LANDSCOPE EXPEDITIONS

DEPARTMENT OF Conservation AND LAND MANAGEMENT
Conserving the nature of WA

in association with

UWA EXTENSION
THE UNIVERSITY OF WESTERN AUSTRALIA

LANDSCAPE OF THE HEART – A JOURNEY TO THE CARNARVON RANGE 2001
LANDSCOPE EXPEDITIONS REPORT NO. 42

FROM THE EXPEDITION LEADERS

On behalf of the Department of Conservation and Land Management, and UWA Extension, we thank all members for their tremendous support, enthusiasm and good humour in making the expedition the success it was. This was the first *LANDSCOPE* Expedition to the Carnarvon Range and the first expedition to include tag-alongs. We take this opportunity to thank the tag-alongs for their contribution and for their willingness to participate. The expedition has already featured in the Summer (2001/02) edition of *LANDSCOPE* magazine and we thank everyone for their contributions to this article. Special thanks to Ken Hall of Neds Creek Station for allowing us to resupply our drinking water before heading into the desert. Thanks also to Rick Curtis and Ray Dickson for their driving, camp management and excellent meals - including that memorable damper. We trust that the expedition members benefited from visiting this visually stunning desert area. We look forward to your company on future *LANDSCOPE* Expeditions.

Kevin Kenneally, Daphne Edinger, Kevin Coate, Ric How and Mark Cowan

Members of the Carnarvon Range *LANDSCOPE* Expedition 2001

PARTICIPANTS' DIARY

Day 1 - 1st August LEAD PARTY After meeting in the pre-dawn at the car park near the Causeway, the lead party drove north-east out of the city. We followed the course of the Swan River and saw the mist rising between the trees in the still chilly air. Gnarled grapevines lined the roads in the Swan Valley. We stopped at Gingers Roadhouse to rendezvous with the first of the tag-alongs and then proceeded north along the edge of the Darling Scarp. At one stage, balgas (grass trees) could be seen silhouetted against the early morning skyline.

Our vehicles slowed to view the gracious old buildings of New Norcia, and the gum trees in the area became wandoo. Farms along the way were observed to have changed their predominant crops from wheat to canola. They looked extremely green over undulating hills that were edged and dotted with patches of gum trees. Continuing north we crossed the level crossing of the railway north and followed it up through small country towns.

About midday we turned right at Wubin and soon after stopped in York gum country for lunch. We went for a walk to look at birds, more heard than seen, and found a few white everlastings and admired a yellow-flowered specimen of *Chamaexeros fimbriata*. The landscape became progressively flatter as we travelled north and the bush changed to shrubs of more even heights. By now we had left the farms behind and were in station country seeing occasional sheep and sometimes goats. We stopped at Paynes Find to meet a couple more tag-alongs, and a few of the group indulged in ice creams.

Our next stop was at the Vermin Proof Fence and I was shocked as a large road train overtook another vehicle as it crossed the cattle grid. Small *Brachychiton* trees stood out with their ball-shaped green crowns standing on straight trunks and looking like trees from children's drawings. We saw a couple of wedge-tailed eagles near road kills, a light coloured young one and a darker older one.

We turned off the road to Wogarno Station and were delighted with the interesting character of the man-made sculptures around our accommodation. The highlight of the day was watching the sun's last light on Lizard Rock and we were amazed to see a couple of goats demonstrating their agile footwork on the summit. Here we were served champagne and nibbles as the sun disappeared and the temperature dropped. At the station homestead we had a wonderful meal near the warmth of the open fire to conclude our day. We travelled 579 km in the day.

TAG-ALONGS *LANDSCOPE* Expedition members assembled at Gingers Roadhouse at 7.30 am. Chilly conditions prevailed. A large flock of short-billed corellas wished us well as we departed at 8.00 am. En route to Bindoon, passed wandoo, powder bark, jarrah and marri woodlands - understorey dominated by *Hakea, Dryandra* and Menzies banksia, smaller ground covers budded up including *Lechenaultia, Hibbertia, Daviesia* sp. Properties beyond Bindoon to New Norcia looking good; citrus groves bearing fruit. Tea break stop south of New Norcia. *Dryandra, Hakea, Lechenaultia* coming into flower.

En route to Dalwallinu, landscape changes - *Acacia, Hakea, Grevillea* sp. in flower. Quandong bearing fruit. Dalwallinu by 11.00 am. Vegetation change - mallee woodland, *Casuarina, Acacia* dominate. Wildlife Reserve for lunch. 1.00 pm departure. York gum woodland dominant. *Acacia, Melaleuca* understorey.

Roadside stop at Vermin Proof Fence. Mt Singleton dominated the range to the north-east. Mallee woodland extends for following 60 km. Native pine present, along with native poplars. Mulga begins to appear close to Paynes Find. Arrival in Paynes Find 2.40 pm. Noticed a number of people gathering Acacia foliage 8 km south of Paynes Find. Section between Paynes Find and Wogarno turnoff; varied scrubland, kurrajong present interspersed with mulga woodland. Bird species observed; crow, magpie, wood duck, wattlebird, kestrel, butcherbird, wedge-tail eagle, mulga parrot, emu (several). Wildlife; red kangaroo. Feral wildlife; fox.

Highlight - two peregrine falcons trying to flush an immature pied butcherbird from vegetation near shearing shed.

Day 2 - 2nd August LEAD PARTY Day two dawned clear and still, after a relatively warm night spent in the shearers' quarters at Wogarno. The spoiling continued with a cooked breakfast at the homestead at 6.30 am and it took Kevin Kenneally's (KK) schedule to prise us away from the fire and into the Oka.

After a brief stop at Mt Magnet, we went on to stop at Lake Austin. Gold was discovered there by the Webb brothers in 1892 and there were two very rich mines. Today, little remains of a once-thriving town, as the railway station and other public buildings were demolished when the trains stopped running, and many other buildings were destroyed by willy-willys. The ruins of some interesting stone dwellings remain on what was known as 'The Island' - a high point at times surrounded by the waters of the lake. There are a few signs of recent mining activity and may be more in time if the lake dries up enough to allow mining. We continued on and drove slowly through Cue and on to Nallan dam. The dam is man-made and a bird-watcher's delight. Among birds sighted were black swans, sacred ibis, white-faced herons, white-necked herons, shovelers, shelducks, grebes, zebra finches, white-plumed honeyeaters, willie wagtails and the inevitable crows. There was also a magnificent whistling kite and the 'whistle' was very audible. The botanists also had some finds: *Muelleranthus trifoliolatus* (small yellow pea), *Peplidium muelleri* (prostrate mauve flower), *Triglochin procerum* (aquatic ribbon weed), and *Hakea lorea* (corkwood hakea).

Before reaching Meekatharra, we stopped to walk up and look over one of the huge open-cut gold mines. The cut snakes around, following the gold, and the mine is still working. Nearby is a small cemetery, the only marked graves being of two men aged in their mid-thirties who died in the early 1900s.

A long drive from Meekatharra brought us to our campsite on the banks of the south branch of the Gascoyne River. Tents and sleeping mats were collected and set up - another learning experience for some! A campfire was lit and after a "happy (half) hour", Rick and Ray turned on a great dinner. The tag-alongs joined us round the fire and Kevin Coate (KC) outlined tomorrow's schedule. KK talked about camp hygiene and Dr Ric talked about the gecko Pat found, as well as other reptiles. After a lengthy discussion about turtles and tortoises, KC and others went off to try and find some in the river.

During the day KC kept us informed about the places we were driving through, including Daydawn, Lake Annean and Nannine. KK's policy of rotating seats and vehicles is working well and we are gradually becoming a cohesive group rather than a collection of individuals. Daphne is trying hard to educate some of us about plants. Another full and interesting day and we travelled 405 km.

TAG-ALONGS After a night at Wogarno Station, the convoy almost left on time. Our destination for tonight will be the south branch of the Gascoyne River. The day's drive took us through historic Mount Magnet to a stop at Lake Austin; the old mine site and town site beside the highway, the old railway station and cemetery. Up on the hill overlooking the lake are the remains of some very well-built dry stone huts. What a place to live. Oh, for some fish in the lake. From the old site of Austin onwards to Cue and a cuppa stop at the Nallan Dam.

Further along the Great Northern Highway, a lunch stop at Lake Annean, on top of a gypsum ridge overlooking the lake and the large amount of resident water bird life. Swans, numerous duck species, terns. A telescope would have been better use than binoculars. Mulga parrots and white-backed wrens around the perimeter of the lake. *Frankenia* sp. and *Halosarcia* sp. and *Eucalyptus gypsophila* on the gypsum ridges. A good place to explore but not enough time.

On to Meekatharra and last fuel stop and chance to shop for the next week. The usual sightings of eagles and kites on road kills. White-backed swallows at Lake Annean. Babblers, butcherbirds, white-plumed honeyeaters in the red river gums tonight. Bronze-wing and crested pigeons flying to a waterhole. And road trains. Tomorrow - hopefully in the Southern Little Sandy at Serpents Glen - remoteness and peace and quiet.

Day 3 - 3rd August LEAD PARTY Up before daylight and it was all go; breakfast, up tents and away by 7.30 am (it was 7.40). On we went to Neds Creek Station, filled up with water for drinking, tag-alongs as well. The gravel road was not too bad until after we left Neds Creek Station homestead. Saw several *Eremophila* around the area. The vegetation all day was variable. Saw emus and kangaroos. Stopped for morning tea at Johnsons Cairn, collected several plants and KK has them in a diary under special tape. There were some nice-looking cattle around Neds Creek and we set off on our way to the (Carnarvon) Ranges.

Much manpower was needed to get us all over the sand hill to our campsite at Serpents Glen, Carnarvon Range. We travelled 187 kms. Saw many plants, and on the plain which had been burnt in a bushfire in December, much regrowth.

TAG-ALONGS Started before daybreak with the camp stirring at around 6.00 am for our departure at 7.30 am. The sky was beautifully clear as the stars faded and the sun rose. After a rushed breakfast we were all ready to go and set off up the highway and turned off to Neds Creek Station for our last water stop. We drove through colourful mulga shrub land, with yellow sennas and purple solanums lining the road. The dust from the cars ahead drifted through the mulga like an early morning mist. Ken Hall, the owner of the million acres station and 5000 cattle, was there to greet us and so were about eight other cars. Our hearts sank. They were there before us and would leave before us. We hoped they weren't going to the Carnarvon Range. Phew! They weren't! After a short and very interesting chat with Ken, and admiring his beautiful garden with beautiful citrus and colourful daffodils amongst other flowers, we were off to Johnsons Cairn. Surrounded by beautiful *Ptilotus obovatus*, we stopped for morning tea and a quick climb to the top where we could see "forever". We saw the tailings of the old copper mine where KC said there had been a town up to the 1960s, complete with a theatre. Several flocks of budgies circled us, which was a delight.

Off again, country changing, a bit of spinifex and lower saline area. We crossed lovely creek beds dotted with white-trunked eucalypts, and diverted once to view picturesque Unabubba Pool, a more or less permanent waterhole. While at Neds Creek there appeared to be more poverty bushes *(Eremophila)*, which Mark told us at night were not favoured by cattle.

After lunch we continued east with the lead vehicle seeing many kangaroos and emus. A stately bustard was seen by most, walking elegantly and haughtily around. They are funny birds. Two groups of camels were seen and although they stopped and stared at us, it was not long enough for all to see. We passed through an extensive burnt out area, dotted with new growth spinifex, *Solanum*, and large spreading reddish purple pea, *Kennedia prorepens* but best of all, it was liberally dotted with *Brunonia australis*, one of my favourite plants.

We eventually came to the sand dune, which provided a challenge for KC and his trailer, and so the possibility of going the long way round was discussed.

A few of the cars without trailers thought they would give it a go and try and compact the sand a bit. This worked and we all got over. The Oka needed some man and woman power and sand boards to get over. The sand dune favoured us with more peas, as well as *Senna, Trichodesma* and some fine specimens of yellow-flowered *Crotalaria cunninghamii.*

Day 4 - 4th August LEAD PARTY Carnarvon Range Reveille: Pied butcherbird. A walk to southern end of Range - too dark for birds but small red kangaroos on tracks. Back to camp - great breakfast. Then a "cook's tour" of immediate area. Flora! Birds! Tracks! Too much to absorb all at once.

Expedition Participants: "We get up bright and early. We never miss a minute. We observe and learn about the wild and all we find is in it of various flora and of fauna on land and in sea, with binoculars stretching tall or right down on knee, our goal is ever learning, a true record to keep, may that extinct bird or mammal not make us to weep."

The afternoon walk around the two small waterholes, each about two metres diameter, approximately one metre deep and filled with freshwater algae, *Spirogyra*. The water was ideal for the "white so white" clothes washing. Around the waterholes, *Eucalyptus camaldulensis* with "powder bark". Back to camp for a wonderful sunset on the purple red rocks of the Range.

The day's work: One ningaui, two lizards, myriads of plants including six new plants for the list (first colonisers after a very hot fire six months previously), and delightful bird choruses.

TAG-ALONGS Camped at Serpents Glen in a horseshoe of sandstone hills about 200 feet high, lit up by the dawn. Two kangaroos on the top appeared to be almost hiding, and the sounds of butcherbirds and others filled the air. After breakfast we walked over burnt country to the west of camp with KC spotting birds. Close to Bruce and Dale's camp was the bower of a bowerbird, with glass, a few bones and some sandalwood nuts. The bower was still active as the nuts were fresh. We heard or saw Port Lincoln parrots, paler and smaller than the southern variety, mistletoe birds, little button quail, grey shrike thrush, red capped robins, mulga parrots, yellow rumped thornbills and rufous whistlers. KK and Daphne led the botanists in collecting and identifying many plant species while six different (hopefully) species of ant were collected.

After morning tea, most of the party walked up the watercourse to the east of camp, with KC, KK and Daphne identifying plants for us. We collected a fringed lily (*Thysanotus* sp.). The watercourse opened out as we reached the top and opened up a vista looking across the plain to the challenging sand hill we crossed yesterday, showing the burnt country. To the north, we could see the cliff we are going to tomorrow near Talbot Springs. The party split into several groups to find their own way home for lunch.

While sitting on the top of the range, waiting for the party to return, Rosemary wrote down some thoughts on these rugged hills. Rocks jutting, swirling, flaking, layering, angular, arching, harbouring, enduring, backwards facing. Caves, mosaics, colours.

At 2.00 pm after lunch, Mark Cowan showed us the results of the previous night's trapping (pit traps). A small mouse-like creature and several skinks and a gecko. Following this show and tell, we moved about 1 km to some rock waterholes formed by the action of water on loose rocks where those who needed to could do some washing. Peter Muir, a well-known dogger and bushman, had marked the rocks nearby as Good Camp Rockhole. Two parties of four went off with Dr Ric and Mark to set pit traps and Elliott traps on some unburnt spinifex country, and another party did the same on some burnt country. The Elliott traps were baited with oatmeal, peanut butter and bacon and kicked into the spinifex, their location marked with pink tapes.

Back in the camp, the plant specimens collected in the morning were classified and pressed. There were 11 specimens not previously collected in the Carnarvon Range.

Day 5 - 5th August LEAD PARTY Awakened by a fresh easterly wind singing in the bushes and flapping my tent. Curses! The wind may blow yesterday's washing off my line, so I'm outside in my PJs and boots with a full moon and some cold desert wind. I guess I would have looked pretty odd! Early morning and a look at the Elliott traps and pit traps and fences - three mice.

It's 7.30 am and I'm lucky enough to be in the lead vehicle with KC as we go north in convoy. Great to see some unburnt country and red sand dunes and acres of blue sky. Stopping to identify birds and flowers along the way to Talbot Springs. I'm the first to arrive through tall white gums reflecting with red rocks in the black, clear waters of the pool. It's cold! We trundle our way north and into Virgin Springs for lunch. What a treasure set amongst vast red ochre rock walls, a green valley filled with red and yellow blossoms, echoing with bird song. God is in his heaven. I think it would be an experience to be left here alone for three or four days (with supplies!). What a harmony and release it would be to hear the vehicles' engine noise recede down the valley, but it is nevertheless pleasant to sit on a borrowed chair in the shade writing this and hearing "the plant pressers" pressing and human voices and laughter along the valley. I hope my photos do some justice to the spirit of this place - also one of KC uncovering his "gnamma hole" and another of Fling concentrating on her painting. "The trappers" (Mark and Dr Ric) are late back from exploring the high cliffs, so hopefully they have found something interesting which will be "Show and Tell" tonight. On the way back to camp, helped to dig holes and set the fence line on a red sand dune. Once back at camp, helped John set some Elliott traps and sort of helped with the plant pressing whilst enjoying a beer. A great day in excellent company!!

It's 6.15 pm and the sun has well and truly set, red across the sky, shading to orange, yellow, then through a shading of blue to darkness high above, littered with stars. The moon is later tonight and luckily the breeze has died down. I'm looking forward to the high quality meals we have been having around the campfire which is burning a little sandalwood - a wonderful smell.

TAG-ALONGS A comment by Bearz as we drove back into Serpents Glen at a few minutes before sundown - "That was a good day - some things money can't buy!"

Everyone up before daybreak for an early start. We began the day by checking the two pit trap lines we helped to put in near camp - no joy except a large insect, possibly a wingless wasp. The convoy away on time over a rocky track for the day's outing. First stop at an unburnt red sand dune, the botanists going into ecstasy and the pit trappers eyeing off the many tracks; dingo tracks in evidence here (too big to fit in a bucket!). On again through assorted burnt and unburnt country. Every time the convoy stopped to check out a plant, there was a scattering of people in all directions; considerable effort required to muster them up and time was slipping away - did we mind? Not at all! As we approached the northern section of the Carnarvon Range, we saw what huge blocky ramparts they were made up of. We came to Talbot Spring - a wonderful waterhole, large enough for the brave amongst us to swim (not me!). The sandstone rocks, lovely water, beautiful trees, and Aboriginal paintings all make this an idyllic place - artist's paradise. More modern markings on the rock face over the pool were P.M. 39 - Peter Muir's mark - and TALBOT 1908 - this a member of Canning's party on the Stock Route. We then moved on to Kadyara waterhole-small pool and on to Virgin Spring for lunch. There we saw a small gnamma hole covered with rocks - a life-saving water store used by the Aboriginal people in dry times. The Virgin Spring was a lovely pool (or series of pools) fed by a steady trickle of water.

There was a range of activities to take part in after lunch. We followed KC up a magnificent gorge - so spectacular the cameras could not do justice. This we followed until we were on top of the range and could see the views all around - Lake Kerrylyn to the north and our campsite to the south. A great place to observe the burn mosaic! We returned down the valley, which feeds Virgin Spring, and were rewarded with the discovery of more paintings on boulders above where we had previously been; also water in a cleft marked PM-65. By this time, many cameras had run out of film. These sights seen today give us great respect for the adaptations of plants, animals and humans to survive and prosper in what is a harsh climate. The Aboriginal sights engender as much respect as a cathedral in Europe. A top day - we'll sleep well.

Day 6 - 6th August LEAD PARTY At 5.30 am there was gentle flapping of the tent flaps. The breeze was gentle compared with yesterday morning. Saw bright Venus setting above faded Jupiter just above the range top with a "just past" full moon beaming down high in the west. What a beautiful morning! What a beautiful setting! Gradually the camp came to life, people off to check the traps, lunches to be got and the big bosses to organise the routine with Ray and Rick. John Tucker took a few of us to check the Elliott traps. No luck until the sixteenth. There caught inside was a plump *Pseudomys hermannsburgensis*. That was the only specimen from the 25 traps. It was the first time they had been set around the camp, so to score one success is good going. The other trappers also had a degree of success.

After breakfast we all headed off toward rock holes and M6 trig point about 8 km south. Called into a little valley, later nicknamed Stylidium Gorge because of the abundance of trigger plant *Stylidium inaequipetalum*. GPS reading 25°16'33"S, 120°39'02"E. Area quite severely burnt, both *Triodia* and *Callitris* gone and bare rocky ground in most parts. Only the occasional bird seen. Possible evidence of echidna diggings and KC unearthed a little gecko beneath dead bark. The botanists continued to have a busy time. A few of us tasted bush tucker from the *Ficus platypoda* tree.

We headed off to visit the two rock holes and climb the range to M6 trig point. The rock holes were not as big as Talbot Rock Hole yesterday. One had a good lot of green algae in it. A small party climbed up past the rock holes. The rocks showed layers of sandstone and then often a layer of conglomerate sandstone. Often there were ripples on top of rocks suggesting it had been part of river or flood plain in earlier time. Under shelter there were a few rock paintings.

On top of the range the view showed Mt Salvado near the Canning Stock Route and the part of the range we visited in the north yesterday. It was a great feeling for all of the climbers.

In the afternoon KC took a small group birding. Our best find was slaty-backed thornbills. The botanists continued enthusiastically with their work. On the way home we collected wood as dead wood around camp was becoming hard to find. We all arrived home a little tired but happy with the day at 4.50 pm.

TAG-ALONGS A 6.45 am start for pit trap to be checked and we all left camp at 8.00 am for day's outing. First stop, unnamed valley, hoping for some bird life but not a lot to be found, we think, due to fire, not enough flowers or insects to feed them. We found a nice native fig with a good supply of ripe fruit untouched by birds or animals, so we all sampled them - nice. Two red-backed spiders found, one with orange marking and one with red marking so named area Red Back Gully (or Stylidium Gorge by the botanists) - not a lot of plants to collect.

Our lunch stop - Muirs Waterhole near M6 trig point. Birdos went to the right, plant people to left. Interesting rock formations. Not a lot of plants but pressed quite a few specimens. Birdos back late for lunch as no birds found so they did the hike up the hill

and along the ridge to trig point. We all had a great relaxing day, returning to camp about 4.30 pm.

Day 7 - 7th August LEAD PARTY As I looked out of the tent, the weather looked promising. The sky was blue, there was no wind. The clattering of kitchen equipment was a welcoming sound. Today the lead party behaved in a disciplined way in lining up 7.00 o'clock sharp (as ordered) to get a cooked breakfast.

A part of the group went bird watching; another part went to look through the trap lines that had previously been positioned around the camp. The zoologists had chosen different habitats. These included around the base of the rocks, along the creek, in the wattle or mulga, in a pure *Triodia* vegetation, on the top of a sand dune and in open woodland. We found more animals than on the three previous days, marsupials, mice, lizards, dragons, spiders, cockroaches and ants. I will always remember with pleasure the clever hopping mouse that escaped as Mark was about to show it to us. It hopped very fast under the Oka. It took 20 people, much laughter and shouting and a firm grip to secure it.

After lunch it was a surprise to be ordered by KK to take time off. I sat in the sun and was interviewed by Dave Webb. After a talk with Rick Curtis I learned the astonishing fact that we needed to carry 450 litres of drinking water and 600 litres of diesel in the Oka and trailer.

What a pleasant day. I learnt a lot about animals from Dr Ric and Mark and about the ecology of the Carnarvon Ranges from KK and Daphne. I have been impressed by today's interdisciplinary cooperation of zoologists and botanists. Well done!

TAG-ALONGS National Census day. Heard a fox out on the burnt plain last night while we were sitting around the campfire. Bruce woke us at 5.50 am to listen to a dingo howling on the ridge behind the main camp. Stopped by the time we piled out of bed, of course! Been around John's Elliott trap line around the base of cliff and in the creek. Caught a native mouse. Dr Ric explained differences in anatomy and breeding potential between native mice and house mice.

KC, Margo, Andrew and Peter have gone to try to get another sighting, with Sue and Val, of rufous crowned emu wren - apparently will be a big extension of its range. Returned about 1.00 pm very pleased with the wrens they've seen and heard. They report that they also found a dead camel. KK and Daphne and entourage have been out with Dr Ric and Mark to map the flora along the pit trap and Elliott trap lines. They've also been doing some more plant pressing after lunch. Tom, Margo and I took a leisurely stroll back up the gully. Saw Mouse and Bearz strolling around up top.

Dr Ric and Mark had a show and tell after lunch. A few more lizards. They've now caught three western bearded dragons and this is the first time they've been recorded around here. One of the spinifex hopping mice escaped and gave us all a very good demonstration of its speed and leg action before it was recaptured.

Usual show and tell around the campfire - a blazing one again. I'm really impressed with the way things run so smoothly. If there have been glitches, they weren't evident. There have been occasional changes of plan but always something interesting to do. All the experts answer questions with clarity and patience. Mark has had great patience holding uncooperative animals in the requested position for photos. They all display boundless enthusiasm in their inter-related fields. Really a great crowd to come away with.

Day 8 - 8th August LEAD PARTY This morning came, as have the others at Serpents Glen - softly and gently as moonlight gave way to sunshine and gusts of a fresh easterly. But this was a different morning - the morning of departure. The morning of packing up, striking tents, loading the Oka, having breakfast round the smoking remnants, intermittently revived by Norman, of last night's fire.

And so in the words of the old James A. Fitzpatrick travel talks, we must say a fond farewell to Serpents Glen, jewel of the Carnarvon Range. It was just the Glen we were saying farewell to - we were farewelling the physical surrounds but in years to come "hived in us like old honey" would be our memories of it. Memories of the sand hill barrier on the first day and the adrenalin rush as succeeding drivers charged and slewed and wobbled triumphantly over the top. Memories of Mark sacrificing yet another finger, his lips tightly drawn as we pumped him with questions regarding the rodent in his fist. Memories of the morning the hopping mouse escaped and was pursued enthusiastically around the campsite till tackled and trapped by John. Memories of KC leading his lemming-like birdie enthusiasts in pursuit of the ultimate sighting of the as yet unsighted wren, honeyeater, swallow, babbler, bellbird, falcon ....Memories of rock holes surrounded by exquisitely beautiful river gums - Peter Muir's good camp, Talbot and Virgin Springs. Memories of the climb to M6 and the views of the country spread out below - and in the distance, the Breakaways where we have come today. Memories of improbable tucker and a most memorable damper created by Rick.

After a slow run through rough country we came to Blue Hill Station, home for a time to Tommy Ingebong, a local full blood Aborigine much respected by all who knew him. The station buildings were gone but in the ruins was scattered ample evidence of Tommy's skill in the use of No. 11 fencing wire to bind, hinge, chain, plait that which he wanted to turn to his use.

And so we came in the early afternoon to the Breakaways, a startling mix of dusty clay flats and multi-hued crumbling cliffs. It is hard country, the slopes rocky, strewn with shards but obviously home to rabbits, euros, falcons and much bird life. Trees are impressive in the valleys between the Breakaways but for me the dominant impression was of a harsh and unforgiving environment.

TAG-ALONGS Departure from Serpents Glen after a wonderful and a very profitable few days. What a lovely place! Seems a pity to go home. Much hurried packing. We have made ourselves comfortable and spread out but all tag-alongs lined up for 8.00 am start. We made good time to Blue Hill Station homestead (abandoned) for morning tea. We all wondered at the ingenuity of Tommy Ingebong who had used fencing wire to create a sled, many artefacts at the kitchen, the water trough, etc. It must have been a really tough life with very few comforts.

We met KC at the Breakaways and set up camp in a very pleasant spot among the mulga trees. After lunch all parties headed to the top of the Breakaways. Wonderful view of the surrounding countryside. It would have been very hot if not for a pleasant breeze. Everyone went their own ways exploring the nearby areas. Val and I chose to walk around the top of the Breakaways. The colours in the landscape were superb; beautiful blue tones in the distant hills with rich ochre red of the small cliffs coupled with the sparkle of quartz. We followed a kangaroo (euro) trail down to the floor of the valley and walked across to the other side where our vehicle was parked. I scrambled up top while Val walked along the valley to the road where I collected her.

The birding in the little patch of woodland at the base of the Breakaways proved to be some of the most productive of the trip. We had a great hour or so. On returning to camp we went over to another cutting opposite our campsite recommended by KC - beautiful colours in the rock formations in the late afternoon light. The trapping party arrived as we were leaving to set out the Elliott traps.

After a leisurely dinner, we strolled over to the lead party camp for "show and tell". It has been a great day, made even better by a great campsite and the best part is that we have it all to ourselves!

Day 9 - 9th August LEAD PARTY The "diary" was passed on to me by Eric on the evening of the 8th, so I think that it is appropriate that I start from that evening. Dr Ric and Mark gave their zoological post mortem, followed by KC birdcalls. Daphne followed with her botanical survey and her observation that they had pressed 110 plants. KC filled us in with the itinerary for the morrow, well laced with very interesting detail. For example, the Wiluna gold coach being abandoned for a week in the early 1900s as it was caught in a flood. No loss was reported on recovery. KK ended the evening with timetables and the collection of census forms, promising to send them at first light on camel express!

The cavalcade set off about 8.00 am on the 9th with our first stop being No. 5 Well on the Canning Stock Route. This was particularly significant to Mary, the granddaughter of W.A. Snell. This gentleman, like KC, was a legend in his lifetime. Among other achievements, he was given the job of reconstructing the first 500 miles of the Stock Route, which was defective for its purpose of getting stock from Halls Creek to Wiluna in good condition.

The setting for morning tea at Spriggs Pool, with photo shots of the group on the green lawn of the pool, was practically suburban. This was followed by a quick stop at Granite Peaks Station to view Tommy Ingebong's throne, which as KK observed, was suffering from the ravages of termites.

Well 10 was the setting for lunch among a magnificent stand of river red gums. This was on Lorna Glen Station, now leased by the Department of Conservation and Land Management and in the process of being destocked. A comfort stop at a magnificent example of a marble gum was followed by the incongruous sight of a Japanese man/woman with a huge pack on his/her back on the way to Carnegie, Warburton, Uluru and then probably walking all the way home, God willing. At the pit stop at Wiluna, we said our first farewell to a tag-along, John Tucker, a reminder that it was the beginning of the end. From Wiluna we turned south onto the road to Sandstone, stopping at a property (Yeelirie) with a huge uranium deposit waiting to be opened. How many will glow in the night?

TAG-ALONGS Today was to be an early start and it certainly was for Mary. She seemed to be up well before the sun and checked the 125 Elliotts, revealing to those who would collect them that it would be a thankless task. The main party left at about 8.00 am. Sue and Val, Andrew and Suzy stayed with Dr Ric and Mark to bring in the last 100 Elliotts.

Morning tea was at Spriggs Pool - a delightful spot. The pool is about 150 metres x 40 metres and surrounded by river red gums. The water was red with mud. We continued to Granite Peak homestead. We were told that they have had seven good seasons in a row. This has not happened before in the memory of Henry Ward an 80-year-old neighbour from adjoining Glen Ayle Station. The average rainfall there is 200 mm. I didn't think the country looked that good - must be dreadful in a bad year! We turned left from the Granite Peak-Wiluna Road at Camel Well and lunched at No. 10 Well. Here there is a large grove of river red gums, with clear ground in a slight depression - a lovely spot for lunch. Many of the group were seen lying prostrate photographing a *Moloch horridus*.

On to Wiluna where many refueled and some bought ice creams or other vital foods. John Tucker left us to head off to the Little Sandy Desert again. With quite a brisk wind, we camped in the mulga short of the breakaway site that KC had planned but now thought might be too exposed to the elements. It proved a good spot. The show and tell was replaced with a discussion session on traditional Aboriginal, compared to European, land management practices.

Day 10 - 10th August LEAD PARTY Up early to depart our camp under the mulga trees on Yeelirie Station. Away by 8.15 am for the long 257 km haul to Paynes Find. A brief stop just 1 km away at more breakaways for an early morning walk down below. Spotted two echidnas hiding in their rock burrows and a huge perentie (*Varanus giganteus*, second largest in world after the Komodo Dragon) posing against a warm red rock for the photographers. Approximately 2 metres in length!

Morning tea by roadside. Another stop to admire *Newcastelia* and *Homalocalyx* and later a dark red velvet *Hemiphora* and a flowering *Eucalyptus kingsmillii* and *E. oldfieldii*. Lunch in the old mining town of Sandstone, neat and tidy and welcoming. Off again at 1.30 pm for the last leg, seeing many emus, goats, sheep and kangaroos and a fox. Crossed the No. 1 Vermin Proof Fence (1308 km, at one time the longest fence in the world) and stopped for photos. Arrived in Paynes Find just before 4.30 pm to allocate rooms and shower for the "Happy Hour" and dinner afterwards. This morning we farewelled our dear friend, zoologist Mark Cowan, who is returning to Kalgoorlie. Paynes Find Tavern is getting a new lease of life under new ownership. This couple are determined to put the tiny mining outpost of Paynes Find on the map! They certainly treated us like royalty and we hope they succeed in their venture. A fitting farewell dinner to end a most successful and enjoyable 11 days with lovely people and fascinating flora and fauna. Perth tomorrow, sadly.

TAG-ALONGS Thursday night - Friday AM saw us set up camp about 10 km off the Yeelirie-Sandstone Road. The excitement of a 15-minute sleep-in got the better of a few notables and the group was consequently woken to the bush sound of 'happy' campers. A reasonably mild overnight dew nevertheless led to the bottom end of my sleeping bag getting a soaking through my swag. A slow breakfast saw the group depart at about 8.15 am for a first stop at the Breakaways about 2 km south of the camp. I heard stories of a "route march" in progress around the area led by KC with much joyful camera clicking. Of great interest were the two echidnas and the star performer a 2 m long perentie. KC reported that this specimen was the largest he'd been able to approach close enough for macro photography (well, almost!)

Farewells were said to Mark Cowan, the Goldfields ecologist, who'd had enough and couldn't resist the temptation to travel home to Kalgoorlie with one research stop en route. The drive continued south toward Sandstone, our lunch stop destination. The cooler temperatures were noticeable as too the change in vegetation. Our arrival in Sandstone was heralded by a solitary emu walking across the main street in front of the pub where a few of the group were making the acquaintance of the owner. Others were seen taking a self-guided walking tour around the quiet, dusty streets. One can only imagine that our arrival and departure will make the next edition of the local newspaper. Not since the "gold" days will the population have doubled in numbers in such a short space of time. A prompt departure at 1.30 pm saw us move further south for the 234 km drive down to Paynes Find where a sumptuous feast awaited us (not to mention a shower!).

On the drive out, Tom was able to look back, full of nostalgia as he'd worked as a shearer in the area in the past. He spoke of many a trip into the city hustle and bustle of places like Sandstone. The remaining drive into Paynes Find was relatively uneventful; however, more than one person on arrival headed for the liquid comfort of both the shower and bar. Happy hour at 6.00 pm saw most of the group come together in the bar in preparation and anticipation of the "feast at 7.00 pm". Tony, our host, talked of the plans he has for the Tavern and we wished him well.

THE CONTENT AND STRUCTURE OF NATURAL ENVIRONMENT EXPERIENCES: A BRIEF OVERVIEW

by Dr David Webb, Social Scientist, Department of Information Management and Marketing, University of Western Australia

Project Overview

As part of an ongoing social science project involving the University of Western Australia and the Department of Conservation and Land Management, I accompanied the 'Landscape of the Heart' expedition to the Carnarvon Range to explore how people experience the natural environment of Western Australia. With ever increasing numbers of visitors to WA, it is important for all those involved in the management and marketing of the state's natural environment that we obtain an understanding of how and in what ways people interact with the environment. A more informed understanding of visitor experiences will assist with conservation management decisions thereby contributing toward the conservation of our environment.

Research Design

The study was conducted in three stages:

1 Expedition participants together with leaders were approached prior to departure and asked a number of questions about their participation motivations, and likewise expectations about the expedition.
2 Personal interviews were then conducted during the expedition at a time convenient to expedition participants. These were recorded for later transcription to ensure accuracy of recall and interpretation. Forty-six interviews resulted in over 270 pages of manuscript. The interviews ranged from 10 - 35 minutes in duration.
3 Expedition participants were contacted by telephone a few weeks after the expedition to review the expedition and their experiences. A summary of findings is presented next.

Findings - How The Natural Environment Was Experienced

To provide a frame for understanding the human, flora, fauna, and land interactions discussed and observed throughout the expedition, it is useful to note that because we depend on natural environment resources for our existence, we are part of the environment being studied and thus, are both subject and object in the study.

Experiences depend on how we sense, think, feel, behave and relate to and within the natural environment over time. Throughout all stages of the expedition many experiential themes were identified. From the interviews conducted prior to, during and after the expedition the most dominant 'experience theme' related to the *educational* nature of the expedition. 'Fulfilling', 'inspirational', and 'enlightening' were indicative of the words used to describe the expedition. Similarly, the expedition was referred to as a *social* event. This was emphasised by a strong spirit of community, with many shared moments and much support between participants evident. 'Fun', 'sharing', 'friendly', and 'lasting' described the rapid bonding both within and across each of the main party and tag-along groups. The *nature of the landscape*, it's 'wildness', 'vastness', 'colour', 'vibrancy' and 'mystery' provided additional key themes for many expedition participants. Similarly, how participants saw themselves in *relation to the landscape* was discussed using descriptors such as 'humble', 'insignificant', 'lonely', and 'small'. These commentaries in particular evoked strong feelings of *emotion* and *spirituality*. In 'awe', 'at peace', 'home' and 'lost in an ancient world' were indicative of some responses in this regard.

Nearly four decades have passed since social scientist Abraham Maslow (1962), presented his work on 'peak experiences'. Peak experiences are those that surpass the usual level of intensity, meaningfulness and richness bringing the highest happiness and fulfilment to individuals. The experiential themes noted above suggest that the expedition was, for most, certainly indicative of a 'peak experience'.

Summary

From the above brief overview, six main themes resulted highlighting the dynamic, evolving and multi-faceted nature of natural environment experiences. The main themes identified pertain to the 'educational', and 'social' elements of the expedition. In addition, the 'nature of the landscape' and how participants perceived their 'relationship with the landscape' were similarly highlighted. Strong sentiments of 'feeling' and 'spirituality' were also expressed reinforcing the 'peak experience' nature of the expedition.

Some Study Implications for Nature-Based Tourism Managers

- For science-based research expeditions such as the one discussed here, the educational component is clearly central to the 'experience structure' of participants. To ensure that the experience conforms to a 'peak experience', expedition managers need to ensure that a learning environment and learning opportunities for participants at all knowledge levels are provided.
- Activities that allow the 'spirit of community' to shine through should likewise be considered. These could include among others, expedition briefings and group social events around the camp fire, etc.
- To ensure that participants are able to personally 'relate to the environment', managers should also ensure that opportunities for quiet contemplation are included on the agenda of activities.
- Also important in helping people 'relate to and learn about the environment' is the need for a professional 'interpreter'.
- For those to whom the remote and natural environment is unfamiliar, a longer acclimatisation period is required. A key consideration here is the length of time required to acclimatise in unfamiliar harsh surroundings. It should be noted that some individuals acclimatise more rapidly than others. Research conducted in the USA (Ittelson, Franck and O'Hanlon 1976) suggests that four to five days are necessary for maximum comfort.

References

Ittelson, William. H., Franck, K. and O'Hanlon T. J. (1976) in Wapner, S., Cohen, S. and Kaplan, B. eds. *Experiencing the Environment.* Plenum Press, New York, pp. 187 - 206.

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PLANTS AND VEGETATION OF THE CARNARVON RANGE

by Kevin Kenneally and Daphne Edinger
***LANDSCOPE* Expeditions, Department of Conservation and Land Management**

Unexpected discoveries highlight the importance of doing survey work in remote areas. This was demonstrated when Pat Angel discovered a small yellow-flowered herb growing in a seepage line at the base of Johnsons Cairn. This plant was later identified as *Bulbine alata*, the first record for Western Australia. The collection of an algal sample from Good Camp Rockhole that included a new species record for Australia is also very exciting.

On reaching the Carnarvon Range our botanical investigations began in earnest. Fire has been a major modifying process in desert regions and we were able to view this first-hand. The expedition enabled us to gauge the impact of widespread wildfires on the vegetation of the surrounding sandplains by comparing unburnt, burnt and regenerating sites. Of more than 200 plant collections made during our visit, 45 were new records for the proposed Carnarvon Range Conservation Park (see Table 1).

Some plants are unique to the area. Cascading from fissures in the rocks were nature's hanging baskets, the rock-loving *Tetratheca chapmanii*, with its clumps of bright pink flowers. This plant is common throughout the Carnarvon Range, but is not found outside this area. Also of interest was the northerly range extension of the pale pink starflower (*Calytrix praecipua*), again restricted to the sandstone outcrops.

A broombush, *Melaleuca hamata*, was another significant northerly range extension, as it had previously been collected only from between Leinster and Leonora. This species was previously included under the name *Melaleuca uncinata*, now regarded as being confined to the south coast. The widespread species, common throughout the Wheatbelt is now referred to as *Melaleuca hamata*.

At Good Camp Rockhole, a discovery was made while plumbing the depth of water in the pool. The stick came up covered in a slimy raft of dark green freshwater algae. Noticing that it was a species of *Spirogyra*, it was rescued before it was thrown back. Samples were preserved in 70 per cent alcohol. On our return to Perth, the material was sent to Dr Stephen Skinner at Royal Botanic Gardens in Sydney. Dr Skinner's letter is reproduced below:

Dear Dr Kenneally
Thank you very much for the specimen of *Spirogyra* and other raft forming algae from Good Camp Rockhole, in the Little Sandy Desert, which you sent recently to Dr Entwisle. The fertile *Spirogyra* species came out in Simon Lewis' key to *S. neglecta* (Hassall) Kutzing, a reasonably widespread species in Australia. It is characterised by moderately wide, cylindrical cells with four ribbons of chloroplast, simple endwalls on cells, ladder-like conjugation, no inflation of the receiving cell and round ended rugby-ball-like spores.

As well as a desmid (*Pleurotaenium* sp.), there were two species of *Oedogonium* present, both fertile. One of these is minute, with fine wirey cells and single egg chambers on very inflated supporting cells, and skinny delicate dwarf males. This one fits *Oedogonium silvaticum* Hallas in Mrozinska (1985) and has not been recorded in Australia before, but then no-one has probably looked!

The large one, similar in size and abundance to the *Spirogyra*, is a little more difficult to place. It has some features of the widespread and variable species *O. wolleanum*, but the 'walnuts' are very finely costate, bright red, and almost globular, and the dwarf males are not as described for that species. The males fit better with another large and widespread 'walnut-former', *O. cyathigerum*, but the walnuts are wrong again, and your one opens its egg chambers with a cap not a pore. The spores fit better with *O. oryzae*, but it does not have dwarf males! So you may have fished up a new species, or at least a new variety. We will database it under *Oedogonium* sp. aff. *O. wolleanum* Wittr. until I have finished the survey of the genus in Australia and made a decision about all the taxa.

Thank you once again for the specimen Kenneally 11690. It was a delight to receive it. Don't hesitate to send us more from other exotic places, as chained to a desk in Sydney I'll not get to visit so many places while the survey is on!

Yours sincerely
Dr Stephen Skinner
Scientific Officer, RBGSYD

Three samples of fungi were collected on the expedition.

- The first was a *Boletus (sens. lat.)* which is mycorrhizal (possibly on the roots of the sand-dune bloodwood *Corymbia deserticola*),
- the second, a scarlet bracket fungus (*Pycnoporus* sp.), is a wood decomposer, and the
- third is an earth star (*Geastrum* sp.), a soil decomposer.

Fungi are poorly collected and little is known of the role that they play in desert environments.

All of the plant and bird records will be included in a paper being prepared by Kevin Coate and Daphne Edinger for publication in *The Western Australian Naturalist*.

TABLE 1: ADDITIONS TO SPECIES LIST FOR CARNARVON RANGE
(Total species recorded for the Carnarvon Range Conservation Park - 393)

Name	Family	Locality
Acacia pyrifolia	(Mimosaceae)	5
Amyema fitzgeraldii	(Loranthaceae)	3
Amyema preissii	(Loranthaceae)	3
Calotis erinacea	(Asteraceae)	5
Chenopodium gaudichaudianum	(Chenopodiaceae)	3
Corchorus sidoides	(Tiliaceae)	5
Corymbia chippendalei	(Myrtaceae)	5
Corynotheca micrantha var. *divaricata*	(Anthericaceae)	5
Cymbopogon obtectus	(Poaceae)	3, 5
Dampiera cinerea	(Goodeniaceae)	5
Eremophila maculata ssp. *brevifolia*	(Myoporaceae)	5
Eremophila ostrina	(Myoporaceae)	3
Eremophila shonae ssp. *diffusa*	(Myoporaceae)	5
Frankenia aff. *georgei* (KFK 12210/DJE 2675)	(Frankeniaceae)	5
Frankenia laxiflora	(Frankeniaceae)	5
Frankenia sp.? *brachyphylla* (KFK 12252/DJE 2717)	(Frankeniaceae)	5
Gonocarpus eremophilus	(Haloragaceae)	5
Goodenia azurea	(Goodeniaceae)	5
Goodenia schwerinensis	(Goodeniaceae)	5
Goodenia sp. Carnarvon Range (KFK 12191/DJE 2656)	(Goodeniaceae)	5
Gyrostemon tepperi	(Gyrostemonaceae)	5
Haloragis odontocarpa forma *rugosa*	(Haloragaceae)	5
Hibiscus sturtii var. *truncatus*	(Malvaceae)	5
Isotropis atropurpurea	(Papilionaceae)	5
Kennedia prorepens; 1st record of white flowered form	(Papilionaceae)	5
Laxmannia arida	(Anthericaceae)	5
Maireana eriosphaera	(Chenopodiaceae)	5
Maireana glomerifolia	(Chenopodiaceae)	5
Maireana tomentosa	(Chenopodiaceae)	5
Melaleuca hamata	(Myrtaceae)	5
Muelleranthus trifoliolatus	(Papilionaceae)	5
Mukia maderaspatana	(Cucurbitaceae)	5
Otion simplicifolium (formerly *Gompholobium)*	(Papilionaceae)	5
Pimelea trichostachya	(Thymelaeaceae)	5
Pityrodia loxocarpa	(Lamiaceae)	5
Pterocaulon sphacelatum	(Asteraceae)	5
Pterocaulon sphaeranthoides	(Asteraceae)	5
Rhagodia eremaea	(Chenopodiaceae)	3
Sclerolaena densiflora	(Chenopodiaceae)	5
Sclerostegia disarticulata	(Chenopodiaceae)	6
Solanum cleistoganum	(Solanaceae)	5
Solanum sturtianum	(Solanaceae)	5
Stylobasium spathulatum	(Surinaceae)	5
Swainsona microphylla ssp. *glabrescens*	(Papilionaceae)	5
Velleia connata	(Goodeniaceae)	5

Localities
3 Carnarvon Ranges of Wonyulgunna sandstone
5 Red sand plains and ridges
6 Stony, quartzite ridge on Blue Hill Station (abandoned)

The Expedition convoy approaching the sand dune obstacle near the Carnarvon Range. Photo: K.F. Kenneally

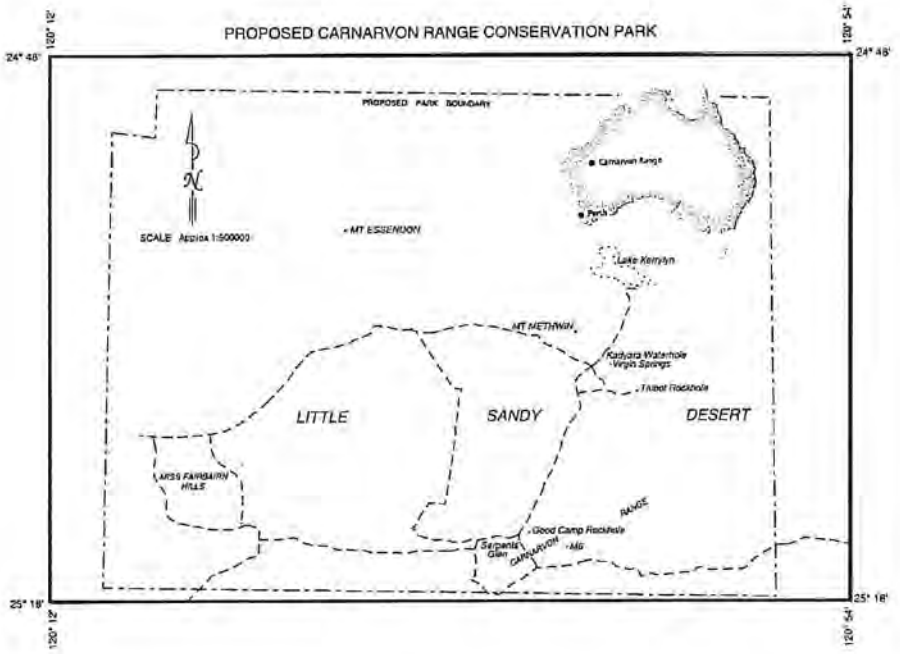
A view from the Carnarvon Range over the surrounding sandplain and sandridges. Photo: K. Coate

Hummock *(Triodia* sp.*)* grasslands on red sandplain surrounding the Carnarvon Range. Photo: K.F. Kenneally

Carnarvon Range in the late afternoon light.
Photo: K.F. Kenneally

Good camp rockhole near Expedition Basecamp.
Photo: K.F. Kenneally

Kevin Coate on sandridges to the south of the campsite.
Photo: K.F. Kenneally



NOTES AND IDENTIFICATIONS OF ANT SPECIMENS COLLECTED BY DR JOHN OFFER ON THE CARNARVON RANGE SURVEY

by Dr Brian Heterick, Research Fellow, Dept of Environmental Biology, Curtin University of Technology, Bentley, WA

These ants represent a typical sample of the more common species found in the area. Most of the ants are desert-adapted. However, a few, like *Iridomyrmex chasei concolor* and *Podomyrma adelaidae*, are also ubiquitous in the wetter, southern areas. The very large sugar ant (*Camponotus tricoloratus*) is the first example of a major worker I have seen for this species. *Camponotus midas* occurs only in arid or semi-arid desert areas.

1 Large soldier ants from nest in ground. Serpents Glen, S. Carnarvon Range, Little Sandy Desert. 25°15' 49"S. 120°38' 48"E. 04.08.2001

2 *Calomyrmex* ANIC 1 (JDM 239). Active ant, raised abdomen. Serpents Glen.

3 *Iridomyrmex bicknelli azureus* Viehmeyer and *Camponotus wiederkehri* Forel. Ant from hole in clear sand, not raised or built up. Serpents Glen.

4 *Calomyrmex* ANICI 1 (JDM 239). Foraging in open country west of Serpents Glen.

5 *Iridomyrmex chasei concolor* Forel. Fast moving ant in open country. No visible nest.

6 *Iridomyrmex bicknelli azureur* Vichmeyer. Ant from round vertical hole, built up with granular soil. Swarming habit, gathering spinifex material up to 3 cm.

7 *Polyrhachis* (*Chariomyrma*) *lata* sp. 'A' (JDM 122). Fast moving ant with white abdomen. Found in debris at base of cliff east of Serpents Glen. Others on rock.

8 *Myrmecia desertorum* Wheeler. Large ant in pit trap 500 m west of Serpents Glen.

9 *Rhytidoponera taurus* (Forel). In sandy ground near rock at Talbot Spring, 17 km northeast of Serpents Glen.

10 *Calomyrmex* ANIC 1 (JDM 239). Ants foraging in unburnt country, Virgin Spring. 25° 07'S; 120° 43.2'E.

11 *Rhytidoponera taurus* (Forel). Up gully at Virgin Spring, debris on ground, not bare rock.

12 *Camponotus midas* Froggatt (major). In sand dune traps in unburnt spinifex, north of Serpents Glen.

13 *Camponotus midas* Froggatt (minor). As above, same site; foraging? carrying larvae.

14 *Podomyrma adelaidae* (Smith). Near rubbish at camp, Serpents Glen. 08.08.01

15 *Iridomyrmex sanguineus* Forel. From glass pit trap in camp, Serpents Glen.

IDENTIFICATIONS OF SPIDERS AND CENTIPEDES FROM CARNARVON RANGE, LITTLE SANDY DESERT
Collectors: R. How, K.F. Kenneally, Aug. 2001
(identified by J.M.Waldock, W.A. Museum, unless stated otherwise)

Site	Date	Class	Order	Family	Genus	Species	No. specimens
Virgin Spring	5 Aug.	Chilopoda	Scolopendrida	Scolopendridae	**Scolopendra**	*morsitans* Linnaeus	1
Virgin Spring	5 Aug.	Arachnida	Acarina	Trombidiidae			
Stylidium Gorge	6 Aug.	Arachnida	Araneae	Theridiidae	**Latrodectus**	*hasseltii* Thorell	2 f, 1 jf
Muir 6	6 Aug.	Chilopoda	Scolopendrida	Scolopendridae	**Scolopendra**	*laeta* Haase	1
Serpents Glen	7 Aug.	Chilopoda	Scolopendrida	Scolopendridae	**Scolopendra**	*morsitans* Linnaeus	1
CAR 1	4-8 Aug.	Arachnida	Araneae	Lamponidae	**Asadipu**	*auld* Platnick	1 m
				Zoridae	**Argoctenus**	sp. 1	1 f
CAR 2	4-8 Aug.	Arachnida	Araneae	Lycosidae	***indet.***		1 juv.
				Trochanteriidae	**Rebilus**	sp.	1 m
CAR 4 & 5	4-8 Aug.	Arachnida	Araneae	Idiopidae	genus 1	sp. 1	1 m
				Deinopidae	**Deinopis**	sp.	1 m
				Zoridae	**Argoctenus**	sp. 1	1 f
CAR 6	4-8 Aug.	Arachnida	Araneae	Idiopidae	genus 1	sp. 1	1 m
				Zoridae	**Argoctenus**	sp. 1	3 f
CAR 7	4-8 Aug.	Arachnida	Araneae	Idiopidae	genus 2	sp. 1	1 m
				Lamponidae	**Asadipus**	*auld* Platnick	1 m
				Segestriidae	**Ariadna**	sp.	1 m
				Zodariidae	**Australutica**	sp.	1 m
				Zoridae	**Argoctenus**	sp. 2	1 f

BIRDS AND NATURAL HISTORY NOTES

by Kevin Coate

I first became aware of the Carnarvon Range in 1981, when my wife, Yvonne, brought to my notice an article in *The West Australian* by that renowned reporter of natural history subjects, the late Alex Harris. Alex wrote about a trip she had just completed with members of the Department of Fisheries and Wildlife's Wildlife Research Centre, during the wind-up of the Eastern Goldfields three-year biological survey. She told of how the Carnarvons loomed blue out of the sand plain and how, as the distance narrowed, they changed to brilliant red - a huge mass of crazily-tilted sandstone. Over the following years I heard whispers from people who had visited the area, but they were just that - whispers. Nobody shouted loudly in case too many heard. Finally in 1998, Yvonne and I decided to further investigate. Afterwards we wondered why it had taken us so many years to get there. As Alex so aptly wrote, "the scenery is dramatic; it provides a unique example of the steep sided ranges of the Little Sandy Desert."

On the first day of the *LANDSCOPE* trip, a highlight occurred when we watched a peregrine falcon repeatedly attempt to flush an immature pied butcherbird from its refuge in a mulga tree next to our Wogarna Station homestead quarters. The speed of the falcon was awesome as it circled and swept into where the butcherbird was sheltering.

Along the way there were some interesting side stops. We stopped for morning tea at the old Nallan railway dam, where there was an abundance of waterfowl and waders. Along the shore-line were white-necked herons, white-faced herons, black-tailed native-hens, a solitary bustard, black-winged stilts, black-fronted dotterels and red-kneed dotterels. On the water could be seen musk ducks, black swans, Australian shelducks, Australian wood-ducks, grey teal, pacific black ducks, Australasian shovelers, hard head Australasian grebes, and a little pied cormorant. It was especially interesting to discover that musk ducks were about 300 km north-east of their known range, the Australian shovelers were at the eastern end of their range and, according to the *Handbook of Western Australian Birds* by Johnston and Storr, we had also extended the range of little pied cormorants. Flying above the dam was a wedge-tailed eagle and two whistling kites.

Feeding on kangaroo carcass' hit by vehicles all along the Great Northern Highway, were many wedge-tailed eagles, sometimes whistling kites or a fox. Usually competing for the scraps, were little crows in flocks varying from three or four up to twenty in number.

From a vantage point on the low gypsum hills overlooking Lake Annean, we were impressed with the amount of water fowl on the lake and its islands. However, due to distance it was not possible to identify everything with binoculars. Large concentrations of Australian shelducks were easily recognisable resting on the shore-lines. Hundreds of black swans, many with young cygnets, were scattered over the water. There were several flocks of gull-billed tern, and white-faced herons were reasonably common. Mulga parrots, white-winged fairy-wrens and white-backed swallows were also there. As this stop coincided with our lunch break, everyone had an opportunity to examine the strange looking dunna dunna (*Lawrencia helmsii*), previously noticed at Lake Austin. This interesting

plant belongs to the *Hibiscus* (Malvaceae) family, and prefers gypsum enriched areas on which to grow.

Travelling through Neds Creek Station we startled many red kangaroos and euros from their resting places under bushes. While many bounded off through the mulga at a great rate, others showed indifference to our presence and hardly moved at all. At times we had to reduce speed for those that were reclining on the seldom used station track. Emus were also common, but there was no evidence of breeding. No doubt the establishment of bores to water cattle is the contributing factor to the abundance of wildlife. Once we left the station, numbers dropped.

While driving toward the Carnarvon Range we came upon a bustard standing perfectly still in typical pose behind a bush, with beak pointing skyward and trying to blend in with the landscape. We noticed plenty of camel footprints and droppings along the track. So it came as no surprise to eventually come upon five camels on the road ahead. We held back until most of our party caught up and were able to see them. A little further on we came upon another group and this time there were eight, including two young ones. They galloped immediately ahead of the vehicle for about 1km before turning off into the bush. Alf Schwarzenbach busily clicking away with his camera from the back seat of the Landcruiser should have some excellent photos of the west end of these east bound camels. A dead camel was later found close to the track between Serpents Glen and Talbot Rockhole. It had a full stomach and appeared as if it had been quite healthy until shortly before it died.

Bird life in the Carnarvon Range was generally poor, although there was plenty of water in rock holes and seepage areas. No doubt this lack, especially of common birds like zebra finch, could be attributed to the general dryness of the surrounding countryside and the vast area of land devastated by bush fire about eight months earlier. Abundant rainfall and a good season further north, could also have contributed to the paucity of bird numbers, especially the nomadic. Nevertheless we added several new species to previously recorded lists - the most notable being rufous-crowned fairy-wren, inland dotterel and banded white-face. Rufous-crowned fairy-wren, first spotted by Val Talbot and Sue Clarkson, were found to be reasonably common in unburnt areas of *Triodia* sp. and *Aluta maisonneuvei* between Serpents Glen and Talbot Rockhole. Three banded white-face found by Mary Bremner at the ruins of Tommy Ingebong's Blue Hill Station homestead, were welcome additions. Peter Wilshaw's excellent description of an inland dotterel he saw nearby on the stony plain country, confirmed its presence. John Tucker disturbed two tawny frogmouth, while taking the short cut down from the summit of M6 and later another pair were recorded at the old Blue Hill Pastoral Lease breakaways that branch down towards Kennedy Creek.

During most nights at Serpents Glen and our camp in the breakaways, we heard the distinctive tukka-tukka-tukka calls of spotted nightjars and chirring sounds from owlet nightjars. While walking upstream from Talbot Rockhole, several of us flushed two owlet nightjars from roosting hollows in trees.

During our visit 71 bird species were recorded in the proposed park and the adjacent Blue Hills Pastoral Lease - 47 passerine and 24 non passerine. (These recordings have now been included in a 'paper', currently being prepared by Coate and Edinger for *The Western Australian Naturalist*, on a series of trips to the Carnarvon Range by members of the Western Australian Naturalists' Club between 1998 - 2000.)

BIRDS OF THE PROPOSED CARNARVON RANGE NATURE CONSERVATION PARK AND THE NEARBY ABANDONED BLUE HILL PASTORAL LEASE

Compiled by Kevin Coate

CASUARIIDAE

Emu
Dromaius novaehollandiae (Latham)
Reasonably common over the entire area, especially around rockholes.

ACCIPITRIDAE

Whistling Kite
Haliastur sphenurus
Scarce. One on two consecutive days at Serpents Glen.

Brown Goshawk
Accipiter fasciatus
Uncommon. One at the south-western section of proposed park. One at Serpents Glen. Two at Blue Hill breakaways.

Wedge-tailed Eagle
Aquila audax
Uncommon. A pair frequenting Serpents Glen. One at Blue Hill breakaways.

FALCONIDAE

Brown Falcon
Falco berigora
Uncommon. One near Miss Fairbairn Hills, one at Serpents Glen and one at Blue Hill Lease.

Australian Kestrel
Falco cenchroides
Reasonably common around breakaways and hills.

Peregrine Falcon
Falco peregrinus
Uncommon. A pair at Blue Hill breakaways. One seen several times at dusk at Serpents Glen.

OTIDIDA

Australian Bustard
Ardeotis australis
Scarce. One near Clayhole south of Miss Fairbairn Hills. Remains of a recently killed bird at Blue Hill.

TURNICIDAE

Little Button-quail
Turnix velox
Scarce. One near Blue Hill breakaways.

CHARADRIIDAE

Inland Dotterel
Peltohyas australis
Scarce. One on flat stony area at Blue Hills.

COLUMBIDAE

Common Bronzewing
Phaps chalcoptera
Common at dusk, coming to water at Good Camp Rockhole and Serpents Glen. Several at Blue Hill.

Crested Pigeon
Ocyphaps lophotes
Uncommon. Several each day over the area.
Breeding: Nest with 2 eggs in a *Callitris glaucophylla* in an unburnt gully near Serpents Glen.

Diamond Dove
Geopelia cuneata
Very common coming into water at Talbot Spring - 4th August 2001. Uncommon elsewhere.

PSITTACIDAE

Galah
Cacatua roseicapilla
Scarce. Two seen on two occasions at Serpents Glen.

Ring-necked Parrot
Platycercus zonarius
Reasonably common near creeks and rockholes.

Mulga Parrot
Platycercus varius
Uncommon. In pairs in unburnt mulga woodland near rockholes and at Blue Hill.

Budgerigar
Melopsittacus undulatus
Scarce. A small flocks of six south of Miss Fairbairn Hills and another of five at Blue Hill breakaways.

Bourke's Parrot
Neophema bourkii
Uncommon. A flock of eight south of Miss Fairbairn Hills. Several at Blue Hill.

CUCULIDAE

Pallid Cuckoo
Cuculus pallidus
Scarce. One calling at Serpents Glen and one seen near Talbot Rockhole.

Horsfield's Bronze-Cuckoo
Chrysococcyx basalis
Uncommon. Seen and heard several times between Serpents Glen and Talbot Rockhole.

PODARGIDAE

Tawny Frogmouth
Podargus strigoides
Uncommon. Two flushed from a small tree on steep slope below M6. Two at Blue Hill breakaways.

CAPRIMULGIDAE

Spotted Nightjar
Eurostopodus argus
Reasonably common. Heard at Serpents Glen most nights.

AEGOTHELIDAE

Australian Owlet-Nightjar
Aegotheles cristatus
Reasonably common. Often heard at Serpents Glen. Two flushed from hollow limbs in *Eucalyptus camaldulensis* at Talbot Rockhole.

HALCYONIDAE

Red-backed Kingfisher
Todiramphus pyrrhopygia
Scarce. One near Talbot Rockhole

MALURIDAE

Variegated Fairy-wren
Malurus lamberti
Reasonably common on the plain in unburnt areas of *Triodia* sp.and *Aluta maisonneuvei* shrubland, between Serpents Glen and Talbot Rockhole and near M6.

White-winged Fairy-wren
Malurus leucopterus
Reasonably common over shrublands.

Rufous-crowned Emu-wren.
Stipiturus ruficeps
Reasonably common in *Triodia* sp.and *Aluta maisonneuvei* shrubland between Serpents Glen and Talbot Rockhole at Lat 25°10'9"S Long 120°41'2"E.

PARDALOTIDAE

Red-browed Pardalote
Pardalotus rubricatus
Scarce. Heard at Serpents Glen and Blue Hill breakaway.

Striated Pardalote
Pardalotus striatus
Uncommon. Several at Serpents Glen.

ACANTHIZIDAE

Weebill
Smicrornis brevirostris
Reasonably common.

Western Gerygone
Gerygone fusca
Uncommon. Heard at Serpents Glen and Blue Hills.

Inland Thornbill
Acanthiza apicalis
Reasonably common in unburnt areas between Serpents Glen and Talbots Rockhole.

Chestnut-rumped Thornbill
Acanthiza uropygialis
Reasonably common in small groups.

Slaty-backed Thornbill
Acanthiza robustirostris
Reasonably common in ones and twos.

Yellow-rumped Thornbill
Acanthiza chrysorrhoa
Uncommon. Several in unburnt area of mulga shrubland between Serpents Glen and Talbot Rockhole.

Southern Whiteface
Aphelocephala leucopsis
Uncommon. Several at Blue Hills.

Banded Whiteface
Aphelocephala nigricincta
Uncommon. Several at Blue Hills.

MELIPHAGIDAE

Brown Honeyeater
Lichmera indistincta
Common. Attracted to flowering *Grevillea spinosa*. Breeding: nest with 2 eggs in *Acacia rhodophloia* near M6.

Black Honeyeater
Certhionyx niger
Scarce. A pair between Serpents Glen and Talbot Rockhole.

Singing Honeyeater
Meliphaga virescens
Reasonably common.

White-fronted Honeyeater
Phylidonyris albifrons
Very common over the whole area. Attracted to flowering *Hakea lorea* between Serpents Glen and Talbot Rockhole.

Yellow-throated Miner
Manorina flavigula
Reasonably common.

Spiny-cheeked Honeyeater
Acanthagenys rufogularis
Reasonably common.

Crimson Chat
Epthianura tricolor
Uncommon. Several flocks of up to 30 were moving in a north-easterly direction in association with similar sized flock of Black-faced Woodswallow, between Serpents Glen and Talbot Rockhole - 5th August 2001. Several at Blue Hill breakaway.

EOPSALTRIIDAE

Red-capped Robin
Petroica goodenovii
Reasonably common over the entire area.

Hooded Robin
Petroica cucullata
Reasonably common at the southern boundary of the proposed park and at Blue Hills, scarce elsewhere.

POMATOSTOMIDAE

Grey-crowned Babbler
Pomatostomus temporalis
Uncommon. Small group at Blue Hill.

White-browed Babbler
Pomatostomus superciliosus
Reasonably common.

CINCLOSOMATIDAE

Chestnut-breasted Quail-thrush
Cinclosoma castaneothorax
Scarce. One at Blue Hills.

PACHYCEPHALIDAE

Crested Bellbird
Oreoica gutturalis
Reasonably common over the whole area.

Rufous Whistler
Pachycephala rufiventris
Reasonably common.

Grey Shrike-thrush
Colluricincla harmonica
Reasonably common around rockholes and gullies in the ranges.

DICRURIDAE

Willie Wagtail
Rhipidura leucophrys
Reasonably common over the whole area.

Magpie Lark
Grallina cyanoleuca
Uncommon. One or two at Serpents Glen and Virgin Spring.

CAMPEPHAGIDAE

Black-faced Cuckoo-shrike
Coracina novaehollandiae
Scarce. An occasional bird.

Ground Cuckoo-shrike.
Pteropodocys maximus
Uncommon. Three south of Miss Fairbairn Hills. Five near M6. Three at Blue Hills.

White-winged Triller
Lalage tricolor
Uncommon. Several between Serpents Glen and Talbot Rockhole on flowering *Hakea lorea*. Several at Blue Hills.

ARTAMIDAE

Masked Woodswallow
Artamus personatus
Scarce. Small flock at Blue Hills.

Black-faced Woodswallow
Artamus cinereus
Reasonably common over much of the area. Several small flocks moving in a north-easterly direction on burnt area with Crimson Chats - 5th August 2001.

Little Woodswallow
Artamus minor
Scarce. Several around Blue Hill breakaways.

CRACTICIDAE

Grey Butcherbird
Cracticus torquatus
Reasonably common over the area.

Pied Butcherbird
Cracticus nigrogularis
Uncommon. One at south-western side of proposed park near Miss Fairbairn Hills. One near Serpents Glen. Two at Blue Hills.

Australian Magpie
Cracticus tibicen
Scarce. Two at Serpents Glen.

CORVIDAE

Torresian Crow
Corvus orru
Uncommon. Heard and seen at Serpents Glen, Talbot Rockhole and Blue Hills.

PTILONORHYNCHIDAE

Western Bowerbird
Ptilonorhynchus maculatus
Scarce. Active bower at Serpents Glen. One at Blue Hills.

MOTACILLIDAE

Richards Pipit
Anthus novaeseelandiae
Reasonably common at Blue Hills. Scarce elsewhere.

PASSERIDAE

Zebra Finch
Taeniopygia guttata
Several small flocks up to 15 at Blue Hills - scarce elsewhere, no more than seven birds over the remainder of the area.

DICAEIDAE

Mistletoebird
Dicaeum hirundinaceum
Reasonably common.

HIRUNDINIDAE

White-backed Swallow
Cheramoeca leucosterna
Uncommon. Several over the Blue Hill breakaways.

Tree Martin
Hirundo nigricans
Scarce. Several at western end of proposed park.

SYLVIIDAE

Rufous Songlark
Cincloramphus mathewsi
Scarce. One at Blue Hills.

AMPHIBIANS, MAMMALS AND REPTILES OF THE CARNARVON RANGE AREA, INCLUDING BRIEF NOTES ON THE INVERTEBRATE FAUNA

by Dr Ric How, Western Australian Museum, and Mark Cowan, Goldfields Region, Department of Conservation and Land Management

Terrestrial Vertebrate Fauna

The first collections of specimens from the Carnarvon Range area date back to 1959, however, the first detailed sampling of the fauna occurred in November 1975 and March 1976 by the former department of Fisheries and Wildlife (McKenzie and Burbidge 1979). These and subsequent visits by naturalists and biologists has resulted in 34 species of reptiles, 10 mammals and 4 frogs being recorded for the area of the proposed Carnarvon Range Conservation Park (see Table 1). The great majority of these species are representative of the desert regions of inland Western Australia. Although the *LANDSCOPE* Expedition in August 2001 recorded a few additional vertebrate species for the proposed conservation reserve, all of these were expected given their broad arid zone distributions and previous records from adjacent areas of the Little Sandy Desert and Gascoyne biogeographical regions.

The majority of terrestrial vertebrate information from the *LANDSCOPE* Expedition comes from seven fenced pitfall traplines. Each of these lines, comprising six 20 litre buckets with approximately ten metres of fence between buckets, were established around three unburnt dunes and sandplain locations within three kilometres of the Serpents Glen campsite. Elliott traps (a type of aluminium box trap that is baited) were established in lines of 25 traps adjacent to the major trapping locations, with additional lines running around the base of the range and along the creekbed near Serpents Glen campsite and over the low metamorphosed sandstone foothills east of the campsite. These traplines were operated for between two and five days between August 4th and 8th 2001.

Amphibians

Although four frog species have been documented around the Carnarvon Range, only *Neobatrachus sutor* was observed during the *LANDSCOPE* Expedition. Ray Dickson collected a juvenile along the creek-bank below Muir's Rockhole near M6 trigpoint.

Mammals

The mammal fauna of the Carnarvon Range region is relatively rich and similar to that recorded from other desert areas of Western Australia. The intensive pitfall and Elliott trapping employed around the southern end of the range during the *LANDSCOPE* Expedition resulted in the capture of two small dasyurid marsupials [Wongai Ningaui, *Ningaui ridei*, and Lesser Hairy-footed Dunnart, *Sminthopsis youngsoni*] and four rodents [Sandy Inland Mouse, *Pseudomys hermannsburgensis*, Desert Mouse, *P. desertor*, House Mouse, *Mus domesticus*, and Spinifex Hopping Mouse, *Notomys alexis*]. The Sandy Inland Mouse was trapped in all our pitfall and Elliott traplines and showed some marked changes in colouration; the tissue material obtained from the voucher specimens retained from captures will help in elucidating the genetic variation in this wide-ranging arid zone species. Only one House Mouse was captured, indicating that there was not a high population in this species following the good seasons in the desert in 1998-99.

Bats were heard and sighted around the Serpents Glen campsite and the Good Camp waterhole but none were captured in the mistnet set over the waterhole for two consecutive nights. It appears that none of the bats were drinking water at this time of the year. Seven species of bats are known to occur in the Carnarvon Range area.

Sightings were made of rabbits (*Oryctolagus cuniculus*) and both large kangaroos of desert areas (Euros, *Macropus robustus* and Red Kangaroos, *M. rufus*) on the hills and plains around the southern end of the Carnarvon Range. Either scats or tracks were recorded for Echidnas (*Tachyglossus aculeatus*), Dingos (*Canis familiaris*), Foxes (*C. vulpes*), Cats (*Felis catus*) and Camels (*Camelus dromedaries*). Echidnas were seen on the sandstone at M6 and again on the ridges at the 'Breakaways', east of Carnarvon Range. Camels were seen on Neds Creek station and dingos were heard around the southern end of the range early in the morning.

Of particular interest was the discovery of very old dried faeces of rock wallabies and stick-nest rats under overhangs above Virgin Springs. The rock wallaby faeces were probably of the central Australian race of *Petrogale lateralis*; there was no evidence of recent activity by these graceful creatures. The 'amber-rat' faeces of stick-nest rats, *Leporillus* sp., were also found under the same overhang at Virgin Springs. No extant mainland populations are known for either of the two species of stick-nest rats. The extensive fires of the previous summer had laid bare large areas of the rocky slopes at the base of the range but despite these large areas of unvegetated slopes, there was no evidence of the characteristic mounds associated with Pebble-mound Mice (*Pseudomys chapmani*).

Reptiles

The number of reptiles captured or seen was disappointing. The cool nights and mild days of early August not being conducive to activity by these 'cold blooded' vertebrates. Although a diverse reptile assemblage has already been recorded from the area (see Table 1), our attempts to sample fossorial (below ground) reptiles using pitfall traps proved singularly unsuccessful. In fact more than half of the species recorded were of animals either caught by hand or observed.

Of the 16 species recorded by the *LANDSCOPE* Expedition, six were dragons (*Ctenophorus*

caudicinctus, Ctenophorus isolepis, Diporiphora winneckei, Lophognathus longirostris, Pogona minor, Moloch horridus), two were geckos (*Gehyra variegata, Heteronotia binoei*), there was one legless lizard (*Lialis burtonis*), one monitor (*Varanus giganteus*) and six skinks (*Cryptoblepharus plagiocephalus, Ctenotus calurus, Ctenotus dux, Ctenotus pantherinus, Ctenotus quattuordecimlineatus, Lerista desertorum*). A good photograph of the Long-nosed Dragon was taken by Peter Wilcox in the Carnarvon Range, while Mary Bremner and Suzie and Andrew Speirs collected Thorny Devils on the sandy track heading east to the Canning Stock Route. The identity of the large monitor in the rock crevices near camp by Ray Dickson remains uncertain; it could have been either a Gould's or Spotted monitor. In all, five new records were made for the area (see Table 1) comprising two dragons, two skinks and one legless lizard.

Invertebrate Fauna

Several centipedes were collected. Those captured at Virgin Spring and Serpents Glen being *Scolopendra morsitans* and the one from Muir's Rockhole was *S. laeta*. Both species are relatively widespread and common.

The spiders collected at Stylidium [Red Back!] Gorge were *Latrodectus hasseltii*. From the various pitfall traplines no fewer than 10 species of spiders were identified and they form a useful addition to our knowledge by filling in species distributional ranges. One spider of particular interest were *Asadipus auld* specimens collected from the sandplain pitfall trapline, which represent new additions to the collections of the Western Australian Museum.

Conclusions

Fire has been a major modifying process in desert regions and we need to recognise the impact of the widespread fires around the southern section of the Carnarvon Range during the past summer in considering our results. All traplines were established in unburnt areas, potential refugia for the fauna, with just one trapline near camp traversing out a short distance from mulga into a recently burnt area. The marked lack of invertebrate activity, as monitored by the pitfall traplines, suggests that soil temperatures had yet to reach sufficient levels to initiate activity in these groups.

Reference

McKenzie, N.L. and Burbidge, A.A. (1979). The wildlife of some existing and proposed nature reserves in the Gibson, Little Sandy and Great Victorian Deserts, Western Australia. *Wildlife Research Bulletin Western Australia*, No. 8: 1-36. Dept of Fisheries and Wildlife, Perth, Western Australia.

Marion Kirby checking a fenced pitfall trapline.
Photo: K.F. Kenneally

TABLE 1: TERRESTRIAL VERTEBRATE FAUNA OF THE PROPOSED CARNARVON RANGE CONSERVATION PARK ENCOMPASSED BY THE CO-ORDINATES 24°51'55"S, 25°18'56"S AND 120°16'44"E, 120°52'03"E.

FAMILY	*GENUS*	*SPECIES*	COMMON NAME	PREVIOUS	*LANDSCOPE*
AMPHIBIANS					
HYLIDAE	*Cyclorana*	*maini*	Main's Frog	X	
HYLIDAE	*Litoria*	*rubella*	Desert Tree Frog	X	
MYOBATRACHIDAE	*Neobatrachus*	*sutor*	Shoemaker Frog	X	X
MYOBATRACHIDAE	*Neobatrachus*	*wilsmorei*	Wilsmore's Frog	X	
REPTILES					
CHELIDAE	*Chelodina*	*steindachneri*		X	
AGAMIDAE	*Ctenophorus*	*caudicinctus*	Rock Dragon	X	X
AGAMIDAE	*Ctenophorus*	*isolepis*	Military Dragon	X	X
AGAMIDAE	*Diporiphora*	*winneckei*	Winnecke's Dragon		X
AGAMIDAE	*Lophognathus*	*longirostris*	Long-nosed Dragon	X	X
AGAMIDAE	*Pogona*	*minor*	Western Bearded Dragon		X
AGAMIDAE	*Moloch*	*horridus*	Thorny Devil	X	X
GEKKONIDAE	*Diplodactylus*	*conspicillatus*		X	
GEKKONIDAE	*Diplodactylus*	*stenodactylus*		X	
GEKKONIDAE	*Gehyra*	*purpurascens*		X	
GEKKONIDAE	*Gehyra*	*variegata*	Common Dtella	X	X
GEKKONIDAE	*Heteronotia*	*binoei*	Binoe's Gecko	X	X
GEKKONIDAE	*Nephrurus*	*laevissimus*		X	
GEKKONIDAE	*Nephrurus*	*levis*		X	
GEKKONIDAE	*Oedura*	*marmorata*		X	
GEKKONIDAE	*Strophurus*	*wellingtonae*		X	
GEKKONIDAE	*Strophurus*	*ciliaris*		X	
PYGOPODIDAE	*Lialis*	*burtonis*	Burton's Lizard		X
PYGOPODIDAE	*Pygopus*	*nigriceps*		X	
SCINCIDAE	*Cryptoblepharus*	*plagiocephalus*	Fence Skink	X	X
SCINCIDAE	*Ctenotus*	*calurus*	Beautiful-tailed Skink	X	X
SCINCIDAE	*Ctenotus*	*dux*	A lined skink		X
SCINCIDAE	*Ctenotus*	*grandis*		X	
SCINCIDAE	*Ctenotus*	*pantherinus*	Ocellate Skink	X	X
SCINCIDAE	*Ctenotus*	*Quattuor-decimlineatus*	Fourteen-lined Skink		X
SCINCIDAE	*Ctenotus*	*saxatilis*		X	
SCINCIDAE	*Ctenotus*	*schomburgkii*		X	
SCINCIDAE	*Cyclodomorphus*	*melanops*		X	
SCINCIDAE	*Egernia*	*depressa*			X
SCINCIDAE	*Egernia*	*striata*		X	
SCINCIDAE	*Lerista*	*desertorum*	A burrowing skink	X	X
SCINCIDAE	*Lerista*	*bipes*	A burrowing skink	X	
SCINCIDAE	*Tiliqua*	*multifasciata*		X	
VARANIDAE	*Varanus*	*eremius*		X	
VARANIDAE	*Varanus*	*giganteus*	Perentie	X	X
VARANIDAE	*Varanus*	*gilleni*		X	
VARANIDAE	*Varanus*	*gouldii*	Gould's Monitor	X	
VARANIDAE	*Varanus*	*panoptes*	Spotted Monitor	X	X?
ELAPIDAE	*Pseudechis*	*australis*	Mulga Snake	X	
MAMMALS					
TACHYGLOSSIDAE	*Tachyglossus*	*aculeatus*	Echidna		X
DASYURIDAE	*Ningaui*	*ridei*	Wongai Ningaui	X	X
DASYURIDAE	*Sminthopsis*	*youngsoni*	Lesser Hairy-footed Dunnart		X
MACROPODIDAE	*Macropus*	*robustus*	Euro		X
MACROPODIDAE	*Macropus*	*rufus*	Red Kangaroo		X
MOLOSSIDAE	*Mormopterus*	*loriae*	Little Northern Freetail-bat	X	
MOLOSSIDAE	*Tadarida*	*australis*	White-striped Freetail-bat	X	
EMBALLONURIDAE	*Saccolaimus*	*flaviventris*	Yellow-bellied Sheathtail-bat	X	
VESPERTILIONIDAE	*Chalinolobus*	*gouldii*	Gould's Wattled Bat	X	
VESPERTILIONIDAE	*Nyctophilus*	*geoffroyi*	Lesser Long-eared Bat	X	
VESPERTILIONIDAE	*Vespadelus*	*caurinus*	Western Cave Bat	X	
MURIDAE	*Mus*	*musculus*	House Mouse	X	X
MURIDAE	*Notomys*	*alexis*	Spinifex Hopping-mouse	X	X
MURIDAE	*Pseudomys*	*desertor*	Desert Mouse		X
MURIDAE	*Pseudomys*	*Hermanns-burgensis*	Sandy Inland Mouse	X	X
MURIDAE	*Zyzomys*	*argurus*	Common Rock-rat	X	
LEPORIDAE	*Oryctolagus*	*cuniculus*	Rabbit		X
CANIDAE	*Canis*	*familiaris*	Dingo	X	X
CANIDAE	*Canis*	*vulpes*	European Fox		X
FILIDAE	*Felis*	*catus*	Feral Cat		X
CAMELIDAE	*Camelus*	*dromedarius*	Camel	X	X

VOLUNTEER PROFILES

Patricia Angel enjoys being a member of *LANDSCOPE* Expeditions and seeing other areas of our State, and helping with flora collecting. Pat is a volunteer guide at Kings Park and a volunteer at the WA Herbarium in the Regional Herbarium section. She is a keen gardener and relaxes by doing patchwork/quilting.

Fling (Diana) Boyer and her husband **Norman Boyer** find that July/August is about the only time they can leave their farm so timing was important to them. Fling says that a greater understanding of the Australian environment will help her think laterally ... and have fun. **Norman** was brought up on a cattle property in Argentina, was a jackeroo in SW Queensland in '1969/70 and then emigrated with family in 1980. They now live on a sheep farm in NSW.

Mary Bremner mentions that when travelling the south end of the Canning Stock Route the range looked very enticing from a distance. She has a lifetime interest in nature - geology, plant and animal life and does surveys with Birds Australia and the Wildflower Society WA, as well as being a member of 'Land for Wildlife'.

Alison Carlin and **Eric Carlin** have enjoyed camping trips in remote areas in WA, the Northern Territory and overseas and welcome the chance to visit places that they have not already visited, and to revisit other areas. Both are keen birdwatchers and bushwalkers.

Jeff Faulkner is interested in flora, fauna, geography, geology and history of Western Australia. He also has a particular interest in the Canning Stock Route. He describes himself as rather quiet, friendly, enthusiastic and easy-going together with a good sense of humour. **Jeff** and his wife **Mary Bremner** have been on several *LANDSCOPE* Expeditions.

Alfred Schwarzenbach is a lecturer in environmental science in his home country of Switzerland. He has researched aleuron vacuoles in electron microscopy, published many books on botany, has taken part in many botanical excursions in different parts of the world and has also organised five tours for Swiss scientists to WA. He is keen to meet other scientists and to participate in a scientific expedition while learning more about WA botany, animals and geology.

Margo Webb was born in the northern Wheatbelt and has always liked wide-open spaces. As a young woman she volunteered to teach in Goldsworthy (now a defunct town east of Port Hedland). She is enthusiastic about Australian plants, animals and birds and she is very interested in the combination of study of flora and fauna with Aboriginal contact.

Peter Wilshaw is interested in bushwalking, (Cape to Cape, Cradle Mountain, Bibbulmun, Milford Track) and in birds (Birds Australia) and generally in the natural environment. **Peter** came to Australia from the UK in 1968, married a Perth girl and has lived in Perth for 30 years. **Peter** has driven the Canning Stock Route and has seen the Carnarvon Range in the distance.

TAG-ALONGS

Susan Clarkson has been on several *LANDSCOPE* Expeditions in the past and visited the Carnarvon Range with the WA Naturalists' Club in 1999. Other Interests include camping, photography, birdwatching, scuba diving and natural history in general.

Brian and **Marion Kirby** are farmers from the Beacon area in WA. **Bearz** and **Mouse** live close to Karroun Hill Nature Reserve and spend a lot of time there. They collect for a local herbarium which liaises with the Perth Herbarium and have spent many happy years using the bush for recreation. Aboriginal culture is also one of their interests and they have previously read with interest about the Carnarvon Range.

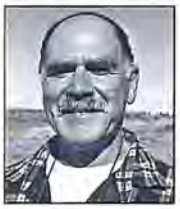

Dale and **Bruce Macmahon** live in Mt Barker WA and are travelling with their friends from Albany, (Tom and Wendy **Minchin**) farmers all. **Bruce** is semi-retired, but collects native seeds as a business with his wife **Dale**. Both of them are interested in birdwatching, camping and four-wheel driving.


Tom and **Wendy Minchin** are farmers from Albany. **Tom** breeds and trains trotting horses. **Wendy** and **Tom** have enjoyed driving and camping in the Murchison/Gascoyne/Pilbara areas for several years where they get great pleasure from birdwatching and bush camping. **Wendy** also enjoys patchwork, tapestry, embroidery and reading, and some walking when time allows.


John and **Rosemary Offer** live in Kalamunda. **John** is a recently retired general practitioner but has a farming background and is interested in outback travel and particularly arid area flora and fauna. **Rosemary** is looking forward to learning more about an area, which she feels will be both interesting and fun.


Andrew and **Suzy Speirs** have been on a number of our Expeditions. **Andrew** practises as a gynaecologist and is very keen on the outdoors in general and remote parts of Australia in particular. **Suzy** has enjoyed studying the flora and discovering the fauna on earlier trips. She is interested in the birds and ecology of the area.

Val Talbot describes herself as not quite retired as she helps her daughter run an agistment centre. She visited Carnarvon Range with WA Naturalists' Club and has been on a number of *LANDSCOPE* Expeditions. Val has always been keen on birdwatching but as she has little time for this activity in her daily life, getting away into the bush again will be a great release.



Anthony Tapper is a retired Departmental National Park Ranger and has worked throughout Western Australia. He worked for the Department for 13 years, and prior to this he travelled the world. Anthony is an enthusiastic outdoors person with useful bushcraft skills and a keen photographer with natural history interests.

John Tucker took part in *LANDSCOPE* Expeditions to the Nullagine last year, and again this year, so should have some interesting stories to tell of his exploits. John has been wandering, working and exploring the outback for years. He is not sure which comes first - the remoteness, the beauty, the tranquillity or the vastness of the arid interior - all of which act as a magnet for him.

David Webb is primarily a consumer psychologist who is actively interested in the outdoors and currently exploring how people experience the natural environment of Western Australia. He has been working with the Department's Visitor Services Division in an advisory role for the past two years and will be spending the period between July 2001 and February 2002 travelling this beautiful state of ours conducting research.

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