Biodiversity and human health and well-being

Summary of Key Messages

There is a compelling case for the integration of health perspectives in biodiversity policy and practice, and an equally strong case for ensuring that biodiversity considerations are fully integrated into health policy and practice.

It is essential to integrate a health perspective into biodiversity policy and practice, and the ongoing implementation of the Strategic Plan for Biodiversity 2011-2020, and for health perspectives to be clearly articulated in a post-2020 global biodiversity framework. The draft decisions tabled for COP14 are a comprehensive statement of the many important actions that should be taken to achieve this integration. Recommendations are set out in this paper. In brief, these address:

- Enhancing the enabling environment, including through including a health perspective and relevant health stakeholders into the design of conservation and restoration policies, plans or projects at all levels;

- Strengthening knowledge, awareness and good practice, including through education and training programmes to support capacity development among nature conservation professionals, and building an economic and business case to support integration of biodiversity into health policy.

- It is also essential to integrate biodiversity perspectives into health policy and practice, and to articulate a transformative agenda for integrated health and biodiversity policy in a post-2020 global biodiversity framework, towards Goal 3 Good Health and Well-being of the Sustainable Development Goals. The decisions adopted at the Seventy-First World Health Assembly lay a comprehensive foundation and suggest many actions that should be taken to achieve this integration. Further recommendations include:

  - Working with the World Health Organization and Regional Health Organizations and Member States to facilitate dialogue among agencies responsible for health, those responsible for biodiversity, and other relevant sectors;

Introduction

There is a compelling case for the integration of health perspectives in biodiversity policy and practice, and an equally compelling case for ensuring that biodiversity considerations are fully integrated into health policy and practice.

The Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) has considered the inter-linkages between biodiversity and human health (Decisions XII/21 and XIII/6) and has established an interagency liaison group on biodiversity and human health, co-convened by the Secretariat and the World Health Organization, and including IUCN among other core members. In particular, priority has been given to disseminating the State of Knowledge Review, and developing toolkits and good practice guidelines to apply the “One Health” Approach.

In 2018, for the first time, the World Health Assembly at the Seventy-First World Health Assembly has similarly considered biodiversity and health linkages.
These discussions have identified several opportunities for the mutual integration of health and biodiversity linkages into respective policies, and have identified several ways forward for pursuing further collaboration, research, capacity building and application in practice among and within the biodiversity and health communities.

In this policy brief, we outline:
- the respective positions of the biodiversity and health communities regarding integration;
- state IUCN's current activity with respect to these;
- propose how biodiversity and health policy can be taken forward building on the current base; and
- consider what approaches might be most progressive and transformative for this agenda.

It is anticipated that IUCN in the formulation of its ongoing programme for policy and practice would identify elements of this agenda that it should incorporate, and the partners with whom it should pursue these.

I. Integration of a health perspective into biodiversity policy and practice

Several important connections between biodiversity and human health emerge from the State of Knowledge Review regarded from the biodiversity supply/impact perspective. These include:

(i) Biodiversity as a key environmental determinant of human health.

Natural ecosystems support functions and services that affect human health, for example:

- water provision, including watersheds, water quantity, quality and availability through wetlands, rivers and other water sources;
- food provision, including agricultural species;
- agro-diversity including crop or stock wild relatives;
- cultural and spiritual values of nature including for human well-being;
- soil fertility and nutrition;
- pollination and production;
- water purification, waterborne diseases;
- air quality;
- provision of medicinal compounds;
- exposure to biodiversity essential for building human micro-biota and immunity;
- exposure and activity in nature as a resource for physical or mental health;
- nature as a source of pathogens and allergens;
- nature as a source of toxins (animal and plant compounds, venom, stings)
- nature/exposure to nature as a source of risk to human life (predation, drowning, falling, avalanche or rockfalls, injury, disorientation, starvation, suicide)
- pest and disease control;
- climate change resilience;
- disaster risk reduction.

(ii) The role of nature conservation management practices for maintaining intact natural ecosystem and health-related services

- management of protected and conserved areas;
- restoration of degraded and vulnerable ecosystems;
- governance and management of watersheds and wetlands, riverine ecosystems, including through transboundary mechanisms;
- species recovery programmes;
- removal of alien invasive species;
- the monitoring and control of wild disease vectors and disease occurrence;
- ecosystem-based adaptation;
- urban conservation and restoration programmes, incl. urban protected areas, biodiverse green spaces and biological corridors;
engagement of indigenous peoples and community rights-holders and stakeholders in the governance and management of protected and conserved areas.

(iii) The role of biodiversity and conservation management institutions in health maintenance, health promotion, health education and healthy activities in settings

- maintenance of the integrity and health of natural ecosystems, including terrestrial and marine ecosystems, watersheds, wetlands, rivers and coasts;
- providing access to sustainably harvested food and water resources;
- providing access to medicinal plants and animals in protected and conserved areas;
- conducting research on indigenous and traditional knowledge relating to biodiversity and human health;
- conducting research on species important to human health, including medicinally important plants and animals, and pathogens in natural ecosystems and wild populations;
- conducting research on the mechanisms to maximise health benefits of time in nature;
- providing access to knowledge regarding biodiversity and human health;
- facilitating health education in protected and conserved areas, as well as in botanical and zoological gardens and aquaria;
- provision of outdoor recreation opportunities, including exercise and other physical activity and social interaction;
- provision of activities and facilities for health-impaired people or convalescent people to improve rehabilitation outcomes;
- provision of activities and facilities for people suffering from mental health conditions;
- provision of equitable access to protected and conserved areas, noting inequitable access for communities of different types;
- access to protected and conserved areas for childhood development programmes;
- community liaison and needs analysis including health needs and opportunities;
- gender-relevant and inclusive programmes;
- limiting human access to degraded biodiverse ecosystems and their attendant health risks;
- control of illegal use or trafficking of wild species for medicinal purposes;
- cooperation with health institutions for addressing health priorities;
- gaining an understanding of health policy and the manner in which the biodiversity constituency can support the health professions, including for cost-effective solutions and for primary health care services;
- the compilation and communication of nature-based health solutions;
- application of knowledge of national and regional contexts for nature conservation applied to health policy and practice.

Policy direction on biodiversity and human health under the Convention on Biodiversity

The CBD’s Subsidiary Body on Scientific, Technical and Technological Advice has compiled principles and guidance on integrating biodiversity considerations into One Health approaches, and recommends to CBD COP14 that Parties, other governments and relevant organisations make use of this guidance, and to promote dialogue among sectors to enhance implementation of the Strategic Plan for Biodiversity 2011-2020 and the 2030 Agenda for Sustainable Development.

Inter alia, these include considering all dimensions of human health and well-being and enhancing resilience of socio-ecological systems to prioritize disease prevention; applying the ecosystem approach using participatory and inclusive approaches; fostering collaboration that is cross-sectoral, multinational and trans-disciplinary; and seeking social justice and gender equity.

Envisaged measures include:

(i) enhancing the enabling environment (including laws for integration, land-use planning, undertaking economic analysis of the value of nature/health linkages, etc);
(ii) promoting integrated One Health policies plans or projects;
(iii) conducting integrated data collection, monitoring and surveillance;
(iv) conducting education, capacity building and communication;
(v) supporting integrated research and knowledge co-production;
(vi) maintaining, protecting and enhancing diversity in socio-ecological systems;
(vii) considering ecological and evolutionary processes;
(viii) addressing the common drivers of biodiversity loss and ecosystem degradation and ill health;
(ix) deploying ecosystem-based solutions (nature-based solutions).

Current IUCN initiatives relevant to this agenda

Across IUCN’s programme, and the activities of IUCN Member Organisations and Commissions, the following are highlighted current strengths:

- Participation in the Inter-Agency Liaison Group for Biodiversity and Human Health convened by the CBD Secretariat and the World Health Organisation;
- IUCN Resolution WCC-2016-Res-064 Strengthening cross-sector partnerships to recognise the contributions of nature to health, well-being and quality of life that includes working together with the WHO, coordination between IUCN Secretariat, Members and Commissions regarding policies and programmes; quantifying benefits of ecosystems for health; quantifying benefits of protected areas and urban natural spaces for health; developing relevant nature-based solutions;
- IUCN World Commission on Protected Areas (WCPA) Specialist Group on Health and Well-being, that aims to develop interdisciplinary materials, case studies, tools and programmes, facilitate partnerships for policy that support programmes in protected areas, parks and green spaces; and to further build and communicate the evidence and knowledge base on the extent of benefits of nature for human health and wellbeing.
- IUCN WCPA and Commission on Education and Communication (CEC) Task Force on #NatureForAll, to inspire a new generation of thinkers and doers across all sectors of society to connect with nature and take action to support its conservation.
- The Parks for the Planet seminar series, a multi-year partnership with the Salzburg Global Seminar, with a focus on nature, health and a new urban generation.
- The WCPA Urban Conservation Strategies Specialist Group that works to strengthen the ability of the protected areas community to serve urban people, urban places, and urban institutions.
- IUCN and several partners have established the PANORAMA: Solutions for a Healthy Planet web-based learning platform for the compilation, analysis and exchange of information regarding successful applied practices across a range of sectors. At present 96 of the solutions on the platform reference health from different perspectives, including protected areas, marine and coastal conservation, ecosystem-based adaptation, and agriculture and biodiversity.

II. Integration of a biodiversity perspective into health policy and practice

Several important connections between health and biodiversity emerge from the State of Knowledge Review seen from the health supply/impact perspective. These include:

- The health-related links to biodiversity
- nature as a source of pathogens;
- transmission of diseases from wild animals to humans;
- transmission of disease from wild animals to domestic animals;
- release of antibiotics or other active pharmaceutical ingredients into the wild;
- use of pesticides to control disease vectors;
- chemical treatment of freshwater and other ecosystems negatively affecting biota;
- use of biota as indicators of air and water quality;
- bioengineering and release of modified organisms into the environment;
- use of nature as a source of vitamins and micronutrients for health;
- dietary diversification drawing on bio-diverse natural food sources;
- exposure to environmental microbial ecosystems to build and adapt human micro-biomes;
- co-evolution of natural and human microbial ecosystems and impacts on immune-regulation.

The role of health management institutions in maintaining biodiversity and ecosystem integrity and benefiting the value of biodiversity for human health and well-being

There are several ways in which the policies and programmes of the health and related sectors affect outcomes for biodiversity.

- promotion of increased exposure to nature and biodiversity to build and maintain required microbial biodiversity in humans;
- promotion of sustainable production and consumption of natural resources;
- promotion of more healthy diets and more environmentally-friendly nutrition (less reliance on refined sugars, fats, oils, meat);
- promotion of more healthy lifestyles to avoid or address non-communicable diseases (autoimmune disease, type 1 diabetes, eczema, asthma, inflammatory bowel diseases);
- promotion of traditional food systems and food cultures promoting human health;
- enhanced urban planning and building codes to provide space for nature;
- Promotion of protected areas as zones for exercise and to practice movement culture;
- Making the economic case for the use of nature-based tourism and recreation as a component of health delivery;
- Enhanced provision of urban green spaces for public recreation, exercise and overall liveability of towns, cities and regions;
- Avoidance of unnecessary antibiotic and microbial use that increase antibiotic resistance in humans or animals;
- Avoidance of hormonal and endocrine-disrupting chemicals in consumer products.

Policy Direction on Health and Biodiversity coming from the World Health Assembly

The World Health Assembly has highlighted the use of systematic risk analyses, vulnerability assessments and integrated impact and strategic assessments to proactively manage non-communicable and infectious disease risks associated with biodiversity change, wildlife trade and other drivers of disease emergence.

It has also emphasized investment in nature-based solutions, such as the integration of bio-diverse green and blue spaces in urban development, improving availability of and accessibility to diverse diets, tightening control and rationalizing use of anti-microbial agents, pesticides and other biocides, and maximising the health benefits of exposure to bio-diverse environments.

Current IUCN initiatives contributing towards incorporating biodiversity into the health policy agenda

- IUCN Species Survival Commission (SSC) Wildlife Health Specialist Group (1984) aims to serve as a first response for wildlife health concerns around the world; and to achieve a better understanding of wildlife disease and its role in multispecies infections or other disease syndromes.
- IUCN SSC Medicinal Plant Specialist Group, aims to increase global awareness of conservation threats to medicinal plants, and to promote sustainable use and conservation action.
- IUCN SSC Conservation Genetics Specialist Group, aims to promote the use of genetics in conservation management and decision making, includes the conservation and restoration of health-giving biodiversity, including microbial ecosystems in urban green spaces.
- The IUCN Commission on Ecosystem Management (CEM) has the Agro-ecosystems Specialist Group that promotes sustainable agricultural practices and agro-biodiversity management under changing climatic conditions and encourages ecosystem based approaches and resource conservation technologies for transforming agriculture as a sustainable enterprise. Its purview could address health related aspects.
- The IUCN CEM Task Force on Systemic Pesticides carries out comprehensive, objective, scientific reviews and assessments of the impact of systemic pesticides on biodiversity and makes recommendations based on these reviews. The relationship between pesticides and human health could be an expanded focus of this group.
- The IUCN Sustainable Use and Livelihoods Specialist Group (SULi) is a joint initiative of the Species Survival Commission (SSC) and the Commission on Environmental, Economic and Social Policy (CEESP). Bridging the social and biological science strengths of SSC and CEESP, it is uniquely placed to provide credible, sound technical advice on sustainable use and livelihoods. SULi includes almost 300 experts from the intergovernmental, government, academic, private and NGO sectors, who bring a diverse array of relevant expertise: from technical management of forestry, fisheries, medicinal plants and wildlife, to traditional knowledge, community based natural resource management, and rural development.
- The WCPA Specialist Group on Natural Solutions focuses particularly on ecosystem services from protected areas linked to food and water security and disaster-risk reduction. It maintains close links with other groups working on related ecosystem services including health, climate change and sacred values.
IUCN, the World Commission on Protected Areas, the Salzburg Global Seminar and several IUCN members organized a World Leaders’ Dialogue in April 2017 in Melbourne Australia entitled ‘Nature is Good Medicine’ at the 15th World Congress on Public Health. IUCN President Xinshe Zhang provided the keynote address alongside Dr Maria Neira, Director of Public Health and Environment, World Health Organization. Key messages were that improved cross-sector collaboration and increased investment in environmental and public health would reduce future medical costs, noting less than 3% of the global expenditure on health is on health prevention programs compared to medical treatment.

III. Recommendations for strengthening policy integration

Much of the current discussion on policy reform focuses on the general need to achieve integrated policy for health and biodiversity. It is not clear where the leadership to achieve this resides and whether there are sufficient structures and coordination to make this approach function in practice. It is more helpful to consider this firstly from each standpoint, building on the first step of raising awareness in each sector of the others’ interests. In so doing, it will become clearer how the synergies across sectors can be built.

(i) Strengthening biodiversity policy to address health matters

The Guidance included in CBD/SBSTTA/21/4 on Integrating Biodiversity Considerations into One Health approaches includes a wide scope of possible interventions at research, policy and practice levels.

IUCN recommends that priority should be given to:

Enhancing the enabling environment

- Include a health perspective and relevant health stakeholders into the design of conservation and restoration policies, plans or projects at all levels;
- Ensure that integrated land-use planning respects areas of high biodiversity value, both to protect important biodiversity with health benefits and to reduce the exposure of humans to health risks of certain ecosystems;
- Ensure that integrated watershed management is undertaken to maintain the integrity of wetlands, rivers, aquifers in conjunction with all relevant sectors;
- Ensure that the consequences of human population growth, the growing demand for natural resources, and health outcomes is integrated into sectoral planning.
- Ensure that conservation and restoration management plans, including protected area management plans explicitly consider health outcomes and objectives, with associated indicators.
- Ensure that participatory processes for conservation and restoration involving rights-holders and stakeholders explicitly consider health benefits and costs, with associated indicators.
- Undertake research to determine which of the world’s Key Biodiversity Areas (KBAs) are essential repositories of species and processes that are priorities for human health and well-being.
- Undertake research to identify which of the world’s threatened species and ecosystems are of crucial importance to human health and well-being and prioritise recovery programmes for these.
- Undertake research to identify the causative pathways between biodiversity or nature and health provision or illness prevention.

(ii) Strengthening knowledge, awareness and good practice

- Expand and emphasize health outcomes in IUCN’s #NatureForAll Initiative as a powerful means to communicate the value of nature for human health and well-being.
- Conduct a solution search and compile lessons learned on the application of nature-based solutions, including for ecosystem-based adaptation, disaster risk reduction, food and water security and governance of natural resources, for improving human health and well-being across all of IUCN’s programme areas, and document these in PANORAMA.
- Publish IUCN WCPA Best Practice Guidelines on integrating health into protected and conserved areas to build the capacity of protected area managers.
- Incorporate health and nature considerations into the core competences required by nature conservation professionals including protected area managers and restoration practitioners.
- Develop curricula and education and training programmes to support capacity development among nature conservation professionals regarding nature and health linkages;
- Build an economic and business case to support integration of biodiversity into health policy, including through tourism focused in nature on health and well-being.

(iii) **Strengthening health policy to address biodiversity considerations**

IUCN recommends that priority should be given to:

**Enabling activities**

- Working with the World Health Organization and Regional Health Organizations and Member States to facilitate dialogue among agencies responsible for health, those responsible for biodiversity, and other relevant sectors;
- To continue to participate in international conferences and congresses such as the World Health Congress to expand cross-sectoral dialogue and demonstrate effective approaches to integration in practice.
- Developing more holistic programmes at local and national levels that target multiple outcomes for One Health, including biodiversity conservation, antimicrobial resistance, vector and water-borne disease, food security, climate change, disaster risk reduction. These likely require a more integrated approach to these matters within IUCN, and across the interests of relevant partners.
- Advocating for increased awareness of the health-risks of other policies that impact on the environment or directly on people (e.g. mining, industrial activities).
- Advocating for increased consideration of the effects of population growth on biodiversity and human health and the means, including for appropriate land-use, health sector and family planning to complement other approaches.

(iv) **Strengthening knowledge, awareness and good practice**

- Reducing environmental contamination by antibiotics and other active pharmaceutical ingredients;
- Strengthening disease surveillance and the distribution and abundance of disease vectors, as well as the means to control disease outbreaks;
- Investing more strongly in health promotion, including through the promotion of healthy lifestyles, and sustainable production and consumption;
- Invest more effort in work on illness prevention using ecosystem-based approaches;
- Identifying best practice case studies within the health sector that demonstrate how to incorporate biodiversity values and achieve mutually beneficial outcomes;
- Invest in research to determine the causal linkages between environment and human health under climate change scenarios;
- Developing curricula, and education and training programmes to support capacity development among health professionals regarding health and nature linkages.

(v) **Articulating a transformative agenda for integrated health and biodiversity policy in a post-2020 framework towards the sustainable development goal for Health**

In addition to the priority actions listed above, IUCN recommends that several approaches are adopted to seek a transformative agenda that mainstreams the mutual integration of biodiversity into health policy and health into biodiversity policy.

IUCN therefore recommends:

**Making a more compelling case and communicating this at a high level**

- Conduct an economic analysis relevant to public and private investment, of the avoided health care costs and associated biodiversity benefits of increasing integration of a health perspective across a wide scope of conservation action.
- Conduct an economic analysis of the projected health costs of the degradation and loss of biodiversity and associated ecosystem services that are essential for human health and well-being.
Communicate these findings and perspectives in high level panels associated with the World Economic Forum and the UND High Level Political Forum on the SDGs that in 2018 will consider Goal 6: Water; Goal 11 Cities and Goal 15: Life on Land; and in 2019 will consider Goal 4: Education; Goal 13: Climate Change; Goal 16 Governance; and Goal 17 Cooperation.

Invite IPBES to include an assessment on biodiversity and health in its next work programme for translating existing knowledge on biodiversity and health into policy recommendations.

Incorporate specific health/nature target and associated indicators into the post-2020 Strategic Plan for Biodiversity.

Demonstrate the relevance and contribution of the conservation of nature to the foundation for achieving the Sustainable Development Goal 3 on Good Health and Well-Being.

Invite Parties to the Convention on Biological Diversity and to the World Health Assembly to prepare National Health and Biodiversity Action Plans.

Coordinate closely with the Ramsar Convention on Wetlands of International Importance to elaborate a more comprehensive agenda that embraces human and animal health and well-being through the interface between terrestrial, marine and freshwater ecosystems, their biota and the high levels of dependence and vulnerability of humans to these.

Incorporate a health and well-being component into the development of the IUCN Programme 2020-2024.

An immediate high-level opportunity exists to explore cooperation and collaboration between the biodiversity and health communities, including through participation by the WHO in the CBD COP14 meeting in November 2018, and to contribute to a ministerial panel across relevant ministries responsible for biodiversity and health.

It is also essential that the biodiversity community explores the linkages to incorporate health as a specific outcome of the biodiversity conservation agenda, and to participate in the deliberations of the health community to mainstream biodiversity in health policy, programmes and practice, with the purpose of seeking mutually beneficial outcomes for public and private investment, avoided costs and both biodiversity and health benefits.

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