Study - Travel Sabbatical Leave

1997 - 1998

Sherry Schmidt

June 1998

ACKNOWLEDGMENTS

I would like to thank the Board of Trustees of the Mount San Antonio Community College district for granting my sabbatical leave for the 1997 - 1998 school year. This Sabbatical has enabled me to greatly expand my knowledge of a variety of topics pertinent to the courses I teach. I was also able to expand my slide collection and experience some of the spectacular national parks and conservation reserves in Australia. Exploration of these areas has provided me with a deeper understanding of a number of the world's ecosystems.

I also wish to acknowledge the expertise of Mary Lou Serr at *Australia / New Zealand Down Under Travel* and her Australian contact Richard Lee at *Australian Bound Travel*. They worked with me for almost one year to "fine tune" my original itinerary. These adjustments reduced the number of vehicle transfers, added some worthwhile places to visit, and allowed me to make more efficient use of my time during my stay in Australia. They also made all of the arrangements for this four month trip at a very reasonable cost. I would also like to thank Jeanne Hartman, my travel partner, for all her help in lugging my camera equipment across the eastern half of the Australian continent. Finally I wish to thank my mother, Justa E. Schmidt, for financial contributions that enabled the trip to Australia to become a reality.

TABLE OF CONTENTS

TABLE OF CONTENTS

Appendix

Maps and Illustrations

STATEMENT OF PURPOSE

The purpose of this sabbatical leave was to increase my knowledge in areas that would enhance my teaching. I also wanted to expand my slide collection since slides are a very important component of my courses. Two strategies were used to accomplish these goals. The first was to complete University level classes during the fall semester 1997. The courses I elected to take were: Human Evolution, Invertebrate Zoology, Human Osteology, and The Ecology of the Palm Oases. I also audited a course entitled Field Marine Biology.

The other method used to expand my knowledge in biology was travel. I planned a four month trip through Australia that would enable me to experience and learn about a number of Australian ecosystems including: temperate rainforests, subtropical rainforests, tropical rainforests, monsoon, rainforests, dry sclerophyll forests, and deserts. I saw all of these ecosystems while visiting National Parks, World Heritage Sites, and Conservation Reserves. I also visited wildlife parks, museums, botanical gardens, and zoos. These activities enabled me to significantly expand my slide collection and increase my knowledge of marsupial evolution.

A SUMMARY OF THE HISTORY OF AUSTRALIAN BIOTA

In order to understand the significance of some of the plant and animal species I observed during my travels in Australia it is necessary to have some understanding of the geological, biological, and cultural history of the continent. The four major factors that have shaped the composition of Australia's biota are: continental drift, regional geology, climate, and aboriginal use of fire. During the early Jurassic (190 million years ago) Australia was part of the great southern supercontinent Gondwana. This was a time when dinosaurs were evolving and global temperatures were warm. Gondwana included Africa, South America, Madagascar, Australia, India, and Antarctica. This supercontinent was covered by rainforests dominated by primitive conifers, ferns, cycads, and lichens. There were few angiosperms (flowering plants) present at this time. Remnants of this ancient Gondwana forest can be seen today in Tasmania and in isolated locations of Victoria and Queensland. A few relict plants of this Gondwana forest can even be seen in gorges in the mountain ranges of the Northern Territory.

About 160 million years ago, Africa and South America began to split from east Gondwana (Antarctica, Australia, India, and Madagascar) due to continental drift. However a close connection between South America and Antarctica continued to exist for millions of years. By the late Jurassic, 138 million years ago, India split from Western Australia and moved to the northwest. By the Cretaceous period (136-65 million years ago) tension developed between Australia and Antarctica. During the Cretaceous, 100 million years ago, the northern parts of Gondwana were covered with vast rainforests housing many primitive species of angiosperms. Marsupials, which existed in North America at this time began to migrate south across Central America and into South America. Today's Australian marsupials are believed to be derived from

ancestors that moved from South America across Antarctica into what is now Australia and New Guinea. South America is still home to almost one-third of the world's marsupials, most of which belong to the opossum family, Didelphidae.

New Zealand and Australia separated about 80 million years ago. As a result of the rift between Australia and New Zealand, the eastern edge of the continent rose to form the Great Divide. This is one of the most extensive topographic features found in Australia today. The steep eastern escapement of the Great Divide provides a major habitat for Australia's rainforests. Antarctica and Australia remained attached to each other for another 40 million years after the split between Australia and New Zealand.

The Cretaceous was a time of high global temperatures and resulting high sea levels. *Nothofagus* forests stretched through South America, Antarctica, and Australia. It was during this period that the rainforests of the Daintree region became established. Dinosaurs were dominant during the Cretaceous. Marsupials and eutherians (placental mammals) were confined to the night, a niche that was not exploited by Mesozoic reptiles. An animal that hunts at night needs a well developed sense of hearing, smell, and touch. This created a need for a larger brain which in turn created an increased capacity for learning. This was accompanied by a trend toward extended parental care and teaching. Adaptive radiation of mammals began during the Paleocene, after the mass extinction that occurred 65 million years ago that led to the demise of the dinosaurs. Flowering plants were also becoming more abundant.

About 50 million years ago, during the Eocene, Australia and Antarctica split, leaving Australia as a single isolated land mass. At this time the spreading between India and Australia stopped and the two plates coalesced to form the Indo-Australian Plate. The isolation created by

the separation of the Australian continent from Antarctica and all other landmasses led to the independent evolution of animals and plants in Australia resulting in the development of a unique flora and fauna. A period of global cooling began about 40 million years ago. This was accompanied by the evolution of cool temperate rainforest species from the tropical species that once covered Gondwana. During this period of global cooling, Australia was continuing its drift northward at a rate that was somewhat synchronous with the rate of climate change. This northward movement, which continues today at a rate of 6 to 7 centimeters per year, enabled some tropical rainforest areas to survive the increased aridity that accompanied global cooling. This increased aridity led to the evolution of eucalypts and acacias from rainforest species. The continent continued its northward movement across the Indian Ocean towards Asia. Bats and rodents, the only naturally occurring placental mammals in Australia, began to move into Australia, most likely first into New Guinea, as the continent approached the Indonesian Archipelago. Bats simply flew to New Guinea and then moved into northern regions of Australia. Rodents are believed to have rafted on floating masses of vegetation.

During the Miocene, 15 million years ago, the Australian landmass, which included New Guinea, collided with Indonesia. This created the highlands of New Guinea and was accompanied by an invasion of Asian plants to northeastern regions of Australia. These plants enriched the flora of both the Cape York Peninsula and the Daintree region. New Guinea had a significant marsupial fauna at this time. Several groups including the tree kangaroos and the cuscuses were able to move from New Guinea into northern Australia prior to the formation of the Torres Strait that now separates New Guinea from Australia.

The Pliocene (10 - 2 million years ago) was characterized by a period of global warming. Australia was warm and wet at this time, sea levels were high, and large lakes occurred in what is now the Nullibar plain and lower Murray Basin. This was the epoch when the first hominids occupied the planet. Modern *Homo sapiens* appeared during the Pleistocene , 100,000 years ago, and the first aboriginals are believed to have entered Australia from Asia during periods of low sea level that occurred during the Pleistocene between 50,000 and 60,000 years ago. At this time Australia and New Guinea formed a single landmass and were separated by the Indonesian Archipelago by narrow sections of open sea no wider than 70 kilometers (44 miles). Aboriginal use of fire marks a final chapter in the evolution of Australian biota. "Fire-stick farming" led to the development of a fire-adapted landscape that is only recently beginning to be understood by those of European descent. Many animals became dependant on the variety of vegetation created by patches of aboriginal burning. The first Europeans arrived in Australia in 1788. The arrival of Europeans resulted in the extinction of aboriginal life. Europeans, with no understanding of the ecology of such an arid continent, wanted to create an environment similar to the one they left. Foxes were introduced to Australia in the 1840's to promote the English leisure activity, fox hunting. Thirteen rabbits were released in 1859 so they could also be hunted for sport. By 1860 there were 20 million sheep and 4 million cattle in the south eastern quarter of the continent. Wheat farms were created in the mallee country of Victoria and in parts of South Australia. Numbers of sheep and cattle continued to increase and spread to the desert interior. By 1890 there were 8 million cattle and 100 million sheep. This resulted is massive environmental degradation which is still obvious in areas both within and outside National Park boundaries in Australia.

Table 1: Notable events on the Australian continent over the last 225 million years. Note that ya = years ago and mya = million years ago.

PERIOD	EPOCH	TIME	NOTABLE EVENTS
Quaternary	**Recent**	0 to 10,000 ya	Agriculture Civilization Domestication of Animals
	Pleistocene	10,000 ya to 2 mya	Appearance of *Homo sapiens*. Aboriginal "Fire-Stick farming shaped the Australian landscape.
Tertiary	**Pliocene**	10 mya to 2 mya	First hominids Australia is warm and wet. Flooding in what is now the Nullibar Plain and lower Murray Basin.
	Miocene	25 mya to 10 mya	First apes Major changes in Australia's climate with pronounced drying associated with the build up of the Antarctic ice cap. The first contact between Australia and south-east Asia occurred 15 mya.
	Oligocene	35 to 25 mya	Ape and monkey ancestors abundant.
	Eocene	55 to 35 mya	First prosimians Flowering plants abundant Mammals become abundant by end of epoch. Australia splits from Antarctica. Period of global cooling.
	Paleocene	65 to 55 mya	First placental mammals Adaptive radiation of mammals. Vast forests of *Nothofagus* spread across South America, Antarctica, and Australia. Global cooling and increased aridity results in the evolution of eucalypts and acacias from rainforest.
Mesozoic	**Cretaceous**	136 mya to 65 mya	Demise of the dinosaurs. High global temperatures result in increased sea levels. Rainforests of the Daintree region are established. Marsupials are evolving. New Zealand and Australia are separated. The Great Divide is formed.
	Jurassic	136 mya to 190 mya	Abundant dinosaurs. First birds. Warm global temperatures. **Early:** Gondwana is composed of Africa, South America, Madagascar, Australia, India, and Antarctica. **Late:** Africa and South America rift away from Gondwana.
	Triassic	190 mya to 225 mya	First dinosaurs. Conifers, ferns, and cycads are dominant.

OBSERVATIONS ON NATIONAL PARKS

VISITED IN TASMANIA AND MAINLAND AUSTRALIA

The National Park System in Australia has only been established recently (1970's and 1980's) and the management of the parks varies significantly from state to state. Tasmania had well managed user friendly parks with well developed and informative nature walks, visitor centers, and a well developed trail system. New South Wales had the most poorly managed parks. A campground area in the heavily visited Blue Mountains lacked a trash can and outhouse and was covered with used toilet paper and other trash. It was only 6 kilometers from the visitor center. Some of the National Parks in South Australia and Outback New South Wales were fairly inaccessible due to poorly developed roads. Visitor use in these areas was very low. Some of the Park areas in South Australia, New South Wales, and the Northern Territory are badly degraded from previous overgrazing. Feral animals including foxes, goats, rabbits, horses, camels, and cats are a serious threat to park wildlife due to predation or competition.

The highest use areas I observed were in the Northern Territory, especially the area near Uluru (Ayres Rock), Kata Tjuta (The Olgas), and Watarrka (Kings Canyon). Tour Busses dropped off close to 300 people at 6 a.m. at the sunrise viewing area at Uluru. When I arrived at Watarrka National Park at sunrise the next day to do a hike into Kings Canyon there were already bus loads of people at the trail head.

A number of parks in the Northern Territory are now under Aboriginal ownership and are leased to the Parks and Wildlife Service. Aboriginal people play an active role in the management of these parks. A number of parks that I visited are designated World Heritage Areas. These are areas that have been recognized internationally for their cultural and/or natural attributes. Kakadu

National Park is one of the few World Heritage Areas that I visited that is listed for both cultural and natural features. The World Heritage Parks I visited include: Cradle Mountain-Lake Saint Clair, Southwest, Lamington, Fraser Island, Heron Island, Wooroonooran, Crater Lakes, Daintree, Kakadu, and Uluru-Kata Tjuta National Parks.

Most of the parks I visited in the arid inland regions were literally islands in a sea of degraded land from overgrazing. The only somewhat intact ecosystems I observed were within the boundaries of parks or conservation reserves. This was a surprise to me due to the low population density of Australia, especially since most of the population is on the east coast.

TASMANIA

Tasmania, at a lower latitude than mainland Australia, differs in climate and vegetation. It has four defined seasons and displays of fall color can be seen at the higher elevations when Australia's only winter deciduous tree, *Nothofagus gunnii*, turns bright orange. In addition, Tasmania has been separated from mainland Australia by the Bass Strait for more than 10,000 years. Thus Tasmania's wildlife has not experienced the ecological destruction from introduced predators that is seen on the mainland. Many marsupials and birds that are rare or extinct on the mainland are common in Tasmania. Some examples of these include the Tasmanian pademelon and the Tasmanian native hen. I saw both of these animals in every rainforest national park that I visited. They are both extinct on the mainland due to the introduction of foxes.

Tasmania has the most extensive distribution of temperate rainforest in Australia. This forest once covered the supercontinent of Gondwana. It is characterized by *Nothofagus*, a 65 million year old genus that is found today in South America, New Guinea, New Caledonia, New Zealand, Tasmania, and a few scattered locations on the Australian mainland. Fossils are found in

Antarctica. *Nothofagus* seeds do not disperse well and cannot tolerate salt water. Thus the best explanation for the present distribution is the breakup of Gondwana. Temperate rainforests cover a good portion of western and north eastern Tasmania and I had an opportunity to see them in Cradle Mountain - Lake St. Clair National Parks, Mount Field National Park, and Southwest National Park.

Cradle Mountain National Park

Cradle Mountain National Park is one of the most beautiful places I have ever seen. It is located in a mountainous area covered with temperate rainforest. It rains an average of 256 days a year in this park. Abundant wildlife can easily be seen at dusk including the common wombat, Tasmanian pademelons, and common brush-tail possums. Four different plant communities are found in Cradle Mountain National Park: alpine , buttongrass moorland, eucalyptus woodland, and rainforest. I did not get a chance to get up into alpine regions due to weather conditions while I was there. The alpine regions are characterized by dwarf pines such as creeping pine (*Microcachrys tetragona)* and chestnut pine (*Diselma archeri*). I had the opportunity to see these species at the Royal Botanical Gardens in Hobart. There are also 5 species of cushion plants found in alpine regions. These can grow up to one meter in diameter. I did photograph and observe the other three habitats in several short walks and one long hike. Buttongrass moorland is dominated by buttongrass (*Gymnoschoenus sphaerocephalus*). This plant is found on acidic, water logged soils. It survives on soils that have the lowest nutrient levels of any soil type in the world. It is a fire adapted plant that is highly flammable and can even burn in the rain. In the absence of fire, many of the buttongrass moorlands would eventually be replaced by forest. 30,000 years ago aborigines occupied Tasmania. Aboriginal use of fire altered the distribution of

Tasmanian vegetation causing an expansion of buttongrass moorland and eucalyptus woodland. In a true climax rainforest, no eucalyptus is present since it requires light to germinate. The eucalyptus woodlands of Cradle Mountain are dominated by two subalpine species of *Eucalyptus*. These are the Tasmanian snow gums (*Eucalyptus coccifera*) and the cider gum (*Eucalyptus gunnii*). There are two rainforest communities found in Cradle Mountain, the lower elevation rainforest dominated by myrtle beech (*Nothofagus cunninghamii*) and the high elevation rainforest dominated by myrtle beech, king billy pine (*Anthrotaxis selaginoided*), and celery top pine (*Phyllocladus aspleniifolius*). The high elevation rainforest has an understory of Pandani (*Richea pandanifolia*) the tallest heath plant in the world and native laurel (*Anopterus glandulosa*).

Mount Field National Park

Mount Field National Park has some lower elevation habitats as well as the higher subalpine and alpine habitats found in Cradle Mountain. Tall eucalyptus forests dominate the lower elevations. These forests include extensive stands of swamp gum, *Eucalyptus regnans*. The walk to Russell Falls had some superb examples of old growth swamp gum. Swamp gum is the tallest species of eucalyptus and the tallest hardwood in the world. Trees measure over 300 feet tall and are 6 to 10 feet in diameter. The seedlings require fire to germinate thus if there is a prolonged absence of fire the forest will be taken over by other trees.

The 16 kilometer drive to Lake Dobson is a steep dirt road that crosses through both the low elevation and high elevation plant communities in Mount Field National Park. At lower elevations the road passes through a corridor of giant swamp gums. Eleven kilometers up the road the tall eucalyptus forest is replaced by rainforest and subalpine mixed forest. Subalpine

woodlands in Mount Field are dominated by subalpine eucalyptus (*Eucalyptus subcrenulata*) and Tasmanian snow gums (*Eucalyptus coccifera*). Trees that are susceptible to frost such as leatherwood (*Eucryphia lucida*), celery top pine, and sassafras (*Atherosperma moschatum*) reach their upper limits in subalpine regions. Pandani, king billy pine, deciduous beech, Tasmanian snow gum, mountain pepper, and woolly tea tree are also found in subalpine woodlands. This community continues to the end of the road and surrounds lake Dobson. To observe the alpine communities one must walk on one of the trails that begin at the roadside. Alpine moorlands dominate in water logged acidic soils at high elevations. In this habitat there is pineapple grass (*Astelia apina*) which has leaves that form dense tufted mats with stiff leaf hairs. There are also areas covered with alpine coral fern, *Gleichenia alpina*. Dwarf shrubs such as woolly tea tree (*Leptospermum langigerum*) and creeping tea tree (*Leptospermum spp.*) are present. Numerous cushion plants are also found in alpine moorlands.

VICTORIA

Wilsons Promontory National Park

Wilsons Promontory National Park lies in the southern most extension of the Australian mainland. The Bass Strait separates Wilsons Promontory from Tasmania. During the last ice age, 18,000 years ago, sea level was 130 meters below its present level and one could walk from Wilsons Promontory to Tasmania. This enabled plant species formerly restricted to Tasmania to migrate northward. A number of plant species that are rare in Victoria, but found in both Wilsons Promontory and Tasmania, serve as evidence for this former connection. These include *Acacia verticillata, Australine pusilla, Cyaathodes juniiperina, Lepidium praevervism,* and *Primelea drupacea.* The rainforests of Wilsons Promontory National Park are dominated by the same

species of *Nothofagus* found in the Tasmanian rainforests, *Nothofagus cunninghamii* or Myrtle beech.

The park has a well developed trail system that provides opportunities to take both short nature walks and extended overnight hikes. I did two short walks, the Lilly Pilly Gully Nature Walk and the Tidal River Overlook Walk. I also did one 20 kilometer full day hike from the west side of the park across a pass and down to an eastern beach area called Sealers Cove. The Lilly Pilly Gully Nature Walk crosses sections of warm temperate rainforest, open eucalyptus forest, and heathland. The warm temperate raiforest is dominated by the lilly pilly tree (*Acmena smithii*) and soft tree ferns (*Dicksonia antactica*). The open eucalyptus forest, also called dry sclerophyll forest, is dominated by three species of stringybark: yellow stringybark (*Eucalyptus muellerana*), messmate (*Eucalyptus obliqua*), and brown stringybark (*Eucalyptus baxteri*). The canopy in this forest is open and allows sunlight to penetrate to the forest floor. Heathland is an open community found on the poorest soils. Dwarfed shrubs such as silver banksia (*Banksia marginata*), prickly tea tree (*Leptospermum juniperinum*), and dwarf she-oak (*Allocasuarina vertillata*) are found in this community. The Tidal Overlook Walk begins across the road from the Lilly Pilly Gully Nature Walk. This walk crosses through an extensive heathland with beautiful stands of grass trees (*Xanthorrhoea australis*) scattered among the heath. The trail ends at Tidal River which is lined with coastal scrub.

The Sealers Cove Walk is a 20 kilometer full day walk that provides an opportunity to observe the differences bewteen the west facing and east facing slopes of Wilsons Promontory. The dividing point between the west and east facing slopes is a pass called Windy Saddle. The vegetation on this pass is stunted due to exposure to strong winds. There is an open eualyptus

forest on the west side of Windy Saddle. Shortly after crossing Windy Saddle and hiking down the steep east facing section of the trail you cross a fern gully called Ferny Glade. This is a small isolated patch of temperate rainforest with the same species of *Nothofagus* that occurs in Tasmania. It is the only place in the park where I had an opportunity to see *Nothofagus cunninghammii* or myrtle beech. Just before reaching Sealers Cove you cross an extensive area of swampland called Sealers Swamp.

Grampians National Park

This park is actually an island of mountains surrounded by a plain of farmland. It serves as a water source for the surrounding areas. The park has a well developed system of trails that cross through spectacular scenery. There are also a number of view points you can drive to that enable you to get a feel for the area. The Grampians consist of three separate northward running ridges of upthrust sandstone: the Mount William Range, the Sierra Range, and the Victoria Range. These ranges represent the westward most extension of the Great Dividing Range. There are a variety of plant communities found in this park due to both topographic diversity and a high degree of soil variation. Almost one third of Victoria's plant species are found within the park, many of which are endemic. More species of marsupials in the kangaroo family are found in the Grampians than in any other region of Victoria. The endangered brush-tailed rock wallaby inhabits the park but is shy and secretive, thus it is rarely seen.

Little Desert National Park

Little Desert National Park is a very small park (1320 km^2) that was created to preserve some of the last remaining mallee fowl habitat in Victoria. Of the 19 species of mound building fowl found worldwide, the mallee fowl (*Leipoa ocellata)* is the only species that inhabits arid

areas. The other 18 species are found in tropical regions that are characterized by high humidity and relatively constant temperatures. Arid areas are characterized by low humidity and large fluctuations in temperature, thus the mallee fowl has the most sophisticated incubation mounds and associated behavior known. Mallee fowl were almost exterminated by habitat loss associated with grazing and wheat farming.

There is only one paved road that runs through Little Desert National Park so most of the park is inaccessible unless you have a four wheel drive vehicle. Even then, areas with deep sand can create problems for inexperienced drivers. I took a half day four wheel drive tour with Whimpey Reichelt so I could see some of the areas off the main road. Whimpey is an incredible naturalist who can spout off names of plants, plant communities, and birds as you bounce along in his 1960's vintage Land Rover down the very sandy tracks through the park. The plant communities found in the area vary according to soil type and soil nutrient levels. Sandy soils are dominated by dry heathland with desert banksias (*Banksia ornata*), silky tea tree (*Leptospermum myrsinoides*), and scrub she-oak (*Allocasuarina paludosa*). Dwarf stands of yellow gum (*Eucalyptus leucoxylon*) are found on clay soils. Brown stringybark (*Eucalyptus arenacea*), the most common tree found in the park, is found on very nutrient poor soils. Low lying swamp areas with clay soils that are flooded during the wet season are dominated by river red gums (*Eucalyptus camaldulensis*). There are also extensive stands of broombush (*Melaleuca uncinata*) in areas of poor drainage with higher soil moisture. The park serves as an example of what most of inland Victoria looked like prior to European settlement. The park is primarily known for its variety of bird life. More than 230 native species have been recorded in the park. A number of these bird species are cavity nesters who's nest sites are being impacted by feral European honeybees (*Apis mellifera*).

SOUTH AUSTRALIA

Kangaroo Island

Kangaroo Island was discovered by Matthew Flinders in 1802. He named it "Kangaroo Island" for its relatively tame kangaroos. One of the ways this island differs from mainland Australia is due to an absence of aboriginal burning. For some unknown reason, aboriginals abandoned the island 4000 years ago leaving the ecosystems without human interference until the arrival of Europeans. Kangaroo Island has been separated from the mainland for over 10,000 years. This has resulted in exceptionally high biodiversity and the evolution of 42 endemic plant species. This isolation has also resulted in some genetic change between species found on both the mainland and Kangaroo Island. For example, the Kangaroo Island kangaroo (*Macropus fuliginosis fuliginosis*) is a subspecies of the western grey kangaroo. It is smaller, darker, and has longer hair than the mainland species.

Europeans introduced goats and pigs to the island, but the fox and rabbit were not introduced. Thus the flora and fauna is not as affected by introduced species when compared with the mainland. Many species that are uncommon or threatened on the mainland are still abundant on Kangaroo Island. These include the: brush stone curlew, southern emu wren, beautiful firetail, Bassian's thrush, western whipbird, white bellied sea eagle, osprey, and hooded plover. The tammar wallaby, which is extinct on mainland South Australia, is still common in Flinders Chase National Park and can easily be seen in the campground near the visitors center.

The ecosystems on Kangaroo Island are in better health than those seen on the mainland. About ½ of the island remains uncleared for agriculture and almost 1/3 is protected either as National Parks or as Conservation Parks. A dense cover of vegetation is found on most roadsides. These act as linear corridors connecting one protected area to another.

Kangaroo Island: Flinders Chase National Park

I spent more time in Flinders Chase National Park than I did in any other area on Kangaroo Island. It is the largest park on the island and wildlife is easily seen in the area near the visitor center. There is a eucalyptus forest with koalas within a 10 minute walk from the visitor center. There is a pool 3 kilometers from the visitor center where a platypus can be viewed if you sit very quietly by it at dusk. The wildlife near the campground and visitors center was quite tame and I was able to photograph koalas, Australian brush turkeys, emus, common brush-tail possums, and western grey kangaroos with little effort.

Flinders Chase National Park has the largest surviving area of native vegetation left on the island. It is primarily coastal mallee, a dense and almost impenetrable type of scrub vegetation. In the early 1900's this park was seen as a haven for threatened animals and many mainland species were introduced to Flinders Chase National Park. Of the numerous non-native species introduced, the successful introductions include the koala, Cape Barren goose, platypus, laughing kookaburra, common ringtail possum, Australian brush turkey, and gang gang cockatoo. The introduction of the koala has caused widespread ecological damage to the eucalyptus forests on Kangaroo Island. Its current population size is estimated to be about 5000 individuals. The carrying capacity for the island is about 1000 koalas. A sterilization program was initiated in 1997 and 1,844 animals have been sterilized so far. In addition, there are efforts to relocate koalas on the mainland. 160 have been relocated so far, but it is questionable if the resident mainland populations will tolerate the relocated individuals.

Kangaroo Island: Seal Bay Conservation Park

Seal Bay Conservation Park supports the largest surviving colony of the Australian Sea Lion, *Neophoca cinerea*. The sea lions are easily seen and photographed via a ranger guided tour from the visitors center. The public is not allowed near the colony unless accompanied by a ranger. There is a boardwalk you can walk on unaccompanied by a ranger but you are not allowed to get off the boardwalk or walk on the beaches.

Australian Sea Lions are one of the rarest seal species. They were almost exterminated by hunting for their fur and blubber. The reef off the beach in Seal Bay prevented ships from getting to the colony at Seal Bay, thus this is one of a few colonies that have been able to survive. It is the third largest colony remaining in the world and has a population size of about 600 individuals.

The Flinders Ranges

Central Flinders Ranges: Flinders Ranges National Park

Flinders Ranges National Park consists of 94,908 hectares of the central Flinders Ranges. The park is divided into three sections: The Wilpena Pound section, the Oraparina section, and the Wilpena Station. Wilpena Pound, a natural amphitheater outlined by the Pound Range, is at the southern end of the park. It was designated a forest reserve in 1921 and is the section of the park that has been protected the longest. The Oraparina section of the park was a sheep station until it was purchased by the government in 1970. Both of these portions were incorporated into Flinders Ranges National Park with the passage of the National Parks and Wildlife Act of 1972. The Wilpena Station is the most recent addition to the park. It was purchased by the government in 1985 and dedicated as a reserve in 1988.

Europeans moved into the area in the 1850's and established sheep and cattle stations. This period was characterized by average or higher than average amounts of rainfall which resulted in severe overstocking of the area. This was followed by a drought that lasted from 1864 to 1866. This led to severe overgrazing and environmental degradation that is still apparent today. In addition, goats, rabbits, foxes, and cats were introduced to the area. In reaction to the drought, the Surveyor-General George Goyder was sent by the government to the area in 1865. His job was to determine the line of demarcation between the portion of the state that was suitable for agricultural development and that which could only be used for grazing. This line became known as "Goyders Line".

The drought was broken in 1866 and extensive flooding occurred in Wilpena Pound. This was followed by several high rainfall years and memories of the drought faded. These higher than average rainfall years in the 1870's led to a period of agricultural expansion in South Australia. By 1874, with total disregard for Goyder's warnings, the government amended the land act to encourage agricultural development of pastoral lands. Pastoralists were forced to quit their leases and wheat farms became established north of Hawker. Severe droughts in the 1880's and again in the 1920's ultimately resulted in the end of wheat farming in the area. Numerous abandoned stone buildings and severely eroded soils seen on the road to Wilpena Pound are a testament to the foolish government policy that ignored Goyder's sound scientific advice.

There were 52 mammal species in the Flinders Ranges when Europeans first arrived. Only 23 of them remain today. Therefore, 55 percent of the mammal fauna has been lost in the last 150 years. The yellow-footed rock wallaby was recorded as a very abundant animal when Europeans first arrived to the area. This species is now classified as vulnerable to extinction with a few

scattered isolated populations occurring in gorges where protection from predation from foxes can be found on the cliff faces. Other factors contributing to the decline of this species are competition from goats and rabbits. There are now efforts by the park service to reduce the number of goats, rabbits, and foxes within the park.

I did three hikes in the Wilpena Pound section of the park: Wangarra Lookout, The Drought Dusters Trail, and the trail to the top of Mount Ohlssen Bagge. The hike to Wangarra Lookout has spectacular views of the pound. The Drought Dusters Trail is a sign posted nature hike that introduces the plant communities found on the rugged sandstone bluffs. The bluffs are covered with a low open woodland dominated by gum-barked coolibah (*Eucalyptus intertexta*) and red mallee (*Eucalyptus socialis*) with and understory of yacca or grass tree (*Xanthorrhoea quadrangulata*) and porcupine grass *(Triodia irritans*). Patches of northern cypress pine (*Callitris glaucophylla*) are also found.

From Wilpena Pound I drove through the Orparina section of the park. I took the dirt road to Bunyeroo Valley, a beautiful valley with hillsides covered with dense stands of northern cypress pine. I continued north to Brachina Gorge which is lined with beautiful stands of river red gums. This was the first place I actually saw rabbits. Wildlife was noticeably scarcer in this park when compared with Kangaroo Island and Tasmania. The effects of overgrazing and feral animals were very obvious. I did see red kangaroos, groups of emus on the plains, an abundance of wedge-tailed eagles, and a number of other bird species.

Northern Flinders Ranges: Arkaroola Wildlife Sanctuary

The Sprigg family bought the lease for the Arkaroola Sheep Station and created the Arkaroola Wildlife Sanctuary to promote tourism in the area and to protect it. This portion of the

Flinders Ranges is composed of quartzite and granitic rock. It is deeply dissected and more rugged than the area within Flinders Ranges National Park. Doug Sprigg built an observatory which houses a fantastic computer operated telescope which gives visitors a chance to see other galaxies and learn a little astronomy during their stay at Arkaroola. . The campground is located at an elevation of 550 meters and is near a number of beautiful gorges and waterfalls. One of the highlights during my stay was the opportunity to see and photograph the rare yellow-footed rock wallaby at Arkaroola Waterhole. I also enjoyed the spectacular ridge top tour. Our guide for this four wheel drive tour was Doug Sprigg. He has incredible knowledge about both the natural history and geology of the area and pointed out plants, birds, and geologic features as our Land Cruiser crawled up the steep dirt road. He also talked about the mining history of the area. A number of goats were observed on steep cliff faces during this tour. Apparently the park service is trying to reduce their numbers by shooting them from helicopters.

OUTBACK NEW SOUTH WALES

The term "Outback" is the name given to Australia's sparsely populated interior. It is a vast expanse of deserts and low mountains. The "outback" parks in New South Wales were the most isolated parks I visited. The roads were very poor and I was only able to travel at speeds between 15 and 35 miles per hour. There were long stretches where I could not safely go faster than 20 miles per hour. I could not believe the isolation of this area. If it rains the roads are impassible, even with a four wheel drive vehicle. People may be 100 miles from the nearest town, the nearest town being a gas pump and a small store that sells nothing but canned goods. Mootwingee was the only park in the area where I was able to spend enough time to do some hikes and wildlife viewing. After visiting Mootwingee, I went to White Cliffs, an opal mining

town. This town has about 95 homes built underground (dugouts) and a population of about 500. After visiting White Cliffs my goal was to reach Sturt National Park in the north eastern corner of New South Wales. The roads kept getting worse and worse. They were not traveled much and were not maintained. The El Nino drought resulted in the clay being ground to a fine dust called "bull dust". It was very slippery and got very deep in some places. It was so deep I came close to getting stuck. If I had gotten the van stuck it may have been a couple of days before someone came by. I finally made it to the Silver City Highway, another dirt road, which was also in poor condition. It had a lot of soft "bull dust", holes, and washboard sections. The possibility of a breakdown was a real concern considering the condition of the roads. After driving about 10 kilometers I stopped and decided to turn around and head back to Broken Hill. Thus I never made it to Sturt National Park.

Mootwingee National Park

To get to Mootwingee National Park you must travel 130 kilometers to the north east of Broken Hill on gravel roads. The Byngnano Range runs from the southern to the northern end of the park and can be seen from a great distance in the surrounding desert plains. The Homestead Walk and the Byngnano Range Hike offered a chance to see spectacular gorges, waterholes, and views of the surrounding area. The only colony of yellow-footed rock wallabies that occurs in New South Wales is found in this park. A survey in 1990-1991 showed that the entire population was reduced to 80 individuals. Competition with goats and predation by foxes are believed to be the primary reasons for their decline. I saw a number of goats while hiking in the park and there were fox prints in the sand of every gorge I hiked in. Although I did not see any yellow-footed rock wallabies during my stay, I did see a number or euros (common wallaroos), western grey

kangaroos, red kangaroos, wedge-tail eagles, and black kites. Mootwingee was the only place in Australia where I had the opportunity to observe and photograph a shingleback lizard, *Trachydosaurus rugosus*.

QUEENSLAND

Lamington National Park

The Antarctic Beech, *Nothofagus moorrei*, has its northern limit of distribution on the southern slopes of the McPherson Range in Lamington National Park. The Antarctic beech forest is a cool temperate rainforest and is a relict of the ancient Gondwana forest that stretched across Antarctica, Australia, and South America 65 million years ago. It survives in the mists created by the cooling of air masses moving across the tops of the McPherson Range in a region that receives at least 1500 millimeters of rain per year. The park is one of a complex of central eastern rainforest reserves in northern New South Wales and southern Queensland that are now listed as World Heritage Sites. Lamington National Park was chosen as a World Heritage Site because it has high numbers of threatened and endangered species and serves as a living illustration of the evolution of Australian plant life before and after the break-up of Gondwana.

The lower elevation regions in the park are covered with subtropical rainforests. These differ from cool temperate rainforests in that they have greater species diversity, they have abundant large thick stemmed vines and vascular epiphytes, and they have trees with large plank buttresses. They are also characterized by the presence of strangler figs and palms. Cool temperate rainforests lack large thick vines, have avascular moss and lichen epiphytes, and have trees that may have massive trunk bases but lack plank buttresses. Strangler figs and palms are absent from cool temperate rainforests.

I stayed at O'Reillys Guest House, situated on the border of Lamington National Park. This provided an opportunity to participate in guided natural history hikes through the park. The ones I participated in were the Stockyard Creek hike, the Morans Falls hike, and a hike to Elbana Falls. The stockyard creek hike was an all day hike that started at the O'Reilly homestead. The trail begins in an area of eucalyptus woodland beyond the homestead. The trail then traverses down the escarpment of Lukes Bluff into a dense stand of subtropical rainforest with huge buttressed trees, strangler figs, large vines, and numerous large epiphytes. The Morans Falls and Elbana Falls hikes were half day hikes. The trail to Morans Falls crosses through a subtropical rainforest with stands of hoop pines (*Araucaria cunninghammii*). Michael O'Reilly, the guide, pointed out tree funnel spider webs and trapdoor spider burrows. The hike to Elbana Falls has an ancient Antarctic beech on the side of the trail. It has been there so long that the soil has eroded around its roots. I saw the endemic freshwater Lamington spiny blue crayfish on this hike.

The area in the vicinity of the guest house has a number of short interesting trails. One was called the tree top walk where you cross a suspension bridge located high in the forest canopy. You can climb up on platforms at the top of the canopy from the suspension bridge. There is also a small botanical garden within 1 kilometer of O'Reillys.

I saw an incredible diversity of wildlife during my stay at O'Reillys. I was able to photograph a red-necked pademelons, a southern angle-headed dragon, two different carpet pythons, a male satin bowerbird at its bower, and a number of other bird species during the time I spent there.

Carnarvon Gorge National Park

The drive from Brisbane to Carnarvon Gorge takes about 9 hours and is well worth it. I saw more species of wildlife in the three days I spent there than any other 3 day period during the trip. It is also a beautiful area. The main trail through the gorge begins at Carnarvon Creek. Tall species of eucalyptus such as the Sydney bluegum (*Eucalyptus saligna*) line the fertile creek banks. Spotted gums (*Eucalyptus maculata*) and grey gums (*Eucalyptus propinqua*) are the dominant eucalypts in the less fertile soils beyond the creek. Interspersed among eucalypts are cabbage palms (*Livistonai spp.)* and an understory of cycads (*Macrozamia moorei*) and grass trees (*Xanthorrhoea spp.*). The sides of the gorge are lined with sandstone cliffs that are dissected into numerous side gorges with waterfalls. The side gorges do not receive sunlight most of the day and have cool moist microclimates that house a number of primitive plant species. I did a full day hike into the main gorge and explored a number of side canyons in route. The first side canyon off the main trail through the gorge is Moss Garden. The lower walls of this canyon are covered with hornworts, liverworts, mosses and ferns. Further up the main gorge there is a side trail into Ward Canyon that terminates at Aljon Falls. There are relict populations of giant king ferns (*Angiopteris evecta*) in this canyon. Fossilized fern fronds related to this species date back 500 million years. The stems of this fern lack woody tissue and are supported entirely by turgor pressure, the pressure created by water in the cells. I arrived at Aljon Falls shortly after noon, just in time to see the magical display of light on the pool below the falls when the sun passes directly overhead. This pool only receives 10 to 15 minutes of direct sunlight per day. Five kilometers from the trail head there is a side trail to the Art Gallery. The Art Gallery is a sandstone cliff covered with aboriginal art including stencils of hand prints and boomerangs.

I did the hike to Boolimba Bluff early in the morning the second day of my stay. I wanted to get pictures of the sunrise from a view point above the walls of the gorge. I did not make it. It was only a 3.2 kilometer hike to the top but there were extremely steep sections and parts where you climbed metal steps. I did get up there early enough to get spectacular views of the gorge and the lowlands beyond it in the early morning light.

Carnarvon Creek, which parallels the campground near the visitors center, has several pools where a platypus can be sighted. I went there in the late afternoon two days in a row. The first afternoon I did not have any luck, but on the second attempt I was rewarded with several great views of a platypus swimming on the surface.

I stayed at the Carnarvon Gorge Oasis Lodge which is located about 1 kilometer from Balloon Cave and about 5 kilometers east of the park visitor center. The wildlife in the vicinity of the lodge was fairly tame and I was able to get pictures of common brush-tail possums, pretty faced wallabies, and eastern grey kangaroos. I borrowed a large spotlight from the lodge and walked to balloon cave after dark one of the nights I was there. I was able to get photographs of a sugar glider and a yellow-bellied glider. This was the only place in Australia where I saw gliders. I also got photographs of a cane toad and a rufous bettong.

Fraser Island

Fraser Island is the world's largest sand island, a large portion of which is protected as a national park. It was declared a World Heritage Site in 1992. It was chosen as a World Heritage Site for its sand dune systems, its rainforest development, and because it serves as a living laboratory for biological evolution. Species on the island have become specialized to survive in its unique sandy environments. For example, there are four species of "acid frogs" that live in wet

heathland environments with very acidic lakes and swamps. Most of the world's amphibians cannot tolerate acidic environments.

I took a full day four wheel drive tour that enabled me to see a variety of habitats on the island. The two highlights of the tour were the stops at Lake McKenzie and Central Station. Lake McKenzie represents one of two types of unique lakes found on Fraser Island. These are window lakes and perched lakes. Window lakes are created when ground water fills depressions between the dunes when the water table rises above ground level. Perched lakes, which are perched above the water table high on the dunes, are created over a hardpan of iron and sand particles that combine with decaying organic matter. Perched lakes are typically acidic. This limits the kinds of plants and animals found associated with them. Lake McKenzie is a clear blue perched lake. The pure white quartz sands surrounding the lake provide a startling contrast to the crystal blue water of the lake. Lake McKenzie is surrounded by a blackbutt (*Eucalyptus pilularis*) forest.

Central Station was originally a logging camp in the 1920's. A trail begins near the interpretive center and crosses through a rainforest dominated by massive satinay trees (*Syncarpia hillii*), blackbutts(*Eucalyptus pilularis*), piccabeen palms (*Archontophoenix cunninghamiana*), hoop pines (*Araucaria cunninghammii*), and kauri pines (*Agathis robusta*). The trail continues along Woongoolbuer Creek, a crystal clear creek with a white sandy bottom. Woongoolbuer Creek is surrounded by a dense rainforest with primitive giant king ferns lining its banks.

I took several walks on a trail that crossed through a eucalyptus woodland and ended at a creek surrounded by mangroves by the beach. During these walks I was able to photograph red and grey mangroves, sand bubbler crabs, a kingfisher nest, and a species of eucalyptus called scribbly gum (*Eucalyptus signata*). This tree is covered with scribbles in its bark created by burrowing insects. Fraser Island was the only place in Australia that I saw dingoes in the wild.

The Great Barrier Reef

The Great Barrier Reef covers an area of 348,000 square kilometers off the north-east coast of Queensland. It is a complex set of separate reefs that make up the most extensive reef system in the world. The reef houses underwater forests of spectacular corals and provides food and shelter for an enormous diversity of invertebrates and fishes. Populations of the endangered dugong inhabit areas encompassed within the reef system. The islands of the reef provide nesting sites for endangered sea turtles and thousands of sea birds. For these reasons the Great Barrier Reef received World Heritage Listing in 1981. I was able to snorkel over the reef during my visit to Heron Island and during a day trip from Cairns on a high speed catamaran called *The Quicksilver*. That was just enough to wet my appetite. One of the biggest mistakes I made in putting this trip together was not allowing more time for exploration of the reef.

Heron Island

Heron Island is part of a group of islands that form the Capricorn-Bunker Group National Park which is a terrestrial component of the Great Barrier Reef Marine Park. Heron Island is known internationally as a sanctuary for a sea birds including black noddy terns, wedge-tailed shearwaters (mutton birds), albatrosses, silver gulls, and reef egrets. Heron Island is a small coral cay that consists of only 20 hectares (46 acres) with a maximum elevation of 3.3 meters. The island provides easy access to the reef. Its beaches serve as a nesting area for two species of sea turtles, the green turtle (*Chelonia mydas*) and the loggerhead turtle (*Caretta caretta*).

I participated in a snorkeling tour and also took a trip on a semi-submersible boat during my stay at Heron Island Resort. These trips enabled me to see a variety of fish including unicorn fish, surgeon fish, a yellow banded hussar, parrot fish, and island coral trout. I also saw fish at

cleaning stations, epaulette sharks, several manta rays, and several green turtles. I also saw a coral forest composed of a genus of staghorn coral called *Acropora* with a few scattered brain corals and boulder corals.

The Heron Island Resort offered free guided reef walks at low tide off the beach near the resort. On these walks they provided old tennis shoes and warned those participating in the tour about the dangers of picking up cone snails and stepping on stonefish. Cone snails are molluscs that have an eversible proboscis with a poison injecting barb on the tip. The poison is lethal. Stone fish (*Synanceja synanceichthys*) sit on the bottom and blend in with the rocks on the bottom of the reef. They have strong, sharp dorsal spines that carry a potent and painful venom. I saw a variety of invertebrates during the guided reef walk: Blue sea stars (*Linckia laevigata*), giant clams, chitons, and several species of nudibranchs. I also saw three different species of sea cucumbers, one of which extruded its cuverian tubules. These are masses of sticky threads that are extruded out the animal's cloaca. They are strong enough to entangle most fish that would try to eat it.

During my stay at Heron Island I was able to get photographs of a number of bird species including: wedge-tailed shearwaters, black noddy terns, eastern reef egrets (both light and dark morphs), buff-banded rails, crested terns, lesser crested terns, a bar-tailed godwit, a brown booby, and a ruddy turnstone.

The Wet Tropics

The wet tropics of northeast Queensland covers an area of 894,420 hectares (2,210,200 acres). The region is composed of coastal plains, the steep slopes of the Great Escapement of the Dividing Range, and the tablelands to the west of the Dividing Range. The main tract of

rainforests lies between Townsville and Cooktown. The Wet Tropics includes a variety of both publicly and privately owned land: national parks, state forests, timber reserves, and private property. The Wet Tropics received World Heritage listing in 1988. The listing recognizes the area's evolutionary significance and its outstanding natural beauty.

In the rainforests of the Wet Tropics some of the original Gondwana rainforest species from 100 million years ago survive relatively unchanged. These species were able to exist for such a long period of time in earth history due to the slow northward drift of the Australian continent to warm and moist tropical latitudes. This allowed forests in the northern portion of the continent to survive periods of increased aridity that accompanied global cooling. Thus the Wet Tropics serves as a "living museum" for many primitive plant species. Four genera of ancient primitive conifers (cone bearing plants) survive in the region. It is a major center for the survival of cycads. Of the 19 most primitive plant families in the world, 13 occur in the Wet Tropics and 2 of these are endemic. The Wet Tropics rainforests also house plants that are ancestors of the sclerophyll vegetation that covers most of Australia today. The rainforest members of the Proteaceae, a family of plants found only in the southern hemisphere, are believed to be ancestral to members of the genera *Banksia, Grevillea, Hakea,* and *Dryandra.*

The rainforests of The Wet Tropics differ from rainforests of equatorial regions in a number of ways. One is that there is a seasonal distribution of rainfall in The Wet Tropics, with 60 percent falling from December to March. This has resulted in a lower species diversity than that seen in equatorial rainforests. In addition, Wet Tropics rainforests house species of plants that have become extinct in other parts of the world due to changes in climate associated with global cooling. I was able to see a selected portion of Wet Tropics rainforests during a day trip from

Cairns across the Atherton Tablelands, a day trip to the town of Kuranda, and a three day stay at the Daintree Eco Lodge. During the two single day trips from Cairns I was able to get a number of photographs of wet tropical rainforest habitats and photographs of the rainforest canopy from the Kuranda Skyrail. During my stay at Daintree I was able to photograph a salt water crocodile, a white-lipped tree frog, spectacled flying foxes, mangroves, and a number of species of rainforest birds.

THE NORTHERN TERRITORY

Kakadu National Park

Kakadu National Park is located at the top end of the Northern Territory about 200 kilometers (125 miles) east of Darwin. It is Australia's largest national park and covers an area of 19,804 square kilometers (7644 miles^2). Kakadu was declared a national park in 1979 and has recently been classified as a World Heritage Site. The World Heritage listing was done in three stages in 1981, 1987, and 1991. This listing recognizes both natural and cultural attributes of Kakadu. The park contains all the major habitats found in northern Australia and encompasses the entire catchment of the South Alligator River. It also has over 7000 rock art sites that serve as a record of 50,000 years of human presence and cultural adaptation to the environment. There are four main periods in the historical development of this rock art. These are: the pre-estuarine period, the estuarine period, the freshwater period, and the contact period. The pre-estuarine period corresponds to the art styles in use during the Pleistocene when sea levels were lower than they are today. Paintings of the thylacine and Tasmanian devil, now extinct in mainland Australia, correspond to this period. The estuarine period began when sea levels reached their present level 7,000 to 8,000 years ago. The rise in sea level following the Pleistocene was accompanied by the

appearance of new animals into the area including many species of fish and the saltwater crocodile. The X-ray style of art was developed during this period. This art form shows internal anatomy and skeletal features of the animals depicted. The freshwater period represents another period of environmental change. Abundant rainfall and massive deposition of silt by river systems created a vast expanse of freshwater wetlands that resulted in an increased abundance of the wildlife species found in the area. The most commonly portrayed animals from this period are magpie geese, long-necked turtles, and file snakes. The contact period is represented by drawings of interactions with other races of people who approached the area by sea. These include drawings of Macassan fishermen from Indonesia and more recently European explorers and settlers.

Europeans recognize two annual climatic periods in Kakadu, the wet season and the dry season. The wet season is from November to March and the dry season lasts from May to September. April and October are transitional periods. The ecology of the habitats in the top end of the Northern Territory are poorly understood by western science yet they are well understood and central to the culture of the original aboriginal inhabitants of the area. The aboriginal inhabitants, the Bininj, recognize six seasons based on changes in weather and the conditions of important plant and animal species that were used for food. This calendar, with the significant events associated with each season, is presented in table 2. The seasonal movements of these people were determined by the condition of plants and animals in different habitats. Each species that was exploited as a food resource was harvested at the peak of its seasonal cycle and then left alone for the rest of the year. Magpie goose eggs were collected in the late wet season, file snakes were collected later in the dry season, and barramundi were harvested even later. This practice

prevented the over exploitation of any single resource and facilitated the long term survival of important species found within the park. There are no native species in the park that are considered threatened or endangered. Aboriginals have also managed the landscape of this area through the use of fire. A well regulated cycle of yearly burning resulted in a significant area of the park being burned every year. This prevented holocaust fires during the dry season and encouraged wildlife diversity by creating a mosaic of burned and unburned patches. Fire susceptible patches of monsoon rainforest were protected by burning around the edges of the forest during cooler periods. This prevented dry season fires from entering the monsoon rainforest. The yearly burning cycle is outlined in table 2.

This is the only park I know of in Australia that still exists in a state similar to what it was like when Europeans first arrived in Australia. This is due in part to its harsh monsoonal climate, the unsuitability of its soils for agriculture, and the inaccessible nature of large areas of the park. Here is an excerpt from my field notes to illustrate how miserable the climate is while at the same time showing how special the place felt to me at the time.

> 19 May 1998: Kakadu is a challenging environment. Oppressive heat and humidity both day and night. The temperature in the van was 105°F at 8:30 p.m. without a breath of air stirring. Mosquitos come out in force at dusk and are active until well after sunrise, even in drier areas. They are a constant torment in swampy areas - Yet the beauty of the wetlands, the species diversity, and the spiritual feeling of the place makes me realize it truly is a very special place. I wish I had more time to explore it.

I was able to photograph a number of wetlands in the park including the ones near the South Alligator River, Cahill's Plain, Anbangbang Billabong, and Yellow Waters. I visited both the Ubirr and Nourlangie rock art sites, photographed burning in the woodlands, and photographed views of the escarpement of the Arnhem Plateau.

Table 2: The Six Bininj Seasons of Kakadu and related burning patterns (Modified from Morris, Ian. 1996. *Kakadu National Park*. Steve Parish Publishing. Queendsland, Australia, and Haynes, C.D., M.G. Ridpath, and M.A. J. Williams (eds.). 1990. *Monsoonal Australia*. A.A. Balkema Publishers. Rotterdam, Netherlands.)

Bininj Season	English Translation	Time Period	Significant Events
Gudjewg	Monsoon Season	December to March	Torrential rains , rivers flood. Floodplain wildlife moves to high ground. Yam vines festoon the trees Spear grass reaches full height Main frog breeding season No burning
Banggerreng	Harvest Time	March to May	Last storms move through High humidity Rivers are lowering Spear grass is producing seeds Geese and saltwater crocodiles nest First fires of the season are lit on the flood plains before the last summer storms have run their course. These fires only cover small areas since they burn out as they run into adjacent green areas.
Yegge	Cool Weather Time	May to June	Clear weather Temperatures are cooler Humidity drops Harvest time for many bush foods Water lilies are at their best Grass is yellowing Saltwater crocodiles move to rivers from wetlands Burning in woodlands begins. This creates fresh grass to attract antilopine wallaroos and agile wallabies. Burning around the edges of monsoon forests is conducted to prevent later dry season fires from entering these fire sensitive areas.
Wurrgeng	Early Dry Season	June to August	First anticyclone of the South Australian winter produces dry, southeasterly winds Cool nights, morning mists Marsupials are active Echidnas are active Rats and pythons move to plains Burning in the open forest begins
Gurrung	Hot Dry Season	August to October	Hot nights, hottest periods before rains Clear skies Flood plains are drying out Water birds congregate on available water Fresh water crocodiles are laying eggs Pig-nosed turtles are laying eggs A variety of wild fruits are ripe End of burning since fires are impossible to control. Natural fires of this season spread rapidly and die out only when they meet a natural barrier or previously burnt ground
Gunumeleng	Pre-Monsoon Season	October to December	Irregular afternoon thunder storms Spear grass germinates Land changes from brown to green Animals become more active and visible Creeks begin to run Fish migrate upstream, frogs call Migratory birds arrive

The Red Center

The Red Center is a 300,000 square kilometer area surrounding Alice Springs. It includes a number of spectacular landforms created by erosion and weathering of ancient mountain ranges. To the north are the granitic rock formations of Devils Marbles Conservation Reserve. The MacDonnell Ranges lie to the east and west of Alice Springs. Uluru (Ayers Rock), Kata Tjuta (Mount Olga), and Watarrka (Kings Canyon) National Parks are southwest of Alice Springs. The Red Center supports the greatest diversity of reptiles in the world and is home to three species of kangaroos: the red kangaroo, the euro or common wallaroo, and the black-footed rock wallaby. I did not see a single red kangaroo the entire time I was there. This was a startling contrast to South Australia where I saw numerous red kangaroos, grey kangaroos, and euros. I only saw one euro in the red center and that was near the Alice Springs Telegraph Station. However, I did see and photograph black-footed rock wallabies, a species that is considered vulnerable to extinction.

When Australia was just beginning to separate from Antarctica, 65 million years ago, Alice Springs was at 45° latitude. This is further south than Tasmania lies today. At this time the area around Alice Springs was covered with huge tracts of rainforests, remnants of which can be seen in the gorges of the East MacDonnell Ranges, Palm Valley (which I did not visit) and Kings Canyon. I spent a significant part of my stay in the Red Center exploring the MacDonnell Ranges. The Ross Highway runs along the East MacDonnell Ranges and provides access to Corroboree Rock Conservation Reserve, a rock outcrop significant to aboriginals, Trephina Gorge Nature Park, and Arltunga Historical Reserve. I camped two nights at Trephina Gorge Nature Park and was able to do the gorge walk and the ridge top walk, both of which provided me with opportunities to photograph some spectacular scenery. Arltunga was the site of an 1887 gold

rush. It was central Australia's first town and once supported 3000 people. The historical reserve preserves a number of stone ruins and mining works. A significant portion of the West MacDonnell Ranges is protected as West MacDonnell Ranges National Park. The paved Namatjira Drive provides access to a number of spectacular gorges and waterholes including Simpson's Gap, Standley Chasm, Ellery Creek Big Hole, Serpentine Gorge, and Ormiston Gorge. The walls of Standley Chasm and Serpentine Gorge are covered with the MacDonnells Ranges cycad (*Macrozamia macdonellii*), a relict of the rainforests that covered the area 65 million years ago. I saw black-footed rock wallabies at both Simpson's Gap and on the rocks walls along the road to Ormiston Gorge.

The two most spectacular hikes I did in the Red center were the Pound Walk in the West MacDonnells and the hike through Kings Canyon in Watarrka National Park. The trail of the Pound Walk in the West MacDonnells crosses the ridges of Ormiston Pound, and then drops into and across the pound. There were numerous waterholes inside the pound with abundant bird life and evidence of kangaroos. The trail then leads out of the pound through Ormiston Gorge. I saw incredible plant diversity on the hike through Kings Canyon and on some hikes in the surrounding area. This is due to the fact that Watarrka (Kings Canyon) National Park is located at the intersection of three biogeographic regions: the Great Sandy Desert, the Finke region, and the MacDonnell Ranges. Surrounding the canyon are desert plains with red sand dunes, spinifex, and desert oaks characteristic of the Great Sandy Desert. Water courses with river red gums are a feature of the MacDonnell Ranges. In addition, the MacDonnell Ranges cycad is found in protected side canyons of Kings Canyon. It can be seen in abundance on the short side trip to "the Garden of Eden". Spinifex sand plains with acacia, a community characteristic of the Finke region, can be seen south of the mouth of Kings Canyon.

Uluru-Kata Tjuta (Ayers Rock-Mount Olga) National Park encompasses 132, 538 hectares (327,369 acres) and preserves a sample of Australia's arid zone life. It is a landscape of red sand plains and low dunes with huge rock formations rising above the plains that can be seen from great distances. These formations were created by erosion. Four hundred million years ago central Australia was pushed up above sea level. Erosion wore down most of the high points but Uluru and Kata Tjuta are two masses of erosion resistant rock that weathered more slowly than the surrounding rock. Uluru is a single monolith. Kata Tjuta is eroded into a series of domes intersected by narrow canyons. The area is listed as a World Heritage Site for its cultural significance. Uluru, the aboriginal name for Ayers Rock, is named from Uluru rock hole, an important waterhole high on the rock. Kata Tjuta, an aboriginal name that means many heads, was also a reliable water source for aboriginals. My visit to this park was the most disappointing of the entire trip. Tourism has been promoted in this park to the point that busses drop hundreds of people off for views of the rock for both sunrise and sunset. So many people visit this park that you are not allowed to stop at the side of the road and get out of your car at any time except at a few viewpoints where there are bus loads of tourists. There are signs on the side of the road that say "No Standing on Road Shoulder at Any Time". This apparently is due to the management philosophy that prevails at this park. The priority of the Northern Territory Conservation Commission is to increase the "productivity" of the parks and reserves in the Territory. "Productivity" meaning promoting the economic development of the area through tourism. The Northern Territory government sees conservation and economic development as synonymous terms.

WILDLIFE PARKS

I visited five wildlife parks in four different states during my travels in Australia: the Healesville Sanctuary in Victoria, the Warrawong Sanctuary in South Australia, Lone Pine Koala Sanctuary in Queensland, Territory Wildlife Park in the Northern Territory, and Alice Springs Desert Park in the Northern Territory. The top three were the Healesville Sanctuary, Territory Wildlife Park, and Alice Springs Desert Park. These three parks created an opportunity to become familiar with the habitats of the state where they were located as well as a chance to get an introduction to the wildlife associated with those habitats. I visited the Healesville Sanctuary twice, at the very beginning of the trip and during my last full day in Australia. The sanctuary has a brush land setting with over 200 species of Australian Wildlife. I enjoyed its "natural" setting . There are a number of "walk through" aviaries in the sanctuary, each geared to a specific habitat. Within the aviaries are displays with pictures of the birds inside the aviary and information on their life history. In addition, there is information on threatened and endangered species. There are also open areas on the grounds where you can walk through and see wallabies and kangaroos grazing. The park also has a nocturnal house with the day and night hours reversed. Thus nocturnal animals can be viewed during the daytime under "full moon" type conditions. The platypus display inside the nocturnal house is excellent. It has information on the natural history of the platypus and provides an opportunity to see this shy, seldom seen animal swimming and foraging for food. I was overwhelmed with the diversity of wildlife that I saw during my first visit to the Healesville Sanctuary. I was not very familiar with the wildlife of Australia at the beginning of the trip. The second trip to the Healesville Sanctuary during my last day in Australia was a completely different experience. I had seen a significant portion of the marsupials and birds that live within the sanctuary and felt like I was saying a last goodbye to old friends.

Territory Wildlife Park is an hour south of Darwin at "The Top End" of the Northern Territory. The 400 acres of bush land that this park sits on was selected because of its habitat diversity. The park has ponds, a billabong, and monsoon forests within its boundaries. Thus it serves as a showcase to educate people on native habitats as well as wildlife. The area surrounding the park is not developed, so native animals from the surrounding area wander into and out of the park. One of the unique features of the park is its aquarium. It is used to show mangrove, freshwater, and billabong habitats. You walk through a glass tube on the bottom of a "fresh water river" with fresh water sawfish, fresh water stingrays, barramundi, and a variety of other native fish swimming beside you and over your head. The aviaries and nocturnal house are state of the art.

Alice Springs Desert Park is about 20 minutes east of Alice Springs in the foothills of the West MacDonnell Ranges. The park is managed by the Park and Wildlife Commission and is a top notch facility providing public education and hopefully increased public awareness of habitat destruction and its effect on species diversity in the desert regions of "The Red Center". This park is divided into a number of sections to illustrate the variety of habitats found within the red center. The park also has displays on aboriginal use of plants and animals found in these habitats. I spent quite a bit of time inside the exhibition center. The exhibition center has a number of displays that illustrate the differences between the desert regions found within Australia. It also has a very informative section on endangered species. I watched a film that showed the geological evolution of inland Australia. The film had an amazing ending. The screen drops, behind the screen is a huge glass window through which you see a spectacular view of the West MacDonnell Ranges.

ZOOS

I visited both the Melbourne Zoo in Victoria and the Toranga Zoo in Sydney, New South Wales. Both were excellent zoos that gave me an opportunity to see Australian wildlife but I found the wildlife sanctuaries that I visited to be more informative in terms of habitat and life history information associated with a particular animal. My visits to these two zoos did provide me with an opportunity to get photographs of a number of Australian mammals, birds, and reptiles.

BOTANIC GARDENS

I went to five Botanical gardens in five different states during the course of my travels in Australia. I visited the Royal Botanic Gardens in Melbourne, Hobart, Sydney and Brisbane. I also visited the Arid Lands Botanic Garden in South Australia, just north of Port Augusta. The most useful visits were to the Royal Botanic Gardens in Hobart and the Arid Lands Botanic Garden in South Australia. The Royal Botanic Gardens in Hobart has a section on Tasmanian temperate rainforest endemics. This provided me an opportunity to see and photograph some of the important alpine species that I did not get to see during my stay at Cradle Mountain National Park in Tasmania. My favorite botanical garden was the Arid Lands Botanic Garden in South Australia. It has a natural open setting, covering 200 hectares with plans of expanding to 500 hectares. The grounds provided spectacular views of the central Flinders Ranges. I was able to observe several South Australian desert habitats including open chenopod scrub land dominated by bluebush, as well as *Acacia* woodland and sand dune habitats. I was also able to get photographs of Sturts desert pea, South Australia's official floral emblem, in flower. It was the only place I saw this plant in flower in South Australia. The visitor center has displays on some of the plant

communities found on the grounds as well as information of the impact that introduced rabbits have had on the vegetation in arid regions of South Australia.

MUSEUMS

I went to the South Australian Museum in Adelaide, the Australian Museum in Sydney, and the Queensland Museum in Brisbane. The South Australian Museum had displays of Australian Pleistocene megafauna that enabled me to photograph a beautiful skeleton of *Diprotodon. Diprotodon* was a rhinoceros size marsupial that was widely distributed in the interior of Australia during the Pleistocene. I was also able to photograph mounts of more recent species such as the thylacine, Tasmanian devil, and eastern quoll. This museum also had a sobering display on extinctions in South Australia. South Australia has lost 26 species of mammals or 25 percent of its native mammal fauna since 1836. This is very high when compared with mammalian extinction rates in the rest of the world. The primary reasons for such a high extinction rate are habitat loss and the introduction of rabbits, foxes and cats, as well as changes in fire frequency associated with the end of aboriginal fire regimes. The South Australian Museum had the best display of Australian birds of the three museums that I visited.

The Australian Museum in Sydney provided me an opportunity to photograph Pleistocene mammal reconstructions including a short faced kangaroo, a giant flightless bird (*Geryornis newtoni*), and *Diprotodon*. It also had an excellent display on the evolution of Australian marsupials from 15 million years ago to the present. This museum also had the best exhibit on human evolution that I have ever seen.

The Queensland Museum in Brisbane also had an exhibit on Pleistocene mammal megafauna. This museum had some innovative, moving, life sized models of some of the reptiles

and mammals present during the Pleistocene. They also had a reference section where you could examine skeletons, trays of insects, and trays of study skins.

VALUE OF MY SABBATICAL TO MOUNT SAN ANTONIO COLLEGE

This sabbatical has enabled me to greatly expand my knowledge of invertebrate zoology, human evolution, human anatomy, and the natural history of palm oases. The information I acquired during the courses I took in the fall of 1997 will be of great benefit to my students. Completion of these courses has enabled me to update a number of my lectures and laboratories and to expand the school's collection of intertidal invertebrates. This sabbatical leave also created an opportunity for me to greatly increase my knowledge of marsupial evolution, expand my slide collection of the world's biogeographic regions, and experience some of the spectacular national parks and conservation reserves in Australia. Exploration of these areas has provided me with a greater understanding of coral reefs, rainforests, and deserts. I was also able to gain a deeper understanding of the importance of conservation of wildlife and ecosystems.

This sabbatical reinforced my belief that "hands on" experience is vital for learning and retaining information. I memorized massive amounts of material while attending California University Fullerton during the fall semester 1997. I memorized it well enough to get "A's" on exams, yet it is the field experiences that I had both on field trips during the fall semester and during my travels in Australia that I can recall without looking at my notes. You can read, memorize, and recite significant amounts of information, yet not really have an understanding of it until you have experienced it.

This sabbatical also taught me the value of travel for learning. I had read about overgrazing, introduced predators, and the isolation of the outback before leaving for Australia,

yet reality of these things still took me by surprise during my travels through outback areas of South Australia and New South Wales. I was amazed at what I learned by simply talking to the locals. In addition, much of the information presented on displays in park visitor centers and on self guided nature trails is not published.

The field experiences I had during this sabbatical have heightened my awareness of the need to incorporate field experiences into my teaching. I have not attended any formal field trips as a student since graduate school and had forgotten how much learning takes place when you are "the student" in these situations. I had also forgotten how important they are to the integration and retention of information.

This sabbatical created an opportunity for me to escape the routines associated with writing lectures, revising tests, and grading papers. This created an opportunity for growth, both intellectually and spiritually. It gave me time to re-evaluate my teaching methods, the content of my courses, and the way I interact with students. I look forward to beginning a new semester with renewed enthusiasm and a chance to share new ideas.

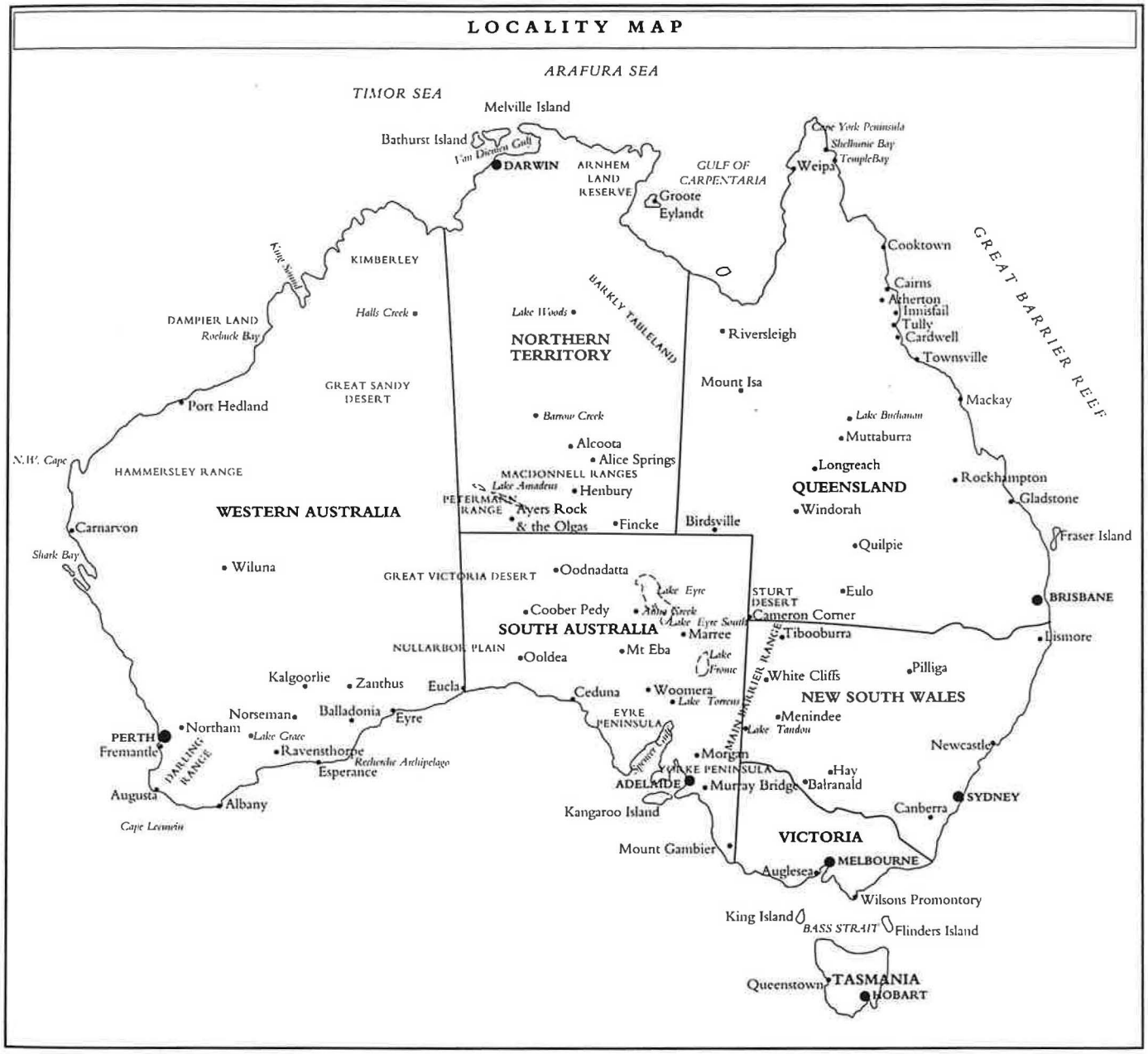


Figure 1 Map of Australia.
(From: White, M.E. 1997. *After the Greening.* Kangaroo Press, Kenthurst.)

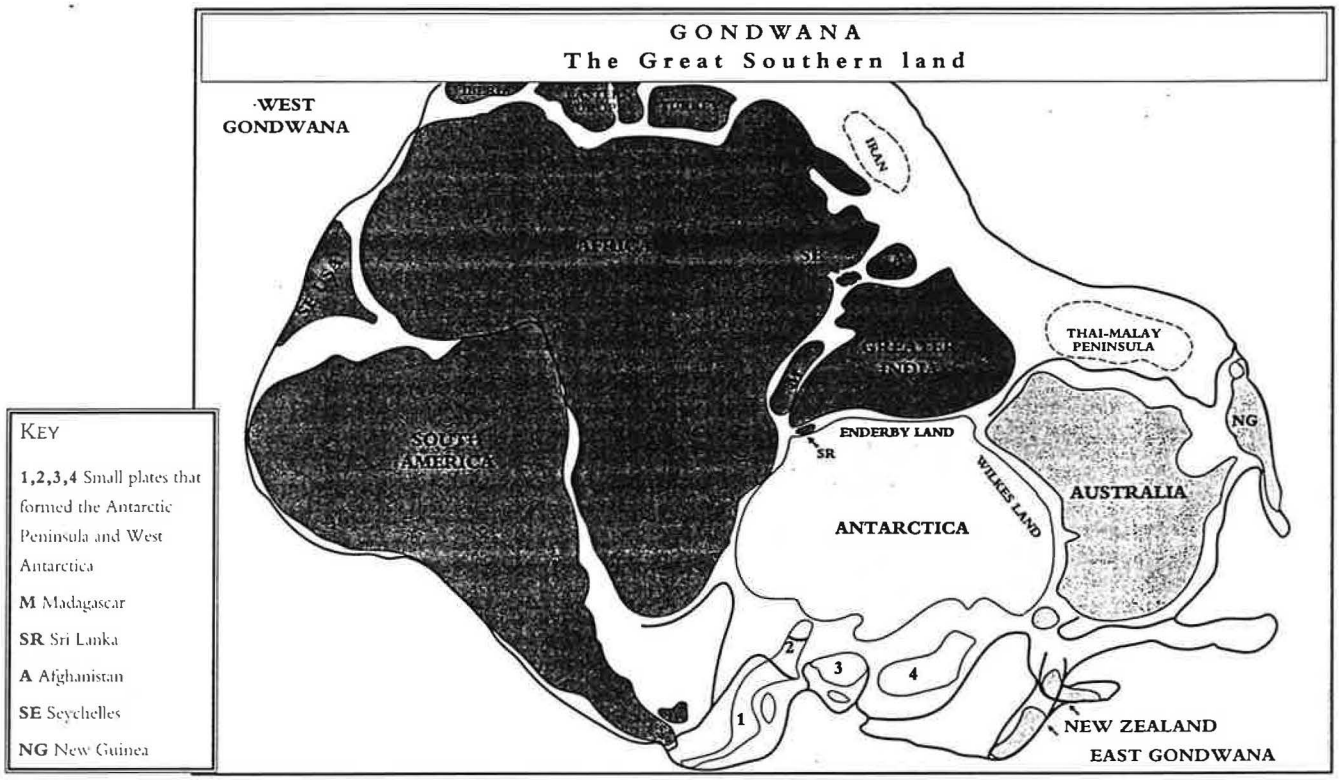


Figure 2 The position of Australia relative to other continents when it was part of the supercontinent, Gondwana during the Triassic Period.
(From: White, M.E. 1997. *After the Greening*. Kangaroo Press, Kenthurst.)

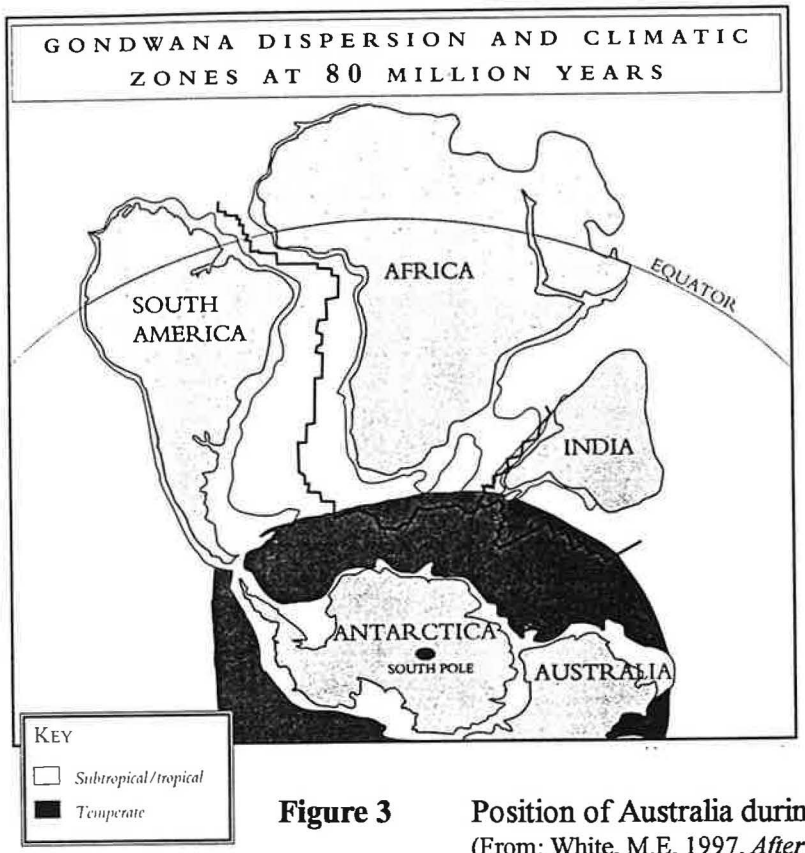


Figure 3 Position of Australia during the Cretaceous Period.
(From: White, M.E. 1997. *After the Greening*. Kangaroo Press, Kenthurst.)

In the warm ice-free world of the Late Cretaceous there was little gradation in climate from the South Pole to the Equator.

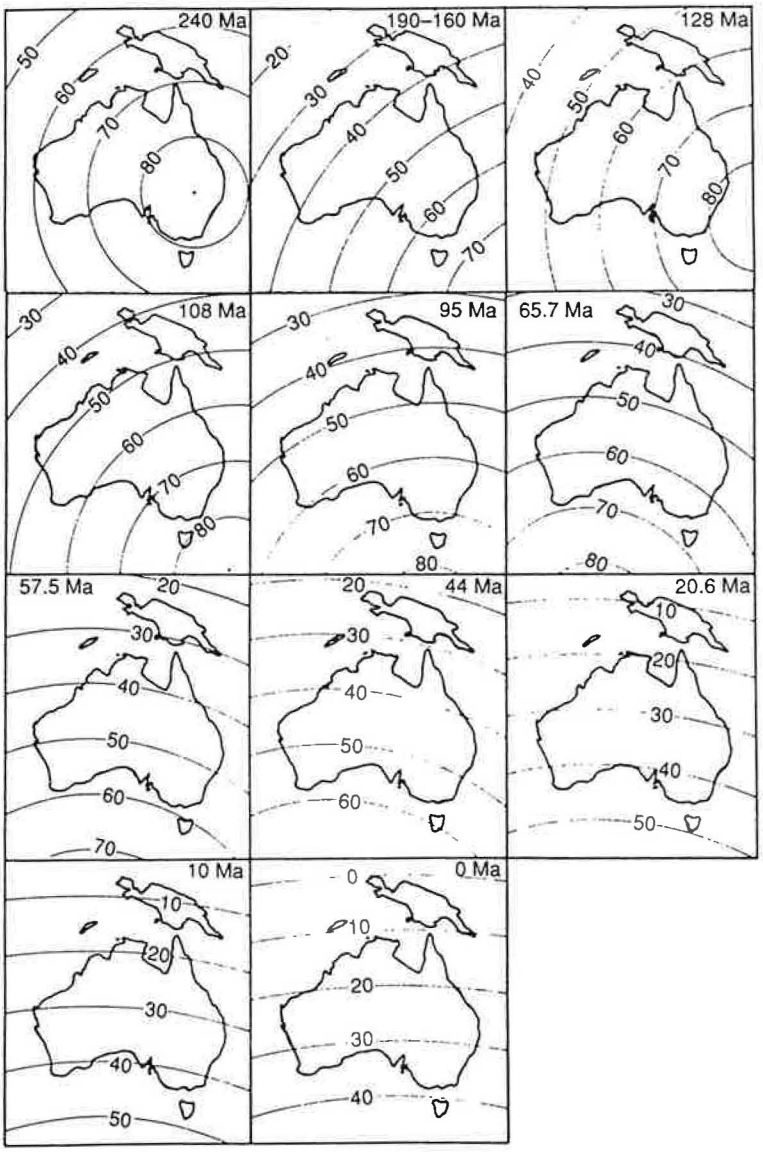


Figure 4 Movement of Australia from the Triassic to the present.
(From: Adam, P. 1992. *Australian Rainforests*. Claredon Press, Oxford.)

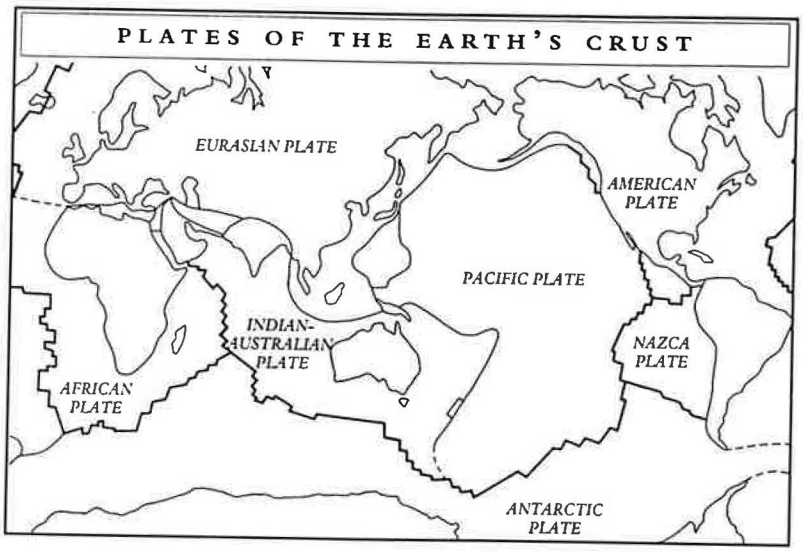


Figure 5 Australia is part of the Indian-Australian Plate
(From: White, M.E. 1997. *After the Greening*. Kangaroo Press, Kenthurst.)

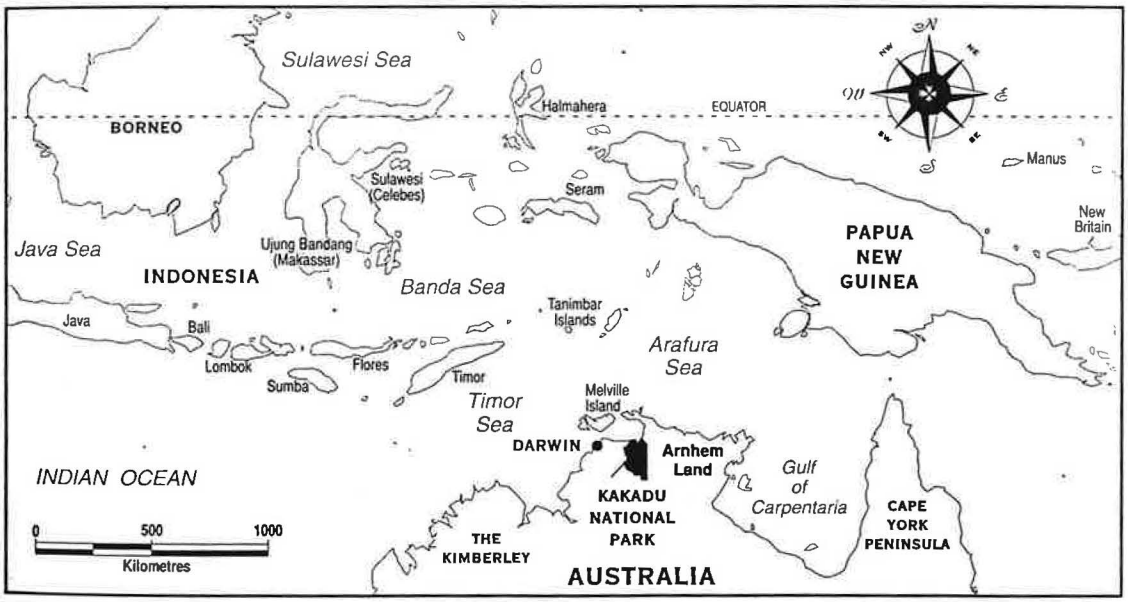


Figure 6 The position of Australia relative to Papua New Guinea and the Indonesian Archipelago. (From: Morris, I. 1996. *Kakadu National Park*. Steve Parish, Fortitiude Valley.)

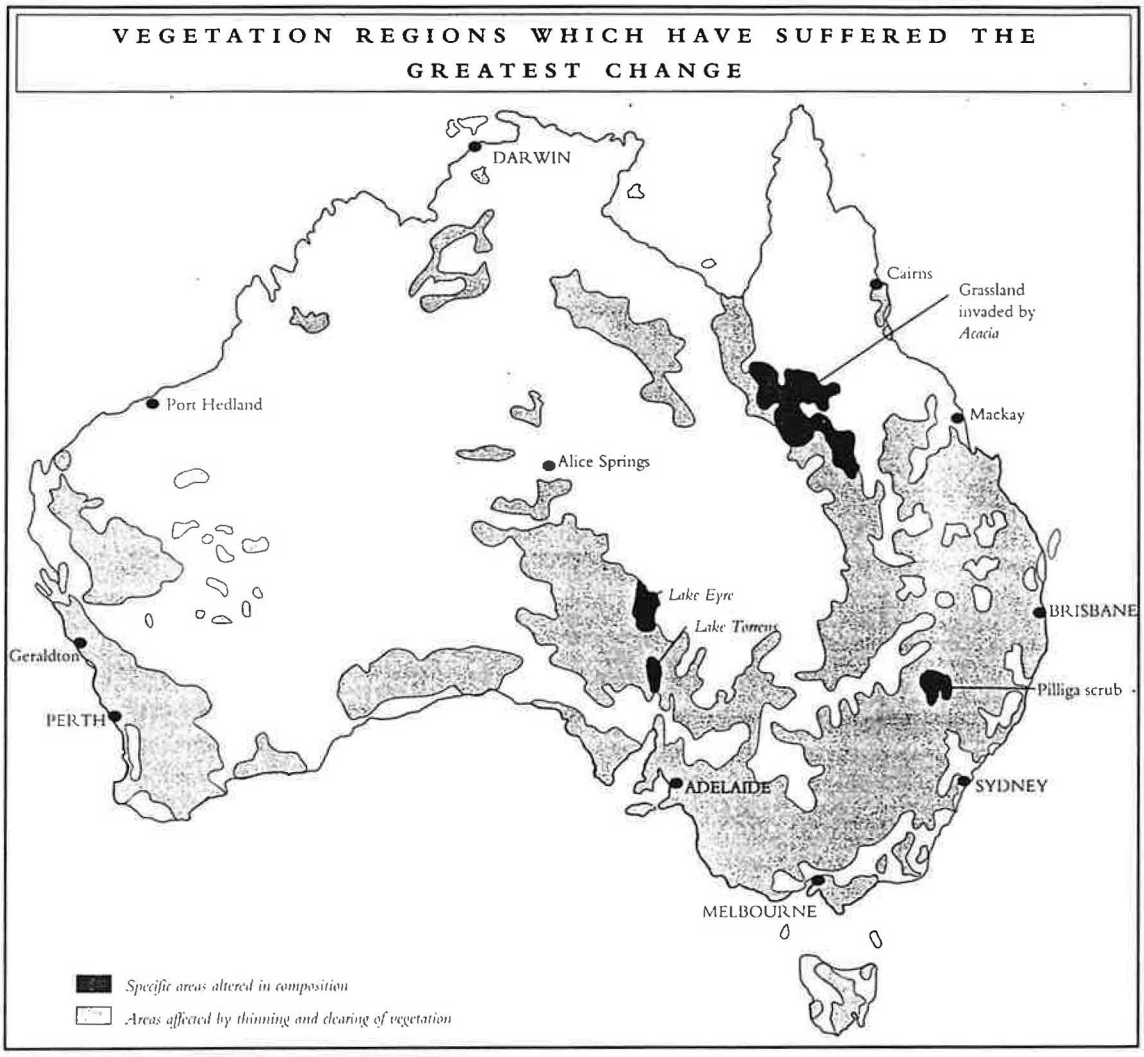
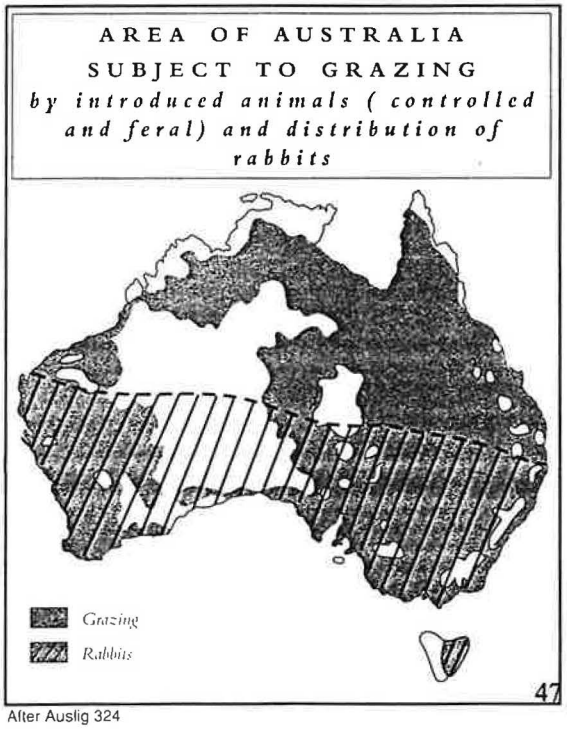


Figure 7 Areas in Australia which have undergone the greatest degree of vegetation change since the arrival of Europeans. (From: White, M.E. 1997. *After the Greening*. Kangaroo Press, Kenthurst.)



After Auslig 324

Figure 8 Area of Australia subject to grazing by introduced herbivores. (From: White, M.E. 1997. *After the Greening*. Kangaroo Press, Kenthurst.)

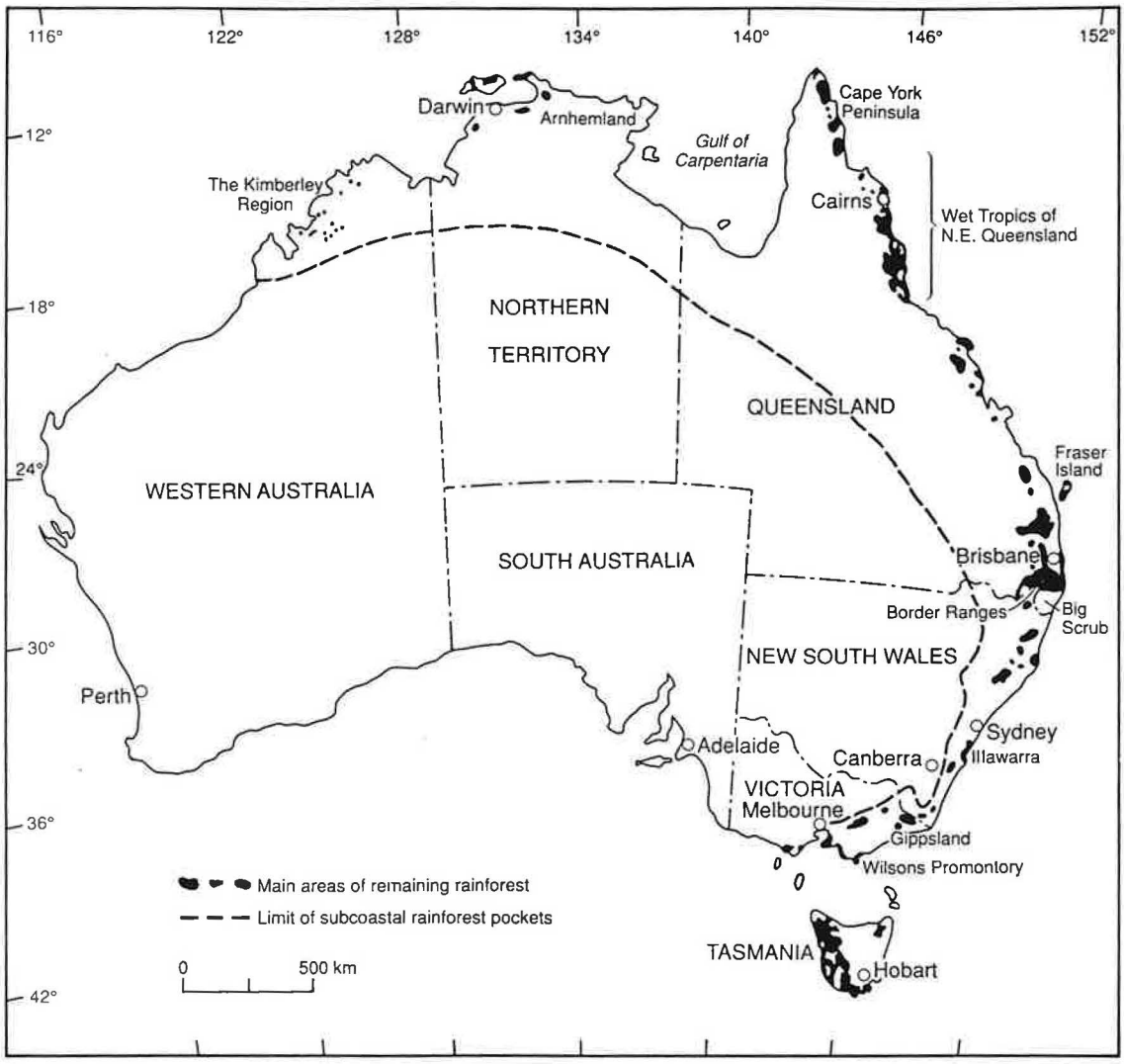


Figure 9 Main areas of remaining rainforest in Australia
(Adam, P. 1992. *Australian Rainforests.* Claredon Press, Oxford)

Four Months in Australia: An Abbreviated Itinerary

February

11	Depart LAX 9:00 p.m.
12	Cross International Date Line
	Victoria
13	Arrive in Melbourne
14	Morning: Royal Botanic Gardens, Melbourne
	Afternoon: Melbourne Zoo
15	Healesville Sanctuary
	Tasmania
16	Fly to Tasmania. Drive to Cradle Mountain National Park
17	Cradle Mountain National Park
18	Cradle Mountain National Park
19	Drive to Lake Saint Clair National Park
20	Lake Saint Clair National Park
21	Dive to Mount Field National Park
22	Mount Field National Park: Day trip to Southwest National Park
23	Drive to Port Arthur
24	Drive to Hobart
25	Royal Botanic Gardens: Hobart
26	Drive to Freycinet National Park
27	Freycinet National Park
28	Drive to Launceston
	Victoria

March

01	Fly from Tasmania to Melbourne
02	Drive from Melbourne to Wilsons Promontory National Park
03	Wilsons Promontory National Park
04	Wilsons Promontory National Park
05	Drive from Wilsons Promontory National Park to Grampians National Park
06	Grampians National Park
07	Grampians National Park
08	Grampians National Park
09	Drive from Grampians National Park to Little Desert National Park
10	Little Desert National Park

Four Months in Australia: An Abbreviated Itinerary

South Australia

March	
11	Drive from Little Desert National Park to Coorong National Park
12	Coorong National Park
13	Drive from Coorong National Park to Normanville
14	Drive from Normanville to Cape Jervis. Take ferry to Kangaroo Island. Camp at Murray Lagoon. Visit Seal Bay Consevation Park
15	Kangaroo Island: Visit Kelly Hill Conservation Park. Camp at Flinders Chase National Park
16	Kangaroo Island: Flinders Chase National Park
17	Kangaroo Island: Flinders Chase National Park
18	Kangaroo Island: Flinders Chase National Park to Kingscote for evening penguin tour
19	Kangaroo Island: Kingscote to Seal Bay Conservation Park. Camp at Murray Lagoon
20	Take ferry from Kangaroo Island back to Cape Jervis. Drive to Adelaide
21	Adelaide Morning: South Australian Museum Evening: Warrawong Sanctuary
22	Adelaide: Return to South Australian Museum for photographs
23	Adelaide to central Flinders Ranges. Visit Arid Lands Botanic Garden
24	Flinders Ranges National Park - Wilpena Pound
25	Flinders Ranges National Park - Brachina Gorge
26	Drive from Brachina Gorge towards Gammon Ranges National Park
27	Drive through Gammon Ranges National Park to the Arkaroola Sanctuary in the northern Flinders Ranges
28	Arkaroola Sanctuary - Northern Flinders Ranges
29	Drive from Arkaroola to Blinman. Camp at "Great Wall of China"
30	Drive from Great Wall of China to Peterborough

New South Wales

31	Peterborough to Kinchega National Park
April	
01	Drive from Kinchega National Park to Silverton
02	Drive from Silverton to Mootwingee National Park
03	Mootwingee National Park
04	Mootwingee National Park to White Cliffs
05	Attempted to drive from White Cliffs to Sturt National Park. Turned around and drove back towards Broken Hill. Camped near Silverton.
06	Silverton to Dubbo
07	Dubbo to Blue Mountains National Park
08	Blue Mountains National Park

Four Months in Australia: An Abbreviated Itinerary

New South Wales

April	
09	Blue Mountains National Park to Penrith
10	Penrith to Bangalay
11	Bangalay
12	Bangalay to Sydney
13	Sydney: Austalian Museum
14	Sydney: Toranga Zoo
15	Sydney: Royal Botanic Gardens
16	Sydney: Sydney Symphony

Queensland

17	Sydney to Lamington National Park
18	Lamington National Park
19	Lamington National Park
20	Lamington National Park to Brisbane
21	Brisbane: Lone Pine Koala Sanctuary
22	Brisbane: Morning: Royal Botanic Gardens Afternoon: Queensland Museum
23	Brisbane to Moreton Island
24	Moreton Island to Brisbane
25	Brisbane to Carnarvan Gorge National Park
26	Carnarvan Gorge National Park
27	Carnarvan Gorge National Park
28	Canarvan Gorge National Park to Hervey Bay
29	Hervey Bay to Fraser Island National Park
30	Fraser Island National Park
May	
01	Fraser Island National Park to Gladstone
02	Gladstone to Heron Island
03	Heron Island
04	Heron Island
05	Heron Island to Gladstone
06	Fly from Gladstone to Cairns
07	Cairns: Day trip to Great Barrier Reef
08	Cairns: Day trip across Atherton Tablelands
09	Cairns: Day trip to Kuranda
10	Drive from Cairns to Daintree
11	Daintree
12	Daintree
13	Drive from Daintree to Cairns

Four Months in Australia: An Abbreviated Itinerary

Northern Territory

May	
14	Fly from Cairns to Darwin
15	Darwin: Day trip to Bathurst Island to observe Tiwi aboriginal culture
16	Darwin: Morning: Territory Wildlife Park Afternoon: Indopacific Marine
17	Drive from Darwin to Litchfield National Park
18	Drive from Litchfield National Park to Kakadu National Park
19	Kakadu National Park. Drive to Pine Creek in the evening.
20	Drive from Pine Creek to Katherine Gorge National Park
21	Drive from Katherine Gorge National Park to the Devils Marbles
22	Drive from Devils Marbles through Alice Springs to Trephina Gorge Nature Park
23	Trephina Gorge Nature Park - East MacDonnell Ranges
24	Trephina Gorge to Arltunga Historical Reserve to Alice Springs
25	Alice Springs: Alice Springs Desert Park
26	Alice Springs to West MacDonnells National Park
27	West MacDonnells National Park
28	West MacDonnells National Park to Uluru-Kata Tjuta National Park (Ayers Rock-Mt. Olga)
29	Uluru-Kata Tjuta National Park to Wattarka (Kings Canyon) National Park
30	Wattarka National Park
31	Drive from Wattarka National Park to West MacDonnells National Park
June	
01	Drive to Alice Springs

South Australia

02	Train from Alice Springs to Adelaide
03	Train from Adelaide to Melbourne

Victoria

04	Arrive Melbourne - Healesville Sanctuary
05	Fly to LAX from Melbourne

Royal Botanic Gardens in Melbourne

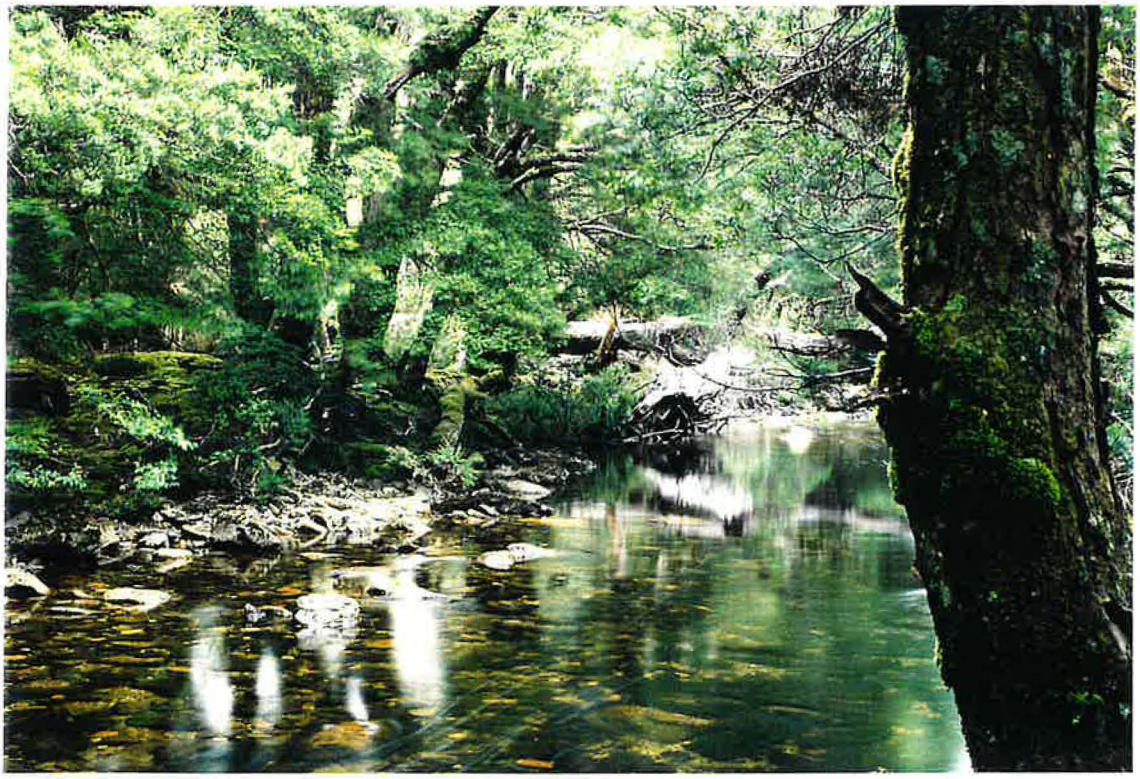
Photographing Grey-Headed Flying Foxes

Royal Botanic Gardens in Melbourne,

Grey-Headed Flying Foxes

Cradle Mountain Lodge

Cradle Mountain Lodge offers warm, dry accommodation and borders Cradle Mountain National Park.



Cradle Mountain National Park

Cool temperate rainforest as seen on "the enchanted walk" near Cradle Mountain Lodge.

Cradle Mountain National Park

Dove Lake with the peaks of Cradle Mountain visible at the top right.

Cradle Mountain National Park

This boardwalk reduces visitor impacts on the fragile subalpine habitat surrounding Dove Lake.

Cradle Mountain National Park

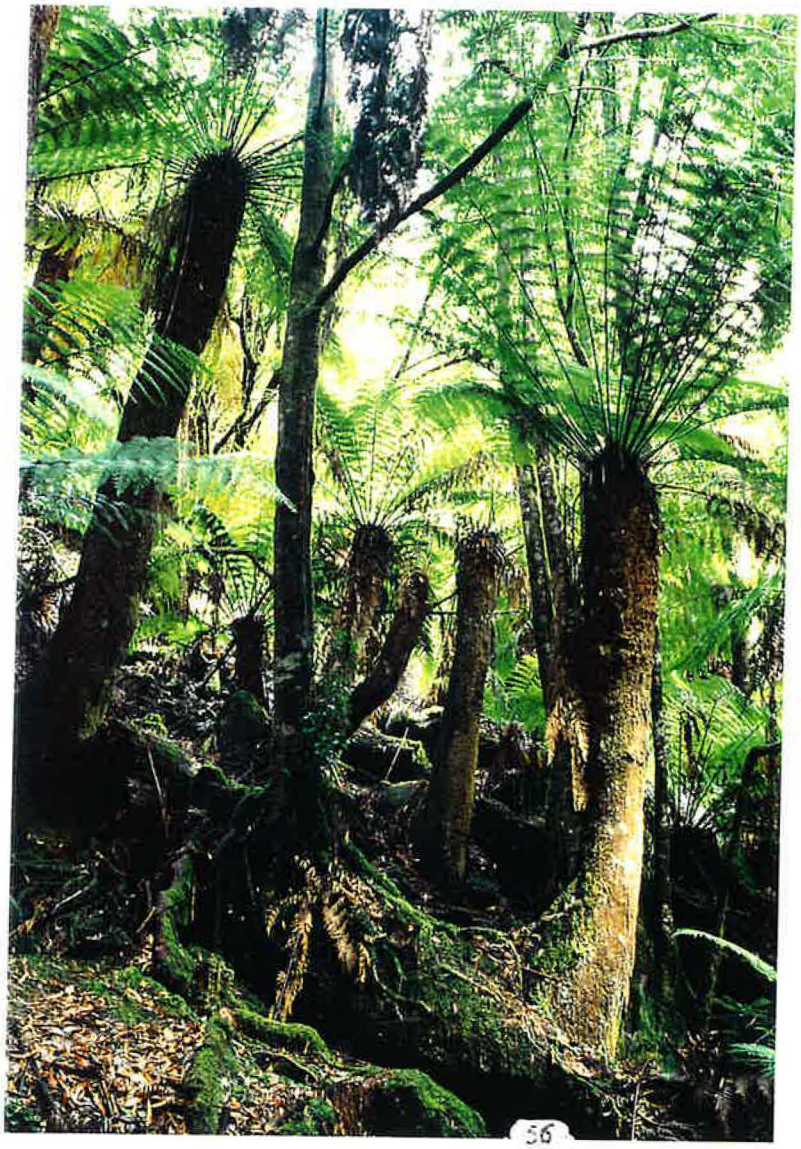
Pandani, *Richea pandanifolia*, is a palm-like tree which is common in the under story of Tasmanian rainforests.

Cradle Mountain National Park

Cool Temperate Rainforest

Cradle Mountain National Park

The Tasmanian pademelon, *Thylogale billardierii*, is sometimes called the rufous wallaby. It is extinct in mainland Australia.



Mount Field National Park

Tree ferns in the under story of the lower elevation tall eucalypt forest.

Mount Field National Park

The 16 kilometer dirt road that ends at Lake Dobson.

Mount Field National Park

Buttongrass Moorland

Mount Field National Park

This board walk reduces visitor impacts on a trail that crosses alpine moorland.

Southwest National Park

The Gordon Dam was constructed as part of a controversial hydro-electric power scheme. It resulted in the flooding of Lake Pedder and caused a great deal of environmental damage to the Southwest Wilderness Area.

The Royal Botanic Gardens in Hobart

Freycinet National Park

Wineglass Bay

Freycinet National Park
Long-Beaked Echidna
Note the difference between the amount of hair between the spines of this echidna and the one photographed at the Healesville Sanctuary in Victoria

Freycinet National Park

Laughing Kookaburra

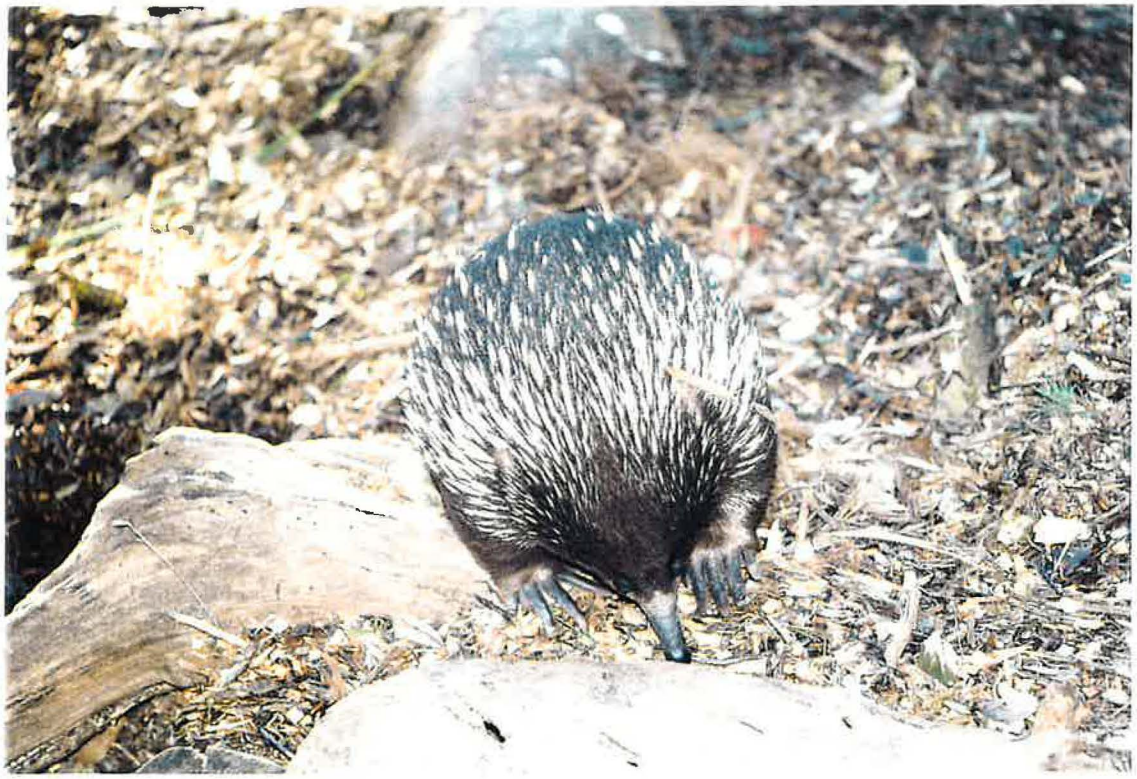
Healesville Sanctuary
This sanctuary has a bushland setting with over 200 species of Australian wildlife. I visited this sanctuary twice, at the beginnng of the trip and during my last full day in Australia.

Healesville Sanctuary

Photographing a Tawny Frogmouth in one of the "walk through" aviaries of the sanctuary.

Healesville Sanctuary

Superb Lyrebird



Healesville Sanctuary - Long-Beaked Echidna
The echidna is a monotremes or egg laying mammal. The fur between the spines in the Tasmanian form may be so long it obscures most of the spines. It is specialized to feed on ants and termites.

Healesville Sanctuary - Dingo
The dingo is the largest terrestrial predator in Australia. It is believed that aborigines introduced the dingo to Australia 3,500 years ago. The dingo was never introduced to Tasmania.

Melbourne Zoo
Southern Hairy-Nosed Wombat
This species of wombat lives in grassland or savanna habitats. It conserves water by resting in its burrow and lowering its body temperature during summer months.

Wilsons Promontory National Park

Eastern Grey Kangaroo

Wilsons Promontory National Park

Common Wombat

Wilsons Promontory National Park

Lilly Pilly Walk

Crimson Rosella

Wilsons Promontory National Park

Lilly Pilly Walk

Eastern Yellow Robin

Wilsons Promontory National Park

Tidal Overlook Walk

Coastal Scrub bordering the Tidal River

Wilsons Promontory National Park

Tidal Overlook Walk

Grass Tree, *Xanthorrhoea australis*

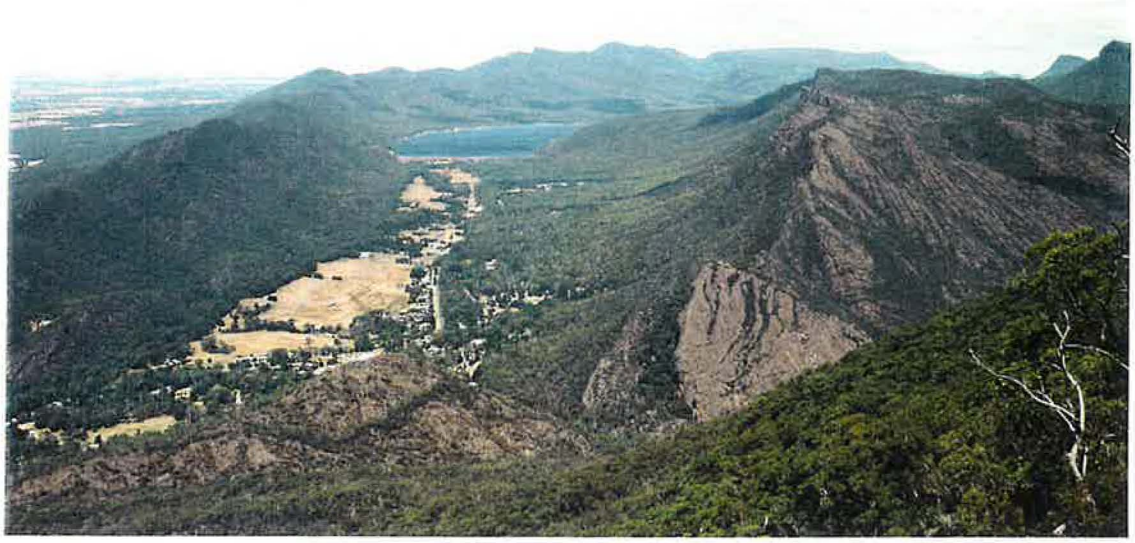
Wilsons Promontory National Park

Sealers Cove Walk

Photographing the patch of cool temperate rainforest that is present at Ferny Glade

Grampians National Park

The Grampians are the western most extension of the Great Dividing Range.



Grampians National Park

Parallel running ridges make up the ranges of Grampians National Park. The Black Range is to the left of the reservoir. The range to the right of the reservoir is the Victoria Range.

Grampians National Park

Red-Necked Wallaby

Grampians National Park

The Balconies

Little Desert Lodge

Whimpey and Maureen Reichelt own Little Desert Lodge which borders Little Desert National Park. Whimpey is a keen naturalist who conducts 4WD natural history tours in the park.

Little Desert National Park

A 1960's vintage Land Rover used by Whimpey Reichelt to take tourists into the sandy tracts of Little Desert National Park

Little Desert Lodge

Emu

Little Desert Lodge

Mallee Fowl

Little Desert Lodge

Blind by a Mallee Fowl Mound

Coorong National Park

Photographing Color Changes on a Salt Flat

Coorong National Park

Australian Pelican

Kangaroo Island
Seal Bay Conservation Park

A boardwalk constructed to keep visitors at a distance from the endangered Australian sea lion.

Kangaroo Island
Seal Bay Conservation Park

Australian Sea Lion

Kangaroo Island
Flinders Chase National Park

Western Gray Kangaroo

Kangaroo Island
Flinders Chase National Park

Coastal Mallee Scrub

Kangaroo Island
Seal Bay Conservation Park

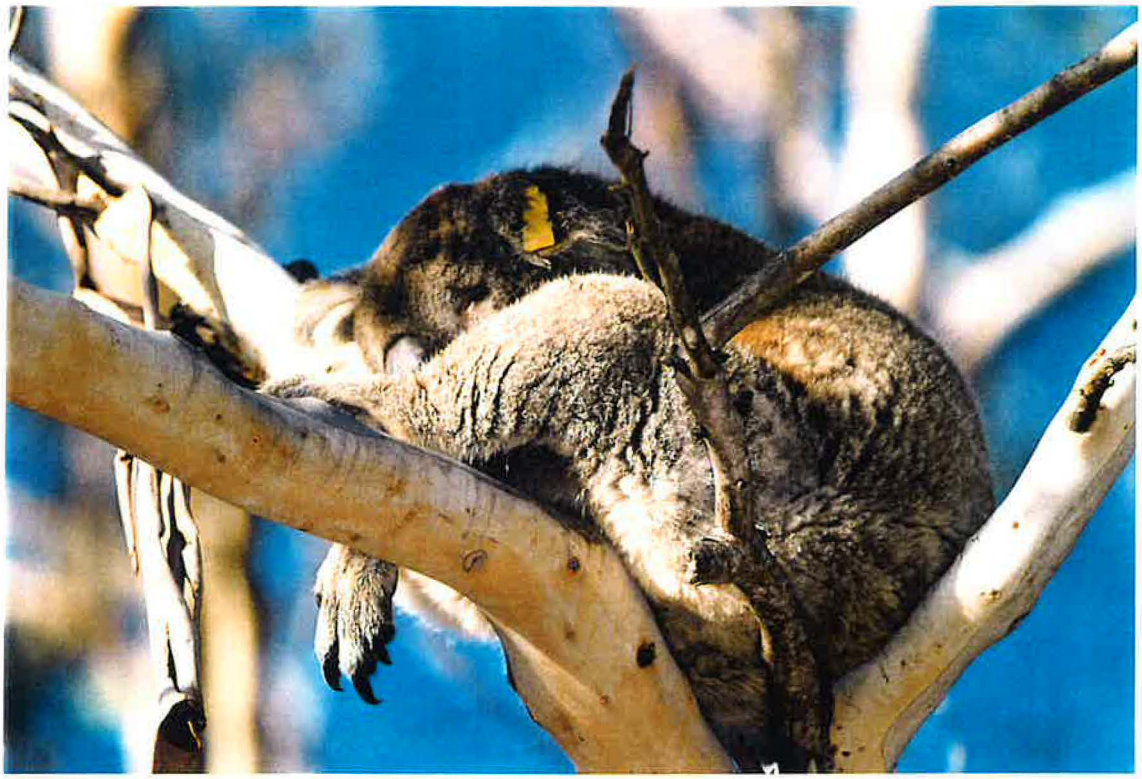
Tammar Wallaby

Kangaroo Island
Flinders Chase National Park

Rosenberg's Sand Goanna

Kangaroo Island
Flinders Chase National Park

Cape Barren Goose



Kangaroo Island
Flinders Chase National Park

Koala

Arid Lands Botanic Garden

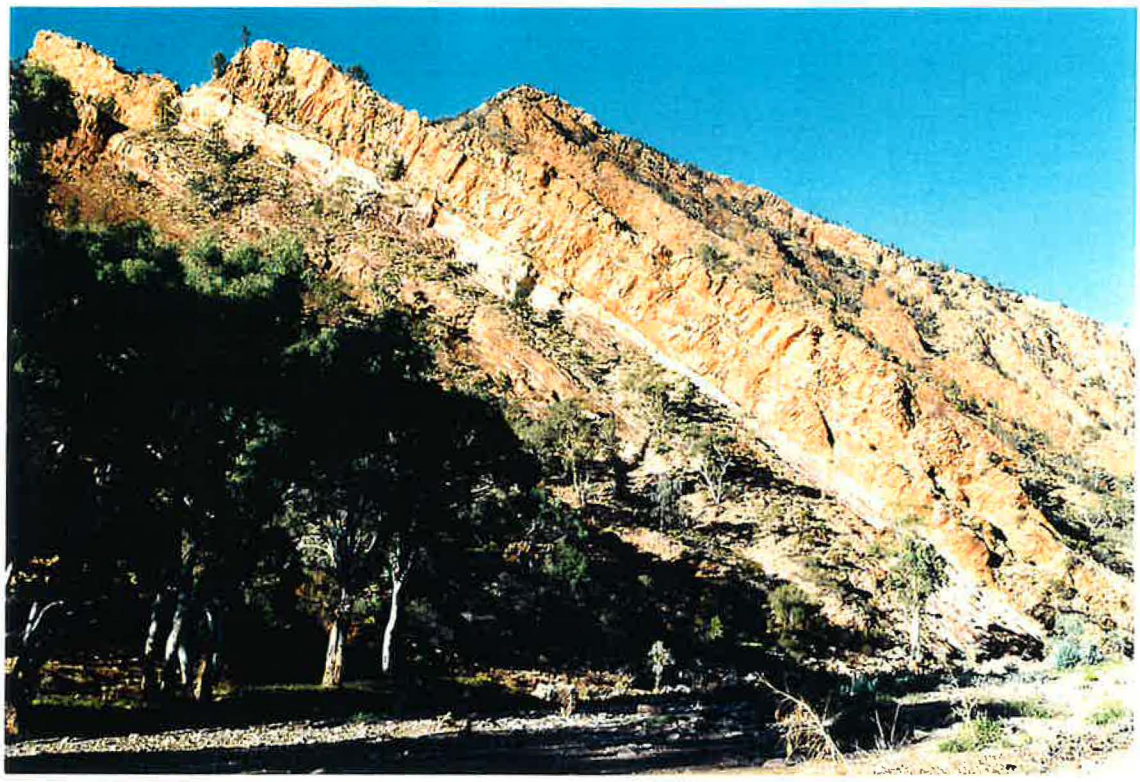
Near Port Augusta

Arid Lands Botanic Garden

Sturt's Desert Pea

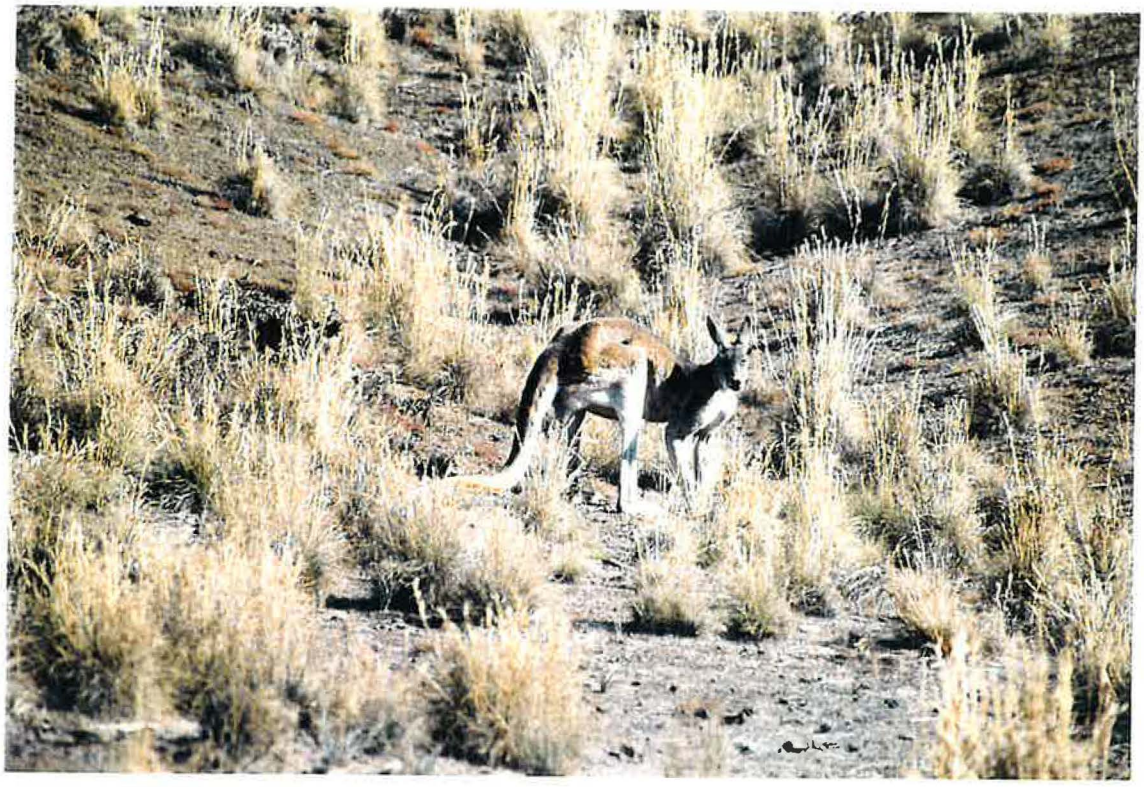
Flinders Ranges National Park

In Route to Brachina Gorge



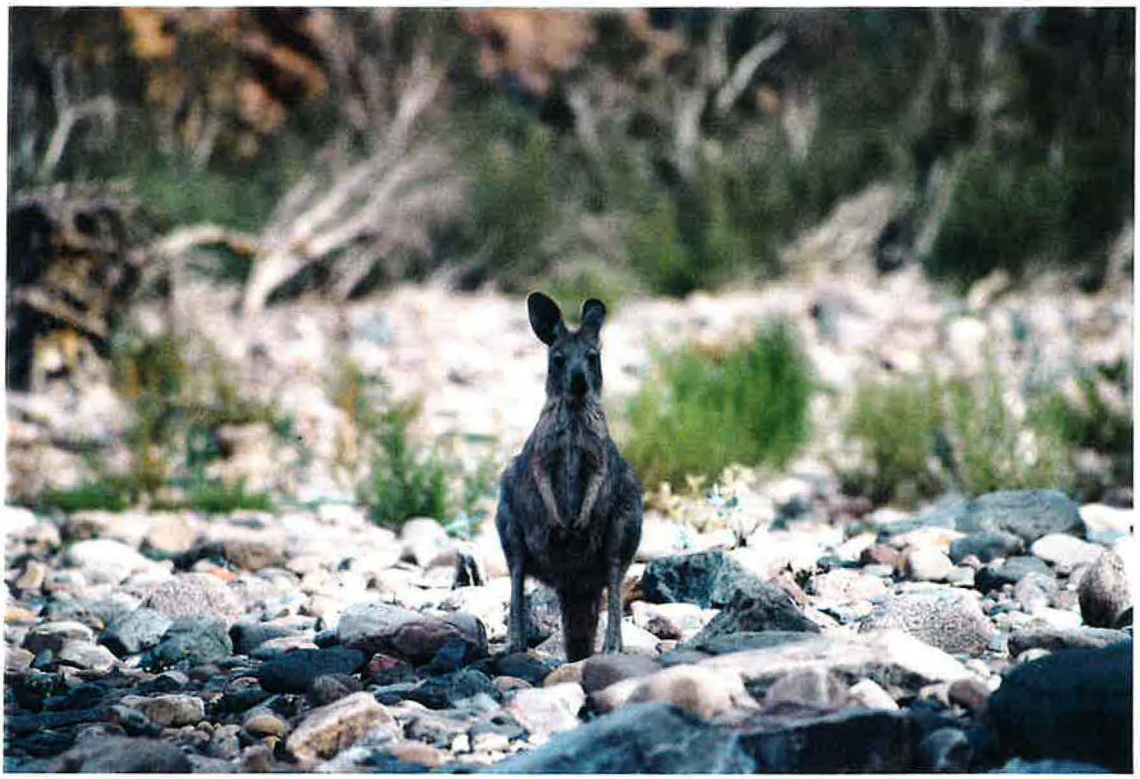
Flinders Ranges National Park

Brachina Gorge



Flinders Ranges National Park

Red Kangaroo



Flinders Ranges National Park

Euro or Common Wallaroo

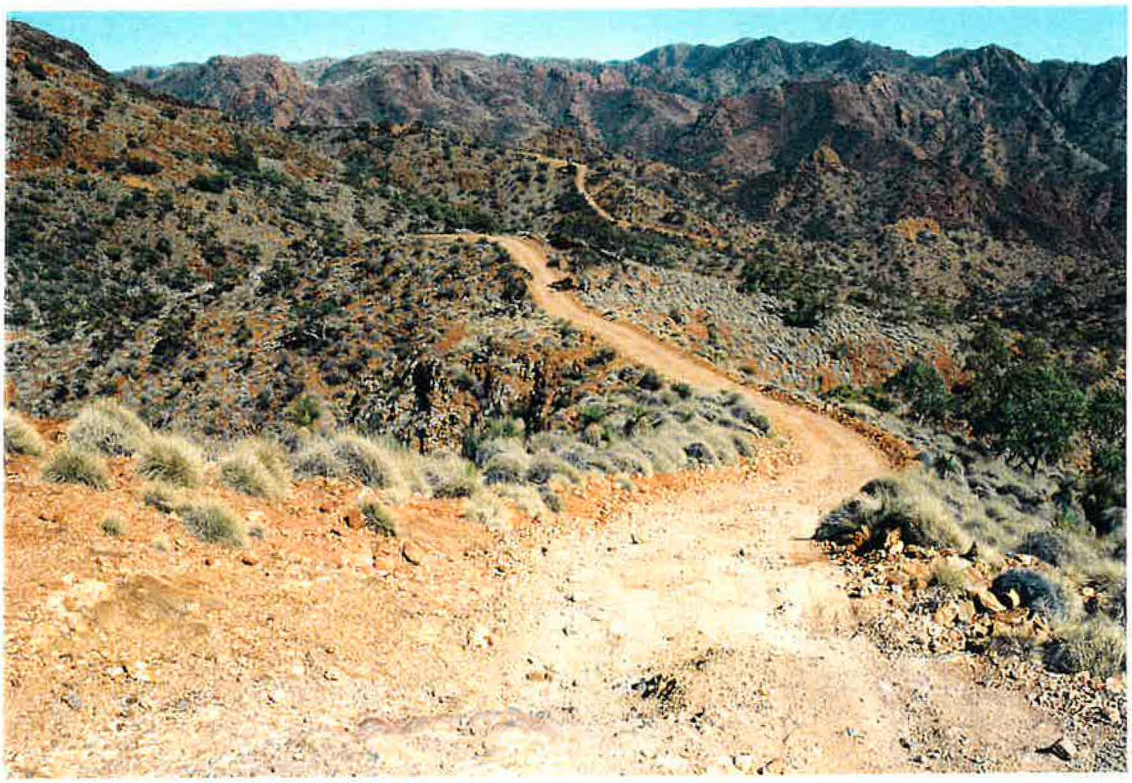
Flinders Ranges National Park

Emus

Male with Three Young

Warning Sign

In Route to Gammon Ranges National Park



Arkaroola Sanctuary

Northern Flinders Ranges

Arkaroola Sanctuary

Echo Camp Waterhole

Central Flinders Ranges

Campsite by the "Great Wall of China"

Central Flinders Ranges

Dust in Van from the Dirt Roads

Kinchega National Park

Kinchega National Park

Lace Monitor

The Silver City Highway

in

New South Wales

Road to Mootwingee National Park

Mootwingee National Park

Shingleback Lizard

Mootwingee National Park

View from the

Byngnano Range Hike

White Cliffs

Opal Mines

White Cliffs

The Underground Motel

Blue Mountains National Park

Photographing Scenery

Sydney

A View of the Opera House

from the Toranga Zoo

Lamington National Park

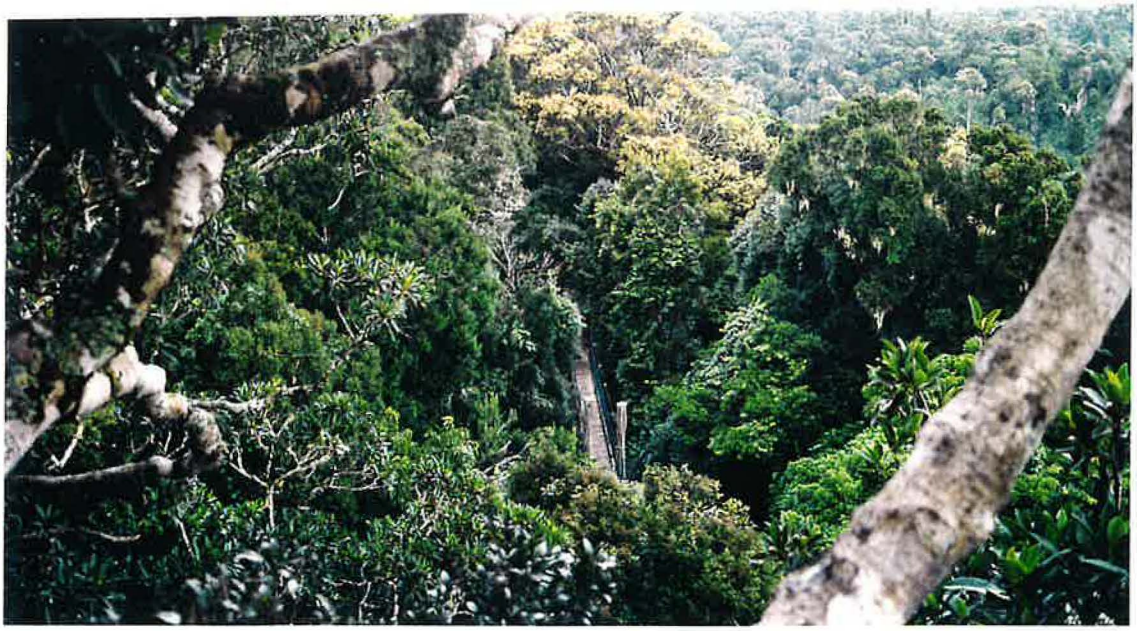
A Male Satin Bower Bird at its Bower

Lamington National Park

Satin Bowerbird Bower

Lamington National Park

Walking Across Suspension Bridge



Lamington National Park

View of Suspension Bridge

From a Canopy Platform

Lamington National Park

Climbing up to a Canopy Platform

Lamington National Park

Red-Necked Pademelon with Joey

Lamington National Park

Laughing Kookaburra

Lamington National Park

Southern Angle- Headed Dragon

Lamington National Park

Buttressed Trees in the Subtropical Rainforest

Lamington National Park

I got lost on a guided hike with some other photographers. We fell back to take pictures of the subtropical rainforest. The three of us were very happy when the guide came back and found us.

Lamington National Park

Carpet Python

Lamington National Park

Morans Falls

Lone Pine Koala Sanctuary

Eastern Water Dragon

Lone Pine Koala Sanctuary

Eastern Snake-Necked Turtle

Carnarvon Gorge National Park
Carnarvon Gorge has abundant wildlife and houses a number of important plant species due to the cool moist microclimates of the side canyons.

Carnarvon Gorge National Park

Cycads are relicts from the rainforests that once covered the continent during the Cretaceous.

Carnarvon Gorge National Park

Whiptail (Pretty-Faced) Wallaby

Carnarvon Gorge National Park

Common Brush-Tail Possum

Carnarvon Gorge National Park

Yellow-Bellied Glider

Carnarvon Gorge National Park

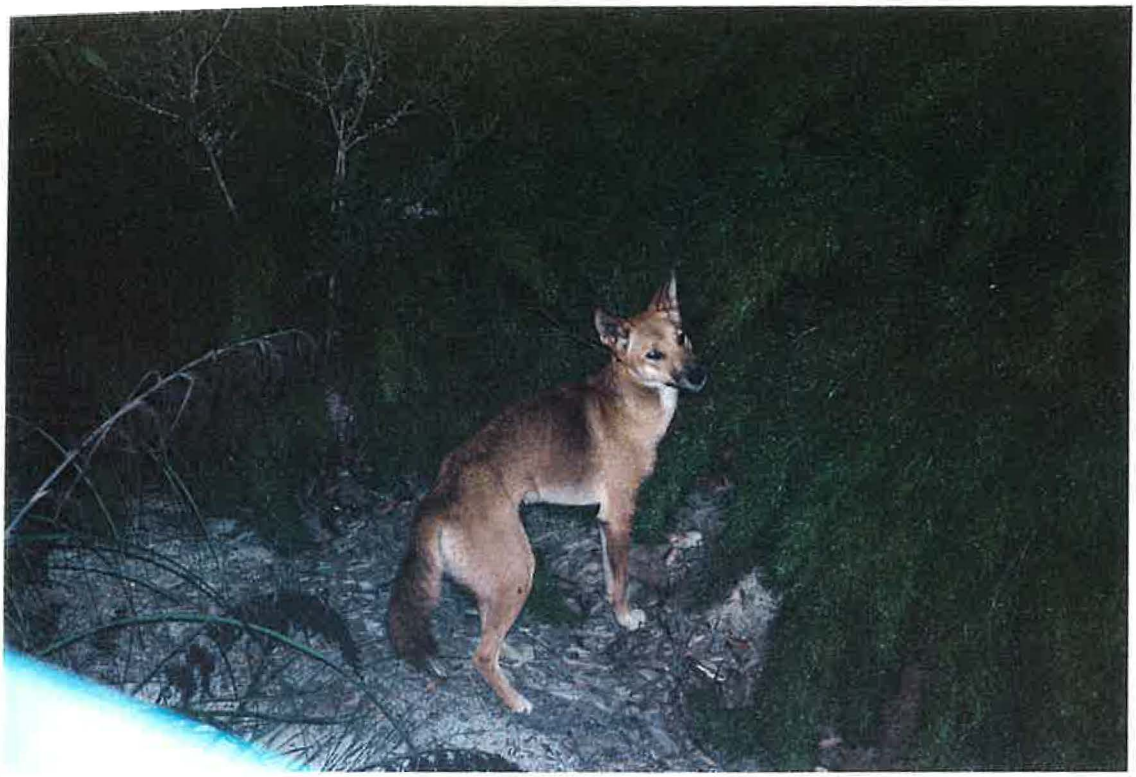
Ripples from Platypus in Carnarvon Creek

Fraser Island

Fraser Island was declared a World Heritage Site in 1992. It has a unique diversity of sand dune systems, abundant rainforest habitats, and endemic animal species adapted to special conditions on the island.

Fraser Island

The World's Largest Sand Island



Fraser Island

The population of dingoes on the island is the most genetically pure population of dingoes in Australia.

Heron Island

Heron Island is a small coral cay that is known internationally as a sanctuary for sea birds. It is a part of the Capricorn-Bunker Group National Park with in turn in part of the Great Barrier Reef Marine Park.

Heron Island

Black Noddy Terns

Heron Island

Black Noddy Tern

Heron Island

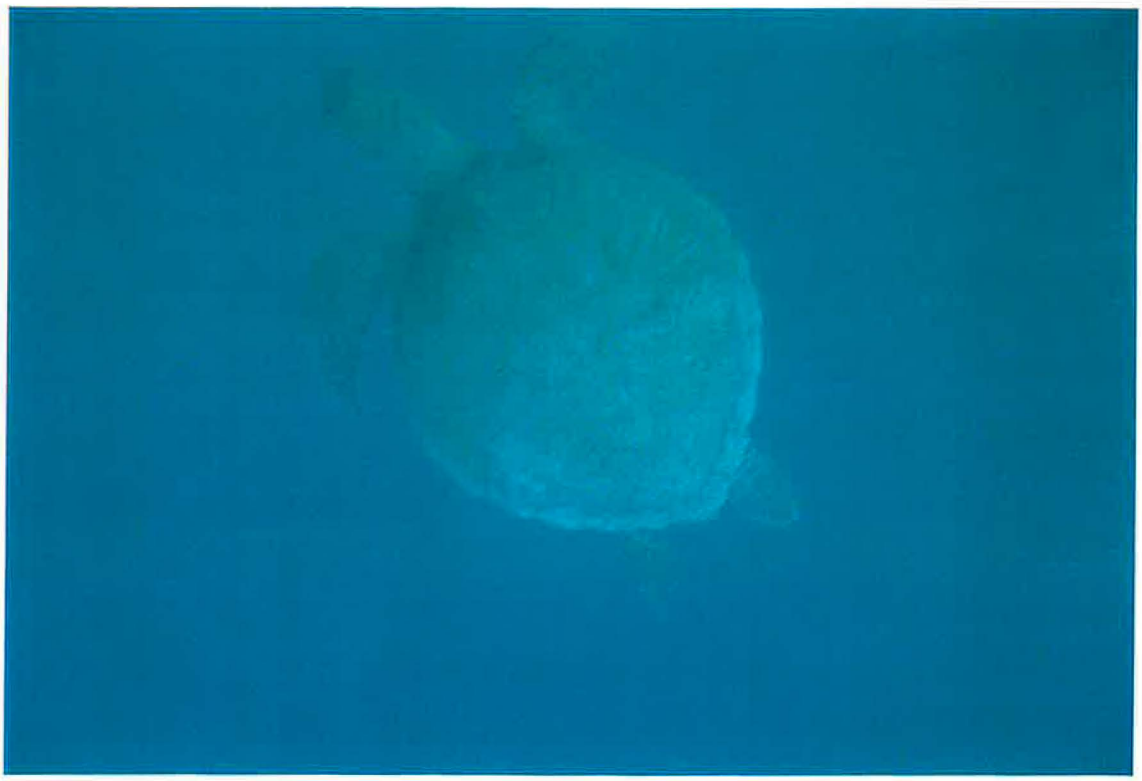
Wedge-Tailed Shearwater

Heron Island

Buff- Banded Rail

Heron Island

Reef Egret - Dark Morph



Heron Island

Green Sea Turtle

The Great Barrier Reef

The Great Barrier Reef is a complex set of reef systems off the north-east coast of Queensland. The reef houses underwater forests of spectacular corals and is home to an incredible diversity of species.

The Quicksilver

This high speed catamaran is used for day trips to the outer reef from Cairns.

The Wet Tropics

Wooroonooran National Park

The Rainforest Circuit Walk

The Wet Tropics

Cassowary and Kangaroo Crossing

The Wet Tropic

Atherton Tablelands

Tree Kangaroos Crossing

The Wet Tropics

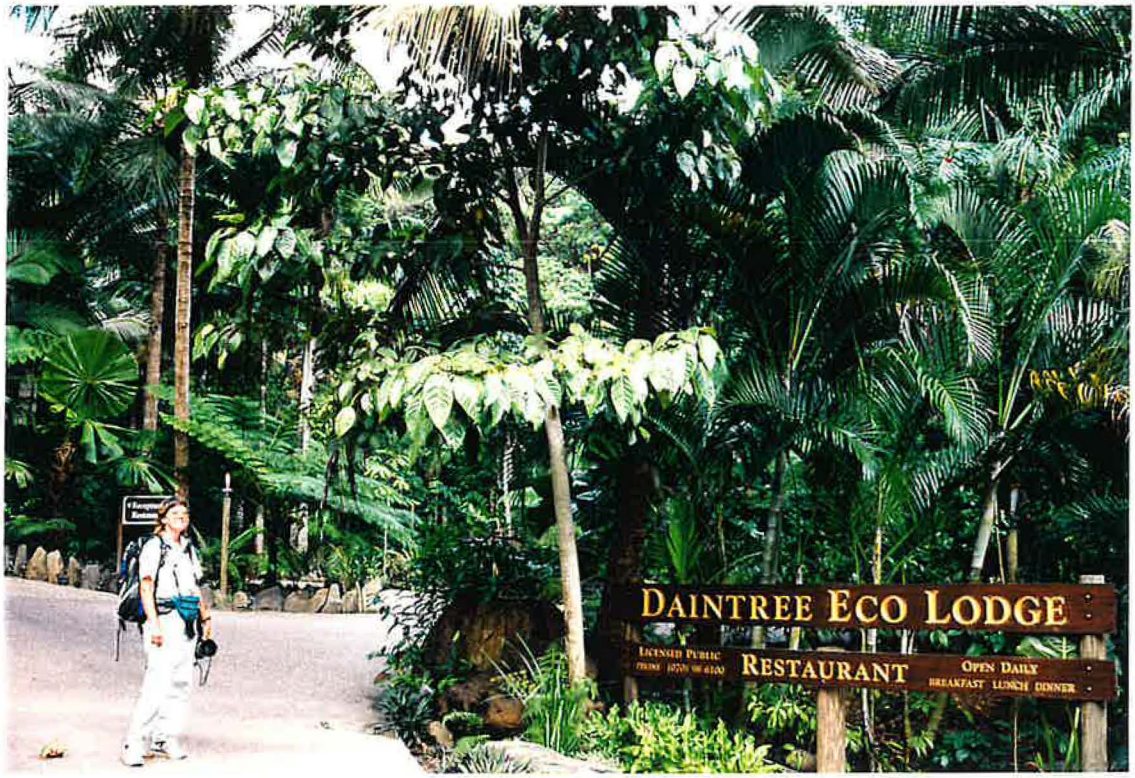
Cairns-Kuranda Railway

The Wet Tropics

Skyrail from Kuranda to Cairns

The Wet Tropics

View of Forest Canopy from Skyrail



The Wet Tropics

Lodging Near the town of Daintree

The Wet Tropics
Daintree

I had an allergic reaction to the species of mosquito that inhabits the Daintree region. These mosquitos carry Ross River Fever!

The Wet Tropics
Daintree

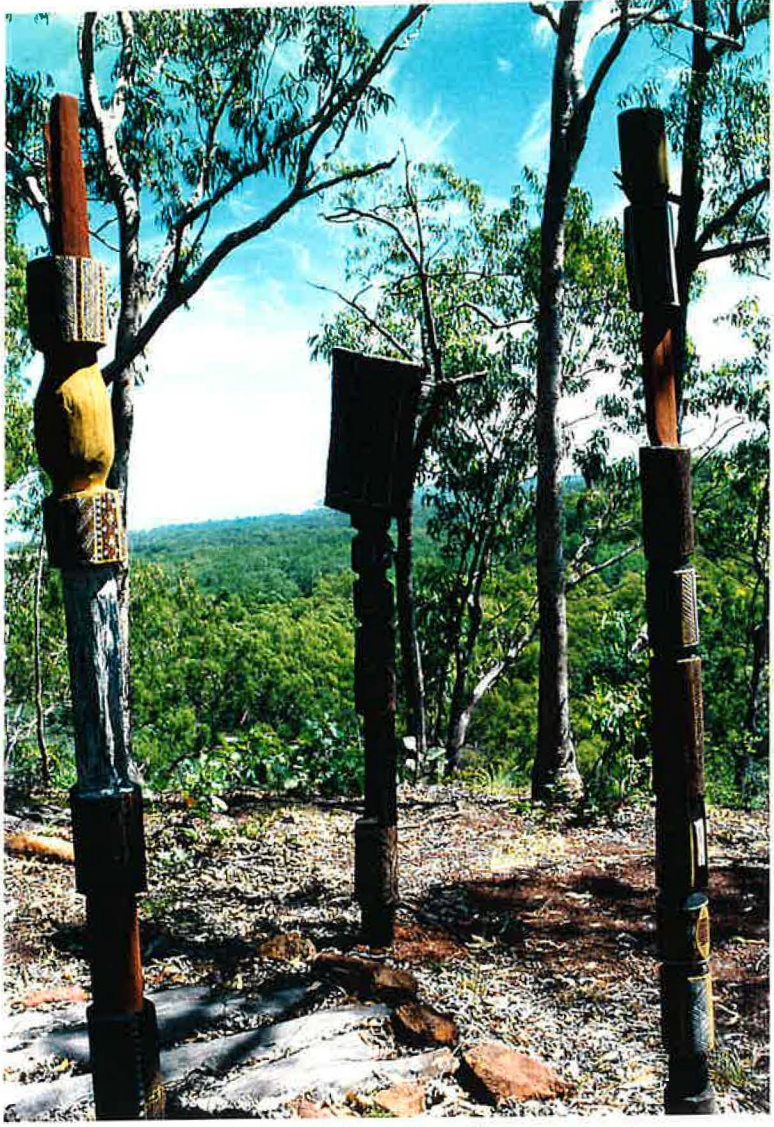
White-Lipped Tree Frog

The Wet Tropic
Daintree

Salt Water or Estuarine Crocodile

Flight from Darwin to Bathurst Island

View of Bathurst Island from the Air

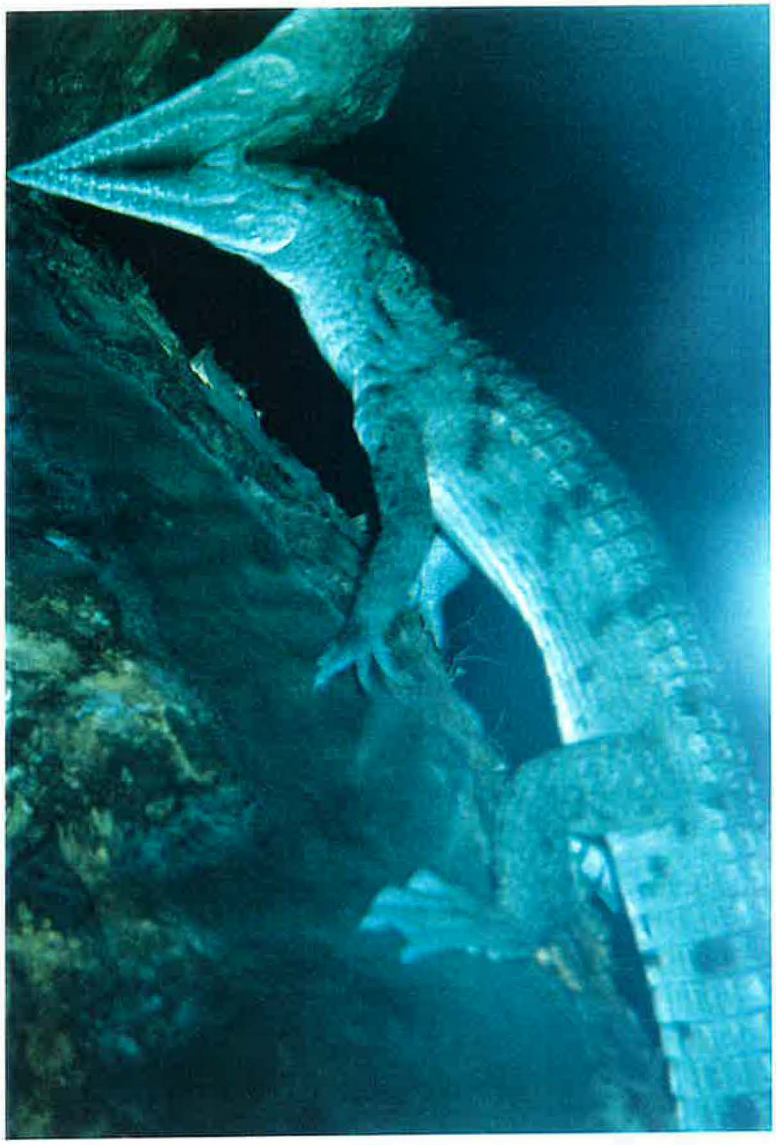


Traditional Tiwi (Aboriginal)

Burial Site

Bathurst Island

Frilled Lizard



Territory Wildlife Park

Salt Water Crocodile

Territory Wildlife Park

Pig-Nosed Turtle: A Kakadu Endemi

Litchfield National Park

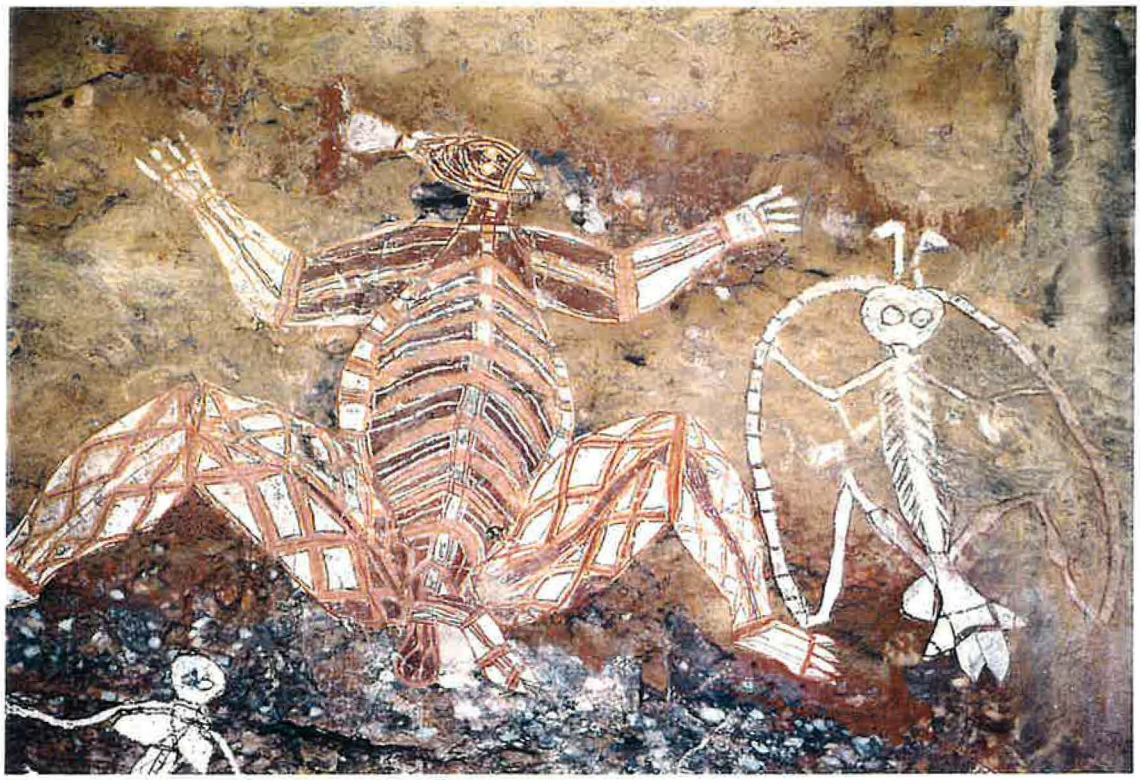
Northern Quoll

Litchfield National Park

Magnetic Termite Mounds

Kakadu National Park

Nourlangie Rock: A Significant Rock Art Site



Kakadu National Park

Nourlangie Rock: Lightning Man

Kakadu National Park

Escapement of Arnhem Land Plateau

Kakadu National Park

Wetlands: Yellow Waters

Nitmiluk (Katherine Gorge) National Park

The Gorge

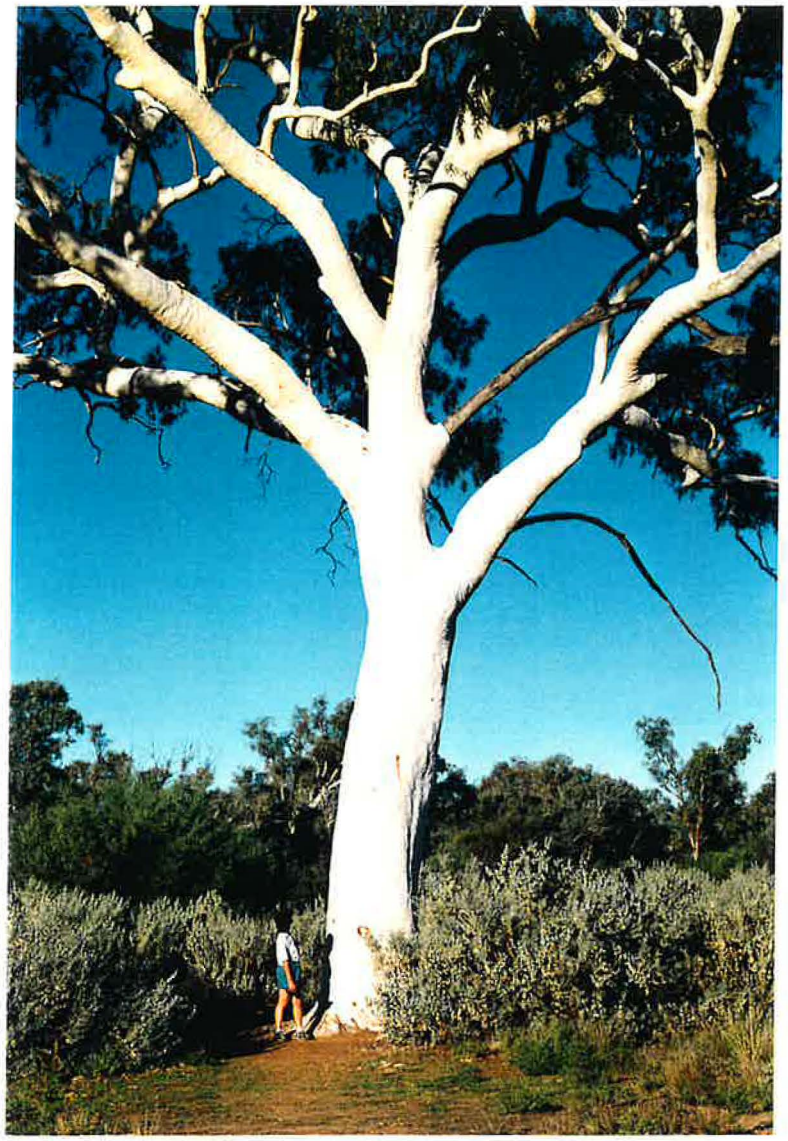
The Red Center

Devils Marbles Conservation Reserve

The Red Center
Alice Springs Desert Park - Numbat
The Numbat is a diurnal marsupial that has a specialized diet of termites. It was once widely distributed across the continent but now only a few populations remain.

The Red Center
East MacDonnell Ranges

Corroboree Rock



The Red Center
East MacDonnell Ranges

Ghost Gum
Trephina Gorge Nature Park

The Red Center
East MacDonnell Ranges

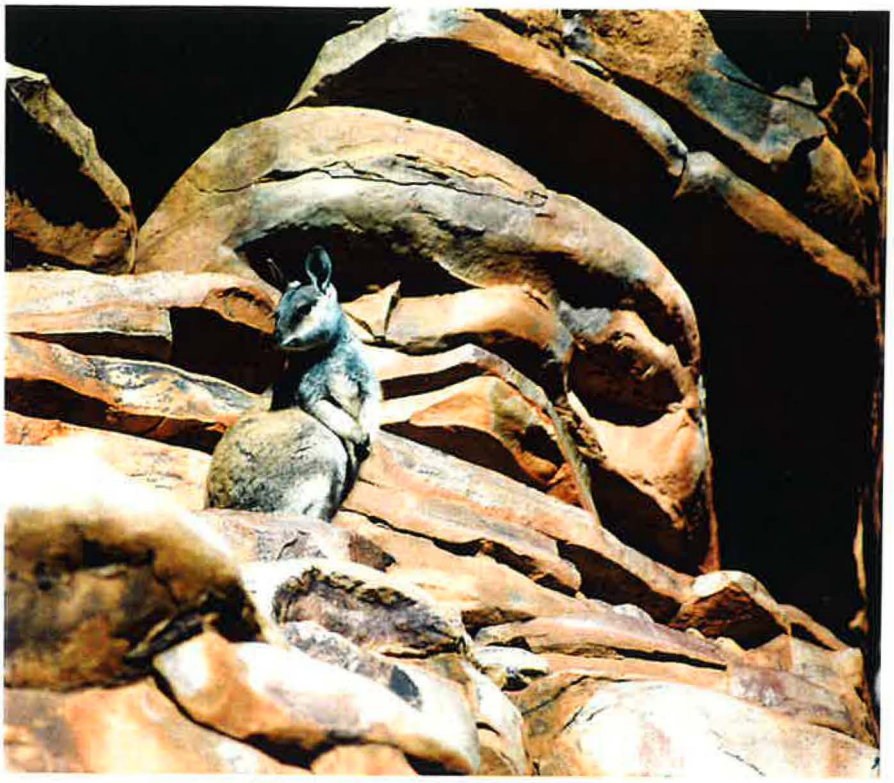
Trephina Gorge

The Red Center
East MacDonnell Ranges

Cattle Drive

The Red Center
West MacDonnell Ranges

MacDonnell Ranges Cycad



The Red Center
West MacDonnell Ranges

Black-Footed Rock Wallaby

The Red Center
West MacDonnell Ranges

Spinifex Pigeon

The Red Center
West MacDonnell Ranges

Waterhole in Ormiston Pound

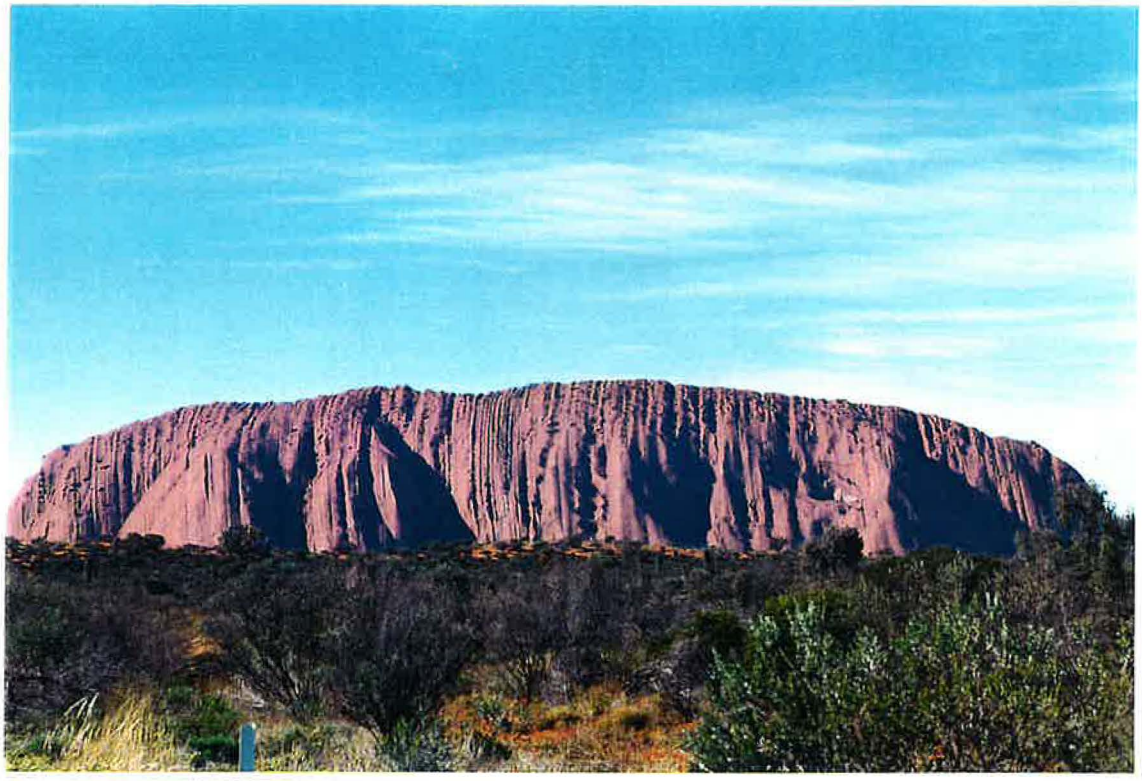
The Red Center
Watarrka (Kings Canyon) National Park

Kings Canyon

The Red Center

MacDonnell Ranges Cycad on

The Kings Canyon Walk

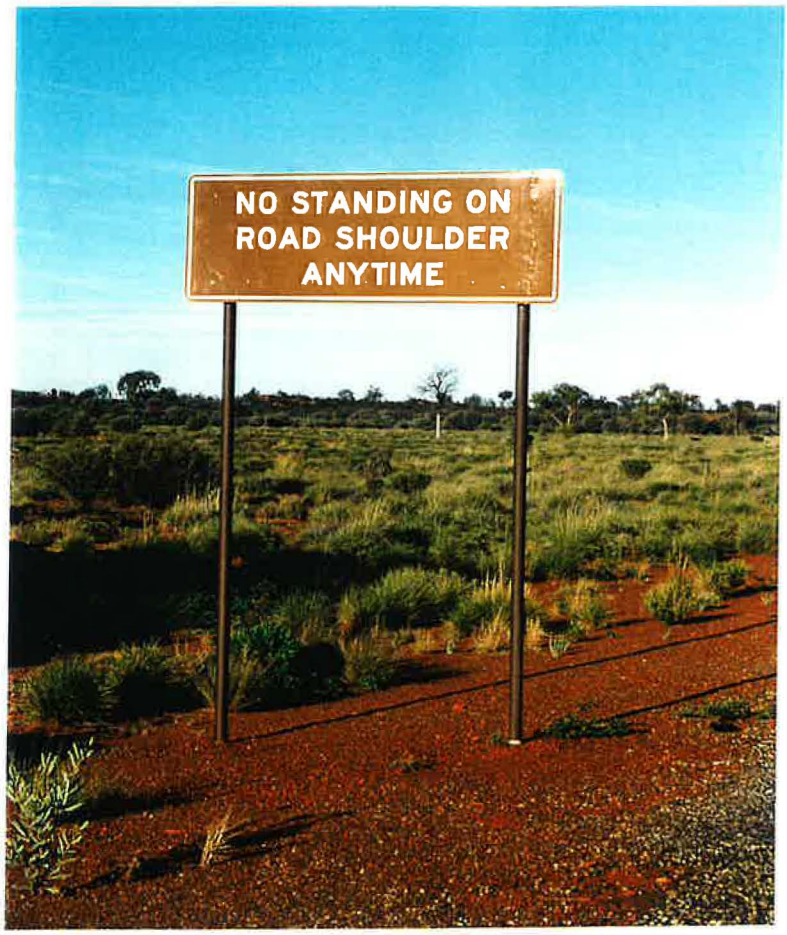


The Red Center

Uluru (Ayer's Rock)

The Red Center

Kata Tjuta (The Olgas)



The Red Center
Uluru-Kata Tjuta National Park

Sign at Side of Road

Australia Slide List

Tasmania
- Cradle Mountain National Park Visitor Center
  - Rainforest Walk
    - Celery Top Pine
    - *Nothofagus cunninghami*
    - Pencil Pine
    - Rainforest Floor
- Cradle Mountain Lodge
  - Pencil Pine Cabin
  - Jeanne and I in room
  - Tasmanian Native Hen
  - Trail by Cabin
  - Tasmanian Pademelon
  - Spotlight Tour
  - Common Brushtail Possum
  - Common Wombat
  - Enchanted Walk
    - Buttongrass Moorland
    - Wombat Burrows
    - Temperate Rainforest
- Cradle Mountain National Park
  - Dove Lake Walk
    - Pandani
    - Pencil Pine
    - King Billy Pine
    - Skink
    - Lake-Deciduous Beech
- Lyell Highway
  - Nelson Falls
  - Short Beaked Echidna
  - Eucalypt & Buttongrass Moorland
  - Tasmanian Devil
- Lake St. Clair N.P.
  - Lake St. Clair
  - Derwent Bridge- Eucalypt & Buttongrass Moorland
  - Laughing Kookaburra
- Mount Field National Park
  - Swamp Gum
  - Ferns
  - View of Mt. Dobson-Snow
  - View of High Country from Road
  - Wombat Moor Trail
    - Pineapple Grass

Australia Slide List

Tasmania
- Mount Field National Park
  - Coral Fern
  - Subalpine Woodland
  - Lake Dobson
  - Lake Dobson- Day Hut
  - Jeanne- Lake Dobson
  - Subalpine Woodland
  - Deciduous Beech
  - Small King Billy Pine
  - Woodland Walk
  - Tasmanian Native Hen
  - Masked Lapwing (Spurwinged Plover)
- Southwest National Park
  - Lake Pedder
- Eastern Coast
  - Tasman Arch
  - Norfolk Bay
  - Port Arthur - Jeanne in Van
  - Black-Faced Cormorant
  - Australian Magpie Tasmania
- Hobart
  - Salamanca
  - Royal Botanic Gardens
  - Native Laurel
  - Waratah
  - Mountain Pepper
  - Huon Pine
  - Cushion Plant
  - Tasmanian Snow Gum
  - Creeping Pine
  - *Richea scoparia*
  - Pacific Black Duck
- Freycinet National Park
  - Red-Necked Wallaby
  - Little Pied Cormorant
  - Little Penguin
  - Laughing Kookaburra
  - Wineglass Bay
  - Lookout-Wineglass Bay
    - Silver Gull
  - Wineglass Bay Hike

Australia Slide List

- Tasmania
  - Launceston
    - The City
    - Cataract Gorge
    - Northern Tasmania from Plane
- Victoria
  - Melboune
    - Rowing
    - Royal Botanic Gardens
      - *Nothogfagus cunninghami*
      - Grey Headed Flying Fox
    - Melbounre Zoo
      - Koala
      - Great Cormorant
      - Australian Pelican
      - Dusky Moorhen
      - Silver Gull
      - Rufous Night Heron
      - Black Stripped Wallaby
      - Australian Bustard
      - Blue Winged Kookaburra
      - Common Bronzewing
      - Pied Heron
      - White-Necked Heron
      - Glossy Ibis
      - Black-Winged Stilt
      - Pademelon
      - Southern Hairy Nosed Wombat
      - Common Wombat
      - Lace Monitor
      - Short Beaked Echidna
      - Coiti - Central America
      - Goodfellows Tree Kangaroo - New Guinea
      - Jazz Night
    - Healsville Santuary
      - Koala
      - Dingo
      - Echidna
      - Emu
      - Brolga
      - Red Necked Wallaby
      - Tawny Frogmouth
      - Plumed Whistling Duck

Australia Slide List

- Victoria
  - Melbourne
    - Healesville Sanctuary
      - Pacific Black Duck
      - Great Cormorant
      - Cape Barren Goose
      - Peaceful Dove
      - Gray Headed Flying Fox
      - Western Grey Kangaroo
      - Red Kangaroo
      - Brush-Tailed Rock Wallaby
      - Tasmanian Devil
  - Wilsons Promontory NP
    - Views from Road
    - Tidal River-Grass Trees
    - Lunch off dirt road
    - Lily Pilly Walk
      - Echidna
      - Crimson Rosella
      - Eastern Yellow Robin
    - Sealers Cove Walk
      - The Pass
      - Ferny Glade
      - Temperate Rainforest
    - Tidal River
    - Darby River
    - Eastern Grey Kangaroos
  - Grampians National Park
    - Booroka Lookput
    - The Balconies
    - MacKenzie Falls Walk
    - Wonderland Loop Hike Australia
    - Van
    - Red-Necked Wallaby
    - Mt. Williams Walk
      - Prickly Tea Tree
      - Silver Banksia
      - Banksia
      - Mt. Williams
    - Mt. Stapylton Area
      - Sunset
      - Grass Tree
      - Kangaroo Crossing Sign

Australia Slide List

- Victoria
  - Little Desert National Park
    - Western Grey Kangaroo
    - Park Boundary
    - Little Desert Area
      - Wheat Farms/Clay
      - Turtle Crossing
    - Whimpeys Lodge
      - Dead Fox
      - Mist Nets
      - Planted Dead Tree
      - Bush Stone-Curlew
      - Mallee Fowl
      - Skink
      - Willie Wagtail
      - Emu
      - Australian Magpie
      - Crested Pigeon
    - 4WD Tour
      - Whimpey
      - Fox Bait: 1080
      - River Red Gums
      - Banksia
      - Eagle Nest
    - Mallee Fowl Research Property
      - Silvereye
      - Mallee Fowl Mound
      - New Holland Honeyeater
      - Spiny-Cheeked Honeyeater
      - Purple-Gaped Honeyeater
      - Mallee Fowl Research Mound
- South Australia
  - Coorong National Park
    - Dunes
    - Dunes-Australian Pelican
    - Australian Pelican
    - Purple Swamphen
    - Black Swan
    - Fisherman Cabin
    - Fishing Village
    - Coorong NP - Sign
    - Salt Flat
    - Vegetation - Edge of Salt Flat

Australia Slide List

South Australia
- Meningie
  - Great Egret
  - Silver Gull
  - Galah
- Ferry Across Murray River
- Aged Sign
- Goolwa
- Toilet Street
- Ferry from Cape Jervis to Kangaroo Island
- Cape Jervis
- Kangaroo Island
  - Cape Barren Goose Crossing
  - Kangaroo Crossing
  - Dirt Road
  - Cape Barren Goose
  - Seal Bay Conservation Park
    - Tammar Wallaby
    - Australian Sea Lion
    - Australian Sea Lion Habitat
    - Whale Skeketon
    - Boardwalk
  - Murray Lagoon Bush Camp
  - Flinders Chase National Park
    - Coastal Mallee - Boxer Dive
    - Overlook on Boxer Dive
    - Near Remarkable Rocks
    - Dead Snake
    - Remarkable Rocks area
    - Remarkable Rocks
    - Admirals Arch
    - Cape du Couedic
    - New Zealand Fur Seals
    - Rosenberg's Sand Goanna
    - Common Brush-Tail Possum
    - Echidna
    - Western Grey Kangaroo - In camp
    - Emu - In Camp
    - Australian BrushTurkey - In camp
    - Platypus Pool
    - Harvey's Return
    - Cape Borda
    - Ravine des Casoars
    - Snake Lagoon

Australia Slide List

- South Australia
  - Kangaroo Island
    - Vivonne Bay
      - Point Ellen
      - Crested Terns
  - Adelaide
    - South Australian Museum
      - *Diprotodon*
      - Thylacine
      - Eastern Quoll: Brown Morph
      - Eastern Quoll: Black Morph
      - Tasmanian Devil
      - Platypus
      - Short-Beaked Echidna
    - Hyde Park Area
    - Warrawong Sanctuary
      - Rainbow Lorikeet
      - Little Corella
      - Unidentified Marsupial
      - Brush-Tailed Bettong
      - Western Barred Bandicoot
      - Rufous Bettong
  - Arid Lands Botanic Garden - Port Agusta
    - Views of Flinders Ranges
    - Stuart's Desert Pea
    - Blue Bush
    - Curl Bush
    - *Senna artemisiodes*
    - Limestone Bottlewasher (Grass)
  - Flinders Ranges
    - Kangaroo Crossing Sign
    - Scenery
    - Galah
    - Sheep Shearing Shed
    - Flinders Ranges National Park
      - Wilpena Pound
        - View from Wangarra Lookout
        - Mt Ohlssen Bagg Trail
          - View of Wilpena Pound from Peak
          - Grass Tree
          - Riparian Woodland
      - Red Kangaroos

Australia Slide List

- South Australia
  - Flinders Ranges
    - Brachina Gorge
      - Campsite
      - Black-Fronted Dotterel
      - Gorge Geology
    - Aroona Ruins
      - 1080: Fox Poison
      - Dead Goat
    - Western Grey Kangaroo
    - Aroona Dam
    - Gammon Ranges National Park
      - Entry Sign
      - Scenery
      - Feral Goat Shooting Sign
    - Arkaroola
      - Euros (Common Wallaroo) - Arkaroola Water Hole
      - Yellow-Footed Rock Wallaby - Arkaroola Water Hole
      - Black Fronted Dotterel
      - Scenic Ridge 4WD Tour
      - Echo Camp
    - Blinman
      - Town
      - Stone House outside of Town
    - China Wall
      - Sunset
      - Campsite
    - View Point
      - Wilpena Pound in Distance
      - Galahs
      - Red Kangaroos
  - In Route to New South Wales
    - Little Corellas in Tree
    - Goyder's Line
    - Welcome to SA/NSW
- New South Wales
  - Kinchega National Park
    - Scenery
    - Lace Monitor
    - Wedgetail Eagle
  - Silverton Area
    - Camels

Australia Slide List

New South Wales
- Mootwinge
  - Shingleback
  - Homestead Walk
    - Water Hole
    - Euro (Common Wallaroo)
  - Byguano Range Hike
    - Scenery
    - Goats
  - Old Coach Road Drive
  - Park Sign
  - Apostle Birds
  - Major Mitchells Cockatoo
- In Route to White Cliffs
  - Goats
- White Cliffs
  - Opal Mines
  - Dugouts
  - Dugout Hotel
  - Top Level Opals
  - Solar Power
- Blue Mountains National Park
  - Views from Overlook
  - Hiking Trails
- Bangalay
  - Double Barred Finch
  - Red Browed Finch
- Sydney
  - City Water Supply
  - Coastline South of Sydney
  - Australian Museum
    - Short-Faced Kangaroo
    - *Genyornis newtoni* - Giant Flightless Bird
    - *Diprotodon*
    - Short-Faced Knagaroo Skeleton
    - Ringtail Possum
    - Tasmanian Devil
    - Plaques
    - Australia - 15mya
    - Australia - 5mya
    - Australia - 18,000 ya

Australia Slide List

- New South Wales
  - Sydney
    - Taronga Zoo
      - Southern Hairy-Nosed Wombat
      - Tiger Snake
      - Dingo
      - Whiptail (Pretty Faced) Wallaby
      - Red-Necked Wallaby
      - Sydney Opera House
      - Bird Show
      - Red-Tailed Black Cockatoo
    - Circular Quay
    - Aborigine
    - Royal Botanic Gardens
      - Sydney Opera House
      - Pacific Black Duck
      - Sulfur Crested Cockatoo
      - View of Sydney
- Queensland
  - Lamington National Park
    - Satin Bower Bird and Bower
    - Carpet Python
    - O'Reilly's
      - Tree-Top Walk
      - Southern Angle-Headed Dragon
      - Eastern Whipbird
      - Grey Butcherbird
      - Wonga Pigeon
      - Satin Bower Bird - Jock's Bower
      - Regent Bower Bird
      - Crimson Rosella
      - King Parrot
      - View from Behind Room
      - Red-Necked Pademelon
    - Full Day Hike
      - Pat's Bluff
      - Eucalypt Woodland
      - Subtropical Rainforest
        - Butressed Trees
        - Epiphytes
    - Morans Falls Hike
      - Trapdoor Spider
      - Tree Funnel Spider

Australia Slide List

Queensland
- Lamington National Park
  - Elbana Falls Walk
    - *Nothofagus*
    - Rainforest
- Brisbane
  - Lone Pine Koala Sanctuary
    - Brisbane River
    - Australian Brush Turkey
    - Eastern Water Dragon
    - Koala
    - Southern Cassowary
    - Snake-Necked Turtle
  - Moreton Island
    - Bottlenose Dolphin
    - Pied Cormorant
    - Australian Pelican

Fraser Island
- View of Island from Ocean
- Mangroves - Red and Grey
- Dundonga Creek
- Sand Bubbler Crabs
- Soldier Crab
- Jellyfish
- Resort Area
- Lake MacKenzie
- Foxtail Sedge
- Central Station
- Pinnacles
- Eli Creek
- Maheno Wreck
- Dunes
- Scribbly Gum
- Sunset
- Dingo
- Kingfisher Nest
- Park Sign

Heron Island
- Turtle Cabin
- Wedge-Tailed Shear water (Mutton Bird)
- Black Noddy Tern
- Eastern Reef Egret: Light Morph
- Eastern Reef Egret: Dark Morph
- Bar-Tailed Godwit - 1 Slide

Australia Slide List

- Queensland
  - Heron Island
    - Crested Tern
    - Lesser Crested Tern
    - Brown Booby
    - Buff-Banded Rail (Banded Landrail)
    - Ruddy Turnstone
    - View of Island from Ocean
    - Photos From Submersible
      - Reef
      - Turtle
      - Fish
    - Reef Walk at Low Tide
  - In Route to Carnarvon Gorge
    - Brolgas in Flight
    - Red-Winged Parrot
    - Bottle Tree or Boab
  - Carnarvon Gorge - Oasis Lodge
    - Room
    - Cycad Cone
    - Common Brush-tail Possum
    - Eastern Grey Kangaroo
    - Eastern Grey Kangaroo with Joey
    - Whiptail (Pretty Faced) Wallaby
    - Rufous Bettong
    - Squatter Pigeon
  - Carnarvon Gorge National Park
    - Entrance Sign
    - Balloon Cave Walk
      - Aboriginal Art
      - Cabbage Palms
    - Spotlighting - Balloon Cave Walk
      - Common Brush-tail Possum
      - Sugar Glider
      - Yellow-Bellied Glider
      - Rufous Bettong
      - Cane Toad
    - Platypus - 1 Slide (Dark)
    - Gorge Hike
      - Eucalypt Woodland with Cabbage Palms
      - Moss Garden
      - Ward Canyon
        - Aljon Falls
        - King Fern

Australia Slide List

- Queensland
  - Carnarvon Gorge National Park
    - The Art Gallery
    - Boolimba Bluff Hike-Views of Carnarvon Gorge
  - Cairns
    - Car Trip
      - Babinda
        - Rainforest Circuit Walk
        - Devil's Pool Walk
      - Bramston Beach Area
        - Forest Kingfisher
      - Eubenangee Swamp National Park - Loop
      - Wet Tropics
        - Palmerson Highway
        - Wooroonooran National Park
        - Tree Kangaroo Crossing - Sign
  - Kuranda
    - Cairns - Kuranda Railway
    - Bird World
      - Scaly-Breasted Lorikeet
      - Blue-Faced Honey Eater
      - Southern Cassowary
      - Unidentified Bird
    - Sky Rail
      - Wet Tropics - Forest Canopy
      - Wet Tropics Information Sign
      - Orb Weaver Spider
      - Jeanne in Gondola
  - Daintree
    - In Route to Daintree: Southern Cassowary - Best Slide
    - Daintree Eco Lodge
      - Wompoo Pigeon
      - Macleay's Honeyeater
      - Views from Room
      - Lodge at Dusk
      - Golden Orb Weaver Spider
      - White-Lipped Tree Frog
    - Daintree River
      - Baby Salt Water Crocodile
      - Salt Water Crocodile
      - Spectacled Flying Fox
      - Mangrove Roots
      - Green Pygmy Goose
      - Rainforest

Australia Slide List

- Northern Territory - Top End
  - Darwin
    - View From Plane in Route to Darwin
    - Flight To Bathurst Island
    - Bathurst Island - Tiwi Tour
      - School
      - Basket Weaving
      - Smoke Dance
      - Aboriginal Art
        - Paint - Two Colors of Ochre
      - Traditional Burial Site
      - Frilled Lizard Falls Walk
      - Catholic Church
    - Territory Wildlife Park
      - Monsoon Rainforest
      - Paperbark
      - Fresh Water Crocodile
      - Salt Water Crocodile
      - Pig-Nosed Turtle
      - Mudskipper
      - Fiddler Crab
      - Pied Imperial Pigeon
      - Bar-Shouldered Dove: Mating Display
      - Bush Stone-Curlew (Bush Thick-Knee)
      - Spangled Drongo
  - Litchfield National Park
    - In Route from Darwin
      - Burned Eucalypt Woodland
      - Cathedral Termite Mound
    - Park Entrance Sign
    - Crocodile Management Sign
    - Wangi Falls
    - Buley Rock Hole
    - Swamp
    - Northern Quoll - Road Kill
    - Magnetic Termite Mounds
    - Cathedral Termite Mounds
  - Arnhem Highway
    - Fogg Dam Conservation Reserve
      - Wetlands
      - Agile Wallaby
    - Window on the Wetlands
      - Visitor Center
      - Wetlands

Australia Slide List

- Northern Terriroty
  - Kakadu National Park
    - Park Entrance Signs
    - Wetlands with Wetland Birds
    - Fires
    - Ubirr
      - The Escapement of the Arnhem Land Plateau
      - Eucalypt Woodlands
      - Wetlands - Cahill's Plain
      - Sunset
    - Wetlands by Merl Campsite
    - Nourlangie Rock
      - Wetlands in Route to Nourlangie Rock
        - Brolga
        - White-Necked Heron
      - Rock Art
      - Gunwarddehwardde Lookout
        - Views of Nourlangie Rock
        - Views of Escarpment of Arnhem Land Plateau
    - Yellow Waters
      - Wetlands
      - Water Lilies
      - Paperbark Swamp
      - Board Walk
      - Pied and White-Necked Heron
    - Eucalypt Woodland Near Southern End of Park
  - Katherine Gorge National Park (Nitmiluk)
    - Park Entrance Sign
    - Jeanne in Van
    - Gorge Tour
    - Great Bower Bird
    - Blue Faced Honey Eater - Male and Female
    - Eucalypt Woodland at Sunrise
  - Katherine to Alice Springs: The Stuart Highway
    - Road Train
    - Devils Marbles - Sunset and Sunrise
    - Barrow Creek Telegraph Station
    - Tropic of Capricorn Markers
  - Alice Springs
    - Welcome to Alice Springs - Sign
    - View of Alice Springs from Anzac Hill
    - Alice Springs Desert Park

Australia Slide List

- Northern Territory
  - Alice Springs
    - Alice Springs Desert Park
      - Sturt's Desert Pea
      - Crested Pigeon
      - Barn Owl
      - Black-Faced Woodswallow
      - Numbat
      - Thorny Devil
      - Red Kangaroo with Joey
      - Emu
      - Theater
      - Architecture
      - Landscaping
      - Field Notes - Information Signs
      - Habitat Signs
      - Entrance Sign
      - Alice Springs - The Todd River
      - Alice Springs Telegraph Station
  - East MacDonnell Ranges
    - Corroboree Rock
    - Trephina Gorge Nature Park
      - Entrance Sign
      - 300 Year Old Ghost Gum
      - Ant Nests
      - Scenery
      - Sunrise
        - Gorge
        - Ghost Gum
    - Cattle Drive
    - Arltunga Historical Reserve
      - Ruins
      - Southern Cross Windmill
      - Gold Mine
  - West MacDonnell Ranges
    - Stanley Chasm
    - Ellery Creek Big Hole
    - Serpentine Gorge
      - View of Gorge
      - Cycads
      - View from Lookout

Australia Slide List

- Northern Territory
  - West MacDonnell Ranges
    - Ormiston Gorge Area
      - Entrance Sign
      - No Animals Sign
      - Spinifex Pigeon
      - Black-Footed Rock Wallaby
      - White-Necked Heron
      - Pound Walk
        - Scenery
        - Brown Falcon
        - *Solanum*
        - Water Holes
        - Ormiston Gorge
    - Serpentine Chalet Bush Camp
      - Campsite
      - Scenery
    - Mount Sonder
    - Eucalypts and Spinifex
    - River Red Gum - Bark
    - Aboriginal Land Sign
    - Simpsons Gap
      - Entrance Sign
      - Waterhole
      - Black-Footed Rock Wallaby Info Sign
  - Ayer's Rock and Vicinity
    - Sunrise
    - Crowd at Sunrise
    - Dunes in Route to Olgas
    - The Olgas
    - Yulara: Visitors Center
    - No Speed Limit
    - 100 km/hr Speed Limit
    - Red Center Sand Dunes
  - Kings Canyon
    - Park Entrance Sign
    - Ghost Gum
    - Views from the Trail
    - White Cypress Pine
    - Cycad
    - Revegetation Sign
    - The Garden of Eden

COURSE DESCRIPTIONS OF CLASSES COMPLETED

CALIFORNIA STATE UNIVERSITY FULLERTON

Anthropology 405: Human Osteology - 3 Semester Units

Prerequisite: Consent of Instructor. Techniques in the basic identification of human skeletal remains. Aging, sexing, racing, and stature reconstruction. For those interested in archaeology, hominid evolution, and/or forensic science. (2 hours lecture, 3 hours laboratory)

Anthropology 440: Human Evolution - 3 Semester Units

Prerequisite: Anthropology 101 or completion of general education category III.A.2. Advanced primate evolution; the origin of *Homo sapiens* as evidenced in the fossil record and through biochemical and molecular studies. Evolutionary theory and problems in human evolution. (2 hours lecture, 3 hours laboratory)

Biology 461: Invertebrate Zoology - 4 Semester Units

Prerequisites: Biology 241 and 261. Evolution, classification, phylogeny, morphological and physiological adaptations of invertebrate animals. Dissection, identification, and observation of extant animals. (2 hours lecture, 6 hours laboratory or fieldwork; weekend field trips may be required)

Biology 599: Independent Graduate Research - 1 Semester Unit

Open to students with consent of instructor with whom the student wishes to pursue independent study in biology.

Note: For this independent study unit I did drawings of invertebrate dissections. Some of these drawings have been incorporated into my zoology 1 laboratories.

UNIVERSITY OF CALIFORNIA, RIVERSIDE - Extension

Biology X412.3: Ecology of the Palm Oasis - 2 Quarter Units

An introduction to the plants and animals of the desert palm oasis with emphasis on the interaction between the physical and biological realms. The origin of palm oases, role of fire in the maintenance of the groves, distribution of desert palms and the role of resident and visiting animals are the topics discussed.

Note: Includes an all-day field trip to several palm oases. Offered in cooperation with the Palm Springs Desert Museum

Note: These course descriptions were copied from the Internet versions of both the CSUF and UCR college catalogues.

CALIFORNIA STATE UNIVERSITY, FULLERTON
OFFICE OF THE REGISTRAR
FULLERTON, CALIFORNIA 92834-6900

ACADEMIC TRANSCRIPT

STUDENT NAME	STUDENT NUMBER	DATE	PAGE
Sherry Elizabeth Schmidt	570-15-1631	07-08-98	1 OF 1

NOTE: OFFICIAL TRANSCRIPTS HAVE A COLORED BACKGROUND. PHOTOCOPIES ARE NOT TO BE CONSIDERED OFFICIAL TRANSCRIPTS.

Official Post Baccalaureate Academic Record

Fall 1997----------(Post Bacc)

Admitted To:
Nondegree program, graduate level
Major: Postbaccalaureate Undeclared

DEPT/NO	COURSE TITLE	UNITS	GRD/PRV	GRD PT	FOOTNOTE	S#	SIZE/GPA
ANTH-405	Human Osteology	3.00	A	12.00			20/3.50
ANTH-440	Human Evolution	3.00	A	12.00			32/2.91
BIOL-461	Invertebrate Zoology	4.00	A	16.00			12/2.75
BIOL-599	Independent Study	1.00	A	4.00			1/4.00

Enrollment Dates: August 25, 1997 to January 5, 1998

	ENROLD	EARNED	GPA UN	GRD PT	GPA
Term	11.00	11.00	11.00	44.00	4.00

Post-Baccalaureate Statistics and Degree(s)/Honors Awarded----------
Fall 1997 to Spring 1998

	EARNED	GPA UN	GRD PT	GPA
CSUF	11.00	11.00	44.00	4.00
Cumulative	11.00	11.00	44.00	4.00

Degrees Awarded:
None Awarded

----------End of Post Baccalaureate Academic Record----------
07.08.98

This transcript is official only when embossed with the university seal on all pages.

Carole Jones
UNIVERSITY REGISTRAR

Sherry Elizabeth Schmidt
13648 Becraft Place
Chino CA 91710

ISSUED TO STUDENT

T R A N S C R I P T O F R E C O R D

University of California Extension, Riverside

Addressee	Student
Schmidt,Sherry E. 13648 BECRAFT PLACE CHINO CA 91710 -4808	570151631 Schmidt,Sherry E. 13648 BECRAFT PLACE CHINO CA 91710 -4808 Issue Date: Jul.02.98

	Course Number	Course Title	Date Began	Date Ended	Class Hours	Quarter Units	Grade
BIO	X 426.5	Natural History of Granite Mountains	05/11/88	05/22/88	20.0	2.00	NC
BIO	X 412.4	Ecology of Joshua Tree National Monument	03/17/89	03/19/89	19.0	2.00	NC
BIO	X 405.	A Field Study of Birds: Fall	09/17/96	11/16/96	30.0	2.00	A
BIO	X 405.1	A Field Study of Birds: Winter	01/07/97	02/22/97	30.0	2.00	A
BIO	X 412.3	Ecology of the Palm Oasis	09/26/97	09/28/97	18.0	2.00	A

Grading System		Official Seal
A - Excellent	P - Passed	
B - Good	NP - Not Passed	
C - Adequate	S - Satisfactory	
D - Poor	U - Unsatisfactory	
F - Not Passing	NR - Not Reported	
I - Incomplete	W - Withdrew	
NC - No Credit	* - Work in Progress	
CE - Continuing Education (one unit equals ten contact hours of participation)		Recorder, University of California Extension Riverside, California Sarah Sharp-Aten

(special credits not recorded prior to Summer 1988)

MT. SAN ANTONIO COLLEGE
Salary and Leaves Committee

APPLICATION FOR SABBATICAL LEAVE

Name of Applicant Sherry Schmidt

Address 13648 Becraft Place, Chino California, 91710

Employed at Mt. San Antonio College beginning 9 September 1985

Dates of last sabbatical leave:

From _____ To _____

Department Biology Division Natural Sciences

Length of sabbatical leave requested:

One semester _____
Fall _____ Spring _____

Two Semesters X

Purpose of sabbatical leave:

Study X Project _____

Travel X Combination (specify) X

NOTE: **Sabbatical periods are limited to contractual dates of the academic year.**

Effective dates for proposed sabbatical leave:

From August 1997 To May 1998

and (if taken over a two school year period)

From _____ To _____

Attach a comprehensive, written statement of the proposed sabbatical activity(ies) including a description of the nature of the activity(ies), a timeline of the activity(ies), an itinerary, if applicable, the proposed research design and method(s) of investigation, if applicable.

Attach a statement of the anticipated value and benefit of the proposed sabbatical activity(ies) to the applicant, his/her department or service area, and the College.

Any change or modification of the proposed sabbatical activity(ies) as evaluated and approved by the Salary and Leaves Committee must be submitted to the Committee for reconsideration.

Sherry Schmidt

Signature of Applicant

25 November 1995

Date

Applicant's Name Sherry Schmidt

THE ACKNOWLEDGMENT SIGNATURES REFLECT AWARENESS OF THE SABBATICAL PLAN FOR THE PURPOSE OF PERSONNEL REPLACEMENT. COMMENTS REQUESTED ALLOW FOR RECOMMENDATIONS PERTAINING TO THE VALUE OF THE SABBATICAL LEAVE PLAN TO THE COLLEGE.

APPLICANTS MUST OBTAIN THE SIGNATURES OF ACKNOWLEDGMENT PRIOR TO SUBMITTING APPLICATION TO THE SALARY AND LEAVES COMMITTEE.

ACKNOWLEDGMENT BY THE DEPARTMENT/DIVISION

Signature of Department Chairperson Cindy Shannon Date 11-25-96
Comments:

Signature of Division Dean Larry L Red Date 11/26/96
Comments:
See attached letter of support

ACKNOWLEDGMENT BY THE OFFICE OF STUDENT LEARNING

Signature of Vice President, Student Learning J Magorski Date 11-27-96
Comments:
quality proposal from a quality professor.

NOTE: DIVISION DEANS ARE REQUESTED TO SUBMIT A STATEMENT OF RECOMMENDATION REGARDING THE VALUE OF THE SABBATICAL PLAN TO THE COLLEGE, DIVISION/DEPARTMENT, AND INDIVIDUAL, IN CONSULTATION WITH THE APPROPRIATE DEPARTMENT CHAIRPERSON.

****

FINAL ACTION BY THE SALARY AND LEAVES COMMITTEE:

_____ Recommend approval to the Board of Trustees

_____ Not recommend approval to the Board of Trustees

_____ _____
Signature - Chairperson, Salary and Leaves Comm. Date

_____ _____
Signature - Authorized Agent of the Board Date

Natural Sciences Division

AGRICULTURE•BIOLOGY•CHEMISTRY•EARTH SCIENCES/PHOTOGRAPHICS/ASTRONOMY
MATHEMATICS/COMPUTER SCIENCE•NURSING•PHYSICS/ENGINEERING

Salary and Leaves Committee
Mt. San Antonio College

26 November 1996

Re: Support for the Application for Sabbatical Leave for Sherry Schmidt (Biological Sciences Department)

Dear Committee Members,

I wish to provide my very positive support for Professor Sherry Schmidt and her request for a one year Sabbatical Leave in 1997-98. Her attached proposal for travel and course work in her primary teaching areas is well designed and will provide a number of significant benefits for her and her students.

Professor Schmidt's travels will provide wonderful opportunities to gain important instructional elements to compliment the courses she is presently teaching. This leave will also provide her with an outstanding opportunity to gain the needed personal background and experience to go well beyond the basic biological and zoological concepts in her lecture and laboratory presentations.

The Biological Sciences are undergoing significant changes that have profoundly impacted the way classroom material is presented. Professor Schmidt is an extremely effective classroom instructor and has always provided her students with current and relevant information. This chance to visit one of the most exciting living laboratories to see first-hand the interactions of the environment and the fauna will provide exponential dimensions to her classroom teaching. In addition Sherry has the ability to bring all of her experiences into play as she provides her students with the knowledge she has gained.

The courses that Professor Schmidt will be taking will also significantly enhance her effectiveness as a college instructor. These courses are very up-to-date and will provide her with cutting-edge knowledge. I have little doubt that Sherry will gain significantly from her planned travels and course work. I also know that the biggest gains will be made by the Mt. San Antonio College Biological Science students she teaches upon her return.

This project is fully supported by the Biological Sciences Department faculty and by my office. I believe this Sabbatical Leave request should be granted based on the magnitude of the experiences to begained by Professor Schmidt's travels and the opportunities for direct application of the related course work she will be taking.

If I can be of further assistance regarding clarification of support for Professor Sherry Schmidt's Sabbatical Leave request please contact me at extension 4425 or at LREDINGER@IBM.MtSAC.Edu.

Sincerely,

Larry L. Redinger
Dean, Natural Sciences Division

SABBATICAL LEAVE PROPOSAL
Sherry Schmidt

Proposed Sabbatical Activities

This proposal consists of two parts: One semester of study and one semester of travel. I propose to attend the fall semester at California State University Fullerton and fall quarter at Cal Poly Pomona taking Invertebrate Zoology, Marine Biology, and Cell Biology. I propose to spend three months traveling through Tasmania and Australia approximately mid-January through March.

My travels through Tasmania and Australia will begin in the southern hemisphere summer and end in the southern hemisphere winter. I propose to work my way from Tasmania north so I will arrive in the tropical areas of Queensland during the dry season, and be in the dry desert regions when they are the coolest. After visiting parks and wilderness areas in Tasmania, I plan to fly to southern Australia, progress to Victoria and New South Wales, then move through the wet tropical regions in Queensland. From Queensland I plan to fly to Darwin, visit the desert regions in the vicinity of Alice Springs in the Northern Territory, and end the trip in Western Australia.

I propose visiting National Parks, museums, zoos, and wildlife reserves, with the goal of making 35mm slides, gathering information for courses I teach, and learning about the unique features of the flora and fauna of Tasmania and Australia. I anticipate returning with at least 1000 35mm slides that can be incorporated into classroom presentations for Zoology, Biology, Conservation of Natural Resources, and Natural History of California.

Proposed Value of this Sabbatical

I teach Zoology 1 which emphasizes invertebrate zoology and evolution. This class includes a field trip to study tide pool invertebrates. I have had no formal training in invertebrate zoology nor have I had any marine biology courses. I feel I could do a better job teaching this course with more background and formal training in this area. The upper division Invertebrate Zoology course at California State University Fullerton is only offered every other year. It includes several weekday field trips and a 4 day weekend field trip. There is no conceivable way to work this course between my regular teaching hours. The last cell biology course I took was in the 1970's. This is an area of biology that has changed dramatically in the last 10 years and I feel an urgent need to update my knowledge in this area.

Australia is the "island continent". It has been completely isolated from interference from other continents for the last 90 million years. Millions of years of isolation has resulted in the production of a unique animal and plant fauna. Monotremes, the world's most primitive mammals, can be seen in Australia. The most abundant mammals in Australia are marsupials. No placental mammals larger than the size of a mouse occur naturally in Australia. Two types of flightless birds, Emus and Cassowaries, are found in Australia.

Australia is roughly the size of the Continental United States, excluding Alaska. Thus it is composed of a diverse set of biotic zones including vast desert regions, and some of the world's most diverse tropical forests. It also includes the Great Barrier Reef, the largest system of corals and associated life forms in the world.

A chance to study the flora and fauna of Australia would greatly enhance the courses I teach at Mount San Antonio College. Zoology has a great emphasis on evolution. I cover biogeography in this course and include a section on how continental drift resulted in the allopatric speciation of flightless birds. A trip to Australia would enable me to acquire photographs of Emus and Cassowaries as well as gain "hands on" experience with the behavior and natural history of these birds. In addition, I would have the chance to photograph the antarctic beech. Fossils of these trees were used to verify the theory of continental drift.

Australia is a natural laboratory on evolution. Fossil stromatolites, the oldest known forms of life, can be found at Shark Bay in Western Australia. Fossils from shark bay have been dated at 3.5-3.8 billion years old. Australia also provides many opportunities to observe and photograph examples of convergent evolution which would be used in my Zoology class.

My Natural History Class includes a section on deserts, my Conservation and Biology Classes include sections on biodiverstiy and tropical ecology. The opportunity to observe, study, and photograph these ecosystems in Australia would provide me with knowledge and insights that would enrich these courses.

Upon my return I propose providing a series of informal seminar sessions with my colleagues. Included in these seminars would be slide presentations on the following topics: Convergent evolution between placental mammals of North America and marsupials of Australia, ecosystems of Australia, and the Great Barrier Reef.

I believe that my value to my students and my colleagues would be enriched by an opportunity to travel and study during my one year sabbatical.

PROPOSED TRAVEL ITINERARY

Tasmania
Tasmanian Wilderness (tasmanian devil, pandemelons)
Mount Field National Park (habitat diversity of Tasmania)
Cradle Mountain (wallabies, quolls)
Maria Island National Park (emus)

South Australia
Adelaide
- South Australia Museum (nocturnal wildlife)
- Warrawong Wildlife Sanctuary (endemic wildlife)

Kangaroo Island (birds, kangaroos, platypus)
Seal Bay Conservation Park (Australian sea lion)
Finders Chase National Park (emus, koalas)

Victoria
Melbourne
- Melbourne Zoo (emus, butterflies)
- Healsville Sanctuary (platypus, wombat)

Grampians National Park (grey Kangaroos)
Little Desert National Park (birds)
Mount Buffalo National Park (birds)
Wilsons Promatory National Park (birds)

New South Wales
Snowy River National Park
Sydney
- Australian Museum (natural history, overview of Australian wildlife)
- Taronga Zoo (wildlife)
- Royal Botanical Garden (large collection of rain forest plants)

Queensland
Fraser Island (tropical rain forest, dingues, tropical sand dune ecology)
Townsville (tropical rain forest)
Cairns (Great Barrier Reef)
Daintree National Park (rain forest, wilderness)
Cape Tribulation National Park (birds, tree kangaroos, flying foxes)

Northern Territory

Darwin

- Northern Territory Museum of Arts and Sciences
- Indo Pacific marine Aquarium
- Territory Wildlife Park

Alice Springs

- Simpsons's Gap National Park (rock wallabies, dingoes)
- Finke Gorge National Park (plants unique to western Australia)
- Uluru National Park (desert wildlife and vegetation)

Western Australia

- Shark Bay (stromatolites, dolphins)
- Karujni National Park (desert wildlife and vegetation)

Addendum To Sabbatical Application

1. Modification of original time table:

I propose to leave for Australia the middle of February rather than the middle of January due to predicted weather conditions in the desert regions and the tropical regions. The temperatures in the Flinders Ranges of South Australia can be very high. Reasonable temperatures for travel begin in April. The dry season in the wet tropics of Queensland does not begin until April and many of the roads are impassable during the rainy season. The best times to visit the area around Darwin are May, June, and July. Modification of the original itinerary enables me to be in the Flinders Ranges in April when it begins to cool down, Queensland in April at the beginning of the dry season, and Darwin in May after the monsoon season. Due to time and financial constraints Western Australia was eliminated from the itinerary.

2. Sabbatical activities from January through Mid-February:

   a. Incorporation of information learned from courses at Cal Poly Pomona and CSU Fullerton into my lecture and laboratory notes so that all my courses are up to date and consistent with new information learned while attending the Universities.

   b. Collection and preparation of invertebrate tide pool organisms to be used in Zoology1.

   c. Update slide collection for both Zoology1 and Zoology2.

3. Approximate Travel Calendar which includes the minimum amount of sites that will be visited.

Mid-February to March

Tasmania

Tasmanian Wilderness (Tasmanian devil, pandemelons)
Cradle Mountain-Lake Saint Clair National Park (wallabies, quolls)

Early through mid-March

Victoria

Melbourne
- Melbourne Zoo (emus, butterflies)
- Healsville Sanctuary (platypus, wombat)

Grampians National Park (grey Kangaroos)
Little Desert National Park (birds)
Wilsons Promatory National Park (birds)

Mid- March to April

South Australia

Adelaide

South Australia Museum (nocturnal wildlife)

Warrawong Wildlife Sanctuary (endemic wildlife)

Kangaroo Island (birds, kangaroos, platypus)

Seal Bay Conservation Park (Australian sea lion)

Finders Chase National Park (emus, koalas)

Flinders Range National Park

Early through mid-April

New South Whales

Sydney

Australian Museum (natural history, overview of Australian wildlife)

Taronga Zoo (wildlife)

Royal Botanical Garden (large collection of rain forest plants)

Mid-April through mid-May

Queensland

Lamington National Park

Heron Island

Townsville (tropical rain forest)

Cairns (Great Barrier Reef)

Heron Island

Daintree National Park (rain forest, wilderness)

Northern Territory

Darwin

Northern Territory Museum of Arts and Sciences

Indo Pacific marine Aquarium

Kakadu National Park

Alice Springs

Simpsons's Gap National Park (rock wallabies, dingoes)

Uluru National Park (desert wildlife and vegetation)

Dear Sabbatical Committee:

I was unable to register for all the courses I committed to in my original proposal. As a postbaccaluareate student I had the same registration priority date as freshman and most of the courses I tried to enroll in were closed.

I was able to enroll in

Biology 461:	Invertebrate Zoology	4 Semester Units
Anthropology 440:	Human Evolution	3 Semester Units
Anthropology 405:	Human Osteology	3 Semester Units

I am going to petition to get into Biology 312, Genetics and Molecular Biology. I wrote the instructor to see if he would let me in the course and have received no response.

If I cannot get into that course would it be acceptable to enroll in extension courses through UCR, CSU San Bernardino, or CSU Fullerton?

Please send your response to:
Sherry Schmidt
13648 Becraft Place
Chino, CA 91710

or call: (909) 628-8696

Sincerely,

Sherry Schmidt
Instructor, Biological Sciences.

MT. SAN ANTONIO COLLEGE

Office of Human Resources

MEMORANDUM

TO: Sherry Schmidt

FROM: Peter L. Parra, Chairperson, Salary & Leaves Committee

DATE: August 4, 1997

SUBJECT: **SABBATICAL PROPOSAL MODIFICATION**

This memo is to confirm my approval of your request to modify your original sabbatical leave proposal. The courses you listed are acceptable as replacements for the ones in which you were unable to register. Extension courses are also acceptable, if you are unable to bet Biology 312. Unacceptable course work would be from a non-accredited institution or CEU units.

If there are any concerns raised by the Committee members, I will notify you immediately.

myw

2S/L\memos

BIBLIOGRAPHY

Adam, P. 1992. *Australian Rainforests*. Oxford: Claredon Press.

Barker, S., M. McCaskill, and B. Ward, eds. *Explore the Flinders Ranges.* South Australia: Royal Geographic Society of Australia.

Brooker, I. and D. Kleining. 1996. *Eucalyptus: An Illustrated Guide to Identification.* Melbourne: Reed Books.

Cronin, L.1997. *Key Guide to Australian Trees*. Kew: Reed Books.

Flannery, T.F. 1997. *The Future Eaters: An Ecological History of the Australian Lands and People.* Kew: Reed Books.

Kirkpatric, J.B. and S. Backhouse. 1997. *Native Trees of Tasmania*. Hobart: Pandini Press.

Morris, I. 1996. *Kakadu National Park.* Fortitude Valley: Steve Parish Publishing Pty. Ltd.

Osborne, R., P. Prineas, J. Thorsell, and T. Duffy, eds. 1997. *Australia's World Heritage*. Glebe: Oz-Location Publishers.

Pizzey, G. and F. Knight. 1997. *The Field Guide to the Birds of Australia*. Sydney: Harper Collins Publishers.

Reardon, M. 1995. *The Australian Geographic Book of Corner Country: Where Outback Queensland, NSW, and SA Meet.* Terrey Hills: Australian Geographic Pty. Ltd.

Strahan, R., ed. 1995. *Mammals of Australia*. Washington, D.C.: Smithsonian Institution Press.

Strahan, R. 1996. *A Photographic Guide to the Mammals of Australia.* Sydney: New Holland Publishers, Ltd.

Swan, G. 1996. *A Photographic Guide to Snakes and Other Reptiles of Australia*. Sydney: New Holland Publishers, Ltd.

Triggs, B. 1997. *Tracks, Scats, and Other Traces: A Field Guide to Australian Mammals*. Melbourne: Oxford University Press.

Wescott, G. 1995. *Wilsons Promontory Marine and National Park Victoria.* Sydney: University of South Wales Press, Ltd.

White, M.E. 1997. *After the Greening: The Browning of Australia*. Kenthurst: Kangaroo Press.