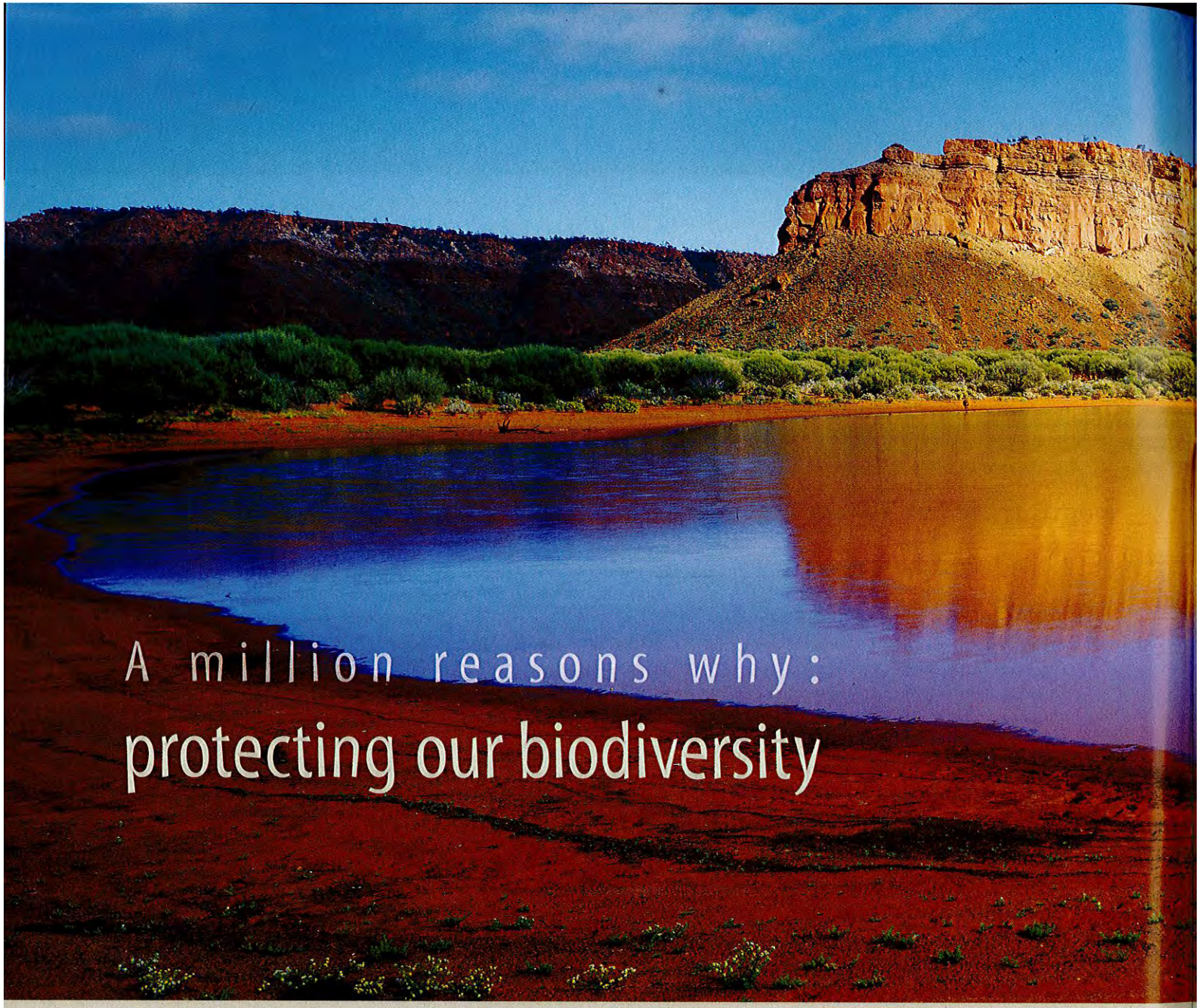


A million reasons why: protecting our biodiversity

2010 is the International Year of Biodiversity. Declared by the United Nations, it is a celebration of life on our planet and of the value of biodiversity for our lives. Celebrations around the world aim to increase awareness of biodiversity and its importance and to engage more people in biodiversity conservation.

What's in a word?

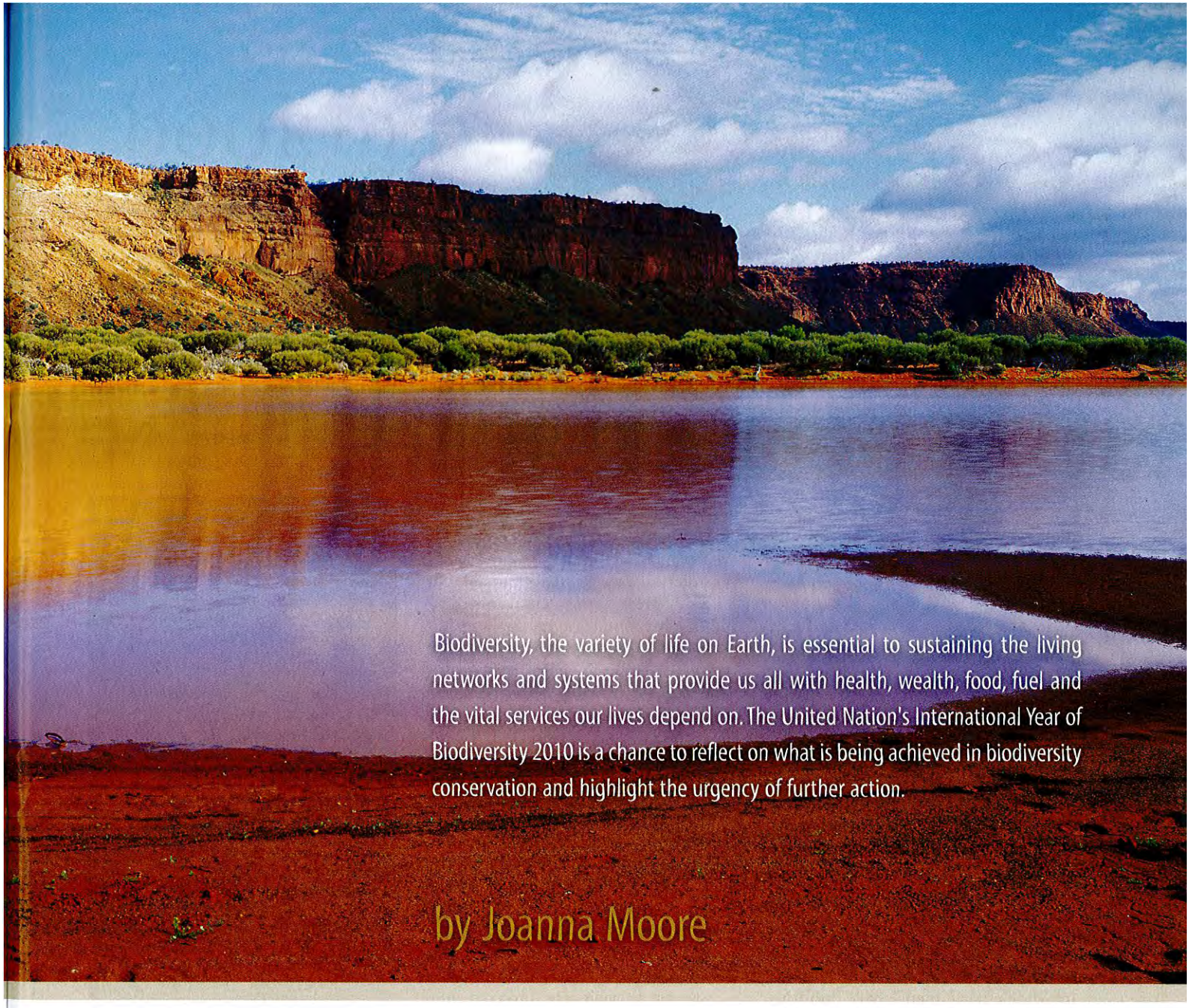
The term 'biodiversity' is now well known, but this has not always been the case. It emerged about 25 years ago, coined in the mid-1980s—a contraction of the words 'biological' and 'diversity'. Since then, the concept has achieved widespread use among conservationists and environmentalists, biologists and research scientists, political leaders and interested citizens throughout the world. Biodiversity courses are taught at universities around the globe and concepts such as 'threatening processes' and 'hot spots' have become central to understandings of biodiversity and its conservation.

Biodiversity has many interpretations. The spectrum of meanings associated with it range from species richness, or the number of species in a given area, to, at its broadest, a multi-dimensional concept that embodies the totality of life and all its elements.

Western Australia is a signatory to the National Strategy for the Conservation of Australia's Biological Diversity and so has adopted its definition. This defines biodiversity as the variety of all life forms—the different plants, animals, fungi and micro-organisms, the genes they contain and the ecosystems of which they form a part. In this definition, biological diversity is considered at three levels. Firstly, 'genetic diversity' is the variety of genetic information contained in all of the individual plants, animals, fungi and micro-organisms that inhabit the Earth. Genetic diversity occurs within and between the populations of organisms that comprise individual species, as well as among species. Secondly, 'species diversity' refers to the variety of species on Earth. Finally, 'ecosystem diversity' is the variety of habitats, biological communities and ecological processes.

Placing value

Conceptually, the notion of biodiversity has been instrumental in shifting conservation management from largely targeting human-valued species—often the 'cute and furry' threatened mammals such as the chuditch (*Dasyurus*) or bilby (*Macrotis*



Biodiversity, the variety of life on Earth, is essential to sustaining the living networks and systems that provide us all with health, wealth, food, fuel and the vital services our lives depend on. The United Nation's International Year of Biodiversity 2010 is a chance to reflect on what is being achieved in biodiversity conservation and highlight the urgency of further action.

by Joanna Moore

Above Kennedy Range in the State's north-west is an eroded plateau on the rim of the Gascoyne River catchment. Kennedy Range National Park retains a spectacular wilderness feeling, with gorges and precipitous faces, and a vast plateau of ancient dunefields on top of the range. *Photo – Jiri Lochman*

lagotis) or iconic ocean species such as whales—to focusing on all organisms. While the concept of ecosystem management goes back to the mid-1970s, there has recently been a greater shift towards this kind of environmental management, where maintaining whole-of-ecosystem function and health is a primary goal.

A number of values are implicit to the concept of biodiversity. One of the most important of these is the ecosystem services biodiversity provides. These can be described as the environmental processes that help sustain life on Earth—such as the role native vegetation remnants play in maintaining water quality or preventing fragile landscapes being degraded, the production of oxygen and the fixing of carbon by plants, or the role of wetlands in flood mitigation and nutrient stripping (the removal of harmful nutrients in sewage before it enters a waterway). Biodiversity values also contribute to the quality of our chemical and physical environment in ways that protect human health, for example through acting as the 'canary in the coal mine'—an indicator of risks to health.

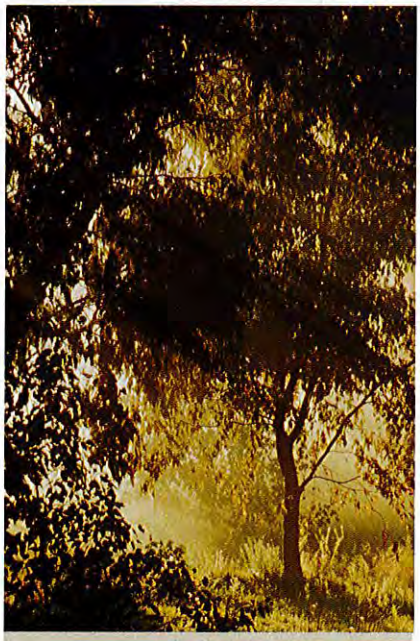
Our natural biodiversity also contains productive and consumptive use values. Natural products commercially harvested in WA (with permits) include wildflowers, firewood, timber and kangaroos. WA's internationally significant flora may provide opportunities for new sustainable industries and genetic resources, the potential of which is hard to imagine.

There are also significant scientific and educational values to our natural biodiversity. Understanding our land, how it works and how it has changed relies on being able to access remnants of native vegetation. Bushland is also a valuable educational resource for a wide range of research institutions as well as for school and university teachers, who aim to engender a love for the natural environment in their students.

Another feature of biodiversity is its amenity and aesthetic value. Remnant vegetation provides shade and shelter from wind. The inspiring view of a

Left A rich display of flowers from the family Asteraceae, the daisies, in Western Australia's Midwest Region. They include the pom pom everlasting (*Cephalipterum drummondii*), the Swan River daisy (*Brachycome iberidifolia*) and the everlasting daisy (*Hyalosperma cotula*). *Photo – Marie Lochman*

Below The bushland around Lake Gwelup, in Perth's City of Stirling, is home to many bird, frog and reptile species. *Photo – Andrew Davoll/Lochman Transparencies*



mountain range, or the local bushland in your suburb, has natural beauty and the capacity to inspire wonder and amazement. As Edward O Wilson, acclaimed American biologist and Pulitzer Prize winner, says in *The Diversity of Life:* "Wilderness settles peace on the soul because it needs no help; it is beyond human contrivance". Loss of biodiversity impacts in many ways on these almost indescribable values, which we often take for granted.

Natural spaces are also important places for people to be active and keep fit. As identified through the Department of Environment and Conservation's *Healthy Parks, Healthy People* program, tourism and recreation in the environment have positive connections with physical and mental health. Special places in the natural environment—especially ones which we return to time and time again—can become part of our cultural identities. In this way, the environment can become even more than a place for recreation: it can become a place with spiritual or philosophical value that is part of our moral framework and sense of self. In Wilson's words: "Signals abound that the loss of life's diversity endangers not just the body but the spirit".

Protecting biodiversity

Protecting our biodiversity is about protecting these wide-ranging values. Its importance also extends beyond the economic and instrumental criteria—the things that are beneficial to humans—to intrinsic ones. These might be called biocentric or ecocentric values. Nature-centered value systems such as these place equal worth with all wild plants and animals on the planet, regardless of their value to humankind. These areas of environmental philosophy consider every form of life as unique and worthy of protection and assert that lasting benefits from nature will only be possible if the complex and interrelated ecological processes life contains are maintained. Good environmental management is a key element of biocentric and ecocentric philosophies.

A closing thought from Wilson:

> "Humanity coevolved with the rest of life on this particular planet; other worlds are not in our genes... it is reckless to suppose that biodiversity can be diminished indefinitely without threatening humanity itself. Field studies show that as biodiversity is reduced, so is the quality of the services provided by ecosystems. Records of stressed ecosystems also demonstrate that the descent can be unpredictably abrupt. As extinction spreads, some of the lost forms prove to be keystone species, whose disappearance brings down other species and triggers a ripple effect through the demographies of the survivors.
>
> ... These services are important to human welfare. But they cannot form the whole foundation of an enduring environmental ethic. If a price can be put on something, that something can be devalued, sold, and discarded.
>
> ... Humanity is part of nature, a species that evolved among other species. The more closely we identify ourselves with the rest of life, the more quickly we will be able to discover the sources of human sensibility and acquire the knowledge on which an enduring ethic, a sense of preferred direction, can be built."

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