

NATURAL SOLUTIONS



Protected areas are vital for human health and well-being

Protected areas play a critical role in maintaining human health and well-being, although these benefits are just beginning to be understood and applied by the health sector. The links between protected areas and human health and the need to create stronger partnerships and alliances between the conservation and health sectors was a key theme at the IUCN World Parks Congress 2014 and is a continuing high priority for IUCN and its World Commission on Protected Areas. This briefing outlines the role that protected areas can play in securing a range of ecosystem services beneficial to human health.

Global health issues continue to feature prominently in development strategies, as reflected in the Millennium Development Goals and the recently adopted Sustainable Development Goals and related targets. Every year millions of people in developing countries die unnecessarily young as a result of malaria and other insect-borne and intestinal diseases caused by contaminated water and malnutrition. Most importantly, the major contributors to adult mortality are non-communicable diseases attributable to lifestyle and diet. Over half of the world's population lives in cities and it is predicted that more than 70% of people will be living in urban environments by 2050. Urban living is associated with experiencing stress and anxiety, as well as unhealthy lifestyles that include consumption of poorer quality food and reduced levels of physical activity.

- In the next decades, 95% of urban expansion will take place in developing world.
- The world's cities occupy just 3 per cent of the Earth's land, but account for 60 - 80% of energy consumption and 75% of carbon emissions.
- Rapid urbanisation is exerting pressure on fresh water supplies, sewage, the living environment, and public health.

The World Health Organisation (WHO) suggests that up to a quarter of all deaths could be avoided simply by improved management of environmental issues such as air pollution, water contamination and dust from degraded drylands which are all major killers. Research has linked deforestation and forest fragmentation with the emergence of diseases such as HIV and Ebola, through increased contact between humans and wildlife primate carriers, and with the spread of established diseases such as malaria.



A homegrown, urban street-gardening project for greening, healing and connecting in Cape Town, South Africa. Project of Sustainable Livelihoods Foundation. © Sustainable Livelihoods Foundation

Further, the Convention on Biological Diversity (CBD) and WHO in a new State of Knowledge Review *Connecting Global Priorities: Biodiversity and Human Health* (2015), have recently pointed out the importance of healthy natural ecosystems in contributing positively to health. This *Natural Solutions* note seeks to promote further understanding of the unique contribution of protected areas in improving human health and well-being, while conserving biodiversity and other values.

Ill-health in the 21st century

The majority of deaths worldwide now stem from non-communicable diseases (NCDs) rather than infectious diseases. NCDs are responsible for 63% of all deaths worldwide.

Four diseases account for most deaths worldwide: cardiovascular disease; cancer; chronic respiratory diseases and diabetes. These diseases are driven by forces that include unhealthy environments and unhealthy lifestyles. All age groups and all regions are affected by NCDs. Although they are often associated with older age groups, evidence shows that 16 million of all deaths attributed to NCDs occur before the age of 70. Of these



Flor del Urucú, also known as Achiote (*Bixa orellana*), is a flower found in Latin America and India, and used for culinary, medicinal and dyeing purposes.

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'premature' deaths, 82% occur in low- and middle-income countries. The good news is that most of these diseases are preventable, and the role of protected areas is emerging as a powerful health promotion strategy.

Protected areas can contribute positively to human health in various ways, many of which are just beginning to be understood. For example, there is a growing body of evidence on the role of the natural environments in providing human contact with microorganisms and their beneficial role in human health.

There are three ways that protected areas play a critical role in improving human health and well-being: (i) by providing environmental benefits and services that sustain life and regulate against detrimental health effects from climate, floods, infectious diseases, etc.; (ii) as botanical sources for both modern and traditional medicines; and (iii) by provision of direct benefits to physical, spiritual and mental health through time spent in nature.

Details of each are given below.

Environmental health benefits and services

Just as environmental degradation and pollution are damaging to health, conversely conscious ecosystem management can have positive health effects. Conserving or restoring forests can, for example, reduce the risk of malaria and certain other diseases. Diarrhoea, linked to dirty water supplies, kills millions of children every year. Clean water for drinking and domestic use is critical to good health. Watersheds retaining natural vegetation, particularly forests, provide cleaner water than more degraded watersheds. A third of the world's hundred largest cities draw a substantial proportion of their drinking water from forest protected areas yet these benefits are often barely recognised and are treated simply as free goods.

Protected areas can maintain dryland vegetation, stabilising soil, preventing desertification and dust storms, and reducing the suspended solids in air that create major respiratory problems in children throughout the Arabian Peninsula. Natural ecosystems

Protected areas and medicinal plants in Colombia

The establishment of the Alto Orito Indi-Ande Medicinal Plants Sanctuary in Colombia was proposed by the indigenous Kofán communities and by the traditional medicine-men of the Putumayo foothills as part of their strategy to strengthen and restore their traditional culture and the associated landscapes. The Union of Traditional Yagé Healers of the Colombian Amazon noted: 'The forest is for us the fountain of our resources. If the forests disappear so will medicine and life'.

The declaration of a floristic sanctuary, focusing on medicinal plants, combines biodiversity conservation with maintenance of traditional medicine systems, thus contributing to recovery of the area's natural, cultural and intangible heritage. An important strategy for the protected area is education and training for the users of traditional medicine to ensure that the diverse values of the forest are kept alive.

help regulate against flooding and other weather-related events, which themselves result in ill health. Marine protected areas boost fish stocks, ensuring that subsistence coastal communities receive adequate supplies of protein in their diets. Trees in urban reserves help to clean air and reduce the pollution burden which is itself responsible for large numbers of premature deaths. A healthier environment translates directly into a healthier population. In Indonesia, communities living near the Ruteng Park on Flores had fewer cases of malaria and dysentery, children missed school less because of ill health, and there was less hunger associated with crop failure, than in nearby communities without intact forests.

Sources of local and global medicines

While some traditional medicines are now traded globally and have become big business, for many of the world's poorer

people, medicines remain a locally-collected and traded product that is their main resource for meeting primary health care needs. Indeed, more species of medicinal plants are harvested than of any other natural product. Today many of these are obtained from protected areas as they no longer occur in degraded landscapes. For instance, over 400 medicinal plants are collected from Langtang National Park in Nepal, 150 species from Serra de Sao Mamede Nature Park in Portugal, and almost 100 species from Cumbres de Monterrey National Park in Mexico. Agreements to allow local people to collect medicinal plants on a sustainable and controlled basis can also provide important social, cultural and livelihood benefits.

The value of protected areas to provide primary and affordable health care products is a global phenomenon but is scarcely recognised by some medical professionals. Medical drugs derived from natural products support a huge pharmaceutical industry. Protected areas can act as sources of material, primarily plants, used raw or lightly processed and as resource areas for bioprospecting to derive active components that can then be developed as new drugs. Over half today's synthetic medicines originate from natural species, including drugs like aspirin, digitalis and quinine. By 2000, there were over 200 US corporations and government agencies studying rainforest plants, and plant-based pharmaceuticals were estimated to earn over US\$ 30 billion per year. Bioprospecting in protected areas has already turned up compounds that are being used, or are in the process of development, for combating high blood pressure, cancer, leukaemia, HIV, enlarged prostate, malaria, and anti-bacterial and antifungal treatments. Pharmaceutical companies initially require only small samples of material as active components are then further developed synthetically. Such limited collection can be consistent with conservation, while maintaining the wild types. Some protected areas have been successful in developing financial agreements to permit careful bioprospecting, and ensure equitable benefit-sharing.

Provision of direct health benefits

Protected areas are often safe, accessible and free places for recreation, exercise and relaxation. There is increasing recognition that protected areas can provide direct health benefits including: (i) opportunities for physical exercise; (ii) locations and activities that are beneficial to mental health; and (iii) a range of other well-being benefits linked to therapeutic activities.

A recent report released by Deakin University in Australia, entitled *Healthy Parks Healthy People*, concludes that there is substantial evidence that access to protected areas and green spaces enhances the health and well-being of people across their lifespan.

- Parks foster social connections which are vital to community cohesion and contribute to social well-being.
- For children, parks foster active play, which is associated with physical, cognitive and social benefits.
- For adolescents, parks improve mental and social health during what is often a challenging time of life.
- Park use is linked to physical and mental health benefits among adults, and especially older adults.

In Australia, Park Victoria's *Healthy Parks Healthy People* approach to protected area management reinforces and encourages the fundamental connection between a healthy environment and a healthy society in all of the organisation's activities. The



Youth in Havasu, Grand Canyon National Park, USA. © Dillon/NPS

approach aims to promote the many health benefits of spending time in urban parks and more remote protected areas, while conserving biodiversity. The approach also recognises that parks are fundamental to economic growth and to vibrant and healthy communities. This understanding is deepened by a growing body of evidence and knowledge. For example, it has recently been estimated that physical activity in Victorian parks avoids A\$ 200 million in health costs, while also generating more than a third of the State's water run-off.

In the UK, many protected areas actively promote outdoor activity programmes such as the 'Green Gym' scheme using the natural environment as a health resource. In Japan, Shinrin-yoku is the traditional practice of taking in the atmosphere and energy of the forest to improve health and reduce stress. Keoladeo National Park in India provides free access to a designated 2-km stretch which up to a thousand 'morning walkers' enjoy every day between 5 and 7 am.

Importantly, natural landscapes have been shown to provide health benefits to people with mental health or substance abuse problems. Pleasant places actually make us feel better. In England, the Phoenix Futures Conservation Therapy Programme helps people with management of substance misuse through involvement in conservation projects in National Nature Reserves. In Victoria, the Health Parks Healthy People programme has developed long-term cooperation with mental health facilities to bring patients into parks and protected areas.

But why protected areas in particular?

Any natural landscape or seascape can and does offer the advantages that are outlined above. Are protected areas any better? In a world where most natural ecosystems are under pressure, and often deteriorating or being converted to agriculture, intensive forestry or urbanisation, the fact that an area is also a "protected area" provides certain key advantages:

- **Protected areas are situated in rich, reasonably intact ecosystems:** in an increasing number of places, they are the only remaining natural habitats so they become of immense use in terms of providing sources of genetic material, local

Doctors prescribing time in nature

Park prescriptions are an initiative of the US National Park Service's *Healthy Parks Healthy People* programme, where doctors prescribe time in nature for their patients, to treat and prevent chronic conditions such as diabetes, depression and high blood pressure.

Park prescriptions often include park referrals for walking programs, outdoor yoga clinics, and park-based after school programmes for youth. Park facilities and programmes are inventoried, rated and mapped, so that healthcare providers can write tailored prescriptions based on their patient's lifestyle and physical condition.



medicines and ecosystem services. Agreements to allow local people to collect these, on a sustainable and controlled basis, also help protected areas to provide important social benefits alongside their nature conservation benefits.

- **Protected areas have an associated management structure, staff, capacity and delineated borders**, providing some measure of security that biological values and associated ecosystem services will be sustained in the long-term, while also providing for physical safety of visitors. Management is not perfect of course and it is possible to identify many failing parks, but research shows that protected areas of all governance types maintain ecosystems and species better than alternative management systems.
- **Protected areas provide a single coherent unit with which to negotiate**, which is important for negotiating access, contracting and management issues such as Payment for Ecosystem Service (PES) schemes, payment for genetic material, access arrangements, reduction in grazing pressure in drylands and the like. Protected area agencies can become the partners of health and urban planning sectors to offer and engage in health promotion actions.
- **Protected areas provide places for recreation**: for people to exercise and gain mental and spiritual renewal, and to gain appreciation for biodiversity that will in turn promote a conservation ethic that values and protects biodiversity. Not every protected area falls into this category, but many protected areas, particularly those in urban and suburban areas, provide access to nature for people to exercise and enjoy calm contemplation in restorative and healthy surroundings helping to instil appreciation of nature and biodiversity in its own right.

This briefing was prepared by Nigel Dudley, Diana Allen and Kathryn Campbell under the auspices of the IUCN World Commission on Protected Areas.

References and further reading

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