Photo: WWF-Canon/Anthony B. Rath

Reservoirs of Biodiversity

Wetlands support spectacular concentrations of wetland-dependent wildlife, such as the more than 2 million shorebirds visiting both the Banc d'Arguin National Park in Mauritania and the Wadden Sea in northern Europe, or the 30,000 black lechwe antelope that inhabit the Bengweulu Basin in Zambia. They also support charismatic species such as the hippopotamus, shoebill stork, and jaguar. Wetlands may be individually recognised for their endemic species – such as Lake Tanganyika, with 1,470 animal species, 632 of which are found in that lake only, and the Amazon river which boasts an estimated 1,800 endemic species of fish.

In Brief

- ✔ **Freshwater wetlands hold more than 40% of the world's species and 12% of all animal species.**
- ✔ **Some wetlands contain significant numbers of endemic species – such as Lake Tanganyika with 632 endemic animal species and the Amazon river with an estimated 1,800 endemic species of fish.**
- ✔ **Coral reefs rival tropical rainforests in terms of biodiversity; they may contain 25% of all marine species. Reefs hold an estimated 4,000 species of fish and 800 species of reef-building corals; total number of species associated with reefs may be over one million.**
- ✔ **Wetland biodiversity is a significant reservoir of genes that has considerable economic potential in the pharmaceutical industry and in commercial crop plants such as rice.**

- ♦ **Commercially bred crops, such as rice, have a "lifespan" of 10-15 years before new genetic material is required to combat pest and disease problems.**
- ♦ **Wetland animal and plant species play a role in the pharmaceutical industry – 80% of the world's population depends on traditional medicine for primary health care.**

Spectacular statistics aside, wetlands in general are home to a great diversity of species. Although freshwater ecosystems cover only 1% of the Earth's surface, they hold more than 40% of the world's species and 12% of all animal species. On the marine front, coral reefs are among the most biologically diverse ecosystems on the planet, rivalling tropical rainforests, the most diverse of the land ecosystems. Although they cover only 0.2% of the ocean floor, coral reefs may contain 25% of all marine species. The Great Barrier Reef in Australia alone is home to 1,500 species of fish and 4,000 types of mollusc. Four thousand species of fish and 800 species of reef-building corals have already been described for reefs, but the total number of species associated with reefs is quite likely to be more than a million.

The biodiversity in wetlands is also valuable as a reservoir of genes. Rice is a common wetland plant and the staple diet for over half the world's

population. Wild rice continues to be an invaluable source of new genetic material for developing disease resistance, yet many different varieties of rice have disappeared in recent years – leaving us dependent on a shrinking genetic base. A typical "lifespan" of a commercially-bred crop variety has been estimated at 5-10 years before new genetic material is required to combat pest and disease problems. The value of such traits on a global scale is counted in the billions of dollars.

Wetland species have also been extensively used in the medical industry. It is estimated that over 20,000 medicinal plant species are currently in use, some of them from wetlands, and over 80% of the world's population depend on traditional medicine for their primary health care needs.

Amphibians are recognised as a particularly threatened group of wetland animals, yet current research identifies at least some species as a veritable pharmacopoeia: research on a South American clawed toad has revealed that chemicals in its skin have potential as antibiotics, fungicides and anti-viral preparations. The blood of horseshoe crabs, a species basically unchanged for 350 million years, contains a compound used by the pharmaceutical industry to test the purity of drugs and medical equipment that holds human blood.

Putting a dollar "value" on biodiversity is not simple, despite the crucial role it plays in food security and medicine. And this takes no account of the importance of the aesthetic value of biodiversity to all people, an intangible benefit that goes well beyond ecotourism (see next section).

Our future needs of the global gene pool are uncertain and "extinction is forever", so society ought to consider conserving biodiversity for its potential future uses as well as for its present uses. This is essentially an "option value"; losses in diversity represent a reduction in this value. Perhaps another way of looking at this value is to consider, for example, how much people and institutions are willing to pay for the conservation of species and ecosystems:

- The world's largest NGO, WWF, has an annual income of US$ 343 million; the largest proportion of this comes from individual members who pay to conserve wildlife they may never see.
- The Global Environment Facility (GEF) operates the financing mechanism of the Convention on Biological Diversity (CBD). Since 1991, a total of US$ 2.2 billion from the GEF Trust Fund and a further US$ 1.3 billion through co-financing have been allocated to biodiversity activities in 334 projects in 119 countries. Significant sums are being spent specifically on wetland projects. The Ramsar Bureau is currently involved in three on-going GEF-funded projects that directly or indirectly conserve wetland biodiversity: a US$ 15.5 million MedWet project (jointly funded by UNDP's GEF, the French GEF and other sources) to conserve and manage Mediterranean coastal wetlands in 6 countries; a US$ 627,225 project to enhance the critical network of wetlands required by migratory waterbirds on the African/Eurasian flyway; and a US$ 347,400 project to conserve some major wetlands in Iran. It is envisaged that, through the Bureau's Joint Work Plan with the CBD, more GEF funding will become available for wetland projects in the future. ◆

Ramsar
CONVENTION ON WETLANDS
CONVENTION SUR LES ZONES HUMIDES
CONVENCIÓN SOBRE LOS HUMEDALES
(Ramsar, Iran, 1971)

Wetland
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