



# CALM News

COMO RESOURCE CENTRE  
DEPARTMENT OF CONSERVATION  
& LAND MANAGEMENT  
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## RARE FLORA FIND

AFTER beginning the search five years ago for a number of species last described by William Fitzgerald and Cecil Andrews between 1901-1905, it's a pleasure to say that they're all still with us, although some are still in a precarious condition.

Last month, while compiling a road verge report in the Capel area, I chanced upon a population of *Myriophyllum echinatum*.

While not everyone's idea of a magnificent plant, this small aquatic is the last of six such species collected by William Fitzgerald and Cecil Andrews from the Midland area between 1901-1905, and not found since.

Most of these plants, because of the intensive settlement of the coastal plain, were presumed extinct. GREG KEIGHERY

## Abrolhos workshop...

# ISLANDS' ISSUES, NEEDS DISCUSSED

By COLLEEN HENRY-HALL

THE Abrolhos Islands, off the coast near Geraldton, are the centre of interest for a number of groups.

Fishing, tourism, recreation, conservation, historical importance and mining are some of the most important among them.

Representatives of these various interest groups met for a one-day workshop at Geraldton recently to discuss the issues facing the Abrolhos Islands and suggest ways to manage the area.

CALM Planning Officer Paul Frewer, Secretary of the Abrolhos Islands Task Force and organiser of the workshop, said he was pleased with the way the workshop brought together a number of people of different interests to try to come up with some of the answers.

He said the aim of the workshop was to identify the most important issues and the needs of different groups of people who are using the islands.

In the workshop's morning session, about 60 participants listened to short presentations from people representing the fishing industry, tourism, conservation, the WA Museum and mining interests.

CALM's Director of Nature Conservation, Dr Barry Wilson ended the morning session.

He said: "The Abrolhos Islands have enormous heritage value of international significance in its marine and terrestrial environments, its history, its fishing areas, and its recreation potential."

"The task before us is to protect these values through proper management, and the exercise today will partly help us to decide how to do that."

In the afternoon, the participants, who attended

the workshop by invitation, broke up into small groups to get down to the nuts and bolts of management of the islands.

They addressed problems in three main areas: conservation, research and tourism.

Paul Frewer said the aim of the afternoon session was to set up discussions among people from different interest groups to

lead to a better understanding of different points of view and produce helpful suggestions for consideration by the Taskforce.

At the end of the afternoon, each of the five groups shared their ideas with the other groups.

Proceedings from the workshop will be compiled and presented to the Taskforce, which is preparing a report for the WA State Cabinet.

## Managing our visual resource

WHEN it comes to visual resource management, what you see is what you get, or rather, what you see determines the feeling you get.

Visual resource refers to how the land looks, taking into account its landforms, vegetation, water bodies, and natural and man-made features.

Grant Revell, a former Victorian landscape architect and planner, is developing a visual resource management system for CALM's Southern Forest Region over the next year.

The management system will enable CALM land managers to objectively assess and then plan for the visual qualities of a landscape, which affects how people perceive that landscape, and ultimately how they feel in that landscape.

Grant is initially concentrating on the broadscale identification and mapping of the physical landscape.

To apply the system to the Southern Forest Region, Grant first looks at physical landscape elements — topography, vegetation, waterforms and land use — to come up with a set of landscape character types.

He then looks at social considerations, or the values and uses people have for different landscapes.

Grant explained: "It may sound intangible, but many studies have been done on the types of landscapes people prefer, and why they prefer them."

Using a process of inventory and assessment, Grant will subsequently identify landscape management zones and establish visual quality objectives for use by land managers.

The type of landscape zone and the objectives for that zone would affect the harvesting of timber, roading, recreation sites, redevelopments and the maintenance of facilities, Grant said.

The visual resource management system is also used at the specific project level, which will occur next year during field trials when Grant's system is applied to particular sites.

He said: "The system will provide CALM land managers with a set of management prescriptions, an objective tool that is similar to what is used in existing timber production practices."

Grant said he sees the consideration of landscape values equal to those of flora and fauna, and when planning operations all three conservation values should be given consideration.

The visual resource management system has been in use in the US for about 13 years.

It was introduced to Australian land management in Victoria by Landscape Architect Richard Hammond, who now works with CALM.

Grant earned his degree in Urban and Regional Planning at Adelaide, and his Master's degree in Landscape Architecture at Melbourne.

He was a consultant in visual resource management to the National Trust and has most recently been employed with a landscape planning and design firm in Melbourne.

Grant is based at Manjimup, where he is assisted by Keith Mungham, Mapping Branch, and Alan Sands, Parks and Reserves Officer.



Grant Revell

## Jarraah forest under scrutiny

By GREG STRELEIN

A new inventory of the jarraah forest to update information on the timber resources available will be undertaken following the recent release of the Timber Strategy.

The new inventory will record the defects in a tree or the wood quality, rather than assess products, as is done now.

Product assessment has been useful for short term applications such as logging plans, but this information is quickly dated by changing utilisation standards and the development of new products.

With the move to a broad resource inventory the data will last many years, justifying the time and money committed.

To make the information more lasting, the Inventory Staff will describe the various qualities of wood in the tree, the type of defects and the amount or intensity of the defect.

By describing the amount of rot, for example, and its position in the tree we can determine at any time in the future which products can be obtained from that quality of log.

Calculating the volumes for any product at the current standards can be done by sorting through all the defects and also checking that the length and diameter are adequate.

Staff from the Utilisation Branch and experienced Procurement staff have been assisting with the classification and description of wood qualities.

The mill at Harvey's Wood Utilisation Research Centre has been the scene for some trial sawing to look at internal defects.

Estimating internal defects has always been one of the limitations of this sort of assessment.

To help resolve this, staff from the Inventory Branch gathered at Harvey with Utilisation staff to break down a sample of logs on the new horizontal bandsaw.

This permitted a look at the internal development of defects in relation to the external appearance of logs to be assessed.



CALM staff examine the exterior of a jarraah log before it is sawn, to determine its defects.

## Disaster action endorsed

AN Australia-wide system of handling any disaster, be it fire, flood, oil spill or whale rescue, has been endorsed by the Australian Fire Control Officers Group, which held their biannual meeting in Bunbury recently.

The group was comprised of senior fire control officers from each State, the lecturer in fire from ANU, fire researchers and representatives from New Zealand and Papua New Guinea.

CALM Senior Fire Control Officer Rick Sneeuw-jagt said: "The Australian Interagency Incident Management System (AIIMS) would see that every State had compatible emergency organisations, training, equipment and definition of terms, so that

effective interstate cooperation would be possible in future."

Rick said the group's basic aim was to review progress over the last two

years in various developments, such as fire planning, equipment and policies, and related matters such as weather forecast system.

At this meeting, a draft Fire Management Policy for Australia, based on CALM's Fire Policy, was developed for ratification by the Forestry Council.

## Herbarium transfer

AS a result of a recent recommendation by the Government's Functional Review Committee, the State Herbarium will be transferred from the Department of Agriculture to CALM.

The decision has been greeted with enthusiasm by CALM scientific and operations staff.

Executive Director Dr Syd Shea said the decision was great news.

"It will bring into our Department a fine group of botanists with a tremendous knowledge of Western Australian plants," he said.

"Their expertise will be of great value in planning and research, in developing

our knowledge of the State's flora and in promoting public interest in flora conservation."

The Herbarium building is located adjacent to CALM's Como Headquarters. It contains a substantial library and the State's flora collection.

To facilitate the amalgamation with CALM, a Herbarium transfer committee has been formed, together with a number of sub-committees who are looking at various aspects of the transition.

It is expected that the movement of all Herbarium functions from the Department of Agriculture to CALM will be completed by the end of this financial year.

## FROM MY DESK

THIS has been a very difficult year for CALM. The production of the forest management plans and accompanying strategies has put a lot of pressure on the Department. That process was completed on Friday, 18 December, when the final documents were released by the Minister. I am confident that we now lead Australia in this area. (I must confess, however, to being worried by public statements from both the conservation movement and the timber industry endorsing the plans and congratulating us on their production.)

But in addition to that exercise, the Department has had a number of other projects to contend with — too numerous to list — which all have been completed successfully without any additional resources. All I can do is thank everybody for the effort that they have put in and apologise for any stress that this work has caused.

CALM is a fascinating mixture of personalities and functions. We also have hundreds of different constituent groups who are often in conflict with one another, and us. I firmly believe that one of the most important management techniques revolves around humour and good-will. I am conscious that these two commodities at times this year have not exactly been in abundance from my office. For this I apologise.

I take this opportunity to offer all members of the Department the compliments of the season and look forward to a challenging but perhaps quieter New Year.

SYD SHEA  
Executive Director.

## STAFF NEWS

### Appointments

Craig Bowers, ex-Department of Services, had joined the Computer Services staff at Como; Lynet Oakes has been appointed Clerical Officer, Dwellingup.

### Promotions

Four Wildlife Protection Branch staff are now District Wildlife Officers. They are Peter Trembath (formerly Wildlife Officer) of Bunbury; John Crane (formerly Wildlife Officer) at Manjimup; Lawrie Anderson (formerly Wildlife Officer) at Murdoch House; Trevor Walley (formerly Wildlife Officer), Murdoch House.

Tracy Berson (Crawley) has been appointed Policy Advisor.

Erica Marshall has been promoted to Assistant Manager, Personnel and Industrial, within the Human Resource Management Branch at Como.

Ian Old (Wanneroo District) has been ap-

pointed District Forester, Safety.

### Transfers

Kingsley Miller Wildlife Protection Branch has been transferred from Geraldton to Como as Special Investigations Officer. He replaces Mike Mahoney who is now at Carnarvon.

Ross Mead, Forester, from Dwellingup to Kelmescott; Russell Bone, Forester, Dwellingup to Karratha.

### Retirements

Alex Hart, Extensions Officer with the Information Branch, Como, has retired after more than 30 years' service. Alex joined the Forests Department in July 1957 and after some time at Manjimup and working on fire research moved to the Hamel Nursery. Since 1978 he has been specialising in extension work advising rural land owners on such aspects as tree selection and planting techniques.

# NEW CALM LIBRARIAN

HUGH CLIFT, a librarian with the Education Department for 17 years, has become CALM's head librarian.

Hugh replaces Elisabeth Laczko, who resigned earlier this year.

He said one of the first tasks would be to complete the entry of catalogue data on computer.

Once that is done, Hugh said he would like to distribute hard copies of that data, which would virtually be a list of all the books and journals held in the library, for easy access by staff.

But there is much to do in the meantime, including sorting out the system of classification used by the library, a problem resulting from the amalgamation of two different library systems, one from the Forests Department and the other from the Na-

tional Parks Authority and Wildlife section.

Hugh said he recognises the problem posed by the library being physically apart from the majority of people who use it, and he hopes to partly rectify it by setting up a small resource centre in the Information Branch.

"I'm very concerned with the fact that the library, in order to be effective, has to be active at Como," Hugh said.

He said: "At the moment, almost all my time is spent on working out a set of priorities to include in the Library Resource Strategic Plan which I'm preparing for the Library Committee.

"There's a real problem in providing even basic services to the Department on the staff and the budget the library has at the moment. "The library could and

ought to play an overall role in the information function of the Department, and there is a large potential for good service that is untouched," Hugh said.

Hugh was a library officer for technical colleges, with the Education Department until recently when the branch was phased out.

He has already had a very memorable experience while working for CALM. He was a passenger on a

chartered flight to Manjimup, along with a group from CALM Research.

Partway to Dwellingup, one of the doors flew open, requiring an unscheduled stop on a very rough runway generally only used by spotter planes.

The rest of the trip to Manjimup was thankfully uneventful, but it was a rare induction into a new department, Hugh thought.



HUGH CLIFT

## Shire's Tree Award

AS part of Greening Australia's John Tonkin Tree Awards, the Roadside Vegetation Conservation Committee for the first time awarded a Roadside Certificate of Merit.

The award, which went to the Pingelly Shire Council, was given for the best work done in roadside conservation.

Penny Hussey, Executive Officer of the

RVCC, said Pingelly was given the award for its work on the Boyagin Nature Reserve road, which was carefully designed to avoid damaging the rare *Gastrolobium stipulare* found there.

Penny said Narrogin District Manager Ken Atkins had worked closely with the Shire on the road design, and she complimented the Shire on its care and consultation with CALM.

The Shire was awarded a certificate and a plaque which will be placed on site.

Other finalists for the awards were the Manjimup Shire, for its work on the Vasse Highway, and the Busselton Shire for the Eagle Bay Road.

The award nominees were chosen from nominations received in the regular categories of the Tree Awards.

## CAN YOU HELP?

CALM will host a two-month visit by Dr Mile Merwin of the International Tree Crops Institute in California.

Dr Merwin needs to rent a furnished home or apartment near Como from July 1, 1988, to August 31, 1988.

He will be accompanied by his wife and two school age children and so requires at least three bedrooms.

Should you be planning a long service leave holiday at this time and would be happy to have a responsible tenant please contact John Bartle at Como Research (ext. 297).

Dr Merwin is a prominent research worker in developing the use of Australian trees (Eucalyptus and Casuarina) to control irrigation related salinity problems in California.

He hopes that by observing our dryland salinity problem and our efforts to control it may give him leads for future work in California.



SHARON FAST, Les Marrable, Erica Marshall and Peter Pennings round the corner during the wool bag race, part of the *Tabloid Olympics* held at Como. The *Olympics* will continue in autumn, when the winners will be decided.

## Achievement aids research

Five years without a serious accident in the workplace by the staff at the Bunbury Office of CALM.

In a unanimous decision, all 59 staff decided to forego their individual safety awards and to donate their combined value to the Australian Heart Foundation in memory of two work-mates who recently passed away prematurely from heart-disease.

CALM's Executive

Director, Dr Syd Shea, said the effectiveness of the Department's Occupational Health, Safety and Welfare Programme could be measured this year by the achievements of the lowest number of lost-time accidents since the introduction of the programme in 1966.

An estimated saving of more than \$250,000 was achieved through reduced workers compensation payments, increased productivity and reduced medical payments.



GREG POBAR (right) and Acting Harbour Master Jim Scott check the view from the new offices at Hillarys Boat Harbour. Rick Allison is ready for action in the park's boat.

## Marine park staff move in

MARMION Marine Park Manager Greg Pobar can't complain about the view from his new office window at Hillarys Boat Harbour.

Outside, boats rock gently in the clear blue water, and the marine park's boat, the BJ White, is docked almost on the front steps.

Greg and CALM Ranger Rick Allison, who has been seconded to help Greg manage the park, moved into the office in July.

They share the building with Fisheries and Marine and Harbours officers, a situation Greg appreciates because each can provide the other with back-up in their daily operations.

From a lookout platform on the roof of the building, Greg can see almost the length of the marine park, and he can keep a close eye on the fragile reefs that lie just outside the boat harbour.

Greg said: "We're here right in the middle of the marine park, and can respond quickly to anything that might come up."

In fact, things might be perfect if Greg just had a person to answer queries while he's out of the office, which is most of the time.

He'd no doubt have a volunteer or two if word about the great view got out.

## Planning Triumph

THE National Fire Management Conference held at Busselton recently was a triumph for the contemporary approach to the planning process being used by many land management authorities in Australia, and CALM is a leader in this field.

The major features of this approach are a clear statement of objectives and then the involvement of the public in the planning process itself.

In the case of fire management this ensures that fire management objectives are consistent with the overall objectives for the particular park, reserve or forest.

The strategies and techniques used to achieve the objectives can then be pursued almost independently of one's attitude to fuel reduction.

Each case can be treated on its ecological merits.

The NFMCC produced an overwhelming support for this approach to fire management planning and provided a boost to the morale of those officers attending.

— Jim Williamson

## BOOK NATURE

● WHY not book the Perup Ecology Centre for your next course.

At a cost of only \$10 a person a night, you can hold your course in a magnificent bushland setting and escape the high prices of accommodation and the many associated distractions.

The Centre comfortably sleeps 20 and boasts a large

work room ideal for lectures and gatherings.

Support CALM rather than private enterprise. All rent money is used on the Centre itself.

Contact Graham Norrish at the Manjimup District Office for details.

Bookings should be made before January each year to avoid disappointment.

**OSPREY IN SAFE HANDS**



**RICK DUNLOP, a volunteer from the Society for Raptors, welcomes an injured osprey to his backyard in High Wycombe.**

The bird, which has a broken left wing, was picked up at Exmouth. It had been looked after for five

weeks there when Exmouth District Manager Stephan Fritz received a call to see if the bird could be flown to Perth for proper care.

The bird was picked up at the airport by Wildlife Officer Trevor Walley.

Rick will take the osprey to local vet Andy Keefe, who treats injured

birds.

CALM regularly refers injured birds to Rick, who has 33 birds in the backyard: wedge-tailed eagles, falcons, sparrow hawks, a sea eagle, kites, swamp harriers and many varieties of owl.

Neither Rick or Dr Keefe receive money for the work they do.

# WATERBIRD SURVEY FRUITFUL

By **ROGER JAENSCH** and **RODNEY VERVEST**

**ON a recent RAOU expedition to Lake MacLeod, the 14 observers who braved wind, salt and mud were privileged to witness spectacular concentrations of waders.**

Dense, swarm-like flocks, each comprising several thousand waders, rose off the mudflat during each day as the changeable wind shifted the shallow water back and forth.

A total of 115,000 waterbirds of 53 species was counted from surveys at the lake and over 111,000 of these (27 species) were waders.

With only five other sites in Australia known to support more than 100,000 waders, the expedition has shown that Lake MacLeod is of high national importance for these birds.

The most abundant species were the Banded Stilt (53,100), Curlew Sandpiper (41,600) and Red-necked Stint (8300) and large numbers of the Red Knot and Red-necked Avocet were also counted.

Rarer species sighted included the Asian Dowitcher, Broad-billed Sandpiper and Mongolian Plover.

Twenty-three of the species observed at Lake MacLeod are given international protection by the Japan Australian Migratory Birds Agreement.

On a separate expedition to Shark Bay, 14 RAOU observers conducted surveys by light aircraft, boat, motorbike and foot

at sites selected for their potential to support waders.

A total of 34,600 waterbirds of 53 species was counted in the surveys, and 25,100 of these birds (28 species) were waders.

Abundant species in the sample of birds identified in ground surveys included the Bar-tailed Godwit (1580), Red-necked Stint (850) and Curlew Sandpiper (840), and more than 7000 Pied Cormorants and 8600 Banded Stilts were recorded in aerial surveys.

Rarer species sighted included the Oriental Plover, Little Curlew and Mongolian Plover.

Twenty-five of the species at Shark Bay are given international protection by JAMBA.

It is likely that Lake MacLeod and Shark Bay each support more than 20,000 waders each year and are therefore of international importance for waterbirds.

In the national context, the counts of Banded Stilts and Curlew Sandpipers at Lake MacLeod are each the second highest on record and the count of Large Sand Plovers at Shark Bay is the fifth highest.

In the WA context, the counts of many species

were the second or third highest on record and were also high in the national context.

A comprehensive report of the expedition is to be published in the RAOU Report series.

The RAOU is under contract to CALM to conduct this programme of expeditions to remote wetlands.

## Safety, health praise

**CALM comes in for high praise in the final report of a visit to Australia by two officers of the US Forest Service.**

Jerry Monesmith and Art Jukkala travelled throughout Australia on a technology exchange to find out more about our firefighting safety and health programme.

Their final report recently arrived on the desk of Fire Branch Manager Jock Smart.

The report's section on general safety is devoted almost entirely to CALM's safety programme, a good reflection on our efforts here, Jock said.

It states: "One of the most interesting and informative discussions on safety occurred during our visit to CALM."

Mention is made of the annual safety schools conducted by IFAP, our system of district and regional safety officers, the commitment to safety at all levels of the department and CALM's use of the handbook "Safety and Bush Fire Control", which is "one of the better publications of this type that we have seen".

CALM Safety Officer Tom Wood said he "was over the moon" about the report.

He said: "We just showed them what we have, why we have it and how we got it into place."

As a result of their visit, the US National Wildfire Coordinating Group will look at CALM's fire suppression checklist to help ensure that principle incident duties and responsibilities are fulfilled, and will review CALM's fire behaviour tables and Go-No-Go checklists to determine if they are applicable to parts of the US.

# Lacepede Islands Visited

**RECENTLY** Kimberley Region Wildlife Officer Mike Osborn, Technical Officer Andy Williams, and a work experience student from St Jones College, Darwin, Steven Storey, took a trip to the Lacepede Islands Nature Reserves off the coast of Broome to erect new nature reserve signs, carry out a nesting seabird survey, and assess the impact of an intensive poisoning programme done in November 1986 to eradicate *Rattus rattus* (ship rats) from the island.

At that time, Brown Booby nestlings were prolific and scattered all over the available nesting spaced on the islands.

These nestlings can only be described as cute but gangly white balls of fluff.

They will grow into adults capable of amazing aerobatics once air-

borne, but their takeoffs and landings resemble the antics of an Irishman at the end of St Patrick's Day.

Steve was so taken by the boobies and their mannerisms that he composed the following poem to commemorate his time spent on the islands — **MIKE OSBORN.**

## '86 Hedges winner

**GEOFF STONEMAN**, Dwellingup Research, has been awarded the 1986 Hedges Prize for his article "Wood Generated by Thinning in the Northern Jarrah Forest," published in *Australian Forestry*, Vol 49, No. 2.

The \$40 award, by the Institute of Foresters of Australia, is given for the best paper in Australia on forestry, by an author under 35 years of age.

Geoff said: "The paper described the amount of wood generated by thinning to different levels in the jarrah forest."

"Only a small amount of these thinnings are used under current utilisation practices, but there is much more that could be utilised if wood standards changed or more markets were developed for lower quality wood."

"A problem that has been with us for 40 or 50 years is that there are no uses for certain wood products, and as a result we have not been able to effectively manage the jarrah forest for wood or water production."



*The second-year cadets, with Ranger Rick Allison at rear left, look more like surfers than students during their week-long session on marine park management at Marmion Marine Park.*

## CADETS AT MARINE PARK

By **RICK ALLISON**

**IN November, 13 second-year CALM cadets spent a week in the Metropolitan Region attending a marine park management seminar held by Marmion Marine Park Manager Greg Pobar.**

The cadets, all based in Dwellingup, were accommodated on Penguin Island — a vast and not unpleasant contrast to the eucalypt forests of the Darling Range.

The seminar involved all facets of marine management.

Subjects of sessions included boat handling, safety, park management and

legislation, monitoring, interpretation, cetacean strandings, fisheries and practical experience such as snorkelling.

CALM Wildlife, Marine and Harbours and Fisheries officers, some of whom are based at Hillarys Boat Harbour, all con-

tributed to the programme.

Highlights included visiting several islands abundant in both marine and terrestrial fauna, snorkelling among the various reef systems of Shoalwater Bay and Marmion, and of course, the barbecue at the end.

## OLD LETTER FOUND

**A LIST of forestry equipment, dated 30 November, 1937, and addressed to the Conservator of Forests, has been unearthed in the tyre store at CALM's Margaret River office during renovations by carpenter Bernie McKeown.**

Coincidentally it was found at the time of year for the annual inventory and stores check, and the letter gives numbers of such things as blocks, axes for treemarking, inspection hammers, drays, sulkies and harrows.

Clerical Officer Wendy Rose said: "It's interesting to discover that even way back then all items were accountable, although I think it would have been a lot easier to find these things than some of the items on inventory sheets today."

The letter is signed G.W. Ashcroft, Assistant Forester, who used to live in the old departmental house west of Bussell Highway in the Margaret Plantation.

The only evidence of the house now are old fruit trees, a walnut tree and some remains of the building.



*Office facilities of this new CALM office are basic, but the district manager is delighted with current and projected staffing levels.*

## RARE PLANTS SAVED

**PLANTS of the rare and endangered *Acacia anomala* will be spared destruction thanks to the Shire of Swan and efforts by CALM Wildlife Officer Laurie Anderson.**

Years ago, a road in the shire was improperly surveyed and a section of the road built on private property.

The landowner recently requested his land back, which would have required a realignment, and this realignment would have destroyed a number of the rare plants.

CALM Senior Clerk Flora Mike O'Donoghue said: "The Shire had two options, to give back the land, or buy it from the landowner."

"It was simply through the Shire's goodwill and concern for rare flora that they decided to buy the land."

"As far as I know, it's the only time a shire has gone to this extent to protect rare flora, and we're really pleased the Shire responded in such a positive way."



Mobile Ranger Barry Cartledge (left) changes the data logger at the Ningaloo meteorological station, while Ian Parker prepares to climb up to install a repaired instrument head.

# NINGALOO RESEARCH GOES ON

By COLLEEN HENRY-HALL

## WHAT makes Ningaloo Reef tick?

The reef tract, inside the Ningaloo Marine Park, extends 260km south from the tip of the North-West Cape, and is unusual for its proximity to the continental land mass.

The temperature of the water, the currents, the colder nutrient-rich waters from outside the reef, the tides, the wave energy and the weather all affect this unique reef system.

CALM's Ian Parker is coordinating research on the physical oceanographic processes at Ningaloo Reef to find out how they affect the reef.

Ian said: "Through the project, we're developing an understanding of how the reef system works, how it came to be there, how it is maintained.

"It's important information for management, because it will show us, for example, the ability of the reef to sustain pressures such as effluent from increased boating, as well as pressures from natural phenomena."

His work will also provide the incentive for more specific marine research projects into the zoology, botany, or biology of the reef system by contributing the physical data set.

"It will be the basis for the longer term research plans for the area," Ian said.

The research requires the use of high-tech equipment.

Ian's liaison with the Department of Marine and Harbours, the EPA, and the Commonwealth's Survey Office has resulted in the loan of equipment

and the involvement of specialist staff for the project.

Tide and temperature loggers are anchored in the lagoon, near the northern end of the park.

They record the depth of the tide and the water's temperature every half hour as it flows over the sensing devices.

Two current meters are also in the lagoon, keeping track of the movement of water in the long deep channels just inside two openings of the reef.

A meteorological station on land records wind velocity and air temperature.

A wave rider buoy is deployed in 47m of water

beyond the reef to record the frequency and energy of waves which come over the reefs.

Ian, based at Murdoch House, relies on the help of Park Rangers George Duxbury and Barry Cartledge to gather the data.

Ian said: "Ningaloo is very remote and it's difficult to maintain an adequate and continuing presence to look after the equipment.

"George and Exmouth District Manager Stephan Fritz helped build the met station, and Barry changes the recording tapes and replaces data packs."

Ian has been involved with the project for two years as coordinator.



IAN PARKER retrieves the tide and temperature logger from the lagoon at Ningaloo Marine Park.

# Visitor survey for Fitzgerald

A pilot survey on how visitors perceive and use recreation sites in Fitzgerald River National Park was carried out recently to gain information for the draft management plan.

Planning Officer Sue Moore, who is coordinating the draft management plan, has decided to combine the site-based survey with a general visitor survey which will be given to visitors by park rangers Chris Hart, Geoff Keene and Bob Newlands, and their spouses, Mary Hart and Norma Keene, from mid-December to the end of April.

dislikes about the park.

Sue said: "We've also asked them how much they would be willing to pay to use the park, and these figures will be given to

CALM's economic branch so they can devise an economic worth of the park."

The request for more in-

formation also includes the use of traffic counters, installed at strategic places throughout the park to determine the levels of use at particular sites.



BARRY CARTLEDGE (right) and Stephan Fritz erecting signs in Cape Range National Park.

## Coastal Views

They show that more than 80 per cent of respondents liked an interesting journey to a site, and preferred access to the beach or coastal spots.

Water views are extremely important to visitors, and they showed a clear appreciation for scenic landscapes, extensive views and the native vegetation.

The presence of toilets and the cleanliness of the site were important.

The majority of campers preferred sites for small groups.

Sue will combine aspects of the pilot site-based survey with the general visitor survey.

Visitors will be asked for their opinions on accessibility to sites within the park, how they prefer to camp, whether they like facilities such as toilets, and whether they would like to know more about nature.

The survey will also identify where the visitors came from, their mode of transport, what they have done and where they have been in the park, the number of people in their group and their likes and

# SIGN POSTING PROBLEM

IT wasn't a normal post hole digging operation at Exmouth District recently when District Manager Stephan Fritz and Mobile Ranger Barry Cartledge put up some signs.

The signs, at two recreation sites in Cape Range National Park, had to be erected in fossilised coral with a thin veneer of soil.

It called for extra digging power, and Stephan borrowed a jack hammer from the Water Authority to get his signs in.

One of the sites is the recently renovated Badjirra-

jirra walk trail, which winds 8km to a lookout over Shothole Canyon.

The other is the Lightfoot Heritage Trail, a 7km walk through rugged limestone formations.

The rock cairns which mark the trail were erected by the local scout troop supervised by CALM.

The project was jointly funded by the Australian Heritage Commission and CALM.

## HERBARIUM TRAINING

RON SOKOLOWSKI, Senior Technical Officer at Woodvale, has recently completed district field herbarium training programmes for Park Rangers and Forests Officers in all regions throughout the State.

Ron said: "This programme will greatly assist CALM staff to identify flora species within their parks or forests.

"It is hoped that there will be some surprises in the flora documented in faraway corners of parks and forested areas.

"More importantly, CALM staff will be adding to the flora data bank of the State in the WA

Herbarium. Public visitors to the parks will now be able to identify those species of plants that they observed during their visits."

## FIRST MEETING

ISSUES such as dieback, recreation access and zoning for use in Fitzgerald River National Park will be considered by an advisory committee appointed by CALM Minister Barry Hodge.

The Fitzgerald River National Park Advisory Committee, comprised of long-time residents of the shires of Jeramungup and Ravensthorpe and with an interest in the management of the park, met for the first time recently to set up the workings of the committee.

Advisory committees such as this are a facet of CALM's public participation programme.

While the committee is autonomous from CALM, it will serve as a liaison between the community and the Department, bringing ideas and public opinion to CALM's attention while the draft management plan for the park is being compiled.



Ranger Roopaw

ROOPAW, HOW ARE YOU GETTING ON WITH THAT FIRE IN THE NATIONAL PARK?

THE SITUATION IS FLUID!

THAT MEANS HE'S UP THE CREEK!

DISTRICT MANAGER

DISTRICT MANAGER

DISTRICT MANAGER