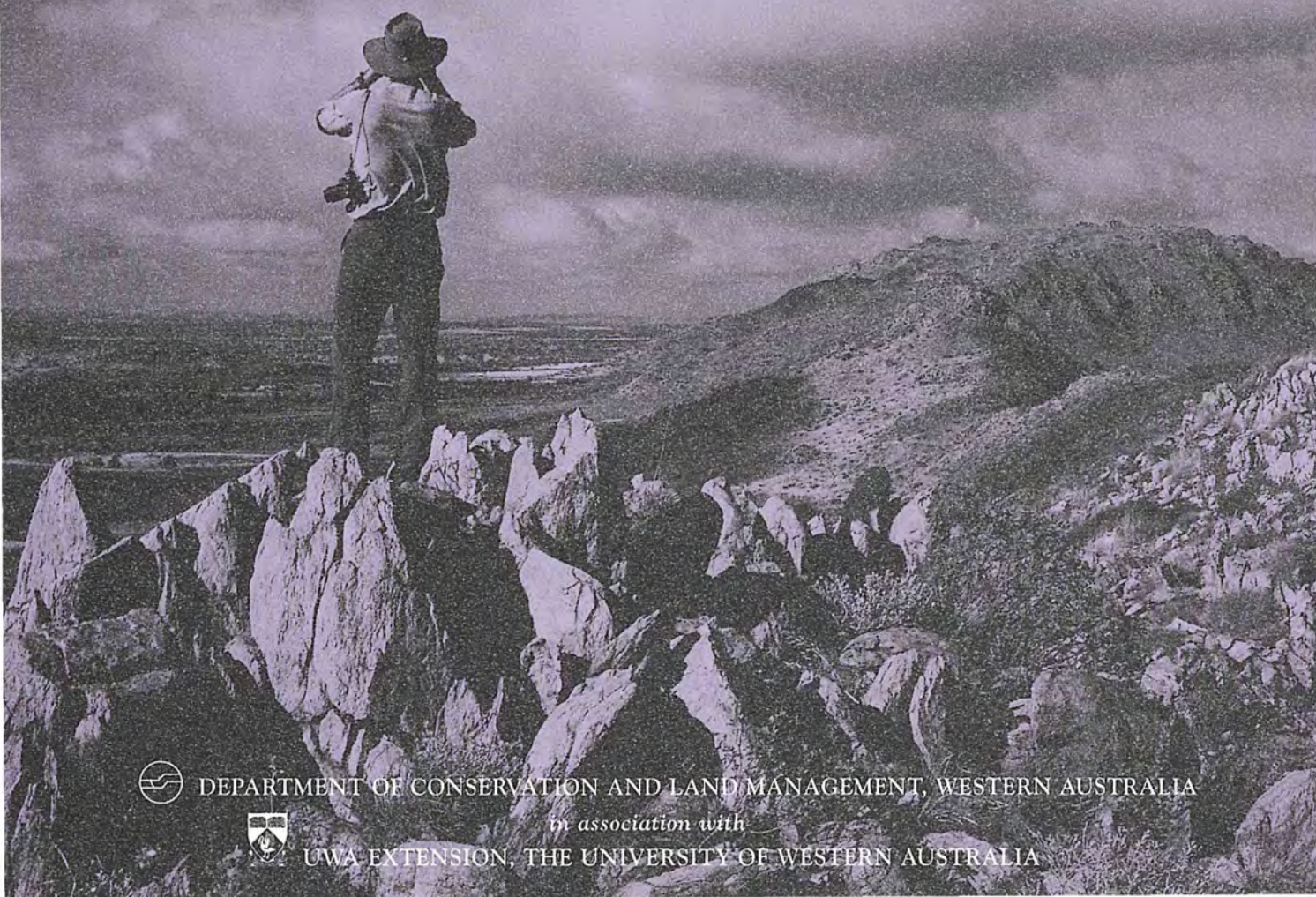
2000

LANDSCOPE EXPEDITIONS PROGRAM

ACCREDITED TOURISM BUSINESS · TOURISM COUNCIL AUSTRALIA

We have
a place for
you at the
frontier of
discovery

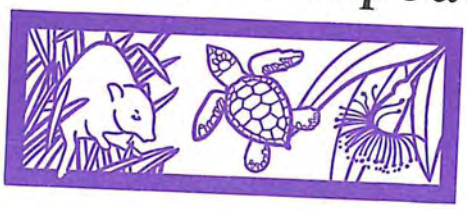


DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT, WESTERN AUSTRALIA

in association with

UWA EXTENSION, THE UNIVERSITY OF WESTERN AUSTRALIA

2000 LANDSCOPE Expeditions



LANDSCOPE

WA's CONSERVATION, FORESTS AND WILDLIFE MAGAZINE

Dear Friends,

Welcome to the 2000 program of *LANDSCOPE Expeditions* which also includes a preview of some expeditions being offered in the year 2001.

Australia's outback has just been named one of the 10 most significant wild places in the world by National Geographic magazine's list of millenium must-sees. Come with us and discover what makes it so special. Join scientists and regional staff from WA's Department of Conservation and Land Management (CALM)—experts on the outback. Take part in field-based study and research projects in remote parts of Western Australia. Make new friends while you work on important conservation projects and see things that your family, friends and neighbours have never seen and may never see except on a *LANDSCOPE Expedition*. The expedition contribution you pay will make the study and research possible. Your enthusiasm, commitment and support can make the difference.

We have some new adventures for you in the coming year, as well as the opportunity to be involved in ongoing studies. We'll sample the flora of the Hamersley Range and visit the spectacular gorges in Karijini National Park in the Pilbara, investigate the rainforests of Mitchell Plateau in the remote Kimberley, voyage to the Montebello Islands, explore the Zuytdorp coast, revisit the Gibson Desert and much, much more. Remember, some expeditions are only offered once—they truly are unique experiences.

You get more on a *LANDSCOPE Expedition*. We are a nationally accredited tourism business, committed to high standards and continuous improvement. We provide you with a written briefing, a pre-trip meeting with the expedition leaders, scientific standard leadership, a copy of the trip diary, an illustrated expedition report and a reunion where you can share your experiences. And that's not all—if you're a repeat expeditioner, we'll give you a 10% discount on any trip in this brochure (see page 13).

You don't have to be a scientist to join a *LANDSCOPE Expedition*. These experiences are open to people from all walks of life, and the only qualifications are good health, an interest in nature conservation, a desire to be part of a team, and a sense of humour.

Won't you go bush with us in the cause of nature?

Ron Kawalilak
EXECUTIVE EDITOR, *LANDSCOPE*

PS For more information on *LANDSCOPE Expeditions* visit CALM's NatureBase at http://www.calm.wa.gov.au. Even if you can't join us on an expedition just now, you can still be part of the conservation and management of WA's unique natural heritage by becoming a subscriber to CALM's award winning *LANDSCOPE* magazine. See the back cover for more details.

Note: Prices of expeditions commencing after 1st July 2000 include a 10% Goods and Services Tax (GST).

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
Locked Bag 29, Bentley Delivery Centre, Western Australia 6983

2000–2001

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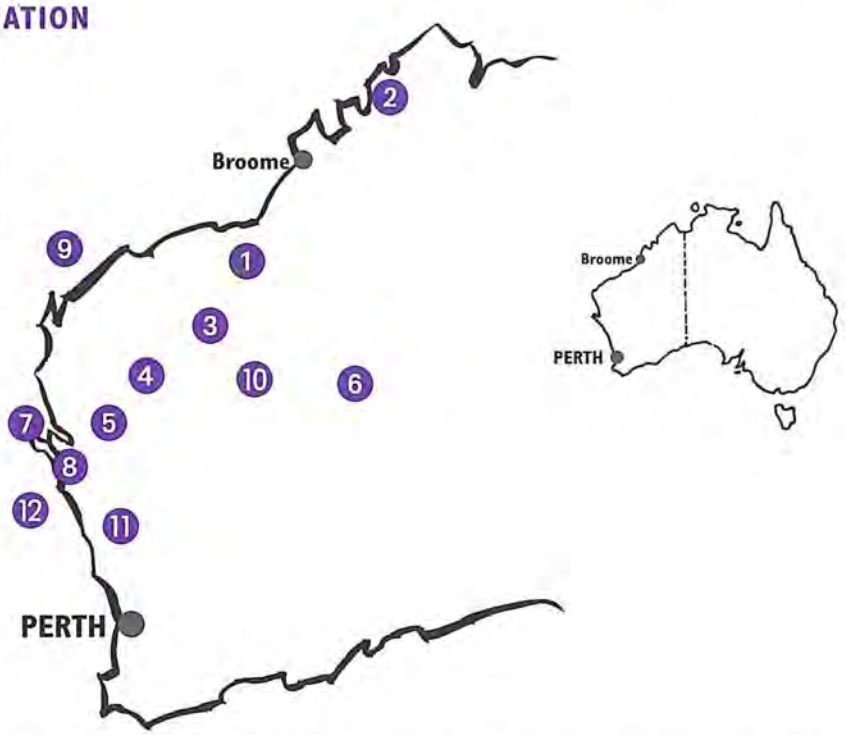


Cover: Looking into the new millenium—zoologist Dr Peter Kendrick on a *LANDSCOPE* expedition to Cane River in the Pilbara Region of Western Australia. Photo – Daphne Edinger

Northwest Island
Mosaic Bay
Brambaxo Bay
Walpole Reef
North Channel
Pansy Island
Kelvin Channel
Hollyhock Island
Chatham Point
LIMIT OF SURVEY
Gladstone Point
23A
23B
Kingcup Island
Horseshoe Lagoon
Alpha Island
Balfour Point
Benedictine Bay
Lily Island
Channel
Wheatstone
South Island
Dandelion Island
Daisy Island
Epsilon Island
Claret Bay
INDIA

Join us at the frontier of discovery

2000

LANDSCOPE Expeditions

Lend your body to research...

LANDSCOPE Expeditions are non-profit, self-supported study and research projects. Since their inception in 1992, the expeditions have been offered by CALM's publication *LANDSCOPE*, a quarterly magazine devoted to wildlife, conservation and environmental issues in Western Australia. They are offered in association with UWA Extension, a department of The University of Western Australia.

CALM is the Western Australian Government agency responsible for the management and sustainable use of the State's 22 million hectares of national parks, conservation parks, marine parks, State forests and timber reserves, nature reserves and marine nature reserves. It is also responsible for conserving native plants and animals throughout the State.

UWA Extension has been operating as a public outreach arm of The University of Western Australia since 1913. It is a Centre for Continuing Education and promotes community awareness in a variety of ways, including educational travel.

CALM scientists and regional staff identify the research projects and lead the expeditions. CALM and UWA Extension administer the expeditions. The private sector and local communities are contracted to provide logistical support.

LANDSCOPE Expeditions answer the need for research to protect the environment, while they respond to the demand for first class interpretation by scientists and specialists.They provide paying volunteers with an opportunity to work alongside scientists and to promote wider cooperation in addressing conservation and land management challenges in Western Australia. Any member of the general public can be involved subject to fitness. You must be 13 years of age or over to be registered as a CALM volunteer.

You can visit and gain an understanding of remote or inaccessible places. You can have the satisfaction of knowing you have contributed to our knowledge of threatened environments and endangered species. Unique photo opportunities and the chance to see and handle unusual animals are a bonus.

Participants are not the only beneficiaries. The community also profits from the enriched lives of its members, and from the benefits that flow on from the research findings and outcomes. Future generations benefit from the natural and cultural resources volunteers help to identify and preserve. And on a global scale, *LANDSCOPE Expeditions* help to perpetuate cultural and biological diversity.

UWA EXTENSION TRAVEL AGENT'S LICENCE NO. 9TA00454

DON'T MISS OUT – BOOK EARLY

Most expeditions are limited to 12 people. Some expeditions are only offered once. Please book early so you don't miss out. Flights and accommodation in the north-west are in high demand—another good reason to make your travel plans early.

CALM VOLUNTEERS

When you sign up for a *LANDSCOPE* expedition you are automatically registered as a CALM volunteer. You will be given a volunteer's hat and will receive free copies of *CALM News*. You are also entitled to take part in a range of other volunteer activities, should you so wish. Being a CALM volunteer offers you the opportunity to develop a greater awareness and understanding of nature conservation and to play an active role in managing CALM lands. Volunteer activities are available in the areas of information, research, management, maintenance and campground hosting.

2000

Distant places, close encounters

...of the scientific kind

Western Australia covers almost a third of the Australian continent, stretching from the tropical Kimberley to temperate areas west of Albany. The coastline alone is nearly 13 000 kilometres long. Of Australia's 80 recognised natural biogeographic regions, no fewer than 26 occur in Western Australia—more than in any other State. These biogeographic regions are defined principally by landform, soils and vegetation types. They range from the rain forests (vine thickets) and savannas of the northern Kimberley through the diverse desert regions and the mulgas and mallees of arid inland Western Australia to the tall karri forests of the Warren region in the south-west. Coastlines cover a similar diversity of environments from the extensive coral reefs, mudflats and mangroves of the tropical Kimberley through the shallow sandy embayments of the west coast to the granite promontories and islands in the southern ocean off Albany and Esperance.

This extensive and diverse landscape and seascape provides a magnificent natural setting for a vast array of plant and animal species. It is also a huge natural laboratory in which scientists can pursue their research interests. However, such a diverse and extensive State also poses a formidable hurdle for scientists in determining the first among many questions that are essential to effective research and conservation—what occurs where? A major emphasis of the scientific research undertaken by *LANDSCOPE Expeditions* is directed toward answering this intriguing and pivotal question.

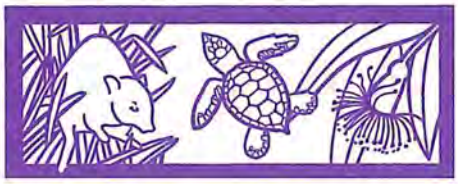
In the sparsely populated western third of the continent, the distribution of most plant and animal species is very poorly known and many *LANDSCOPE Expeditions* are focussed on trying to improve science's understanding of distributional patterns. Detailed records and prudent collections are made of many species, using the most scientifically acceptable methods and techniques, so that biologists from many institutions can carry out more detailed studies. Such documentation and collection has the dual purpose of helping to define the distribution of many botanical and zoological species as well as facilitating research by state herbaria and museums on the level of variation within species. Studies of specimens and records of species from a wide geographic area are often the precursors to the description of species new to science.

The conservation reserve system in Western Australia is not yet comprehensive, adequate or representative. Many land surface types and their associated wildlife are not represented in reserves, or are very poorly represented. This pattern was documented in the 1995 'Interim Biogeographic Regionalisation for Australia (IBRA) Report', which demonstrated that many of Australia's major bioregions are poorly served by the existing conservation reserve system. While some land systems may have been well represented within reserves, others remain completely unrepresented. Bioregions provide a framework for identiying gaps in the reserve system. Conservation reserves should protect representative samples of each bioregion. *LANDSCOPE Expeditions* help identify which areas should be included to protect and enhance the State's biodiversity.

LANDSCOPE Expeditions has the specific aim of encouraging the public to travel with us to distant places for close encounters of the scientific kind. As an expedition member you are a vital partner. Join us and be part of a scientific team—record observations, collect, prepare and help identify specimens. Many conservation goals are difficult to achieve by scientists working alone—your support can make the difference.

2000

LANDSCOPE Expeditions



You can make a difference!

When you travel with *LANDSCOPE Expeditions*, you help in a variety of ways:

FUNDING

- You and your financial contribution make the research possible. This alone is a significant factor in making the expedition a success.

SCIENTIFIC DISCOVERY

- You can help by collecting key information. Although some interpretations will be made in the field, much of the synthesis takes place back in the laboratory, where final identifications and analyses are made and results prepared for publication. You will discover that field work can be repetitive and time consuming as it has to be done in a systematic way. Outcomes are not always obvious at first, but there's always the chance of that surprise discovery.

- Extra pairs of hands and eyes are of great benefit in helping to achieve goals, as field work is very intensive. Leaders will attempt to maximise time spent in the field, but will provide instruction in field techniques as time permits.
- You may be asked to collect plant specimens and make animal sightings in order to increase our knowledge of the distribution of species. However, with plants, only representative specimens will be kept. Do not be disappointed if some are discarded, as redundancy is often part of the scientific process. With bird observations, it is the collective experience that confirms the sighting and produces advances in our knowledge.
- You don't need to be a scientist to be of help—be assured that your assistance will make a contribution to nature conservation in Western Australia. Remember scientists and leaders have spent many years developing their level of expertise—they welcome your questions and are there to guide you.
- Your fresh point of view or personal expertise may help scientists in unexpected ways. Please feel free to share your ideas.
- Expect to return home with a broader understanding of scientific methods, nature conservation and the rewards of knowing you have contributed to pioneering studies in remote areas. *LANDSCOPE Expeditions* aim to whet your appetite for nature, to give you a taste of scientific discovery, and to provide an experience that may not otherwise be a part of your life.

IT'S NOT ALL SCIENCE

- Many elements combine to make an expedition successful, not just the scientific activities. An affinity for team work, a flexible approach and a willingness to help in whatever way you can, helps to create the best results for nature conservation.

2000

Rock Pools and Rugged Ranges—Wildlife of the Nullagine River

East Pilbara Region of Western Australia. May 22–31

Dr Peter Kendrick, Regional Ecologist, CALM, Karratha
Dr Stephen van Leeuwen, Research Scientist, CALMScience Division, Karratha
Bob Bromilow and Michael Hughes, Technical Officers, CALMScience Division

Journey with a zoologist and a botanist on an exciting expedition to a rugged, remote and beautiful area of the Pilbara, east of Marble Bar. Survey animals, birds and plants that occur on the former Meentheena Station, a 250 000 hectare pastoral lease recently purchased by CALM. Meentheena is the first conservation reserve in the east Pilbara.

We will work from base camps on the Nullagine River, which runs through the middle of the station. Deep, permanent pools and gorges are surrounded by rugged ranges containing fossils of some of the oldest life forms on earth—stromatolites. Elsewhere, sandplains and granite outcrops provide stark contrasts in the landscape. Fine examples of Aboriginal sites and rock art are present, as well as abandoned homesteads and the lonely graves of drovers.

The project will involve collecting and documenting both the flora and fauna of Meentheena. Birdwatching should be excellent, owing to the wide range of habitats and plentiful permanent water. Mammals of interest include rock wallabies, bilbies, possums and quolls and a range of smaller mammals. There are likely to be many bat species, which may include the orange leafnosed bat. Reptiles will be diverse, with a high potential for new species. Plant species are an unknown quantity, but the wide range of habitats would indicate high diversity.

Nullagine River. Photo – Peter Kendrick

FIELD WORK

Assist with a fauna survey of mammals and reptiles using a variety of live trapping techniques at a series of twenty sites, covering the full range of habitats found in this area. Trapping will be supplemented by bird watching, especially early in the day, and foraging for the more elusive species. Evening activities will include spotlighting for nocturnal animals and mist-netting for bats. Participants will also assist with sampling and documenting the plants found in these areas. Flora work will be based largely on opportunistic collecting, with some quantitative quadrat work as well. Specimens will be pressed and recorded in the field, for subsequent identification and inclusion into the Pilbara regional and State herbaria collections.

CONDITIONS

Participants will bush camp under the stars, close to permanent water along the Nullagine River. The team will stay at a northern location for the first half of the expedition and a southern location for the second half. On site there will be opportunities for exploration. We will travel in 4WD vehicles, mostly on rugged, unsealed station tracks. The expedition will begin and end in Karratha, and travel to Meentheena will be on sealed highways. We leave Karratha in the morning, and arrive in camp that evening, travelling through Port Hedland and Marble Bar. Time permitting, we will visit the real marble bar, on the river there. After leaving Karratha we will be camping under the stars in bush camps. Meals and camping gear will be provided but you will be expected to help with camp chores. The weather in early May can be warm with Celsius temperatures ranging from the high 20s to low 30s. Nights can be cold with temperatures possibly below 10° Celsius.

RELATED INTERESTS

An interest in bird watching, botany, wildlife ecology, photography, bush walking, outback driving and camping under primitive conditions in remote areas.

DEPARTURE POINT

The expedition will start and finish in Karratha, Western Australia.

INCLUSIONS

Pre-trip briefing, transport from departure point, meals, research equipment and supplies, duffel bag, thermal mug, stubby holder, volunteer hat, written briefing, camping and field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Alcoholic beverages and other personal expenses.
Some refreshments en route.
Medical treatment or emergency evacuation expenses.

CONTRIBUTION

$2395

2000

The Last Great Wilderness—Exploring the Mitchell Plateau

Mitchell Plateau, North Kimberley, Western Australia. June 19–28

Kevin Kenneally, Scientific Coordinator, *LANDSCOPE* Expeditions
Daphne Edinger, Honorary Research Scientist, CALM
Kevin Coate, Naturalist and Ornithologist
Dr Bernie Hyland, Principal Research Scientist, Tropical Forest Research Centre, CSIRO, Atherton, QLD
Dr Ric How, Senior Curator, WA Museum of Natural Science
Chris Done, Regional Manager and Ben Tannock, Wildlife Officer, CALM, Kununurra

Experience one of the last great wilderness areas of the world as you begin your expedition with a charter flight from Broome over the stunning scenery of the Kimberley coast. This region, with its rich tapestry of tropical plants and animals and the great complexity of its landscapes, is highly valued as a living laboratory. Join some of the foremost experts in the biology of the Kimberley on the Mitchell Plateau which comprises around 4 000 square kilometres of some of the most diverse habitats in northern Australia. Well known for its stunning scenery and wilderness values, it has become a mecca for scientists seeking insights into tropical biodiversity in the Kimberley. This relatively small area has the highest diversity of vertebrate fauna for any comparable area in Western Australia.

Mitchell Plateau. Photo – Kevin Kenneally

Dr Ric How and Kevin Kenneally undertook pioneering work on the biology of Mitchell Plateau in the 1970s. This study identified the importance of many animal and plant communities including rainforest patches. Between 1987 and 1989 Dr Bernie Hyland and Kevin Kenneally were part of a team that conducted a survey of Kimberley rainforests under the National Rainforest Program. This culminated in the publication of *Kimberley Rainforests of Australia* in 1991. A number of rainforest patches on the Mitchell Plateau were identified from this study as being worthy of further study. Some of these have been fenced in order to monitor the effects of disturbance, particularly by fire and cattle. In 1993 a *LANDSCOPE* expedition visited the Plateau, further extending our knowledge of the area. Building on these previous studies, this expedition will provide a useful comparison with data collected on earlier studies.

This project will provide a unique opportunity to work with tropical specialists on a broad range of exciting field projects. Help build on our knowledge of the biodiversity of the Plateau region. Assist with live trapping of reptiles, marsupials, rodents and bats, both in the rainforest and in the surrounding savannah woodlands. Explore rainforest patches and collect plant specimens. Experiment with field identifications using the computer-generated interactive CD-ROM on rainforest trees and shrubs developed by Dr Hyland. Trial the as yet unreleased CD-ROM on vine species of the rainforests. Search for birds of interest on the Plateau, such as the black grass wren, chestnut backed button quail and the white lined honeyeater.

In addition to its biological interests, the Plateau is renowned for its scenic attractions. Among the best known of these is the Mitchell River and its tributaries, deeply incised into sub-horizontal sandstone, with waterfalls and permanent pools. Currently the study area is not included in the CALM conservation estate. However, since 1998 the Department of Conservation and Land Management has been managing conservation and recreation under a memorandum of understanding with the holders of mining tenements in the area.

FIELD WORK

Help collect, press and document plants, record vegetation communities, observe birds and make natural history observations at a variety of locations on the Mitchell Plateau. Assist with a fauna survey using a variety of live trapping techniques. The expedition will add to existing biological knowledge of this area, and the data collected will be used to make recommendations for management of the area.

CONDITIONS

Expedition members will rendezvous in Broome prior to departing the same day for the Mitchell Plateau by chartered aircraft. At Mitchell Plateau we will be met at the airfield and transferred to our campsite. Bush camping with limited facilities are available at this site. Travel in the field will be in a 4WD air conditioned vehicle. Some tracks may be very rough. We will spend eight nights camping under the stars before departing via Drysdale River and the Gibb River Road for Silent Grove, where we will spend one night camping before returning to Broome via the Gibb River Road and Great Northern Highway. On site there will be opportunities for exploration. Botanical and fauna

work and bird watching activities will be supplemented by visits to local attractions such as the Mitchell Falls and Aboriginal rock art sites. Meals and camping gear will be provided, but you will be expected to help with camp chores. There will be a range of activities to suit differing levels of fitness among volunteers. Days will be warm but nights may be cool to cold.

RELATED INTERESTS

An interest in tropical botany, biogeography, fauna studies and animal handling, bird watching and photography will be useful.

DEPARTURE POINT

The trip starts and finishes in Broome, Western Australia.

INCLUSIONS

Pre-trip briefing, air charter, ground transport, camp ground fees, meals, research equipment and supplies, thermal mug, stubby holder, duffel bag, volunteer hat, written briefing, camping and field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Medical treatment or emergency evacuation expenses.
Some refreshments en route.
Alcoholic beverages and other personal expenses.
Optional scenic helicopter flights at Mitchell Plateau.

CONTRIBUTION

$3495

The Traveller's Visual Diary

A workshop by
Brian Hoey, Visual Artist

Travelling in itself is a pleasure but recording your journey can enhance the experience and provide you with memories you will cherish forever. This workshop provides an introduction to the visual diary, through examples, demonstration and personal instruction. It will be particularly useful to those attending the *LANDSCOPE Expedition* to the Murchison in August 2000 led by Brian, or to anyone with an interest in recording their travels for posterity. Find out what painting equipment to take on your holiday, how to choose a subject, the basics of drawing and colour mixing and how to go about putting it all together. Suitable for beginners or those with some experience. *Materials not included in fee, but available by arrangement if required. Please bring lunch to share on the Saturday.*

Payment in full required at time of enrolment. Book direct with UWA Extension—Tel. (08) 9380 2433

A: 7–9pm Friday 7th April,
9.30am–4.30pm Saturday 8th April
$125 Limit 15

or

B: 7–9pm Friday 7th July,
9.30am–4.30pm Saturday 8th July
$137.50 (includes GST) Limit 15

2000

Grassy Islands in a Sea of Iron—Plant Hunting in the Pilbara

Hamersley Ranges and Karijini National Park, Pilbara Region, Western Australia. July 11–21.

Dr Stephen van Leeuwen, Research Scientist, CALM, Karratha
Bruce Maslin, Principal Research Scientist, CALM
Bob Bromilow, Technical Officer, CALM
Dr Philip Short, Botanist, Northern Territory Herbarium, Darwin
Bryan Simon, Senior Principal Botanist, Queensland Herbarium, Brisbane

Be part of a botanical collecting expedition with some of Australia's leading botanists in one of the most picturesque locations in Australia. Travel through the Hamersley Range, internationally renowned for its scenic grandeur. The expedition will commence in Newman and will visit some extraordinary sites of biological diversity and scenic splendour, including Western Australia's highest peak, Mount Meharry, the luxurious wetland of Weeli Wolli Spring, the tranquil sunken gardens and cascading waterfalls of Dales Gorge and the precipitous cliffs, impressive waterfalls and narrow chasms of Weano, Knox and Joffre Gorges in Karijini National Park.

The biological communities of the Hamersley Range vary from grasslands to open forest, from arid sand dunes to wet tropical gorges, from valley floors to the summits of the State's highest mountains. Not surprisingly, these communities also vary markedly in botanical composition. Some contain widespread plants like spinifex, wattles and bloodwoods, in others can be found rare and poorly known species like trigger plants, fringed lilies and native peas. The more obvious communities like the mulga woodlands and spinifex hummock grasslands are relatively well studied botanically and their conservation status is understood. However, less common communities like the tussock grasslands on alluvial flats and gilgai clay soils are poorly known, await exploration and may even be under threat.

Hamersley Range. Photo – Bob Bromilow

You will be assisting with botanical surveys of the tussock grassland islands on valley floors throughout the central Hamersley Range. We will focus on those between Tom Price and Newman. The conservation significance of these islands in terms of species richness and the presence of rare, geographically restricted and poorly known taxa, is undetermined. This botanical survey will help CALM assess the conservation value of such communities and their constituent plants; will help document threats to such communities; and will permit assessments on the representativeness and adequacy of the existing reserve system in the region with respect to protecting these unique grassy islands.

FIELD WORK

Participants will assist with sampling and documenting the plants found in these tussock grassland islands. This task will be achieved by establishing quadrats to fulfil systematic sampling requirements and by prolonged opportunistic collecting. Emphasis will be placed on documenting the flora of islands not previously sampled by CALM. While undertaking these surveys participants will see, apart from the spectacular landscape, marvellous wildflowers, including many daisies, peas, lilies, poverty bushes, mulla mullas and wattles.

CONDITIONS

We will bush camp under the stars in mulga woodlands and travel in 4WD vehicles through rough and infrequently visited parts of the Hamersley Range. You should be comfortable working under field conditions and be able to do without a shower for one or two days as water supplies may be limited. Days should be fine and moderate, though there is the possibility of some rain. Nights can get extremely cold, down to below 0° Celsius.

RELATED INTERESTS

Botany, ecology, photography, bush walking, outback driving and camping in remote areas under basic conditions.

DEPARTURE POINT

The expedition will start and finish in Newman, Western Australia.

INCLUSIONS

Pre-trip briefing, transport from departure point, meals, research equipment and supplies, duffel bag, thermal mug, stubby holder, volunteer hat, written briefing, camping and field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Alcoholic beverages and other personal expenses.
Some refreshments en route.
Medical treatment or emergency evacuation expenses.

CONTRIBUTION

$2965 (includes GST)

2000

Awash in Colour—Painting a Path through the Murchison

Murchison Region, Western Australia. August 4–13

Brian Hoey, Visual Artist
Sue Patrick, Senior Research Scientist, CALM
Daphne Edinger, Honorary Research Scientist, CALM

The Murchison—Mount Magnet, Meekatharra, Mount Augustus. Lizard Rock, Cattle Pool, Emu Hill and Cobra Station. Colourful names and colourful subjects abound in this country. Visit monolithic Mount Augustus, and see some of the best wildflower scenery in the State with an artist and botanists. Collect plants for the Western Australian Herbarium and, if you wish, record what you see in the form of a traveller's visual diary. No experience is necessary. Brian will conduct workshops prior to the expedition (see page 10).

The Murchison region is poorly represented in plant collections and this expedition will build on our knowledge of this botanically interesting area. We will pay particular attention to the opportunistic collection of ephemerals, some of which only appear when conditions are favourable and may not be seen in other years. Differing geological formations and soil types will provide opportunities for expedition members to see a wide variety of Western Australia's myriad plant species.

Fields of everlastings. Photo – Daphne Edinger

Brian Hoey, with his artist's eye, has mapped out an itinerary with plenty of visual variety and will gently guide you in the art of drawing, painting or photographing the subjects of your choice along the way: pastel fields of everlastings in pink, yellow and white—nature's pointillisme; sunset at Lizard Rock; majestic Mount Augustus sleeping under the sun—a monolith bigger than Uluru; ancient Aboriginal rock art; outback townscapes; billy tea; bush creeks and birdlife; windmills and waterholes; deep, blue, bottomless skies.

FIELD WORK

Brian Hoey will be engaged in the production of a visual diary of the conservation landscape as a record of a *LANDSCOPE* expedition from an artist's point of view.

Sue Patrick and Daphne Edinger will be collecting plants for the Western Australian Herbarium at a variety of locations and you may assist with collecting, identifying and processing specimens.

CONDITIONS

This expedition is fully accommodated, ranging from shearing sheds to country hotels. We travel from Perth on the Great Northern Highway via New Norcia, Wubin and Paynes Find to Wogarno Station. On day two we travel via Mount Magnet, Cue and Walga Rock to Meekatharra's Royal Mail Hotel-Motel. On subsequent days we visit Mount Gould, Mount Augustus, Dairy Creek, Cobra Station, Curbur Station and Carnamah. We return to Perth via Perenjori, Moora and Gingin. Most travel will be on sealed roads in a small coach. Expect warm days, cool nights and to enjoy outback hospitality.

RELATED INTERESTS

An interest in botany, ecology, photography and painting (optional).

DEPARTURE POINT

The expedition will start and finish in Perth, Western Australia.

INCLUSIONS

Pre-trip briefing, transport from departure point, accommodation, meals, research equipment and supplies, duffel bag, thermal mug, stubby holder, volunteer hat, written briefing, expedition diary and report, reunion. A list of basic watercolour painting equipment will be supplied to those who wish to try their hand at creating a visual diary.

NOT INCLUDED

Travel to and from departure point.
Sleeping bag, pillow and folding chair.
Art equipment.
Alcoholic beverages and other personal expenses.
Some refreshments en route.
Medical treatment or emergency evacuation expenses.

CONTRIBUTION

$2305 (includes GST)

2000–2001

LANDSCOPE Expeditions

How to Apply

1. Complete the attached application form.
2. Enclose your $250 initial contribution to secure your place.
   Please consult the application form for detailed instructions on how to pay.
3. Mail to: *LANDSCOPE Expeditions*
   UWA Extension
   The University of Western Australia
   NEDLANDS WA 6907
   AUSTRALIA

We will then send you a receipt, forward your details to the project leader and advise you of the next stage.

PLEASE READ ON BEFORE SENDING YOUR APPLICATION.

GENERAL INFORMATION

WHY JOIN AN EXPEDITION?

You care about the environment. You care about sharing the world with all other species in a sympathetic, non-threatening way. You care enough to want these vital research expeditions to take place. Without your contribution, much research would not take place. You care enough to want to take part. *We* care enough to want *you* to have the satisfaction of helping our environment in a direct, practical way, by joining scientists in the field and contributing, both by your donation and your work involvement, to these very necessary projects. We also care that you have a lot of fun and personal satisfaction along the way!

LOYALTY DISCOUNT

A 10 per cent discount is offered to repeat expeditioners (and to new expeditioners who book on more than one trip in this brochure).

WHO CAN PARTICIPATE?

Almost anybody! Most research expeditions do not require previous training or experience—only a willingness to work and learn. Limited places are available and are usually allocated in order of receipt. However, if the expedition is over-subscribed, the final choice of participants will be made in conjunction with the principal researchers, to ensure the best possible research outcomes for each expedition. Wilderness experiences, skills in observation, drawing, photography and skills and qualifications such as first aid, 4WD competence, outback safety and bushcraft can be very helpful.

WHEN IS MY FULL CONTRIBUTION DUE?

Your full contribution is due 60 days prior to departure. After this time, spaces held by applicants with outstanding balances are subject to forfeiture and become available to new and wait-listed applicants. Late applicants should submit the full contribution when applying for a place.

WHAT DOES MY CONTRIBUTION COVER?

Your financial contribution makes the research possible. It covers costs incurred at all stages of the research project, and includes funding of scientific staff, field camps, expedition vehicles, food, accommodation, equipment, instrumentation, fuel and freight plus follow-up work. One hundred per cent of funds received flow directly back into the study and research projects.

WILL I NEED A DOCTOR'S CERTIFICATE?

It's very important that you realistically evaluate your own ability to meet the physical and emotional requirements of the project. Most expeditions will not require a medical certificate, but the case may be different for individual expeditions. However, if you are over 60, a doctor's certificate of fitness is mandatory.

WHAT HAPPENS IF I'M NOT ACCEPTED FOR A PROJECT?

Once the review process has been completed, you will be notified of the results of your application. If we are unable to place you on the expedition of your choice, you may remain on the waiting list or withdraw your application and your $250.00 will be refunded.

IF MY PLANS CHANGE, MAY I CANCEL?

If cancellation in writing is received by *LANDSCOPE Expeditions* more than 60 days prior to departure we assure a full refund (less an administrative fee of $100). For cancellations received between 30 and 60 days prior to departure we will refund 50% of your contribution. If a cancellation is received less than 30 days prior to departure your entire contribution is non-refundable. We regret that we cannot make exceptions to the cancellation policy for any reason, including personal emergencies. In the event of late cancellation, your contribution may be claimed as a tax deductible donation to research.

WHAT IF THE PROJECT IS CANCELLED?

If *LANDSCOPE Expeditions* cancel the expedition prior to departure, your contribution will be refunded in full. However, we are not responsible for non-refundable airline or other tickets or payments, or any such similar penalties that may be incurred due to the cancellation of an expedition. If, after departure, a trip has to be terminated due to unforseen circumstances, no refunds will be made. To avoid such penalties, we strongly recommend the purchase of trip cancellation insurance.

TRAVEL TO THE POINT OF DEPARTURE

Travel to the point of departure for the expedition (this varies with each project) is entirely your responsibility. However, for the purposes of coordination, please forward a copy of your travel itinerary to *LANDSCOPE Expeditions*.

EXPEDITION CONDITIONS

Research expeditions are located in various parts of the State of Western Australia. Many will be based in remote locations where you will experience wilderness conditions. Accommodation styles will vary from outback camps, where you will sleep in swags or tents, to research centres, to modest hotels/motels. Please refer to the expedition brochure for more details about the area you are interested in visiting. You may be some distance from medical facilities, however, radio contact will be maintained through the Royal Flying Doctor Service. If you have special needs (e.g. vegetarian diet) please advise us in your application, and be prepared to bring your own private supplies. Field research inevitably involves unforeseen situations, and flexibility and cooperation are essential.

TRAVEL INSURANCE

We strongly encourage you to obtain travel insurance to cover you for such contingencies as lost or stolen baggage, personal liability, cancellation due to illness, termination due to illness or death at home, and emergency assistance as a result of accident, illness or rescue operation. *LANDSCOPE Expeditions*, UWA Extension and their associates will not be liable for damage, losses or additional expenses incurred. Emergency transport, medical or hospital costs resulting from illness or accident during the expedition are entirely the responsibility of the person receiving such care.

UWA EXTENSION TRAVEL AGENT'S LICENCE NO. 9TA00454

Observing birds on the Abrolhos. Photo – Kevin Coate

2000–2001

LANDSCOPE Expeditions

Application Form

Tell us about yourself...

Title .....Given name .....Surname .....

Address .....

..... Postcode .....

Telephone number (home) ..... (business) ..... (fax) .....

Email address .....

Preferred name on name badge.....

Expedition choice:

1 .....Dates .....

2 ..... Dates .....

Date of birth ..... Sex ..... Height ..... Weight .....

Occupation (indicate if retired) .....

Education/occupational background .....

Contact in case of emergency..... Relationship .....

Address .....

..... Postcode .....

Telephone number (home) ..... (business) .....

I HAVE EXPERIENCE IN

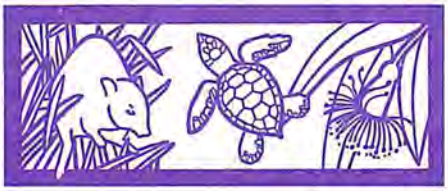
- ☐ First Aid
- ☐ Camp cooking
- ☐ Boat handling
- ☐ Swimming
- ☐ Snorkelling
- ☐ Hiking
- ☐ Back packing
- ☐ 4WD vehicle driving
- ☐ Surveying
- ☐ Map reading
- ☐ Sketching/illustration
- ☐ Photography/video
- ☐ Computing/electronics
- ☐ Vehicle maintenance
- ☐ Experience with other cultures

TELL US WHY YOU CHOSE THIS PROJECT

Supply a short description of yourself which can be shared with other team members.

How did you find out about this expedition?

Have you been on a previous *LANDSCOPE Expedition*? Please indicate last expedition.



MEDICAL CONDITIONS

Medical treatment may not be available near the research site, so it is important to list any special medical conditions you may have. (A medical certificate is required for participants over 60.)

☐ Diabetes ☐ Epilepsy ☐ Asthma ☐ Heart condition ☐ Allergies (please list below) ☐ Other

Do you have any other physical/medical conditions of which your Project Leader should be aware? (e.g. sleepwalking, bad back, previous hospitalisation, major injuries or loss of consciousness). Please explain and supply approximate dates.

Do you smoke? ☐ Yes ☐ No Level of vision: Good ☐ Fair ☐ Poor ☐

Do you require a special diet? If so, please indicate. (Many expeditions take place in remote areas where fresh produce is limited or unavailable. If you require certain foods, please indicate here, as you may need to bring a private supply.)

PAYMENT DETAILS

Please return the signed and completed application with your $250 initial contribution to:
UWA Extension, The University of Western Australia, Nedlands, Western Australia, 6907, AUSTRALIA.
Cheques payable to: The University of WA—Extension

☐ Bank ☐ Master ☐ Visa/card number ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Expiry date ..... Cardholder's signature .....

I enclose $ ..... to be applied to my choice of research expedition(s) as indicated on the application form on page 15.

CONDITIONS OF PARTICIPATION

As members of a *LANDSCOPE Expeditions* research project, participants are expected to adhere to the regulations and policies of the Western Australian Department of Conservation and Land Management (CALM). Participants whose conduct or behaviour jeopardises the welfare or fulfilment of the project objectives may be required to withdraw.

I am aware that photographs of me taken by the project leaders or other members of the expedition, and material contained in the official trip diary may be used by *LANDSCOPE Expeditions* at their discretion unless otherwise advised in writing by me.

Neither UWA Extension, CALM nor their associates assumes responsibility, either financially or otherwise, for illness or injury which might occur during an expedition. Emergency transport, medical or hospitalisation costs resulting from illness or accident during the expedition are the responsibility of the person receiving such care. In cases where the Project Leader in consultation with medical authorities considers it necessary, a participant will be sent home or hospitalised.

I am aware that while participating in a field project under the research program certain exposures to risk may occur. These exposures include but are not limited to: accident and/or sickness without readily available medical facilities, the forces of nature, travel on the ground and in the air, and others. In consideration of the right to participate in this program I do hereby assume all of the risks involved and agree to indemnify and hold CALM, The University of Western Australia, their associates, officers and employees harmless for any and all liability that may arise in connection with my participation in the activities which are part of CALM's *LANDSCOPE Expeditions* program. I agree that these conditions shall be governed in all respects and interpreted in accordance with Australian laws.

LANDSCOPE Expeditions reserves the right to make changes in the expedition when conditions such as acts of war, civil strife, forces of nature, airline or charter schedule changes require and/or cancel any expedition with an insufficient number of participants or for any other reason considered detrimental to the success of the project.

I HAVE READ AND FULLY UNDERSTAND THE CONDITIONS OF PARTICIPATION DETAILED ABOVE AND CONTAINED IN THIS BROCHURE.

SIGNATURE .....DATE.....

2000

Botanical Treasures in an Everlasting Landscape

Muggon Station, Murchison Region, Western Australia. August 26–September 2

Sue Patrick, Senior Research Scientist, CALM
Daphne Edinger, Honorary Research Scientist, CALM

Travel with botanists to an area renowned for its spectacular fields of everlasting wildflowers. Be part of history—visit a former pastoral station in the Midwest of the State during its transition from a working station to its incorporation into the State's conservation reserve system. Help gather botanical information for the Western Australian Herbarium on the plant communities and the poorly known or rare species that may grow there.

Although there is little detailed information on plants of Muggon Station, we know that two poorly known species occur there. During this survey we hope to find more, as well as establishing quadrats to record the plant communities as they are now. This information will be a record against which to record future changes that may take place as a response to the decrease in grazing pressure.

Shearers' quarters, Muggon Station. Photo – Daphne Edinger

Muggon Station covers about 182 743 hectares on the western boundary of the Shire of Murchison, 216 kilometres north of Mullewa and 185 kilometres north-east of Kalbarri. It lies on the eastern side of Toolonga Nature Reserve and is on the boundary between the Carnarvon and Austin Regions, with an arid climate. The vegetation is representative of the arid zone flora, but is very varied. Landforms include low breakaways and hills, lateritic plains with drainage tracts, undulating to flat red sandplains, sand ridges and dunes, siltstone ranges, stony plains, claypans and saltlakes. Vegetation types include mulga low woodland, mulga and snakewood shrublands, bowgada shrubland, spinifex sandplain, saltbush, bluebush and samphire communities.

Although isolated sections of Muggon were selected as leases in the 1870s and 1880s, lack of water discouraged selection of much of the present lease, which was not run separately until the 1960s. In 1973 it was taken over by A.M. and J.R. Mitchell with 9448 head of sheep. It remained in the Mitchell family until the lease was transferred to CALM in 1999.

FIELDWORK

This survey aims to discover more about the vegetation on the pastoral lease, including finding, recording and surveying populations of rare and poorly known species. Permanent quadrats will be established in as wide a range of plant communities as possible on the different land types. Opportunistic collections of plants representative of the station will also be made. Recordings of fauna will be made to increase our biological knowledge of the area.

CONDITIONS

We will travel from Perth to Muggon Station in an air-conditioned 4WD vehicle. We will be camping in the former shearers' quarters. Conditions are basic but there are showers and toilets. Meals and camping gear will be provided but you are expected to help with camp chores. The average temperatures range from about 9° to 25° Celsius but could be higher on some days. The nights may be quite cold. The terrain is not generally very rugged, with a chain of lakes running the length of the station, but there are sand dunes, stony ridges, breakaways and a siltstone range.

RELATED INTERESTS

An interest in botany, photography, bird watching, wildlife conservation and bush camping will be useful.

DEPARTURE POINT

Perth, Western Australia.

INCLUSIONS

Pre-trip briefing, ground transport, meals, research equipment and supplies, duffel bag, thermal mug, stubby holder, volunteer hat, written briefing, camping and field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Medical treatment or emergency evacuation expenses.
Some refreshments en route.
Alcoholic beverages and other personal expenses.

CONTRIBUTION

$1865 (includes GST)

2000

Buckshot and Breakaways—Plants and Animals of the Gibson Desert

Gibson Desert Nature Reserve, Western Australia. September 4–15

Dr Neil Burrows, Director, CALMScience Division
Bruce Ward, Acting Research Scientist, Fire Ecology
Graeme Liddelow, Senior Technical Officer
CALMScience Division, Manjimup

So much of Australia's culture and history is based on the outback. Yet most of us live on the perimeter of the continent and know little about our vast heartland. Our deserts are not vast areas of sand, but contain many different landforms and vegetation types which are home to a myriad different and unique animals. Explore the buckshot and breakaways, mulga and spinifex of the Gibson Desert under the guidance of scientists who have worked in the arid zone for many years.

Experience the vastness and isolation of this remote region and see animals and plants that few people ever view. For more than a decade, CALM scientists have been collecting information on this vast area. Over the past few years *LANDSCOPE Expeditions* have been vital in this work. The complex interaction of the animals, the harsh desert environment, fires started by lightning storms and predation by introduced cats and foxes are a central part of the studies. This information is essential to the ongoing effort to re-establish our vanishing desert fauna. CALM's long term aim is to establish viable colonies of mammals which have become extinct from the Australian mainland.

Checking pit traps. Photo – Graeme Liddelow

FIELD WORK

Volunteers will assist with tracking cats and foxes and help to pit-trap native animals. Help to handle and identify small mammals and reptiles, search for animals in different habitats and identify birds. Desert flora is also being studied and plant specimens from different fire ages will be collected for later identification.

CONDITIONS

The research area is 600 kilometres east of Wiluna and covers 1.8 million hectares. It includes vast, undulating spinifex plains, interspersed with mulga. In places there are salt lakes, claypans, temporary freshwater lakes, spinifex-covered sand dunes and low rocky ranges with occasional breakaways. Access is via the Gunbarrel Highway and we will travel from Perth in an air-conditioned, 4WD vehicle. En route we will stay for one night at Nallan Station and one night at remote Carnegie Station. Once in the desert eight nights will be spent camping under the stars. Meals and swags are provided but you will be expected to help with camp chores. Bush showers and basic laundry facilities are available at the main camp but it is planned to spend one night at Alexander Springs and another south of Mount Worsnop in bush camps with no facilities. Expect warm days and cold nights. The final night will be spent at a motel in Coolgardie.

RELATED INTERESTS

Observation skills and an interest in wildlife ecology. Photography, map reading and bushcraft skills would be helpful. You should be comfortable walking and bush camping under desert conditions.

DEPARTURE POINT

The trip starts and finishes in Perth, Western Australia.

INCLUSIONS

Pre-trip briefing, shared accommodation at Nallan Station, Carnegie Station and a motel in Coolgardie, ground transport, meals, research equipment and supplies, duffel bag, thermal mug, stubby holder, volunteer hat, written briefing, camping and field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Medical treatment or emergency evacuation expenses.
Some refreshments en route.
Alcoholic beverages and other personal expenses.

CONTRIBUTION

$2995 (includes GST)

2000

Beyond the Dreaming—Project Eden

Peron Peninsula and Salutation Island, Shark Bay World Heritage Area, Western Australia. September 22–29

Keith Morris, Group Manager, Biodiversity Conservation Group
Graeme Liddelow, Senior Technical Officer
CALMScience Division

This is your chance to be part of one of the most exciting wildlife conservation projects anywhere in the world. If successful, Peron Peninsula, within the Shark Bay World Heritage Area, could become the largest area in Australia in which large numbers of threatened animals roam freely. Already some of the surviving wildlife is beginning to recover. The Shark Bay thick-billed grass wren, a subspecies confined to this area, is becoming more numerous on the Peninsula and spinifex hopping mice are being caught in large numbers. Enjoy close encounters with native mammals and reptiles, assist in the monitoring of reintroduced threatened species, and track their deadly enemies—feral cats.

The Shark Bay World Heritage Area is noted for its natural beauty and in particular for the diversity of its land and sea scapes. A highlight of this year's expedition to Shark Bay is a two day voyage to Salutation Island to monitor stick nest rat colonies.

Project Eden is a bold plan which aims to remove virtually all feral animals from a massive 1050 square kilometre area of the Shark Bay World Heritage area. A feral animal proof fence has been erected and feral sheep, goats and foxes have been controlled under a World Heritage plan. The numbers of feral cats have been reduced to the point where some native species have now been reintroduced, notably woylies and malleefowl.

Recording wildlife. Photo – Graeme Liddelow

FIELD WORK

Thousands of visitors from all over the world are attracted to this region every year but few, if any, are privileged to engage in the hands-on experiences that this expedition makes possible. See and handle native wildlife. Participate in radio tracking of released woylies. Help researchers trap woylies to check their breeding status. Also, trap small native mammals and reptiles using both pitfall and Elliott techniques and handle, identify and record data on captured animals. At night, spotlight for larger mammals and reptiles. There will be ongoing work on feral cat control. This will provide information on cat biology, home ranges and other data that will be valuable for future control. Monitor stick nest rat colonies on Salutation Island. Help to photograph, collect, press and record plants of the Peninsula and assist with bird counts. We will also make time to meet the famous dolphins of Monkey Mia.

CONDITIONS

Travel from Perth will be in an air-conditioned, 4WD vehicle with meals and camping gear provided. The study site is on Peron Peninsula at Shark Bay, 800 kilometres north of Perth. We will be camping on the former Peron Pastoral Station, 10 kilometres from Denham, and 20 kilometres east of Monkey Mia. Meals will be provided but participants are expected to assist with camp chores. Conditions include basic showers and laundry facilities, as well as the nearby artesian bore. One night will be spent on Salutation Island. The days at this time of the year can be warm and the nights cool with temperatures ranging from 8° to 24° Celsius. At this time of year, occasional rain showers could occur.

RELATED INTERESTS

Observation skills and an interest in wildlife ecology, photography, bird watching and botany.

DEPARTURE POINT

The expedition starts and finishes in Perth, Western Australia.

INCLUSIONS

Pre-trip briefing, ground and sea transport, meals, research equipment and supplies, duffel bag, thermal mug, stubby holder, volunteer hat, written briefing, camping and field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Some refreshments en route.
Alcoholic beverages and other personal expenses.
Medical treatment or emergency evacuation expenses.

CONTRIBUTION

$2305 (includes GST)

2000

Gardens of the Ghosts—Exploring the Zuytdorp Coast

Zuytdorp Cliffs and Shark Bay World Heritage Area, Western Australia. October 1–7

Kevin Kenneally, Scientific Coordinator, *LANDSCOPE Expeditions*
Daphne Edinger, Honorary Research Scientist, CALM
Kevin Coate, Naturalist and Ornithologist
Greg Keighery, Principal Research Scientist, CALMScience Division

Explore and document the prolific and colourful wildflowers and birds along the Zuytdorp coast, as you learn about its equally colourful history. In 1712 the Dutch ship *Zuytdorp* was wrecked on cliffs north of Kalbarri. Relics of their landing can still be found, but the fate of the survivors is shrouded in mystery. Areas visited by this expedition fall within the Shark Bay World Heritage area and there will be an opportunity to see the ancient stromatolites at Hamelin Pool as well as the famous and little-visited Zuytdorp Cliffs. Birdwatchers will have the opportunity to look for the thick-billed grasswren in the Shark Bay region.

The Zuytdorp Nature Reserve, and the area proposed as an extension to the Reserve, are noted for unique vegetation, rare flora, and spectacular coastal landscapes. The area, however, is remote and difficult to access. Main Roads WA are assessing the feasibility of a proposal for a coast road between Kalbarri and Shark Bay. The results of this study could have major, long-term implications for future use and management.

Zuytdorp Cliffs. Photo – Kevin Coate

Shark Bay is located on the western-most point of Australia, about 750 kilometres north of Perth. The total area of Shark Bay's CALM-managed terrestrial reserves is about 122 000 hectares.

The area is of major botanical and zoological importance, and contains many threatened species. The study area is at the botanical transition zone between the eucalypt dominated Southwest Botanical Province and the acacia dominated Eremaean Province. As a result, the flora is enriched with the presence of both arid and south western species.

A brief survey of the coastal portion of the Zuytdorp Nature Reserve in August 1995 resulted in 314 species of flowering plants being recorded, including 29 new flora records for the World Heritage area. Several shrub species in the Reserve are present in 'giant' forms. The reasons for the 'gigantism' are not fully understood. A current biological survey of the Carnarvon Basin, of which the Zuytdorp Nature Reserve is a part, represents the first comprehensive study of the Reserve's flora and fauna.

FIELD WORK

Help collect, press and document plants, record vegetation communities, observe birds and make natural history observations at a variety of locations in the Shark Bay World Heritage Area. The expedition will provide much needed biological knowledge of this poorly known area, and the data collected will be used to make recommendations for management of the area.

CONDITIONS

We will travel in an air-conditioned 4WD vehicle. We will spend one night in Kalbarri before travelling on sand tracks to a bush camp near the Zuytdorp Nature Reserve. There will be an opportunity to visit the wreck site, before travelling on to the Old Telegraph Station at Hamelin Pool where we will camp for two nights. Botanical work and bird watching activities will be supplemented by visits to sites associated with *Zuytdorp* wreck survivors. The last two nights will be spent at Eurardy Station. Meals and camping gear will be provided, but you will be expected to help with camp chores. Days will be warm but nights may be cool.

RELATED INTERESTS

An interest in bird watching, botany, photography and marine archaeology will be useful.

DEPARTURE POINT

The trip starts and finishes in Perth, Western Australia.

INCLUSIONS

Pre-trip briefing, shared accommodation in Kalbarri, ground transport, camp fees, meals, research equipment and supplies, thermal mug, stubby holder, duffel bag, volunteer hat, written briefing, camping and field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Medical treatment or emergency evacuation expenses.
Some refreshments en route.
Alcoholic beverages and other personal expenses.

CONTRIBUTION

$2195 (includes GST)

2000

Montebellos Magic—Sailing the Pilbara Coast

Montebellos and other islands of the Pilbara Coast, Western Australia. October 21–29

Kevin Kenneally, Scientific Coordinator, *LANDSCOPE Expeditions*
Daphne Edinger, Honorary Research Scientist, CALM
Kevin Coate, Naturalist and Ornithologist
Keith Morris, Group Manager, Biodiversity Conservation Group, CALMScience Division

Join a natural history voyage from Dampier to Exmouth, in a quest for greater understanding of remote islands off the Pilbara coast. The Montebellos are a group of more than 100 islands situated in the Indian Ocean off the north-west coast of Western Australia. They achieved international recognition in 1952 and 1956 when the British detonated atomic bombs on the islands. The islands were a prohibited area until 1992, when they were returned to Western Australia by the Commonwealth Government. The area is now a Conservation Park managed by the Department of Conservation and Land Management.

The flat limestone islands are located 20 kilometres north of Barrow Island and 120 kilometres north-north-west of Dampier, and have been separated from the mainland for more than 8000 years. They were named in 1801 by the French Navigator Nicolas Baudin after the Battle of Monte Bello. The earliest known European use of the islands was in 1622, when survivors of the wreck of the *Tryall* camped on the northern islands before setting forth in a lifeboat for the East Indies. The pearling industry that developed in the late 19th century was probably responsible for the introduction of the cat and the black rat, leading to the extinction of the golden bandicoot and the spectacled hare-wallaby.

Montebello Islands. Photo – Keith Morris

In spite of disturbance from atomic testing and feral mammals, the islands and their surrounding waters still support a diverse array of terrestrial and marine fauna. CALM's Montebello Renewal Program, part of Western Shield, aims to control feral predators and re-establish native species on the islands. In 1999, Shark Bay mice were translocated to North West Island, and feral cats and black rats were eradicated. The first translocations of native mammals took place in June 1998, when 30 mala (a central Australian subspecies of the rufous hare-wallaby) were flown to their new home on Trimouille Island. The botanical work to be carried out by this expedition will complement the work of the Montebello Renewal program.

FIELD WORK

There will be opportunities for plant collecting; bird watching; natural history observations; observing boodies, golden bandicoots and marine turtles. Other pursuits may include snorkelling and a visit to the historic remains of Thomas Haynes' 1906 experimental pearl farm on Hermite Island. Data collected will be made available to the Montebello Renewal Program.

CONDITIONS

We will rendezvous at Dampier. The weather will be hot at this time of year. After three days at the Montebellos we voyage south to Exmouth, visiting the Lowendales, Barrow Island and various islands along the coast. Meals and field gear will be provided, but you are expected to help with some tasks. You should be comfortable with the idea of spending a fair amount of time at sea. The expedition concludes in Exmouth, where the last night will be spent in a motel.

RELATED INTERESTS

Botany, bird watching, snorkelling, photography, historical research, island biogeography.

DEPARTURE POINT

The expedition starts in Dampier and finishes in Exmouth, Western Australia.

INCLUSIONS

Pre-trip briefing, evening meal in Dampier, seven days' ocean going transport on a 20 metre air-conditioned charter vessel, one night's accommodation and meals in Exmouth, research equipment and supplies, thermal mug, stubby holder, duffel bag, volunteer hat, written briefing, field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Medical treatment or emergency evacuation expenses.
Alcoholic beverages and other personal expenses.
Snorkelling equipment and fishing gear.

CONTRIBUTION

$3515 (includes GST)

2001

Landscape of the Heart—A Journey to the Carnarvon Range

Little Sandy Desert, Pilbara Region, Western Australia. August 1–11, 2001

Kevin Kenneally, Scientific Coordinator, LANDSCOPE Expeditions
Dr Stephen van Leeuwen, Research Scientist and Bob Bromilow, Technical Officer, CALMScience Division, Karratha
John Angus, Regional Ecologist, CALM, Kalgoorlie
Daphne Edinger, Honorary Research Scientist, CALM
Kevin Coate, Naturalist and Ornithologist

Journey from Perth through the splendid wildflower country of the Murchison to the red sandstone bluffs of the remote Carnarvon Range on the southern boundary of the Little Sandy Desert. Situated just to the west of the Canning Stock Route, the Carnarvon Range is a spectacular sandstone landform and has been proposed as a conservation park. It is at the southern limit of several plant species with a more northern distribution. The Range has very high scenic values as well as numerous registered Aboriginal sites. Some work on the flora and fauna of the area has been done, but more is required. This expedition will collect valuable data on the birds and plants to be found there, including rare plants such as the pink flowered, rock loving *Tetratheca chapmanii* and the Mountain Thryptomene (*Thryptomene wittweri*) which has only been collected on a single occasion in the Carnarvon Range.

Carnarvon Range. Photo – Kevin Coate

The remoteness of the Carnarvon Range makes it unlikely that we will meet many other travellers during the expedition. Participants will have the opportunity to savour the "outback experience" in a timeless landscape as we investigate rock holes, glens and sand dunes, observe the abundant birdlife and document the plant communities. Beautiful white barked eucalypts stand sentinel at Talbot Rock Hole, an idyllic spot in the middle of the range which features Aboriginal rock art. Serpents Glen at the Southern end of the Carnarvon Range also features an excellent rock art gallery. Birds we may see include several varieties of honeyeater, red-capped robins, painted firetail finches and raptors. Birding and wildflowers are expected to be equally as good at the northern end of the range.

FIELD WORK

We will collect plants in the Carnarvon Ranges and en route. Specimens will be pressed and recorded in the field, for subsequent identification and inclusion into herbaria collections. A photographic record of wattles will be made for the WA Herbarium's Bruce Maslin, a world expert on Australian wattles. There will be opportunities for bird watching, especially early in the day, and for natural history observations in a range of habitats.

The expedition will provide much needed biological knowledge of this poorly known area, and the data collected will be used to make recommendations for management of the area.

CONDITIONS

Most nights will be spent in bush camps under the stars with the possibility of a station stay en route to the research area. On site there will be opportunities for exploration. We will travel in 4WD vehicles—on highways to reach the Little Sandy Desert, then on tracks. The expedition will begin and end in Perth and will travel via the Great Northern Highway through Paynes Find, Cue and Meekatharra, returning via Well No. 5 on the Canning Stock Route, Granite Peaks Station, Wiluna and Sandstone, rejoining the highway at Paynes Find for the final leg to Perth. Meals and camping gear will be provided but you will be expected to help with camp chores. The weather in August can be warm during the day, but night time temperatures can be extremely cold and may drop below freezing.

RELATED INTERESTS

Desert and wildlife ecology, botany, bird watching, herpetology, photography, Aboriginal archaeology, bush walking and outback driving. You should be comfortable camping and working under primitive conditions in remote areas.

DEPARTURE POINT

The expedition will start and finish in Perth, Western Australia.

INCLUSIONS

Pre-trip briefing, transport from departure point, meals, research equipment and supplies, duffel bag, thermal mug, stubby holder, volunteer hat, written briefing, camping and field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Some refreshments en route.
Alcoholic beverages and other personal expenses.
Medical treatment or emergency evacuation expenses.

CONTRIBUTION

TBA

2001

Night and Day Under an Outback Sky— An Astronomical Adventure

Ninghan Pastoral Station, Murchison Region, Western Australia. August 18–25, 2001

Dr James Biggs, Government Astronomer, Perth Observatory, CALMScience Division
Kevin Coate, Naturalist and Ornithologist

Observe the night sky in all its stunning majesty. Join CALM scientists on an astronomy-based expedition to Mount Singleton on Ninghan Station south of Paynes Find in the Murchison during the peak of Western Australia's world-renowned wildflower season. Help Perth Observatory astronomers evaluate Mount Singleton's suitability as a site for astronomical viewing.

Far away from the city lights, we will be able to view the night sky under optimal conditions. We will measure the level of atmospheric turbulence on site. Good sites should have minimal atmospheric turbulence which results in greater clarity of astro-photographic images. A small telescope system (and shelter) will be erected on the peak and throughout each night a crew of two to three expedition members will make simple measurements to help evaluate the site's suitability. This project will be repeated in coming years at others sites around the State to determine the best site for astronomical viewing.

Mount Singleton. Photo – Sue Patrick

Apart from the scientific work, expedition members will be given a guided tour of the night sky, stars and constellations by the Government Astronomer. The latest astronomical theories on many objects visible through the Perth Observatory portable telescopes will be discussed. We will observe stars, clusters of stars and gaseous nebulae and, as time progresses into the expedition, we will be able to see more of the Moon and its craters. Early risers will also be able to view the planets, Venus, Mars, Jupiter and Saturn. During the day we will explore the surrounding country.

FIELD WORK

The main emphasis of the expedition is the night-time collection of astronomical data for the Perth Observatory. Teams will carry out astronomical activities throughout each night. Expeditioners are not expected to work every night. Atmospheric measurements taken each night will help the Perth Observatory determine the suitability of Mount Singleton as a site for astronomical viewing. As time (and catching up on sleep) permits, there will be a variety of natural and cultural wonders to explore around the station during the day. Searches will be made for nest mounds of malleefowl that are known to occur in the area.

CONDITIONS

We will travel north from Perth via the Great Northern Highway to reach Ninghan Pastoral Station, south of Paynes Find. Basic accommodation will be provided at the station, with access to facilities. Meals on site will be provided by *LANDSCOPE Expeditions* but you will be expected to help with some chores. The weather in August will be warm with temperatures in the mid twenties. However, it will be chilly at night, sometimes getting down to 0° Celsius. You will need to be equipped with warm clothing for night viewing work. The top of Mount Singleton can be reached by 4WD vehicle over a rough track—to walk up takes approximately 90 minutes.

RELATED INTERESTS

Astronomy, bird watching, botany, wildlife ecology, photography and bush walking.

DEPARTURE POINT

The expedition will start and finish in Perth, Western Australia.

INCLUSIONS

Pre-trip briefing, transport from departure point, most meals, research equipment and supplies, duffel bag, thermal mug, stubby holder, volunteer hat, written briefing, field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Alcoholic beverages and other personal expenses.
Medical treatment or emergency evacuation expenses.
Some meals/refreshments en route.

CONTRIBUTION

TBA

2001

Seabirds of the Houtman Abrolhos Archipelago

Abrolhos Islands, Western Australia. December 11–15, 2001

Kevin Coate, Naturalist and Ornithologist
Daphne Edinger, Honorary Research Scientist, CALM

Voyage to the Abrolhos Archipelago, renowned for its marine environment, birdlife and history, accompanied by one of Australia's best known ornithologists. Some 95 bird species occur on the islands and excellent birdwatching can be expected in the month of December.

The islands of the Abrolhos are most famous for their breeding tropical seabirds. They owe their pre-eminence as a tropical seabird nursery to their location near the edge of the continental shelf in the path of the warm, south-flowing Leeuwin Current. Four species nest in vast numbers: the wedge-tailed shearwater, lesser noddy, common noddy and sooty tern. The last two are found in tropical seas throughout the world; the shearwater is widespread in the Indian and Pacific Oceans; but the lesser noddy is confined to minute parts of the Indian Ocean (one subspecies in the Seychelles and one in the Abrolhos).

Expeditioners on Abrolhos. Photo – Kevin Coate

The first substantial accounts of Abrolhos birds come from the collector-naturalist John Gilbert, who visited Pelsaert, East Wallabi, West Wallabi and other islands in January–March 1843 on behalf of John Gould, the eminent British ornithologist.

The first European account of the Abrolhos was in 1619 by Commander Frederick de Houtman of the Dutch East India Company, who almost ran aground. From this may have come the name Abrolhos, derived from the Portuguese expression *abre os olhos* meaning 'open the eyes' or 'look out'. This warning was not heeded on 5 June 1629 when the *Batavia* ran aground shipwrecking the 300 people aboard. The tragic episodes and heroism that followed the shipwreck have become part of the State's rich maritime history.

The Houtman Abrolhos is an archipelago of 108 islands and rocks lying 60–80 kilometres off the mid-west coast of Western Australia. They are clustered in four groups: the isolated North Island and the Wallabi, Easter and Pelsaert Groups.

The low, windswept limestone islands are surrounded by a maze of reefs and channels. The vegetation is primarily saltbush, beach spinifex and dwarf coastal shrubs. Reptiles thrive and the tammar wallaby and Abrolhos bush rat are found on some islands.

FIELD WORK

The Abrolhos islands are a precious resource: conservation, fishing and tourism uses need to be maintained in a sustainable way. There will be opportunities to snorkel in the crystal clear waters, for bird watching and natural history observations. Information gathered by the expedition will be made available to the government authorities responsible for managing the islands.

CONDITIONS

The expedition will commence in Geraldton where the first night will be spent in a motel, before boarding the charter vessel next morning for the voyage to the Abrolhos. We will sleep on board for three nights while at the Abrolhos, as camping on the islands is not permitted. Visits to several of the islands will be made during the course of the expedition. Meals are provided but you are expected to help with some tasks.

RELATED INTERESTS

Bird watching, snorkelling, marine archaeology, small boat handling, photography, historical research, island biogeography.

DEPARTURE POINT

The expedition starts and finishes in Geraldton, Western Australia.

INCLUSIONS

Pre-trip briefing, one night's accommodation and meals at a motel in Geraldton, four days ocean going transport on a charter vessel, meals, research equipment and supplies, thermal mug, stubby holder, duffel bag, volunteer hat, written briefing, field gear (except for personal items such as sleeping bags and binoculars), expedition diary and report, reunion.

NOT INCLUDED

Travel to and from departure point.
Medical treatment or emergency evacuation expenses.
Alcoholic beverages and other personal expenses.
Snorkelling equipment and fishing gear.

CONTRIBUTION

TBA

Leader Profiles

Join us in the field— LANDSCOPE Expeditions invite you to work alongside us in the cause of conservation

JOHN ANGUS has been the regional ecologist in CALM's Goldfields Region for the past two years. Previously a volunteer and consultant to CALM's Pilbara Region, CALMScience Division and Pilbara mining companies. Special interests include research into the control of feral cats; biological surveys of reptiles and mammals; and rare flora management.

DR JAMES BIGGS is the Government Astronomer for Western Australia and Director of Perth Observatory. Though his doctoral degree concerned radio astronomy, he has wide ranging research experience in optical and x-ray astronomy through his various appointments in Sydney, NSW; Jodrell Bank, University of Manchester and working with the Hubble Space Telescope at NASA's Goddard Space Flight Center.

BOB BROMILOW is a technical officer with CALMScience, Karratha. He has interests in computing, mapping, ant identification and flora and fauna surveys. Bob originally started with the Department of Fisheries and Wildlife in 1982 as a consultant on fox control.

DR NEIL BURROWS is the Director of CALMScience Division and a member of CALM's Corporate Executive. His research interests include fire management, fauna reintroductions and biological surveys. Neil has been involved in fauna reintroductions in both the Gibson Desert and on Peron Peninsula.

KEVIN COATE is a well known Western Australian naturalist and ornithologist, who has been involved in nature-based tourism since 1975. He has travelled extensively throughout outback WA and is known for his numerous publications on birds.

CHRIS DONE is the Regional Manager for the Department of Conservation and Land Management in the Kimberley. He is based in Kununurra and has a background in forestry. He is particularly interested in land management and conservation issues in the region.

DAPHNE EDINGER, has worked as an honorary research scientist with CALM since 1982. She has conducted botanical field trips throughout the State and has been with the *LANDSCOPE Expeditions* program as a leader since its inception. She and Kevin Kenneally were awarded the 1996 CSIRO Medal for Research Achievement for the book *Broome and Beyond: Plants and People of the Dampier Peninsula*.

BRIAN HOEY is a visual artist, author and consultant in cultural tourism, arts and heritage. He has been a pilot, stockman, pastoral contractor and company director. He has a passionate interest in the development of community arts and enjoys showing people Australian heritage and the outback.

DR RIC HOW is head of the Department of Terrestrial Vertebrates at the Museum of Natural Science, Western Australia and has over 30 years' research experience in Australia, Indonesia and China. His research on the biogeography and ecology of mammal and reptile communities has spanned the tropical, temperate and desert regions of both Australia and Asia.

MICHAEL HUGHES grew up in the Hamersley Ranges, and spent much of his younger days living and working on cattle stations throughout the Pilbara. He joined the Forests Department in 1980 as a horticulturalist, working in the Karratha native plant nursery. With CALM, Michael has worked on many fauna and flora surveys throughout the Pilbara, where his considerable knowledge of the country and its plants and animals are greatly appreciated. His special interest is in the flora of the Pilbara, but he has a lifetime of knowledge and experience to share with expedition members.

Leader Profiles

DR BERNIE HYLAND is a principal research scientist at the CSIRO Tropical Forest Research Centre, Atherton, Queensland. He is an internationally recognised authority on Australian rainforests. Bernie has undertaken taxonomic research on major rainforest plant groups and is the principal author of the interactive CD-ROM *Australian Tropical Rain Forest Trees and Shrubs* published by CSIRO. He is currently researching tropical vines to incorporate into the CD-ROM.

GREG KEIGHERY is a principal research scientist in CALMScience Division at Woodvale. He has undertaken botanical surveys throughout Western Australia, most recently between Kalbarri and Carnarvon and currently in the wheatbelt. Greg has written numerous papers and articles on the biology, taxonomy, conservation status and distribution of the native and introduced plants of Western Australia.

DR PETER KENDRICK has worked as CALM's regional ecologist in Karratha since 1989. He received his PhD in evolutionary genetics and community ecology from the Zoology Department, The University of Western Australia. His special interests are in the biological survey of reptiles and mammals, and in arid zone land molluscs.

KEVIN KENNEALLY, a research botanist since 1973, has been the scientific coordinator for *LANDSCOPE Expeditions* since 1994. He is an internationally recognised author, and coordinator of CALM's Science Publications Unit. Kevin has led research expeditions into remote areas of Western Australia for over 30 years. He was awarded a Churchill Fellowship (1979), the Australian Natural History Medallion (1984) and the CSIRO Medal for Research Achievement (1996).

GRAEME LIDDELOW is a senior technical officer with CALMScience Division, Manjimup. He has been involved in both Project Eden and Desert Dreaming since the inception of Western Shield, which aims to rid the State of feral cats and foxes. He has been involved in forest ecology and management for over 20 years and with desert and arid land ecology projects for over 10 years.

BRUCE MASLIN is a principal research scientist with CALM who has worked for more than 30 years as a botanist, specialising in the genus *Acacia* (wattles) of Australia. He has described more than 250 new species of wattle in over 100 publications. In recent years Bruce has been developing an electronic "encyclopaedia" of Australian wattles—called 'WATTLE'—that will enable users to quickly and simply identify specimens of this vast genus and to view photographs, drawings and comprehensive written information concerning them.

KEITH MORRIS is the group manager of CALMScience Division's Biodiversity Conservation Group based at Woodvale where he is responsible for the management of all the nature conservation research projects within CALM. He has expertise with threatened fauna conservation, island fauna, introduced predator and rat control, marine turtles and forest fauna.

SUE PATRICK is a senior research scientist in CALMScience Division at the Western Australian Herbarium. She gained a degree in botany in the UK and worked as a natural historian in museums there before coming to WA in 1982. Since then she has undertaken botanical surveys in the midwest and the wheatbelt for threatened flora and has written Wildlife Management Programs for Declared Rare and Poorly Known Flora in the CALM Moora and Geraldton Districts.

Leader Profiles

DR PHILIP SHORT is a botanist with the Northern Territory Herbarium in Darwin, having previously worked in the National Herbarium in Melbourne, Victoria. The bulk of his research has been on the Australian Compositae, particularly the everlastings and the "typical" daisy genus *Brachyscome*. Several undescribed taxa occur in the Pilbara and he will be endeavouring to collect them. Phil also has broad interests in biogeography and botanical history.

BRYAN SIMON is a senior principal botanist at the Queensland Herbarium, where he has been working on the systematics of Australian grasses since 1974. His taxonomic publications include revisions of the large genera *Aristida* and *Sporobolus* and two editions of a key to Australian grasses. Current projects include contributions to the grass volumes of the *Flora of Australia* and co-authoring an interactive key to Australian grasses. He has collected grasses widely in Australia, including the Kimberley and Gascoyne regions of Western Australia, and also widely in south central Africa.

BEN TANNOCK is the district wildlife officer at CALM's East Kimberley region, based in Kununurra. Ben has been a seasonal ranger in the Leeuwin-Naturaliste National Park in the South West Capes District, then in various national parks around the Albany area. He is interested in the protection of flora and fauna and in wildlife management.

DR STEPHEN VAN LEEUWEN is a botanist-ecologist with CALMScience Division, Karratha. He has 16 years' experience with the flora of North Western Australia, has a keen interest in arid zone ecology and is currently team leader for a biological survey of the southern Little Sandy Desert. His research interests include the relationship of the biota to its surroundings and how Aboriginal people interact with the land and use the biota.

BRUCE WARD is a technical officer with CALMScience Division, Manjimup and is currently an acting scientist in fire ecology. For the past 18 years he has worked in fire research, on fire behaviour and fire ecology studies. Since 1986 he has been involved in fire research in the arid zone, in hummock grasslands and on the Desert Dreaming project. In addition to his field work in the deserts, he has worked on *LANDSCOPE Expeditions* in the Gibson Desert and in Shark Bay.

Behind the Scenes

For information on *LANDSCOPE Expeditions* contact our administrative staff (left to right) Jean Paton, Marianne Lewis and Wendy Searle.

JEAN PATON has administered the expeditions program since its commencement in 1992. Jean was instrumental in setting up the first expedition to the Gibson Desert while at UWA Extension, The University of Western Australia. She has a long standing interest in environmental education and has coordinated study tours throughout Western Australia. Jean was a member of the State's Nature Based Tourism Advirory Commettee and helped develop Western Australia's Nature Based Tourism Strategy. **MARIANNE LEWIS** is the Liaison Officer with *LANDSCOPE Expeditions*, a position she combines with that of Scientific Editor in CALM's Science Publication Unit. Marianne has participated in an expedition to the Gibson Desert and an account of her journey can be read in *LANDSCOPE* magazine (Summer 1999–2000). **WENDY SEARLE** is an Assistant Editor and is responsible for preparing expedition diaries and reports for publication.

LANDSCOPE Expeditions

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