LANDSCOPE EXPEDITIONS
Working at the Frontier of Discovery

Expedition briefing

Main picture—Hummock grass (*Triodia melvillei*) Inset: Mulgara (*Dasycercus cristicauda*).

Prospecting, Pastoralism and Preservation— Conserving the Wildlife of Lorna Glen

September 3 – 12, 2003

Leaders:

- Mark Cowan, Regional Ecologist, Goldfields Region, Kalgoorlie
- Kevin Kenneally, Scientific Coordinator, *LANDSCOPE* Expeditions, Perth
- Daphne Edinger, Honorary Research Scientist, *LANDSCOPE* Expeditions, Perth
- Dr Ric How, Senior Curator, Western Australian Museum, Perth
- Kevin Coate, Naturalist and Ornithologist, Perth

This expedition is offered by *LANDSCOPE*, a quarterly magazine devoted to wildlife, conservation and environmental issues in Western Australia. The expedition is run in association with UWA Extension, The University of Western Australia.

LANDSCOPE Expeditions - Working at the Frontier of Discovery

Department of Conservation and Land Management *in association with* UWA Extension, The University of Western Australia.

Prospecting, Pastoralism and Preservation—Conserving the Wildlife of Lorna Glen

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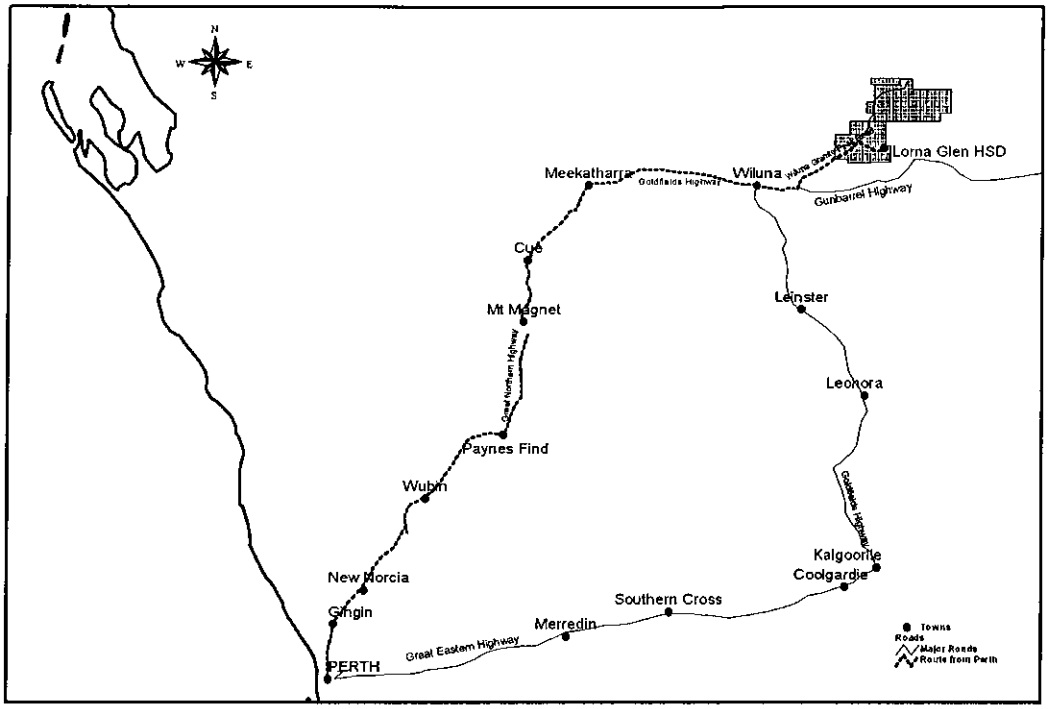
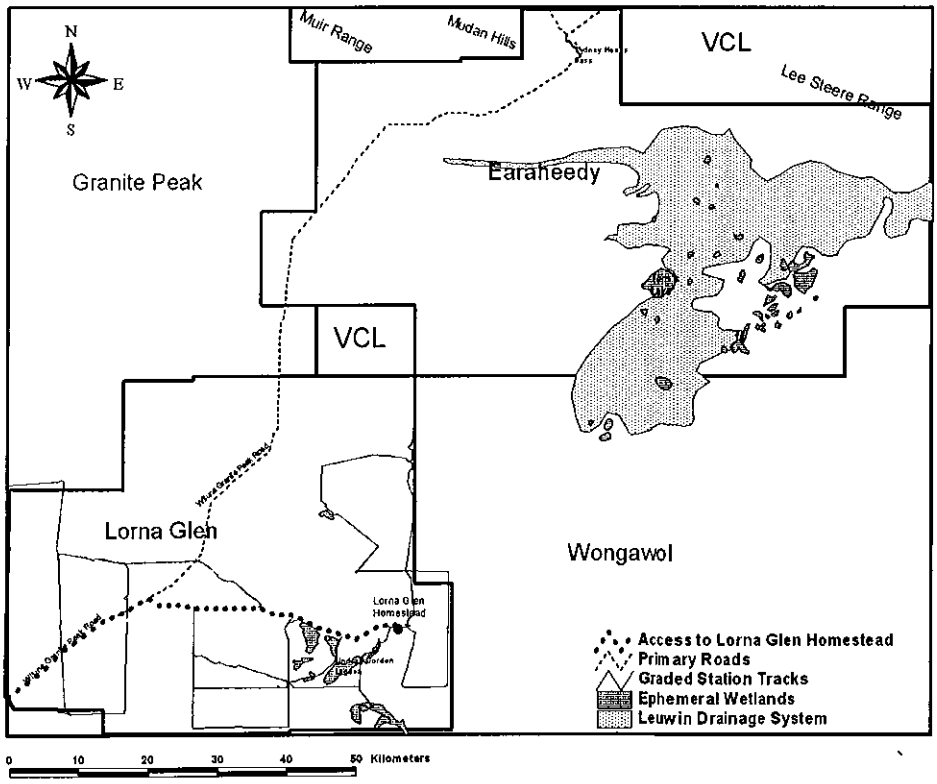


Lorna Glen and Earaheedy Stations



RESEARCH AREA

Lorna Glen Station and the adjoining station to the north east, Earaheedy Station, are situated across two biogeographic regions, the Murchison and the Gascoyne, and therefore contain a fascinating diversity in landform, geology and vegetation. In turn, this also supports unique and rich assemblages of the region's flora and fauna.

The expedition will travel from Perth via the Great Northern Highway to Meekatharra on Day 1, then on Day 2 continue to Lorna Glen Station, where we will make base camp in a grassy area under shady eucalypts. Located some 150 kilometres to the north-east of Wiluna, Lorna Glen Station occupies an area of almost 244,000 hectares, while Earaheedy Station is an additional 322,000 hectares. Earaheedy Station was purchased in 1998 by the Western Australian Department of Conservation and Land Management (CALM) under the Gascoyne Murchison Strategy for the purpose of conservation, followed by Lorna Glen Station in 2000.

The low-lying areas of the study area are dominated by extensive spinifex, red sand plains with scattered majestic marble gum, as well as samphire flats, claypans and lakebeds. Mulga communities, often rich in ephemeral plant communities, are also represented. Stony rises occur across the landscape and carry their own unique plant communities, rich in *Acacia* and *Eremophila* species, and also provide a striking, ruggedly beautiful contrast to the sandplains. Areas of breakaway are evidence of a former plateau landscape and these, in conjunction with hills and an unusual geological feature known as the Sydney Heads conglomerate, provide a divergence from the generally subdued topography.

PROJECT BACKGROUND

Lorna Glen and Earaheedy Stations are situated in an area once dominated by gold prospecting, then by pastoralism; however, the focus for the future is conservation. These properties contain a number of unique land systems, some of which were not previously represented in the conservation estate. They are near the highest part of the inland plateau in Western Australia. The western portion lies across the watershed between Lake Nabberu to the west and south-west, and Lake Carnegie to the east.

Lorna Glen was named in 1896 by Lawrence A Wells of the Calvert Expedition of 1896 – 97 after his daughter Lorna. There is a blaze on a tree nearby, two miles north of Lindsay Gordon Lagoon. Surveyor Harry Paine named Earaheedy Hill when in the area between April and July, 1929. Earaheedy bore, sunk by Archie Hogg in the 1930s, is 30 miles NNE of the homestead.

As well as having a diversity of landforms, the two stations are also of significant conservation value, as neither has been severely degraded through pastoral activity. The stations lie across the boundary between the Gascoyne and Murchison bioregions, which are regions dominated by pastoralism as the primary land use, and where the conservation estate has been historically under-represented. As Lorna Glen was only de-stocked just prior to purchasing, this project will allow the Department to gather baseline biological data

that will help in monitoring both the impacts of stock as well as recovery after their removal. Additionally, this part of Western Australia has not been the focus of any prior detailed biological survey, and the results from this current work will contribute towards our understanding of the State's biogeography.

Recently, Lorna Glen Station has also become the focus of the Department's research into the management of feral cats in the arid zone. As a result of this, additional trapping sites have been set up in both a control area and an area baited for cats, to monitor changes in relative vertebrate abundance after baiting (conducted in June this year). Throughout this expedition there may be the opportunity for some involvement by expeditioners in both monitoring cat numbers through track counting, as well as monitoring vertebrate fauna in the control and baited areas.

The longer-term objective, if baiting is effective, is for the entire station to be baited for feral cats—and the work conducted throughout this study will make a significant contribution towards documenting species recovery with the abatement of this threat.

THE PROJECT

The objectives of this expedition are to:

- Determine areas of high biodiversity and conservation value.
- Carry out live trapping techniques for vertebrate fauna.
- Carry out ground searches for signs of threatened species, including the mulgara and the mallee fowl.
- Make a collection of botanical specimens.
- Record bird observations.
- Make a photographic record of sites visited.
- Gather information to provide a baseline for strategies to monitor conservation management.
- Make recommendations on conservation priorities as part of the Goldfields regional strategy.

Part of the Goldfields regional strategy is to document the biological values of the conservation estate in the region. This expedition will provide participants with the opportunity to view many of the arid zone's more cryptic and secretive animals in their natural surroundings, as well as view and catalogue the wonderfully diverse flora.

We have begun this process on Lorna Glen by conducting four biological surveys; one in the autumn and another in late spring of 2002, and the others in late summer and again in the winter of 2003. Twenty four permanent survey sites have been established, covering a broad range of habitat types, including breakaway, mulga grassland communities, spinifex sandplain, samphire flats, and eremophila and acacia shrublands. These have already shown how rich the area is with over 10 species of small ground dwelling mammals, and over 57 species of lizard alone, possibly the highest number ever recorded from an arid zone site!

Of particular note from these surveys has been the capture of rarely seen animals such as the long-tailed dunnart as well as recent sightings of mallee fowl. A number of species caught here have also been significant range extensions to their previously known distributions. Information gathered on the expedition will add significantly to our understanding of the conservation values of Lorna Glen, as well as provide a sound baseline against which future changes can be compared.

VOLUNTEER ASSIGNMENTS

Conservation Volunteers

Being a volunteer allows you to discover first hand what the Department is doing. You will be part of a force of 5000 people involved in a wide range of activities that include tree planting, trail building, interpretation and assisting with scientific projects. If you wish to be involved with future Conservation Volunteer projects, please contact the Department's Volunteer Coordinator, Margaret Buckland, on (08) 9334 0251 on your return. The Department relies very much on its volunteer work force. In 2002 volunteers supplied 217,000 hours of effort. Volunteer assistance with remote area work, such as this expedition plans to carry out, is especially helpful.

LANDSCOPE volunteers will be primarily engaged in scientific fieldwork in the Goldfields region, however you will also assist with general tasks during the expedition.

Field Work

Principal activities:

- Assist with pit and Elliott trapping of small animals and reptiles.
- Assist daily in the checking and identification of captured animals.
- Assist with the collection and processing of plant specimens.
- Assist with track counts of vertebrate fauna along road transects
- Take field notes.

Additional important activities:

- Assist with bird observations, recording species, breeding and locations.
- Assist with invertebrate surveys.
- Assist with transporting equipment in the field.
- Assist with photography. Participants may wish to contribute slides that may be used in *LANDSCOPE* magazine.
- Compile data at the end of the day – write up notes; plot locations of specimens collected; assist in identification of specimens; compile bird lists.

Biological surveys provide data on the species occurring in a district and their distribution across it (the "what and where"). These data are the basis of many conservation measures such as reserve systems, and design and assessment of the conservation status of our native

species for specific management. The most useful surveys are those that inventory a wide range of species, including plants, vertebrates and invertebrates.

On this expedition, you will assist with an ongoing biological survey and gain an understanding of biodiversity as you help map the flora and fauna of the area (birds, mammals, reptiles and frogs) as well as specific invertebrates, which could include ants, scorpions and certain spider groups. Reptiles are of particular interest because these arid environments in Australia are exceptionally diverse, with certain habitats containing as many as 20 species. In the Goldfields, most of the larger mammals, other than kangaroos, are extinct, however, the expedition will attempt to establish whether the mulgara and one or two other dasyurids still exist in the area.

The botanical survey will be based largely on opportunistic collecting, but you will also be involved in setting up permanent quadrats in the areas where fauna surveys will take place. Opportunities will exist for bird watching and the recording of bird sightings. Evening activities may include spotlighting for nocturnal animals and mistnetting for bats, depending on conditions.

There will be some free time each day for people to follow personal interests such as painting or photography. There will be abundant photo opportunities throughout the day.

The terrain at Lorna Glen is predominantly flat, with some stony rises and breakaway country, and the work will not be too taxing. It can be hot during the day, however, and if you are too tired to go back into the field after lunch, please advise the leaders. Your safety, health and comfort are paramount, so please carry water and wear your hats in the field; although there are numbers of shady trees you will be in the sun a lot. The terrain at Earaheedy is similar to Lorna Glen, again being predominantly flat. You should take particular care when in rocky areas or breakaway country as the surfaces can be a little unstable; it can be easy to lose your footing. In rocky areas in particular it is important to wear boots with good ankle support.

Diary:

An exercise book will be provided for volunteers to take turns recording each day's events in the trip diary. Anything goes! Each person takes a turn. This will be typed and a copy distributed to each expedition member as a memento of the trip. But it also provides valuable information to be included in the official **Expedition Report**, which is produced after each trip. Please include highlights of each day, interesting data, and anything of interest to you. Much information can be gleaned at 'show and tell' and 'meet the scientist' each evening when the leaders summarise the day's activities and plan for the following day. So, if you have the diary for the day, take it to 'show and tell' and record the day's events.

FIELD TRAINING

On arrival at camp there will be an orientation session, as well as briefings on research procedures and objectives, HF radio procedures, camp procedures and safety. On a daily basis, there will also be informal talks, reviews of progress, and sharing of expedition participants' discoveries.

The identification of wildlife in the field is a skilled business; it requires patience, a good eye, and aids such as field guides, binoculars and hand lenses. Many of our native fauna and flora species look very similar to each other, and telling them apart can be a humbling process for even the most experienced biologists. However, identification is a basic skill in field biology and by the end of our expedition, you should have a good grasp of the basics. Expedition members will learn how to survey for plants using quantitative methods, as well as opportunistic searching. You will be trained in the use of keys and guides, and can discuss any aspect of the work with the leaders.

In addition to plant and animal identification, the leaders will demonstrate how to set and maintain traplines efficiently, how to handle animals without harming or stressing them, and how to search for those species that are difficult or impossible to trap. This may include some spotlight and head-torch searches at night, and searching through leaf litter and other hiding places during the day.

Team leaders will be happy to discuss any aspect of our work with expedition members, and are looking forward to a shared learning experience.

APPLICATION OF RESULTS

This type of survey is fundamental in documenting and monitoring biodiversity values on the conservation estate. The work conducted here will contribute to our knowledge of the distribution of the State's biota as well as providing an insight into the association of the station's flora and fauna with biotic and abiotic attributes[1]. Importantly, reference collections made here will be lodged with the WA Museum and WA Herbarium where they contribute in the broader context to our understanding of biogeography throughout the State.

The results from this survey will form part of a departmental internal report, which will be applied to the future management of these stations. This work will also be published in the scientific literature.

[1] **Biotic**, meaning of or related to life, are living factors. Plants, animals, fungi, protist and bacteria are all biotic or living factors. **Abiotic,** meaning not alive, are nonliving factors that affect living organisms. Environmental factors such habitat (pond, lake, ocean, desert, mountain) or weather such as temperature, cloud cover, rain, snow, hurricanes, etc. are abiotic factors.

EXPEDITION LEADERS

The investigators with whom you will be working at Lorna Glen have extensive experience in botanical and zoological research, and management of natural ecosystems.

Mark Cowan is the ecologist for CALM's Goldfields Region. He spent 10 years with the WA Museum's Department of Terrestrial Vertebrates before moving to CALM in 2000. His research interests include arid zone ecology and conservation biology, particularly in relation to terrestrial vertebrates; this has involved fieldwork throughout much of Western Australia

Kevin Kenneally (KK), a research scientist since 1973, has been the scientific coordinator for *LANDSCOPE* Expeditions since 1994. He is an internationally recognised author and specialist on the Kimberley flora and has conducted botanical investigations across much of the State. KK has led research expeditions into remote areas of Western Australia for more than 30 years. He was awarded a Churchill Fellowship (1979), the Australian Natural History Medallion (1984), and together with Daphne Edinger and Tim Willing he was a recipient of the CSIRO medal for Research Achievement (1996). He is an Honorary Associate of the Western Australian Museum, and is president of the WA Gould League at the Herdsman Lake Wildlife Centre.

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.

Kevin Coate (KC) is a naturalist and ornithologist who has been involved in nature based tourism in Western Australia since 1975. KC has travelled extensively throughout the State and has written numerous articles on the areas he has visited, as well as a number of papers, primarily on birds. In 2000 he was the winner of Western Australian Tourism's FACET Golden Guide Award. In 2001 KC was a recipient of a "Premier's Award to Legends of the Hospitality and Tourism Industry", a one-off award that marked the start of the new millennium and the contribution of individuals to these industries over the previous thirty years.

Daphne Edinger graduated from The University of Western Australia with a BSc (Hons) in zoology. A science teacher for 16 years, on retirement Daphne became an honorary research scientist with the Western Australian Herbarium, and has worked as a volunteer with Kevin Kenneally since 1983. She has conducted numerous botanical field trips throughout the State and has been with the *LANDSCOPE* Expeditions program as a leader since 1993. In 1996 she was a joint recipient, with Tim Willing and Kevin Kenneally, of the CSIRO Medal for Excellence in Research Achievement.

EXPEDITION REPORT AND REUNION

A copy of the expedition diary will be provided soon after the conclusion of the expedition, and this will be followed in due course by the Expedition Report.

A reunion for all 2003 expeditions will be held on Friday November 21st, 2003 in Perth. An invitation will be issued with details of the venue and other arrangements approximately one month prior to the evening.

The reunion provides an opportunity to see other participants' photographs and records of their trips, and review the results of the 2003 *LANDSCOPE* Expeditions program.

FIELD LOGISTICS

RENDEZVOUS

Expedition members will meet at **6.30 am** on Wednesday September 3rd, 2003 at the car park adjacent to the UWA Extension offices, The University of Western Australia, in Clifton Street, cnr Stirling Highway, Nedlands (see attached map). There is access to toilets if required.

Gear will be loaded and the expedition will depart Nedlands at **7.00 am** sharp for Meekatharra via the Great Northern Highway. Transport will be in 4WD air-conditioned vehicles. If you are delayed for any reason in the morning, please contact Kevin Kenneally on his mobile, 0407 986 227. There will be regular stops during the journey, and opportunities to change seats along the way so everyone can get to know their fellow travellers.

ITINERARY

Day 1	**3 Sept**	**Wednesday**	**Perth to Meekatharra** Depart Perth and travel via the Great Northern Highway to the Auski Inland Motel, Meekatharra, where we will spend the night in twin share motel accommodation. Dinner, bed, breakfast and a cut lunch for Thursday provided.
Day 2	**4 Sept**	**Thursday**	**Meekatharra to Lorna Glen** After breakfast we depart for Lorna Glen Station where we will set up camp. Dinner will be followed by a talk about the project and logistics. Bush camp, with use of Station facilities.
Day 3	**5 Sept**	**Friday**	**Lorna Glen** Commence trapping, plant collecting and bird watching activities.
Day 4	**6 Sept**	**Saturday**	**Lorna Glen** Continue trapping, plant collecting and bird watching activities.
Day 5	**7 Sept**	**Sunday**	**Lorna Glen** As above
Day 6	**8 Sept**	**Monday**	**Lorna Glen** As above
Day 7	**9 Sept**	**Tuesday**	**Lorna Glen** As above

Day 8 10 Sept Wednesday **Lorna Glen**
Close all traps, prepare all specimens and equipment for early departure in the morning.

Day 9 11 Sept Thursday **Lorna Glen to Meekatharra**
Depart camp after breakfast and travel to Meekatharra to the Auski Inland Motel where we will spend the night in twin share motel accommodation. Dinner, bed, breakfast and a cut lunch for Friday provided.

Day 10 12 Sept Friday **Meekatharra to Perth**
Our last day. After breakfast, depart Meekatharra.
Arrive Perth approximately 1700 hours.
End of expedition.

THIS ITINERARY IS PROVISIONAL AND MAY BE VARIED AT THE DISCRETION OF THE EXPEDITION LEADERS.

DAILY SCHEDULE AT LORNA GLEN

Research activities include trapping, plant collecting and bird watching. Expedition members will be placed into groups; during the expedition tasks will be rotated between groups so that all expeditioners have the opportunity to experience the range of activities.

0600 hours Arise, have breakfast, and begin day's activities.

0630 hours **Check traplines.** Traplines will need to be checked before the heat of the sun threatens the animals, and bird watching is best early in the morning. By its very nature, fauna surveying is a repetitive business. Traps are opened, then checked each day to retrieve fauna, and this can take up most of the morning for those involved. The captured animals are identified and recorded, then returned to their point of capture if they are not required as specimens.

0700 hours **Commencement of field work.** The botanical survey will be based largely on opportunistic collecting, but you will also be involved in setting up permanent quadrats in the areas where fauna surveys will take place. Bird surveys will be made throughout the day.

1200 hours **Lunch, followed by afternoon activities.**
There are several interesting geological formations on Lorna Glen which may be visited during the expedition for opportunistic work on plants, birds, reptiles and invertebrates. Afternoon activities will involve on one day, visiting one of the interesting geological formations – Sydney Heads – and, depending on conditions, some of the flood plain and lake country of Earaheedy. Here we will undertake opportunistic plant collections and bird observations as well as mammal trapping in the conglomerates.

Depending on conditions, some of the ephemeral lakes on Lorna Glen may contain water and present an opportunity for observation of some interesting bird life.

1630 hours **Return to campsite**. Showers and preparation of evening meal.

1800 hours **Dinner.**

1900 hours **'Show and Tell'** and **'Meet the Scientist'.**
Other evening activities may include spotlighting for nocturnal animals and mistnetting for bats, depending on conditions.

2000 hours Time will be set aside for compilation of data at the end of the day. Bed!

TEAM DEVELOPMENT

LANDSCOPE Expeditions are research-oriented, nature-based experiences; working as a team is an important part of the overall experience.

Team spirit will be enhanced and developed by having all meals together, sharing in preparation and clean-up, and reporting on the day's activities and results.

ACCOMMODATION

Two nights will be spent in twin share motel accommodation, with all facilities and meals provided.

At Lorna Glen, a bush camp will be set up under the eucalypts at Lorna Glen Station. Some station facilities, such as showers and toilet, will be available. Some survey work will take place on adjoining Earaheedy Station, but we will return to base camp at Lorna Glen each evening. However, on the day before visiting Earaheedy, an advance party of four may establish a trapping grid for mammals near Sydney Heads and camp in the area overnight before being joined by the rest of the expedition the following morning.

Meals and camping gear will be provided, but you will be expected to help with camp chores.

Water, washing and ablutions: Facilities include two showers and one flushing toilet. Hot water for showering and washing etc. is provided by a wood chip heater that needs daily lighting and stoking at intervals. A washing machine is available but can only be used in the afternoons when the generator is running. There is a plentiful water supply from an aquifer and this water is also fine for drinking, although it has a high mineral content and is reasonably hard.

Tag-alongs: Transport, camping gear, motel accommodation and meals are your own responsibility.

General: Make sure you have everything you need to take you through to the end of the trip—spare torch batteries, spare camera batteries, extra film, etc. There will be no chance to buy more once we reach Lorna Glen.

There will be a campfire to sit around in the evening. Power will be supplied by a generator which usually runs from early afternoon until 2130 hours.

FOOD AND DRINKS

All meals from lunch on Day 1 to breakfast on Day 10 will be covered by your contribution. You may be required to assist with meal preparation on a rotational basis. If any special diets are needed you must advise *LANDSCOPE* Expeditions administration as soon as possible to ascertain if these can be accommodated; please advise Cheryl Tonts by telephone (08 9334 0319), fax (08 9334 0498), or email (cherylt@calm.wa.gov.au).

Some cask wine will be supplied by the expedition. If you have a favourite beverage (beer, spirits, etc) you will need to bring a supply. You may also wish to bring a small stash of lollies, snacks or "trail mix" to your liking.

PHYSICAL CONDITION

The expedition will not demand an elite level of fitness. However, some level of physical fitness is required to service the traps each day. Expeditioners should be prepared to cope with cool to hot days (20—35°C) and cool to cold nights, down to 0°C. There will be as much walking, exploring and searching, as you want, so ensure that you have comfortable, solid boots. You will maximise your enjoyment of the activities by ensuring a reasonable level of fitness in the weeks leading up to commencement of the expedition.

SAFETY AND HEALTH

Your safety, health and comfort are of paramount importance.

Sunburn: This is possibly the greatest medical problem that arises. You must guard against it. Loose-fitting, long-sleeved shirts, full-brimmed hats, sunglasses, sunscreen lotion, and lip-block are all essential.

Dehydration: This can be a significant issue in high temperatures. To guard against dehydration, it is vital to always carry an adequate supply of drinking water with you in your daypack. Drinking water will be available from the station's aquifer, and you must fill your bottle regularly. Remember to drink plenty of water during the day, fortified with Staminade (or similar product) if you are susceptible to negative effects of heat.

Safety mates: To improve volunteer safety in the field, expeditioners will be assigned a 'safety mate' for the duration of the expedition. You will be advised who your "safety mate" is prior to the expedition departing. At all times, you should know where your 'safety mate' is. If you cannot locate your 'mate' and are concerned as to their whereabouts, please advise a leader. This system is designed to improve safety in the field. Leaders will explain the "safety mates" protocol on Day 1.

Insect pests: Depending on the conditions in the weeks prior to your departure, mosquito borne diseases could be in the area, and you should take precautions against getting bitten, particularly at night when you are sleeping. There will be flies in the region, so do bring a fly net for your hat.

Please familiarise yourself with the enclosed brochures from the Health Department of Western Australia.

Medications: Check that you have any required prescriptions filled beforehand. If you think you may need antihistamines for possible allergic reactions, see your doctor and obtain appropriate medication.

Snakes: For safety reasons volunteers are not to handle snakes. There are some quite venomous snakes in the desert regions. Boots and gaiters are recommended. Two elastic pressure bandages should be carried on you at all times as a first aid treatment for snakebite. A good head torch and a spare, small, back-up torch is recommended if you need to be moving around at night.

Bats: Only Ric How is to handle bats. Others may assist but not touch the animals, due to the possible presence of lyssavirus, a virus carried by bats that is similar to rabies. Ric has been inoculated against this disease, which has a long incubation period and can prove fatal in humans. Should you come across an unwell bat on this trip, do not attempt to "rescue" it, but avoid it and advise leaders.

Dingoes: Be alert to the presence of dingoes and do not encourage them in any way; dingoes have been known to attack humans.

Clothing and footwear: Long pants and boots that protect your ankles are recommended. If you prefer wearing shorts, bring some canvas gaiters or leggings; shorts leave your legs susceptible to sunburn, insect bites, scratches, and spinifex. Spinifex spines often break off under the skin, leading to small but painful infections. The spines are very hard and sharp, and can penetrate all but the strongest materials. The open fabric of many running shoes is no barrier to spinifex spines, and leather boots with ankle protection, suitable for walking around in desert conditions, are therefore recommended – well worn in to avoid blisters. You will need comfortable light shoes to wear in camp, or in the evenings; however, a pair of thongs for showertime will be useful. Canvas garden gloves may be used to protect the hands when in the field.

Safety at night: A good head torch and a spare, small back-up torch are essential. If you get up at night, use a torch to illuminate the ground, and put your boots on (not thongs or open sandals) to minimise bite risk, as reptiles, etc can be active at night. Keep boots inside a bag at night so nothing crawls into them.

Camp hygiene: In camp, wear **disposable gloves** if helping with food preparation. These will be supplied. Separate bowls will be supplied for washing up, and the rinse bowl should contain some Milton preparation. A separate bowl will be supplied for washing hands, together with a plunger pack of antibacterial hand-washing liquid.

Personal hygiene: For washing bodies and clothing, Peter G's liquid soap is a good soap to use in hard water. Medicated soaps such as gamophen, or sandalwood, which is natural to the bush, are also good choices. Don't use highly scented soaps, or perfumed toiletries, as these are irresistible to flies in particular. Away from camp, baby wipes can be used for cleaning hands, and can be burnt later. Take some pegs and a bit of line. A small container (eg one litre ice-cream container) may be useful for personal washing.

Wilderness survival: *Please familiarise yourself with the enclosed Wilderness survival card, and carry it in your daypack when in the field.* It is easy to become disoriented when walking away from tracks or vehicles. Carry your water bottle, a box of matches and a whistle, and a compass at all times when away from habitation. If lost, only light a fire as a last resort, and make sure to clear a space first to prevent a wildfire. Take careful note of landscape features to guide you back to the vehicle or study area if you move away.

Most importantly, never leave the group without telling one of the leaders or your safety mate where you are going, and preferably you should be accompanied by at least one other person.

First aid: The Expedition will carry a comprehensive first aid kit.

FIELD COMMUNICATIONS

A satellite phone will also be carried while in the field. However, most of our communications will be through the Department's office at Kalgoorlie (08 9021 2677) as we will be in the field for most of the day.

The Department's vehicles are in regular radio contact with the Kalgoorlie office.

Mobile phones do not work at Lorna Glen Station .

If you need to be contacted urgently while you are away, communication can be established through *LANDSCOPE* Expeditions office: Jean Paton 9334 0401, or 0411 029 045, or Cheryl Tonts 9334 0319.

ADVANCE PREPARATION

FIELD SUPPLIES

Check each item carefully. Warm clothing for the evenings is advised. You should bring enough changes of clothing to last for at least four days. Limited laundry facilities are available. Small and large plastic bags can be useful for dirty clothes, dust protection, or to store clothes and boots in overnight to prevent insects getting into them. Include a couple of large, sturdy, orange/green plastic garden bags with ties to protect your baggage from dust during transport.

It is not possible to run to the local deli if you have forgotten anything.

CHECK LIST	
❑	comfortable hiking boots (with ankle protection)
❑	gaiters (Goretex – available from camping stores)
❑	light shoes for around camp (not open at the heel or toe)
❑	thongs for the shower
❑	thick walking socks
❑	underwear
❑	long trousers
❑	shorts
❑	long-sleeved, loose-fitting shirts
❑	casual clothes for travelling
❑	t-shirts
❑	jumper or warm jacket (or tracksuit)
❑	beanie or cap to wear at night
❑	sunglasses
❑	one litre leak-proof water bottle
❑	toiletries (plus liquid soap for hard water, e.g. Peter G's soap)
❑	towel
❑	sleeping bag (rated to zero degrees) and liner
❑	small pillow
❑	insect repellent and sunscreen
❑	personal first aid (including two elasticised pressure bandages)
❑	prescription medicine and spectacles
❑	matches or lighter
❑	head torch, **spare batteries** (Petzl with halogen globe)
❑	small robust torch plus batteries and spare globe
❑	small daypack to carry camera, film, water bottle, snacks, etc.
❑	camera, camera batteries, and film (**plenty** of film – six to10 rolls)
❑	binoculars (field glasses), field guides, hand lens for botany
❑	notebook and pen
❑	small compass, whistle
❑	tissues/wipes
❑	pocket knife
❑	lots of enthusiasm and smiles
	This space is for you to list other items you want to take:
❑	
❑	
❑	

LANDSCOPE Expeditions will supply a canvas bag for your gear, a volunteer's full-brimmed hat, a stubby holder, a thermal mug and luggage tag.

REFERENCE MAP

The following map will be useful:

1. Perth – Alice Springs (Gunbarrel Highway). RAC of WA Inc.

REFERENCE LIST

Beard, J. S. 1980. *A new phytogeographic map for Western Australia.* Western Australian Herbarium Research Notes, 3: 37-58.

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Burrows, N. and Christensen, P 'Hunting the Hunter', *LANDSCOPE*, Summer 1994/95

Morris, K., Armstrong, R., Orell, P. and Vance, M. 'Bouncing Back', *LANDSCOPE*, Spring 1998

Lewis, M. 'Desert Impressions', *LANDSCOPE*, Summer 1999-2000

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WEB SITES

The following websites may be of interest:

http://www.naturebase.net
http://www.calm.wa.gov.au/plants_animals/index.html
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http://www.museum.wa.gov.au
http://www.cazr.csiro.au/arid_frame.htm
http://www.calm.wa.gov.au/science/florabase.html

NOTES

APPENDICES

Appendix 1: Amphibians and Reptiles of Lorna Glen

Hylidae (Tree Frogs)
Cyclorana maini
Litoria rubella

Myobatrachidae (Ground Frogs)
Neobatrachus sutor
Neobatrachus wilsmorei
Notaden nichollsi

Cheluidae (Tortoises)
Chelodina steindachneri

Agamidae (Dragon Lizards)
Caimanops amphiboluroides
Ctenophorus caudicinctus
Ctenophorus isolepis
Ctenophorus nuchalis
Ctenophorus reticulatus
Ctenophorus scutulatus
Diporiphora winneckei
Lophognathus longirostris
Moloch horridus
Pogona minor
Tympanocryptis cephala

Gekkonidae (Geckos)
Diplodactylus granariensis
Diplodactylus pulcher
Diplodactylus squarrosus
Diplodactylus stenodactylus
Diplodactylus conspicillatus
Gehyra purpurascens
Gehyra variegata
Heteronotia binoei
Nephrurus laevissimus
Nephrurus vertebralis
Rhynchoedura ornata
Strophurus ciliaris
Strophurus elderi
Strophurus strophurus
Strophurus wellingtonae

Pygopodidae (Legless Lizards)
Delma butleri
Delma nasuta
Lialis burtonis
Pygopus nigriceps

Scincidae (Skinks)
Cryptoblepharus plagiocephalus
Ctenotus ariadnae
Ctenotus calurus
Ctenotus dux
Ctenotus grandis
Ctenotus helenae
Ctenotus leonhardii
Ctenotus pantherinus
Ctenotus quattuordecimlineatus
Ctenotus schomburgkii
Ctenotus uber
Egernia depressa
Egernia formosa
Egernia inornata
Egernia striata
Eremiascincus richardsonii
Lerista bipes
Lerista desertorum
Lerista muelleri
Menetia greyii
Morethia butleri
Morethia ruficauda
Tiliqua multiscutata

Varanidae (Monitor Lizards)
Varanus brevicauda
Varanus caudolineatus
Varanus eremius
Varanus giganteus
Varanus gouldii
Varanus panoptes
Varanus tristis

Boidae (Pythons)
Antaresia stimsoni

Elapidae (Front-Fanged Snakes)

Demansia psammophis
Furina ornata
Parasuta monachus
Pseudonaja modesta
Simoselaps bertholdi
Suta fasciata

Typhlopidae (Blind Snakes)

Ramphotyphlops waitii

Appendix 2: Mammals of Lorna Glen

Dasyuridae
Wongai Ningaui *(Ningaui ridei)*
Fat-tailed Pseudantechinus *(Pseudantechinus macdonnellensis)*
Fat-tailed Dunnart *(Sminthopsis crassicaudata)*
Hairy-footed Dunnart *(Sminthopsis hirtipes)*
Long-tailed Dunnart *(Sminthopsis longicaudata)*
Stripe-faced Dunnart *(Sminthopsis macroura)*
Ooldea Dunnart *(Sminthopsis ooldea)*

Macropodidae
Euro *(Macropus robustus)*
Red Kangaroo *(Macropus rufus)*

Tachyglossidae
Echidna *(Tachyglossus aculeatus)*

Muridae
House Mouse*(Mus musculus)*
Spinifex Hopping-mouse *(Notomys alexis)*
Desert Mouse *(Pseudomys desertor)*
Sandy Inland Mouse *(Pseudomys hermannsburgensis)*

Canidae
Dingo *(Canis lupis dingo)*
Fox *(Vulpes vulpes)*

Felidae
Cat *(Felis catus)*

Emballonuridae
Yellow-bellied Sheathtail Bat *(Saccolaimus flaviventris)*

Vespertilionidae
Gould's Wattled Bat *(Chalinolobus gouldii)*
Lesser Long-eared Bat *(Nyctophilus geoffroyi)*
Inland Broad-nosed Bat *(Scotorepens balstoni)*

Appendix 3: Birds Of Lorna Glen

Acanthizidae
- Broad-Tailed Thornbill
- Chestnut-Rumped Thornbill
- Red Throat
- Slaty-Backed Thornbill
- Southern Whiteface
- Weebill
- Yellow-Rumped Thornbill

Accipitridae
- Black-Breasted Buzzard
- Brown Goshawk
- Collared Sparrowhawk
- Little Eagle
- Swamp Harrier
- Wedge-Tailed Eagle
- Whistling Kite

Aegothelidae
- Australian Owlet-Nightjar

Anatidae
- Australian Wood Duck
- Australian Shelduck
- Black Swan
- Grey Teal
- Pacific Black Duck
- Pink-Eared Duck
- Great Egret
- White-Faced Heron
- White-Necked Heron

Artamidae
- Black-Faced Woodswallow
- Masked Woodswallow

Burhinidae
- Bush Stone-Curlew

Campephagidae
- Black-Faced Cuckoo-Shrike
- Ground Cuckoo-Shrike
- White-Winged Triller
- Spotted Nightjar

Casuariidae
- Emu

Charadriidae
- Banded Lapwing
- Black-Fronted Dotterel
- Red-Capped Plover
- Red-Kneed Dotterel

Cincosomatidae
- Chesnut-Breasted Quail Thrush

Columbidae
- Common Bronzewing
- Crested Pigeon
- Diamond Dove

Corvidae
- Little Crow
- Torresian Crow

Cracticidae
- Australian Magpie
- Grey Butcherbird
- Pied Butcherbird

Cuculidae
- Horsfield's Bronze-Cuckoo
- Pallid Cuckoo

Dicaeidae
- Mistletoe Bird

Dicruridae
- Magpie Lark
- Willy Wagtail

Falconidae
- Australian Hobby
- Australian Kestrel
- Brown Falcon

Halcyonidae
- Red-Backed Kingfisher

Hirundinidae
Fairy Martin
Tree Martin
White-Backed Swallow

Larildae
Whiskered Tern

Maluridae
Splendid Fairy-Wren
Variegated Fairy-Wren
White-Winged Fairy-Wren

Meliphagidae
Black Honeyeater
Crimson Chat
Orange Chat
Pied Honeyeater
Singing Honeyeater
Spiny-Cheek Honeyeater
White-Fronted Honeyeater
White-Plumed Honeyeater
Yellow-Throated Miner

Meropidae
Rainbow Bee-Eater

Motacillidae
Australian Pipit
Richards Pipit

Neosittidae
Varied Sitella

Otididae
Australian Bustard

Pachycephalidae
Crested Bellbird
Grey Shrike-Thrush
Rufous Whistler

Pardalotidae
Striated Pardalote

Passeridae
Zebra Finch

Petroicidae
Hooded Robin
Red-Capped Robin

Pomatostomidae
Grey-Crowned Babbler
White-Browed Babbler

Psittacidae
Bourkes Parrot
Budgerigar
Cockateil
Galah
Little Corella
Mulga Parrot
Ringneck Parrot

Ptilonorhynchidae
Western Bowerbird

Rallidae
Black-Tailed Native-Hen

Recurvirostridae
Black-Winged Stilt
Red-Necked Avocet

Scolopacidae
Common Greenshank

Strigidae
Boobook Owl

Sylviidae
Rufous Songlark

Threskiornithidae
Australian White Ibis

Turnicidae
Little Button-Quail

Tytonidae
Barn Owl