

## The enigma of biodiversity

THE enigma of biodiversity is this: biodiversity is essential to planetary welfare and the ecologically sustainable management of resources, but we fail to protect it while pretending we are environmentally responsible.

As scientists, we appear to find the importance of biodiversity hard to explain. Partly this is because biodiversity has many meanings — species richness, genetic resources, the number of ecosystems, and human cultural diversity can all be sheltered under the umbrella of “biodiversity”. It is then cumbersome to explain why biodiversity is important — there are the commercial values of genes and the economic returns of ecotourism, among other tangible benefits to humans. There are the ethical considerations of needing to share global resources with other species and ensuring that those species be allowed to survive and evolve. Those of us engaged in the study of biodiversity, an industry in its own right, may not find it difficult to understand the many faces of biodiversity and have the skills needed to compartmentalize the different meanings and uses of biodiversity according to circumstances. Others are not so gifted or well-educated and only think of biodiversity as “species of wild plants and animals”.

### **Dependence and sustainable management**

The world's fisheries, forests and agriculture are biodiversity dependent industries — both from the sense of the resources exploited and the dependence of those resources on healthy and productive ecosystems. The loss of biodiversity — whether we measure this as the loss of populations and species or as changes in the composition and structure of biological communities — is the primary threat to achieving the ecologically sustainable management of the world's resources. The loss of biodiversity also affects tourism, another biodiversity based industry, degrades the quality of human life, and is, or should be, ethically unacceptable.

Thus the sustainable management of biodiversity is relevant to all people. The world's nations and their leaders, whether in industry, government, education, religion or the media should be rigidly focused on achieving the sustainable management of the world's biological resources, but they are not. Their focus is much narrower and self-serving.

Mostly we equate biodiversity with species richness. Biodiversity management and money for conservation is focused on preventing species from becoming extinct or in protecting the biobusinesses of tourism, forestry, agriculture and fishing. In most developed and not a few developing nations, nothing can mobilize conservation action by government and biologists better than a species in imminent danger of extinction. The more perilous the plight of the species, the more enthusiastic and better funded the response. Why? By this stage of a species' evolutionary life history, considerable biodiversity has already been lost through the extinction of populations and reduced genetic variability, while the decline of the species has changed the composition and structure of the communities in which it was a participant. As our concern for extinction is mainly with large vertebrates and flowering plants, the decline of each one of the species we treat as “wounded rhinoceroses” has probably already precipitated the loss of lesser, and mostly unknown, species. The importance of these “lesser” organisms to the services provided by biodiversity appears especially hard for national leaders to understand.

### **The other 99%**

Is it the fact that most multi-cellular animals are insects, that causes politicians to “get it wrong” when hanging out their green credentials? Are the sheer numbers of insects the reason biologists try to convince governments of the importance of biodiversity by emphasizing vertebrates, flowers and bio-dollars? I do not expect the United Nations to declare “The Year of the Insect”, but I wonder why entomologists and ecologists do not promote the idea. The ecologically sustainable management of resources has much more to do with the conservation of insects, nematodes, fungi and bacteria, among other even less charismatic organisms, than it does with protecting wilderness and whales. Is this the reason for the “enigma of biodiversity”?

As for most of the Pacific, biodiversity conservation and management is not done well in Australia. State and national conservation reserves are hopelessly inadequate for biodiversity conservation. Many biologists now spend more time advocating “off-reserve” management, multiple-use zones, and the

exploitation of wild populations than they do promoting additions to the conservation reserve network. The failure of Australia's conservation reserve system is now so well established that it hardly needs explanation or referencing, but there is no evidence in the actions of Australian governments that they are either prepared to or interested in correcting the situation.

Even when science is used to determine minimum reserve requirements, as it was in the forest agreement process just completed in northern New South Wales, it is ignored. With the purported support of science and scientists, the ecologically unsustainable exploitation of Australia's eucalypt forests will continue irregardless of the environmental and ethical consequences. Science was not used in the decision making process in New South Wales to ensure the sustainable management and conservation of forest biodiversity, but only to legitimize political decisions. This use of science and the scientists in Australia is highly disturbing, both for the willingness with which some scientists participate and in the lack of scientific understanding shown by the community.

Australia consciously renders the continent less and less habitable for future generations and for other species. Australia does this by using the short-term economic and social gains that result from the overharvesting and resource mis-management of the biodiversity based industries — tourism, forestry, agriculture and fisheries — to validate habitat destruction and environmental degradation. The proponents of these biobusinesses and their scientific sycophants consistently deny or attempt to conceal the significant losses of biodiversity and the long-term ecological and ethical consequences of these losses arising from their activities. The recent decisions on forest conservation in Australia have been made to guarantee supply to the timber industry and gain votes in marginal electorates and not

to manage forests sustainably or to conserve biodiversity. The enigma of biodiversity — the fact that its importance to global survival is hard to understand — lends itself to this particular form of political duplicity.

It is like taking land and children from indigenous people for their own good.

### **Biotechnology and Biobusiness**

At a recent conference on "biodiversity, biotechnology and biobusiness" in Perth, Western Australia, there was no dispute on the importance of biotechnology and biobusiness for the future prosperity and welfare of humanity. Gene technology is opening vistas in industry, medicine, agriculture, aquaculture and agroforestry comparable only to the advent of modern computers. Genetically modified organisms will enable us to feed, cloth and house the projected addition of 2 to 4 billion people to the world's population over the next 50 years. Biotechnology will revolutionize industrial and medical practices. A few of us will enjoy unprecedented health and wealth: even if most of us will endure increasingly menial lives of environmental, economic, educational and cultural homogeneity.

While these new endeavours in biodiversity exploitation bloom, biodiversity itself wanes. Only by sharing the world's resources can we achieve ecologically sustainable management. Only by sharing resources and technology can biobusiness meet its responsibilities to future generations and other species. We can continue to speak in riddles, choosing not to understand, or we can try harder to make people understand the importance of biodiversity and our ethical responsibility to share Planet Earth with the tens, if not hundreds, of millions of other species that live here. Each of us has a responsibility to bring an understanding of biodiversity to national leaders. If biodiversity is an enigma, it is not enigmatic.

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