarry' and the change in the physical environment is 'dramatic and irreversible', undoubtedly have their reasons for close scrutiny of its impact on long term land use.

It is appropriate that all Australians are accountable for their use of land; miners and farmers, private enterprise and governments, developers and conservationists. Passive use of land requires management, and that management along with any other management of land, should be accountable to society. Throughout its long history the mining industry has accounted for its operations and use of land in terms of the fulfilment of a real need for minerals, and of wealth and employment generated. More recently, furthermore, the industry has achieved considerable efficiency in the repair of land disturbance, and in the control of environmental effects.

It seems however, that the industry is now operating within a community which is increasingly aware of the finite nature of the land surface, and is concerned with the effects that rapid growth may have on it. For this reason

behaves the mining proponent, therefore, to meet the challenge to provide appropriate land use after mining, wherever its mineral resource is located. The proponent should promote the technology of rehabilitation so that the physical disturbance of the land is itself a compatible land use, without the socio-economic benefits from the operation having to offset any ill effects that may have occurred. Most surface mining is of short duration, and quite quickly some land can be reclaimed and made available for further use. But what use and how decides that use?

It has been reasoned that the potential for mined land to achieve various uses is becoming a very important part of the case which is put up for mining. With few exceptions the Crown owns the minerals, and dictates the terms of mining, even where a mining company owns the surface rights. Rehabilitation is a mining cost which is reflected in the price that is paid by the consumers for mining products, and for these two reasons it may be quite logical that governments, on behalf of the consumers, should decide what cost should be incurred in providing after-use for land that has been mined. However, who is held accountable for that after-use, who stands to gain most if it is a good choice and who loses if it is a bad one? Perhaps it is the mining industry, and for that reason we should insist on playing a major role in reaching the decisions on land use.

Good decisions will be made if the land use to follow mining can be planned early, and that planning integrated with the planning of the mine. Planning land use, however, is not easy to achieve when there is unknown potential and also a relatively unknown community expectation. Nevertheless, it must surely be in the interests of the mining proponent to research both these unknowns to the best of its ability. It would entail promoting early land capability studies, conducting pre-mining rehabilitation trials, and carrying out studies of community attitudes and trends. Governments may or may not do these things themselves, but the mining company should surely find the incentive and the funds to do it, in order to achieve better planning.

There is this incentive for mining proponents to know at least as much as any others about the potential for land use after mining on their sites, and where possible to demonstrate it in early pre-mine trials. The experience at other mine sites which is relevant should be compiled, and basic research carried out into the chemical and physical properties of the materials which will form the new land surfaces. A short list of feasible end uses can be drawn up, compatible with the mining methods and the economic viability of the project, and all those alternative uses can be provided for in

the mine planning, so that appropriate land forms are created.

Equipped with this information and project planning, the mining proponent can have a strong influence on the community and government when there is consideration of the mining proposal and the subsequent land use. The decision to approve mining will certainly take into account the end use alternatives, and undoubtedly that decision will be influenced by the performance and expertise displayed at other mine sites. It will also be influenced by community attitudes, and in that respect it is important for the mining industry to play an active role in public education and in forming attitudes, particularly attitudes to mining. If people resent mining they are likely to seek unrealistic time scales and objectives for land use after mining.

Ultimately, the decision on land use after mining must rest with governments, and it is important that those decisions are in fact made. Task forces and commissions can be set up by governments to achieve planning, and all decisions on land use should be the result of close consultation with them, and a study of all their facts. The mining industry should provide input to the plans, and influence the planners with its performance and credibility. There will be decisions needed on regional plans, on mining leases, on development consent, and on operating licenses: and at all stages, all these decisions will be made with provisoes and conditions set on mine rehabilitation. These conditions can become more detailed as the development of the proposal proceeds, so that when mining commences there is a set of standards and objectives, or at least guidelines, for the company's rehabilitation program.

There is increasing pressure from the community for end use objectives to be clarified before the start of mining, and whilst this is accepted and the reason for it is recognized, the industry should point out that:

- (i) the detail required on end use should be according to the duration of the mine; and trying to provide too much detail too far ahead may be fruitless. There are few new mines that have a planned life of under 20 years, and precise details now of their end-use are not in order
- (ii) those options which are economically and physically feasible should be listed by the company involved, and agreement reached on the need for their periodic review. At all stages during planning and the gaining of approval, the company should declare also the non-options: particular options they believe are not open to them for specific reasons. Approvals should be based

on an acceptance of these non-options.

(iii) some mines, and some sections of mines (e.g., working pits and highwalls), may be "permanent mines", where the cut-off to mining and renewal of operations is an economic factor determined by the market place, and by technology. Some temporary measures and screening are warranted, but in most circumstances it would probably be extravagant to preclude a straight forward continuation of mining by requiring expensive reshaping and backfilling which would later have to be re-opened. Tailings dumps, where higher values and new technology may ultimately allow re-mining, are another example of circumstances where rehabilitation may need to be only temporary. It is conceivable that in some circumstances, for environmental reasons, the option of continued future mining should not be left open. In all these matters, there is general acceptance by the industry of the requirements for safeguards and rehabilitation bonds to be lodged with governments.

iv) some underground mines will allow pre-mine use to continue during and after mining.

There is a growing awareness that land use after mining tends to evolve. While every effort should be made by governments and industry to anticipate rehabilitation requirements, ahead of the operations, it will never be possible to have all the answers beforehand. No two mines are exactly the same, and furthermore, the expectation of the community may change during the life of a mine. There is, therefore, an obligation for the mining companies to research the full potential of land resulting from their activities, and various different alternative uses. This is an obligation as much to themselves as to the community they serve.

Achieving flexibility in meeting the community expectation will help to justify mining as a land use. If the research into mine revegetation, which is conducted on the site itself and after mining has commenced, is to be implemented, then there must be the opportunity for conversion of an original treatment, or for a change in direction. There is this opportunity, albeit with an associated cost; and if a fair and equitable distribution of cost between the company and the community can be arranged (in the form of royalty amendment perhaps), then conversion of one land use to another could be achieved, and new end-use goals could be adopted. It is important that new land forms created after mining are

right the first time, because they can only be changed at exorbitant cost; a cost which could have a very significant impact on the viability of a mining project.

Mining proponents will never unilaterally be able to decide the land use to follow their mining, and in any case, on many leases they may not possess the surface rights. Despite this, they should seek to ensure that they are never deficient in information and expertise which is related to the use of the "new land" they have created, or intend to create. Our primary consideration is to foster the land use which will strengthen the case for mining, not only at our particular site, but also at other future mining sites.

(From the Mining Review of August 1980 by Mr Jim Leggate, Environmental Officer, Thiess Bros.)

YAOUK PEAK - 1725 m

There is an interesting example of early Australian grazing life in the saddle between the Yaouk and an almost equally high peak to the east.

This consists of a small fenced enclosure, suitable for retaining sheep and adjacent to it a wooden platform, raised from the ground and just big enough for a man to sleep on. In the days before holdings could be fenced, sheep would be watched continuously and directed to fresh pastures. The shepherd no doubt would have had a piece of canvas which he would have stretched over the platform from a ridge pole or mostly during the summer just slept under the stars in this lightly wooded area.

Some old homesteads still retain shepherd's boxes, made of wood and looking like an overgrown dog kennel. Handles on either side enabled them to be carried out to pasture areas, but from the weight of them, no doubt a dray was used for the greater distance and they were manhandled only for placement. Their size and weight would have made it a great task to place them in rough country.

It is a pity that this relic of early Australia is just out of our Gudgenby Nature Reserve.

Yaouk Peak can be climbed from the Bradleys Creek road, a 600 metre scramble starting up a ridge to the east of a burnt out home, traversing across to Yaouk Peak by the saddle mentioned and returning down the ridge to the west of the peak. Keeping to the east of rocky outcrops makes the going easier.

ECOSYSTEMS IN DANGER

The direct effects of the massive increase in the number of skiers over the past decade must also be taken into account. Aerial photographic surveys have shown how much the impacting of snow by thousands of ski descents every winter hinders the run-off of water in the spring. Vegetation is destroyed by the cutting edges of skis and it has been found that along the ski runs the insect population is decimated that the number of earthworms per square metre along some trails, scientists have discovered, has been reduced from 130 to ten.

Certain areas may risk losing their attraction for summer tourists if landscapes are more marked by ski-lifts and ski-run erosion than by the beauty of the traditional alpine landscapes, and even winter tourism will be discouraged if the areas become too crowded, too built-up and if traffic on the mountain roads rivals that in the towns.

UNESCO Courier April 1980

CODE FOR OFF-ROAD VEHICLES

The Commonwealth Department of Science and the Environment has engaged in an act of wishful thinking by issuing a code of ethics for off-road vehicles. 'This code is valuable only if you observe it,' the Department very candidly admits. For that reason the code has limited value. While there are responsible trail bike and four wheel drive enthusiasts, there are unfortunately many who would only abide by the law if faced with tough, enforceable penalties.

The major items in the 13-point code are:

'Keep to constructed vehicle tracks. Drive or ride off roads only when you have special permission.'

Unfortunately many trail bike riders only obtain satisfaction from pitting their bikes against the bush or rocky hillsides.

'Alpine areas, swamps and vegetated dunes are easily damaged. Avoid them.'

The first statement is correct. Obviously, the second is often disregarded. The past damage caused to coastal sand dunes by sand buggies provides ample evidence of this.

'Respect our wildlife. Stop and look, but never disturb or chase animals. It can affect their survival.'

If this prescription was followed, trail bikes would be banned in all natural areas. Birds and animals are easily disturbed, not the least by the loud snarl of trail bikes which can be heard over a wide area.

'Keep the environment clear. Carry your own, and maybe other people's rubbish home.'

Bushwalkers are sometimes guilty of leaving their rubbish behind at campsites. But the problem is far greater in areas accessible to recreation vehicles. A four wheel drive vehicle can carry far more potential rubbish than a walker in his pack. Years of random observations point to the conclusion that large piles of rubbish all too often mark the passage of recreation vehicles.

'Keep to restrictions on use of public land. Respect national parks and other conservation areas.'

What a fine sentiment! But just observe the number of trail bike riders who arrogantly ride past signs reading 'non-vehicular access only,' and it will be realised how often the rules are ignored. In the delicate catchment area around a major Melbourne reservoir, the authorities were finally compelled to enforce the laws after enormous erosion on closed access roads caused by trail bikes.

'Keep your vehicle mechanically sound and quiet with an efficient muffler.'

'Efficient mufflers'? If the many trail bikes I have heard from great distance have mufflers, then they are clearly quite useless or have been meddled with. Some of the biggest problems associated with trail bikes would be solved if their shattering noise levels were reduced.

'Others have the right to peace and solitude, avoid noisy driving or riding near settlements and general recreation areas.'

This is the nub of it. We go to the bush to escape the noise and smell of vehicular exhausts. Yet now it is almost impossible to walk through a natural area at the weekend near a large population centre and enjoy the 'peace and solitude.' It is a disastrous situation.

What we we need are not codes of platitudes, but tough laws with officers to enforce them. Off-road vehicles DO have the right to use some roads through natural areas. But because of the disturbance they do cause through noise and erosion, they MUST be forced to accept strict limitations.

S. Johnston

ASSOCIATION LETTERS

FROM THE NATIONAL PARKS ASSOCIATION OF THE ACT TO:

The Hon. Michael Hodgman, M.P., Minister for the Capital Territory, 10 November, 1980.

The National Parks Association of the A.C.T. has heard that the ACT Bushfire Council has been given permission to construct a fire trail linking Mt Clear to Naas via Left Hand Creek. NPA views such a decision as inimical to the management and conservation of the Gudgenby Nature Reserve.

The area of the Reserve east of the Boboyan Road is zoned for light recreational use: all visitor movement is by foot or, in the valley floors, by horse. Although the Naas fire trail intersects the area and the Mt Clear trail runs along the border to the east, a large part of this area, particularly the peaks and ridges, is in a natural state. In particular, Left Hand Creek lies in an undisturbed upland valley. A fire trail through here would seriously degrade the natural values of the area. If past practice is any guide, fire trails are usually constructed without regard for natural values. Not only do they have a serious visual impact but also cause erosion and serve as a corridor for the introduction of noxious weeds and other alien flora.

Furthermore, a fire trail between Mt Clear and Naas will greatly increase the management problems in the Gudgenby Nature Reserve. With a very small staff, management resources are presently stretched to the limit. No additional resources are available to control incursions via Left Hand Creek. Unfortunately there is also a minority element which seeks to exploit, for illegal purposes, any easy access to such areas. Uncontrolled access for trail bikes and 4WD vehicles can quickly cause serious environmental damage. In addition, illegal shooting at wildlife will inevitably increase. The gravity of this problem was illustrated by the attempted shooting of a ranger at Orroral earlier this year.

NPA also questions the need for a fire trail in this area, given the fire management policies which should be followed in national parks. The management of vegetation for nature conservation implies a fire policy where -

- (1) environmental disturbance is kept to a minimum
- (2) fires which do occur are within the limit of the natural fire

regime, i.e., no hazard reduction or back burning unless this conforms to natural regimes

- (3) a natural diversity of communities and age classes is maintained as far as possible.

Provided neighbouring land is protected, these policies can be followed in the Gudgenby Nature Reserve, including the Left Hand Creek area. Areas bordering the Gudgenby Nature Reserve in the Mt Clear-Naas region are already well protected by perimeter trails.

We must also question the practice of giving responsibility for fire management in the Gudgenby Nature Reserve to the ACT Bushfire Council. As we have pointed out, fire management in areas managed for their natural values often relies on very different principles than those for other areas. Fire management is an integral part of the overall management of the Reserve and must be integrated with the overall strategy. The case of the Kosciusko National Park is instructive here; many years of largely ad hoc responses to fire management by the local Bushfire Council have had many undesirable side effects for the Park. To correct this situation, and bring the total management of KNP ecology under a single authority, fire management for the Park is being handed over to the NSW National Parks and Wildlife Service. A similar situation should exist for the Gudgenby Nature Reserve.

For the above reasons, NPA believes that additional fire trails in the Gudgenby Nature Reserve are unnecessary for fire management and undesirable from a management and ecological viewpoint. We trust that conservation values will be paramount in your decisions affecting the Gudgenby Nature Reserve and thus no additional fire trails will be constructed in the Reserve. In addition, we urge that as a matter of urgency, fire management of the Reserve be integrated with overall management under a single authority.

TO THE SECRETARY, NATIONAL PARKS ASSOCIATION OF THE ACT FROM:
Mr Kym Day, 20 November, 1980.

I am intending to start up a general Field Naturalists Club in Canberra.

As the club would be a complement to your organisation, I would be grateful if you could mention the fact in your newsletter and at any meeting you may have in the near future.

Anyone interested in joining the club could contact me on 632154 (business) or 318957 (home).

NATIONAL PARKS ASSOCIATION OUTINGS

Please notify the leader by the previous Wednesday of your intention to go on any weekend outing.

The Committee suggests a donation of 3 cents per kilometre (calculated to nearest dollar) be offered to the driver by each passenger accepting transportation. Distances quoted, for one way only, are approximate and for guidance only.

There have been changes in dates from the previous programme.

All persons joining an outing of the National Parks Association of the ACT 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 ACT, its office bearers and appointed leaders are absolved from any liability in respect of any injury or damage suffered whilst engaged on any such outing.

February 21-22 Saturday-Sunday
Leader: Fiona Brand 479538
Contact leader for details.
An easy walk for beginners, starting from Micalong Creek and camping at the Goodradigee River. (NOTE additional walk.)

Micalong Creek: Pack Walk
Ref: Brindabella 1:100,000

March 1 Sunday
Leader: Nick Blandford 723933 (W)
Meet: Canberra Railway Station 9.00 am.
A walk south-west of Mt Foxlow, near Captains Flat. Swimming possible.
60 kms.

Queanbeyan River: Walk
Ref: ACT 1:100,000

March 7 Saturday
Leader: John Banks 816641
Meet: Royal Canberra Golf Club car park 9.30 am.
A short walk through the woods to view the variety of trees and birds in the area.

Westbourne Woods: Walk

March 7-8 Saturday-Sunday
Leader: Babette Scougal 487008
A day walk in the Budawang area, with an overnight stop in Braidwood beforehand. Numbers limited. Contact leader for details. 160 kms.

Admiration Point: Walk
Ref: Corang 1:100,000

March 15 Sunday
Leader: Cla Allen 953824
Meet: Monaro Highway and Mugga Road 10.00 am.
An easy walk following the old road over Fitz's Hill. 40 kms.

Old Fitz's Hill: Walk
Ref: ACT 1:100,000

March 14-16 Canberra Day
Leader: Harriet Michell 473264
A medium pack walk into the Ettrema Gorge area. Contact leader for details. Numbers limited.

Ettrema: Pack Walk
Ref: Nerriga 1:25,000

March 14-16 Canberra Day
Leader: Ian Currie 958122
A car camp at Barren Grounds Nature Reserve at the edge of Morton National Park. Contact leader for details.

Barren Grounds: Car Camp

March 22 Sunday
Leader: Frank Clements 317005
Meet: Monaro Highway-Mugga Road 9.00 am.
A medium day walk in the Gudgenby Nature Reserve. 50 kms.

Hospital Hill: Walk
Ref: ACT 1:100,000

March 29 Sunday
Leader: Lyn Richardson 412425
Meet: Monary Highway/Mugga Road 9.00 am.
A medium-easy walk from Honeysuckle Creek Tracking Station. 50 kms.

Honeysuckle Creek: Walk
Ref: ACT 1:100,000

April 5 Sunday
Leader: Reg Alder 542240
Meet: Monaro Highway and Mugga Road 8.30 am.
An easy/medium walk along Naas Creek. 60 kms.

Naas Creek: Walk
Ref: ACT 1:100,000

April 12 Sunday Nature Walk/Family Outing
 Leader: To be announced.
 Contact Ian Currie for details 958112.
 An easy walk with a guide to the flora and fauna of the area visited.

April 17-20 Easter Nadgee or Pretty Plain: Pack Walk
 Leader: To be announced.
 Contact outings convenor for details 476769.

April 17-20 Easter Wapengo: Car Camp
 Leader: Ian Currie 958112.
 A camping trip near Mimosa Rocks National Park on the South Coast.

April 26 Sunday Sentry Box Hill: Walk
 Leader: Neville Esau 864176 Ref: ACT 1:100,000
 Meet: Monaro Highway and Mugga Road 8.30am.
 A medium walk from the Naas Valley to visit Sentry Box, exploring the top and admiring the views.

May 3 Sunday Tinderry Peak: Walk
 Leader: Frank Clements 317005
 Meet: Monaro Highway and Mugga Road 8.00 am.
 A medium-hard walk in the Tinderries, with an attempt at one of the peaks. Good views of southern ACT. 60 kms.

May 10 Sunday Nature Walk
 Leader: To be announced.
 Contact: Ian Currie for details 958112.
 Another easy walk with field naturalist interest.

May 16-17 Saturday-Sunday Mt Scabby: Pack Walk
 Leader: John Webster 476769 Ref: ACT 1:100,000
 A pack walk into the Gudgenby Nature Reserve, with an interesting climb to the numerous peaks which form Mt Scabby. 70 kms.

May 17 Sunday London Bridge: Walk
 Leader: Nick Blandford 723933 (W) Ref: ACT 1:100,000
 Meet: Canberra Railway Station 9.00 am.
 An easy walk to visit the rock formations on the Queanbeyan River. 40 kms.

May 24 Sunday Baroomba Rocks: Walk
 Leader: Beverly Hammond 886577 Ref: ACT 1:100,000
 Meet: Eucumbene Drive-Cotter Road 9.00 am.
 An easy walk to visit Baroomba Rocks and watch the climbers perform. 50 kms.

May 30-31 Saturday-Sunday Bundanoon: Car Camp
 Leader: To be announced
 Contact John Webster 476769 for details.
 A weekend camp with walks along the many tracks in the area overlooking the forest below. 160 kms.

June 7 Sunday Smokers Flat Area: Walk
 Leader: Les Pyke 812982 Ref: ACT 1:100,000
 Meet: Eucumbene Drive-Cotter Road 8.30 am.
 A medium walk in the country towards Mt McKeahnie from the Corin Dam Road. 50 kms.

June 14-16 Queen's Birthday Murramarang: Car Camp
 Leader: John Webster 476769.
 A weekend in the Murramarang National Park on the South Coast. 170 kms.

June 14-16 Queen's Birthday Mt Corang, Mt Tarn
 Monolith Valley: Pack Walk
 Leader: Reg Alder 542240.
 An interesting walk covering some of the main features of the Budawangs.

July 18-19 Saturday-Sunday Ski-tour Instruction
 Weekend
 Contact Babette Scougal 487008.
 Recommended for novices planning to try Charles Hill's ski touring outing, Saturday 15 August from Dead Horse Gap.

NATIONAL PARKS ASSOCIATION OF THE AUSTRALIAN CAPITAL TERRITORY INC.

Inaugurated 1960

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Annual Subscription Rates

1 July - 30 June:	Family members \$10	Student members \$3
	Single members \$ 8	Corporate members \$5

For members joining between:

1 January - 30 June:	Half specified rate
1 April - 30 June:	Fifteen months' subscription

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.

Cooperation 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.

National Parks Association outings summary

February

1	Sunday	Kambah Pool	Walk
8	Sunday	Smoker's Flat	Walk
14	Saturday	Point Hut Crossing	Walk
14-15	Sat-Sunday	Gungahartn & Brassy Mts	Pack Walk
21	Saturday	Tidbinbilla	Walk
21-22*	Sat-Sunday	Micalong Creek	Beginners' Pack Walk
22	Sunday	Yankee Hut	Walk

* Additional Walk

March

1	Sunday	Queanbeyan River	Walk
7	Saturday	Westbourne Woods	Walk
7-8	Sat-Sunday	Admiration Point	Walk
15	Sunday	Old Fitz's Hill	Walk
14-16	Canberra Day	Ettrema Gorge	Pack Walk
14-16	Canberra Day	Barren Grounds	Car Camp
22	Sunday	Hospital Hill	Walk
29	Sunday	Honeysuckle Creek	Walk

April

5	Sunday	Naas Creek	Walk
12	Sunday	Nature Walk	Outing
17-20	Easter	Nadgee or Pretty Plain	Pack Walk
17-20	Easter	Wapengo	Car Camp
26	Sunday	Sentry Box Hill	Walk

May

3	Sunday	Tinderry Peak	Walk
10	Sunday	Nature Walk	Family Outing
16-17	Sat-Sunday	Mt Scabby	Pack Walk
17	Sunday	London Bridge	Walk
24	Sunday	Baroomba Rocks	Walk
30-31	Sat-Sunday	Bundanoon	Car Camp

June

7	Sunday	Smoker's Flat	Walk
14-16	Queen's B'day	Murramarang	Car Camp
14-16	Queen's B'day	Budawangs	Pack Walk

GENERAL MEETINGS

8.00 pm Room 1, Griffin Centre, Bunda Street, Civic.

March - Thursday 19, 1981 - Dr W.D. Ride, CCAE: 'Are we at the Crossroads?' A survey of Australian plants and animals - based on the Australian Biological Resources Study.

April - Thursday 23, 1981 - Stella and Bob Humphries, ANU: Freshwater Biology of the ACT. NOTE change to fourth Thursday.

May - Thursday 21, 1981 - Dr J. Flood: Aboriginal Sites in the ACT.