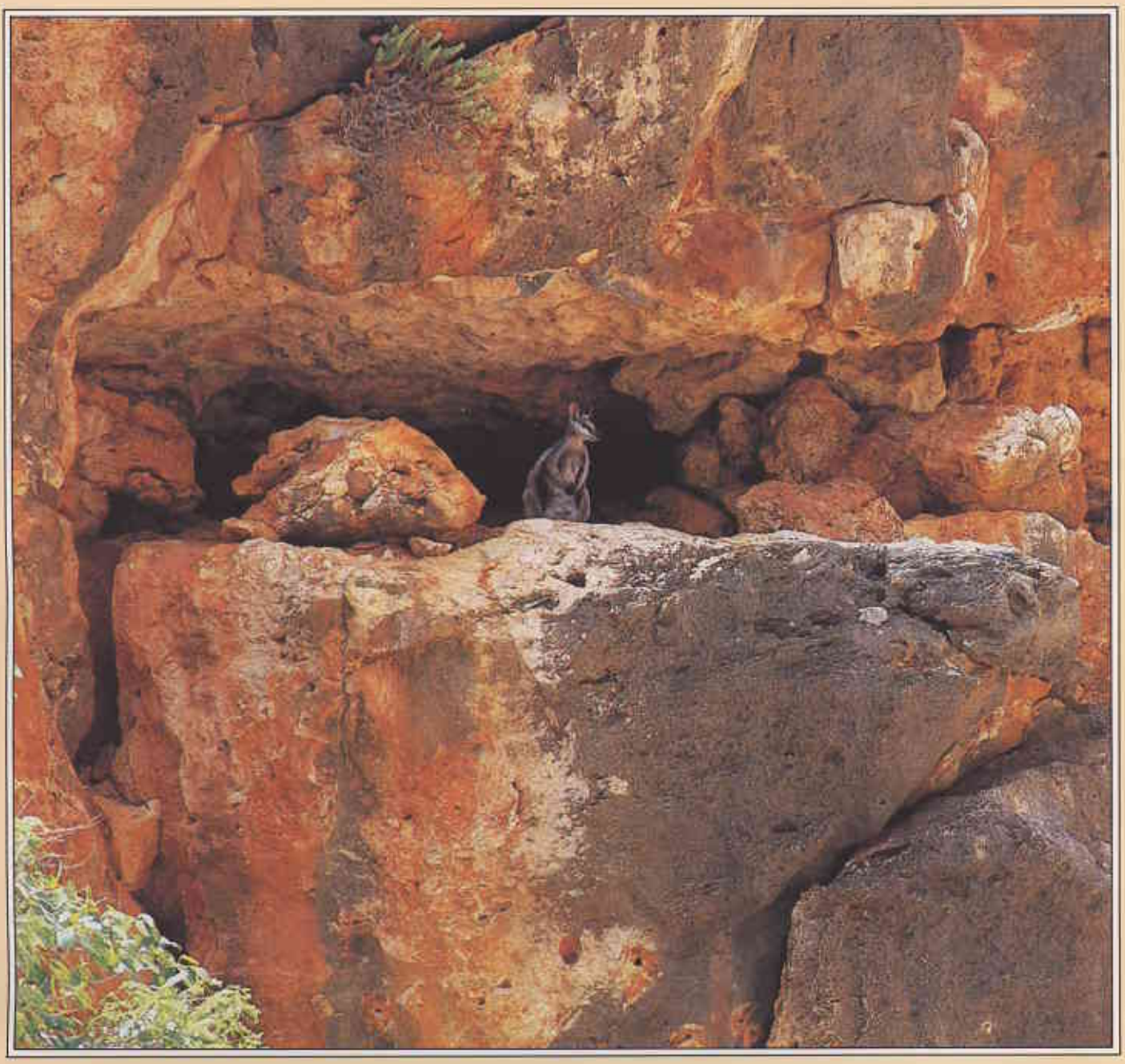

Cliff Winfield

Home on the Range

Dr Barry Wilson

Director of Nature Conservation in W.A.

Fifteen million years ago the north-west corner of Australia was flooded by a warm, shallow sea. Giant white sharks topped the trophic triangle over a diverse and abundant marine fauna. But the crust of the earth here crumpled and a huge anticline was upthrust to form an emergent limestone island. Its western shore lay close to the edge of the continental shelf and was washed by the warm and clear waters of the Indian Ocean. Coral reefs developed there. Later, during the Pleistocene ice-ages, sea-level rose and fell several times and the position of the shore and the fringing and barrier reefs shifted back and forth. Today, sea-level stands still at a moderate height and the anticline, now known as Cape Range, forms a peninsula of the continent jutting northwards.

Much of Cape Range is now a national park and the adjacent coral reef and lagoon is soon to be declared a marine park. It is a splendid place for recreation, at least for those of us who love wild and craggy places and the feelings of vastness and timelessness this arid land provides. It also has enormous heritage and scientific values.

A series of fossil coral reefs along the western escarpment of the range preserves evidence of the various ice-age sea-levels, and a fossilized record of the marine animals which lived there during each stage. On the upper ridges of the escarpment where the original limestones are exposed there are fossil teeth of the giant sharks of earlier periods. Off-shore stands the coral-reef of present times, protecting a shallow lagoon between it and the beach. It supports a wonderfully rich modern reef fauna.

After its uplift the Cape Range was cut by deep ravines which now lead down from the high watershed central ridge to the eastern and western escarpments resulting in an incredibly rugged landscape. It is a desert land and its dark red soils and craggy hills are sparsely vegetated, standing in stark contrast to the blue ocean on either side.

Cliff Winfield

A fossil shark's tooth, relic of a time when Cape Range was below the surface of the sea.

Cliff Winfield

On windy days when the offshore reef is inaccessible Yardie Creek is a haven for holiday makers.

Cape Range's tourist potential is obvious; we need to plan thoroughly to make sure it remains unspoilt.

The flora and fauna of the Cape Range peninsula contain many relict species. Together with their fossil antecedents they tell a fascinating story of the past climatic and evolutionary history of the region.

During periods when Cape Range has been a peninsula it has been populated by plants and animals from the mainland. But during periods when it has been an island its flora and fauna have been isolated from their mainland ancestors. Some unique species evolved there during periods of isolation. Other species, now also unique to Cape Range, were once more widespread. The land-snail *Pleuroxia ruga*, *Banksia victoriae* and *Ipomea yardiensis* are examples of species found only on Cape Range.

Barry Wilson

A native land snail *(Pleuroxia ruga)*, found only on Cape Range, spends the hot, dry periods stuck on the underside of stones.

Cliff Winfield

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Banksia victoriae (above) and *Ipomea yardiensis* (left), two of the plant species endemic to Cape Range.

Jiri Lochman

Cape Range is a good place for spotting the Soft Knob-tailed Gecko *(Nephrurus levis)*.

Jiri Lochman

Children's python *(Liasis childreni) constricting prey.*

Cliff Winfield

The strange Blind Gudgeon fish *(Milyeringa veritas).*

Late in the 19th century some of the coastal plains of the peninsula were taken up as pastoral leases but since declaration of the national park no sheep have grazed there and hunting has been prohibited. Wildlife has prospered. There are few parts of this State where wildlife may be seen in such abundance.

Euro at evening.

Cliff Winfield

Cliff Winfield

The best of both worlds — canoeing at the mouth of Yardie Creek.

At some stage in the geological history of Cape Range certain marine creatures invaded the saline waters in underground caves which riddle its limestones, and adapted to a life in complete darkness underground. Today a species of fish, an eel and two species of shrimp are likely to appear in the bottom of any newly-dug well in the flanks of the range. They are true troglodytes, colourless and blind. What do they feed on in there? How widespread are they in the cavernous limestone strata and do they travel about underground? Scientists have described and named these strange creatures but details of their biology and evolutionary history remain unknown.

Aboriginals established a presence at Cape Range many millenia ago during one of the periods when sea-level was low and the range was connected to the mainland. There are large kitchen-middens along the present shore containing the remains of the shellfish which these coastal people ate. In rock shelters along the escarpment several much older sites are known, representing occupancy at a time when the shore was further out and there was a wide coastal plain. These sites are tentatively estimated as 18-20 000 years old. There is much to learn about human history in this area.

For all these reasons Cape Range is an area of immense interest to scientists. It holds secrets which may one day explain many mysteries about the history of our land. But that story is of interest and importance also to laypeople

Cape Range is a special place which has much to tell and show us about our heritage. Knowledge and understanding can be greatly enhanced by communicating the natural history knowledge of scientists to park visitors. Plans are being prepared for the development of an information centre in the Cape Range National Park which will tell the natural history of the range and the adjacent Ningaloo Reef. Fittingly this project is generously funded by the Australian Bicentennial Authority.

The combination of such dramatic, arid scenery and abundant wildlife, with a coral reef, beaches and fishing of such quality is unique. These are the very things which the international tourist seeks. As transport, accommodation and other facilities improve, Cape Range and Ningaloo Marine Park will become inevitably a tourist target. This will contribute greatly to the local economy, and the creation of local business opportunities and employment. These parks are significant financial assets like fisheries, forests or mines.

It is possible to estimate the economic value (through tourism) of a heritage resource like a museum or a national park by figuring the number of visitors, their average expenditure on services in the region, and a variety of 'multiplier effects'. The total revenue generated and the impact on regional economics can be very large.

But there is a catch. Increased costs as well as increased revenue will follow increase in the number of visitors. We all know that too much fishing results in depletion of fish stocks, that too many campers crowding the coastal dunes cause erosion. Like a fishery, a landscape is not an unlimited resource. Like a pastoral lease, a park has a limited carrying-capacity. The people-carrying capacity of a park can be increased by proper management, but the basic principle is that management must ensure the long-term sustainability of the park's resources.

The dilemma for park planners and managers is obvious. If the desire to increase park and local business revenue by promoting tourism outstrips the capacity of park authorities to meet management costs, then priceless heritage will be lost and the resource upon which the tourism depends will become degraded.

Faced with this dilemma park management must either limit increased use of park resources or find ways to increase revenue to meet escalating management costs.

Resolution of this dilemma will allow Cape Range National Park, and others like it, to be managed as a community financial asset as well as a recreational resource and natural heritage.

Use of vehicles in sand-dunes can cause serious erosion which is very expensive to repair.

Cliff Winfield

Shothole Canyon.

Landscope

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Editorial

W.A. is a vast, sparsely populated State, and it is not uncommon to hear some parts of it described as 'the last frontier'. But there are few, if any, parts of W.A. that have not been affected by European settlement.

Evidence of western civilization in some of the most remote areas is far too often the empty can. But even where there are no obvious traces, the effects have been profound.

There is compelling evidence, for example, that the displacement of Aboriginal communities from much of inland W.A. — and the subsequent removal of Aboriginal firing practices — is directly responsible for major changes in vegetation, which in turn has resulted in the virtual extinction of many native animals.

It is not always easy to pick the effects of European civilization on the natural environment even when the history is well-documented. This *Landscope's* account of the woodlands around Kalgoorlie talks about the often horrific environmental damage, but an observer of these woodlands today would have difficulty recognizing that vast areas were clearfelled less than 50 years ago.

While the concept that we should 'let nature do its thing' has superficial appeal, the reality is that the purity of nature has been, and will continue to be, distorted by human presence. We have no option if we want to sustain the unique ecosystems of W.A. but to apply management principles.

The history and management problems of Benger Swamp, which feature in this edition, illustrates two fundamental points. Firstly, even the most disturbed areas of W.A. can make a major contribution to conservation. Secondly, we must be careful not to change a system that works even though the way it works may not be 'natural'.

As complex and as difficult as the task of understanding ecosystems is, the social and political factors which influence the type of management that can be applied are often more difficult to deal with.

The key to good management is an understanding of the processes that drive the ecosystem. Once we understand what the natural processes are, we can then devise management systems which will mimic them.

The only way to ensure that rational decisions are made on environmental management is to provide the facts .

COVER PHOTO

Just when you thought you had seen every angle on our State symbol, photographer Jiri Lochman surprises you with a fresh perspective.