



Food and Agriculture
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The COVID-19 challenge: Zoonotic diseases and wildlife

Collaborative Partnership on Sustainable Wildlife Management's four guiding principles to reduce risk from zoonotic diseases and build more collaborative approaches in human health and wildlife management

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Joint CPW Statement

COVID-19 falls into the category of emerging infectious diseases (EIDs) that are transmitted between domestic or wild animals and humans (known as 'zoonotic diseases') (WHO, 2020a). EIDs can significantly impact global economies and public health. More than 60 percent of all EID events are dominated by zoonoses, the majority of these originate in wildlife and are increasing significantly over time (Jones *et al.*, 2008; Morse *et al.*, 2012).

The far-reaching impacts of COVID-19 on the entire planet have mobilized numerous calls to prevent similar pandemics in the future. Appeals have ranged from advocacy for the permanent closure of markets where wild animals may be sold, to banning all commercial use of wildlife, to significantly stepping up sanitary measures and monitoring along all food value chains.

In this document, the Members of the Collaborative Partnership on Sustainable Wildlife Management (CPW) propose four guiding principles to assist practitioners and decision-makers in making practical and scientifically informed responses (FAO, 2020b). These principles aim to reduce the risk of future pandemics originating from wild animals, at the same time as strengthening the conservation of wildlife whilst respecting livelihoods, food security and culture of diverse groups of people.



Convention on
Biological Diversity



Food and Agriculture
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International
Trade
Centre



TRAFFIC
the wildlife trade monitoring network



**First principle:
Recognize the importance
of the use of wildlife for
many communities,
including Indigenous
Peoples and Local
Communities (IPLCs), in
policy responses.**

The sustainable use of biodiversity is a key pillar of the United Nations Convention on Biological Diversity (UN CBD), and encompasses a wide range of activities, including the sustainable use of wildlife for food or livelihoods. Sustainable use is not easily managed and monitored, but when effectively done, it can provide a durable and powerful incentive for conservation of wildlife (CPW, 2015).

The use of wildlife is part of the culture and tradition of numerous Indigenous Peoples and Local Communities (IPLCs) in various regions of the world. Wildlife contributes to the food security, health, income, jobs and cultural identity of many rural economies and for some of the world's most vulnerable IPLCs (Coad *et al.*, 2019; Vira *et al.*, 2015). The rights of IPLCs to use, manage and conserve wildlife and other natural resources on their lands are highlighted in declarations of the United Nations and are enshrined in many national legal systems (UN, 2007).

The dependence of IPLCs on wildlife, and their knowledge and effectiveness in conserving it, provide an additional pragmatic rationale for ensuring that they are meaningfully involved in decisions about its future use and management, rather than being passive recipients of decisions made elsewhere. IPLCs manage or have tenure rights over at least 38 million km² or more than a quarter of the world's land surface (Garnett *et al.*, 2018).

A variety of efforts are being undertaken globally to address long-term food and health security, poverty elimination and other aspects of the UN Sustainable Development Goals (SDGs). Given the reliance on wildlife use and trade by diverse and sometimes vulnerable communities for a variety of purposes including for food and health, it is important to factor these considerations into any policy response.

**Second principle:
Maintain and restore
healthy and resilient
ecosystems to reduce risks
of zoonotic spillovers and
future pandemics.**

Biodiversity is the variety of all life on Earth. Humans are an indivisible part of biodiversity. Our health and that of other living organisms is interdependent. Healthy ecosystems are vital for the planet and can mitigate risks of future disease spillover. They also play a key role in mitigating climate change which is a major driver exacerbating the risk of disease emergence and spread. Healthy ecosystems also sustain food production, water and air purification, nutrient recycling and soil formation, and provide genetic resources and habitats (WHO and CBD, 2015). In short, the services and benefits of healthy ecosystems are essential for a healthy and sustainable future (Parrotta *et al.*, 2012).

Encroachment of human activities into, and destruction of, ecosystems increase the risk of emergence and spread of zoonotic diseases (UNEP and ILRI, 2020; Allen *et al.*, 2017; Gibb *et al.*, 2020). In particular, deforestation, the degradation and fragmentation of habitats, and the unsustainable expansion of agriculture bring humans and livestock into closer contact with wildlife (Bloomfield *et al.*, 2020; FAO, 2020a; Jones *et al.*, 2013; Gottdenker *et al.*, 2014; White *et al.*, 2018; Wilkinson *et al.*, 2018).

To reduce the risk of future zoonotic diseases, both the immediate pressures of biodiversity loss and ecosystem degradation as well as the underlying drivers must be addressed through an integrated approach that works across disciplines, sectors, value chains and spatial scales (UNEP and ILRI, 2020).

**Third principle:
Persecution including
killing of wild animals
suspected of transmitting
diseases will not address
the causes of the
emergence or spread of
zoonotic diseases.**

While a population of bats is a likely reservoir of the precursor to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the exact cause of COVID-19 is still not known (Andersen *et al.*, 2020). It is unlikely that the disease jumped directly to humans from bats. Moreover, the disease has spread globally by human to human transmission. Therefore, the targeted killing of animal species in the wild, such as bats, will not stop the spread of COVID-19. Such actions are ineffective, and put populations of those species at risk with the added detriment of the loss of their positive pest regulation and pollination functions. Instead, actions must focus on addressing the underlying causes and risk factors of disease spillover to reduce future pandemic risks (UNEP and ILRI, 2020).

While wild animals can be reservoirs of pathogens that cause diseases affecting humans and/or livestock, the reverse situation is also possible. Diseases that have developed and spread in human populations and/or livestock can be transmitted to wildlife, impacting their conservation status. Research indicates that a number of animal species are susceptible to COVID-19 (Lam *et al.*, 2020), and there is serious concern that great apes could be affected similarly to humans, with potentially devastating effects on their already precarious conservation status. Previous Ebola outbreaks in Gabon and the Republic of Congo killed more than 90 percent of the gorillas and chimpanzees in some areas (Leroy *et al.*, 2004). In the last 20 years, some strains of Highly Pathogenic Avian Influenza (HPAI) have spilled over from poultry to wild birds and caused mass mortalities (Lycett *et al.*, 2019). The loss of these and other species to epidemics will have negative implications for interconnected human and animal well-being and ecological health.

**Fourth principle:
Regulate, manage and
monitor harvesting, trade
and use of wildlife to
ensure it is safe,
sustainable and legal.**

For millennia, wildlife has been exploited by humans for consumptive and non-consumptive uses. Some forms of wildlife utilisation, both legal and illegal, are not sustainable and pose a major threat to biodiversity. Many species of wild animals are in decline and are facing the risk of extinction (Ripple *et al.*, 2017; Johnson *et al.*, 2020). Some uses of wildlife are not safe, posing risks to human health, including zoonoses (Johnson *et al.*, 2020). Management and regulation of wildlife harvest, use and trade are therefore critical for conservation, animal and human health, and for combatting illegal, unhealthy or unsustainable practices. At the same time, adequate regulations, that build upon the respect of good customary practices, will benefit the social and conservation nexus of those societies that sustainably use and trade wildlife. Such regulations require sound guidance, standards, risk assessment, risk management tools and effective enforcement and monitoring measures (UNEP and ILRI, 2020; Daszak *et al.*, 2020).

In cases where harvest, use or trade of wild meat is unsustainable or unsafe, developing alternatives to wild meat use, for example promoting 'alternative livelihoods approaches' could be useful. These approaches provide communities with either appropriate alternative sources of food or an alternative form of income generation, that should take into account the local social, ecological, economic and cultural contexts (Coad *et al.*, 2019).

Identifying, understanding and tackling the primary causes of unsustainable wildlife harvesting, utilization and trade are essential. This should include how the overall unsustainable demand for wildlife products could be reduced particularly in urban centres and where appropriate (Coad *et al.*, 2019).

There have been calls for the permanent closure of markets where wildlife is sold or to halt all commercial use of wildlife. Such blanket injunctions that do not consider the socio-economic and cultural impact of these actions, the biological status of species, or the institutional challenges for implementing such measures, can be counterproductive (Eskew *et al.*, 2020). Without adequate and locally appropriate alternatives to wildlife use and trade, such bans may have negative consequences for wildlife when they lead to reductions of the perceived value of wildlife and may create perverse incentives for land conversion, and disincentives for local communities to conserve and manage wild animals, discouraging conservation (Roe and Booker, 2019; Conney and Jepson, 2006). Poorly considered or simplistic responses may aggravate the crisis and lead to significant land conversion, undermine food security and livelihoods for many communities, including IPLCs, benefit criminal syndicates and damage those national economies that are already under pressure from global recession.

What comes next: Nature-based stimulus packages for a greener, more resilient future.

The COVID-19 pandemic has demonstrated once more that now is the time to truly value and invest in nature by developing integrated socio-economic stimulus packages. These must address long-term planetary health, food security, poverty alleviation, climate change, biodiversity loss and other aspects of the UN SDGs (WHO, 2020b; Settele *et al.*, 2020).

Governments, international organizations and relevant partners may wish to join hands to strengthen multisectoral and multidisciplinary collaboration. Together, it is possible to integrate health, food security and biodiversity approaches to reduce the risk of future pandemics. An inclusive 'One Health approach' (WHO, 2017) that integrates "ecosystem health" dimension through ecological thinking and sound science, is fundamental (CBD, 2017). This entails thorough consideration of the full range of biodiversity-health linkages and all proximate and underlying risk factors of zoonotic disease emergence and transmission. It also entails integrating ecosystem health as well as human, livestock and wild animal health, including linkages with food production systems (SCBD, 2020). The set of important multilateral negotiations taking place in the coming months presents a unique opportunity to integrate these ideas into a strategic vision for biodiversity, climate, and planetary health.

The Collaborative Partnership on Sustainable Wildlife Management (CPW) comprises an experienced group of international organizations that have a shared interest in a pragmatic, science-based approach for developing, monitoring, and guiding joint initiatives for the sustainable, legal and safe use of wildlife and conservation of biodiversity. The CPW promotes an integrated understanding of the complex interconnections and mutual dependencies between wildlife and people and works to increase cooperation and coordination on sustainable wildlife management issues among its members and partners.

The CPW network has substantive expertise in relevant areas such as sustainable use of and trade in wildlife, food security, human livelihoods and well-being, human-wildlife conflict prevention and mitigation, and animal health.

The views expressed in this statement belong to the member organizations of the CPW and do not necessarily represent those of the Parties, constituents or donors. They result from a virtual dialogue and take into account their different mandates, their experience in managing crises and years of research and monitoring.

References

- Andersen K.G., Rambaut A., Lipkin W.I., Holmes E.C. & Garry R.F.** 2020. The proximal origin of SARS-CoV-2. *Nature medicine*, 26(4): 450-452 [online]. [Cited 24 September 2020]. <https://doi.org/10.1038/s41591-020-0820-9>
- Allen T., Murray K.A., Zambrana-Torrel C., Morse S.S., Rondinini C., Di Marco M., Breit N., Olival K. J., & Daszak, P.** 2017. Global hotspots and correlates of emerging zoonotic diseases. *Nature communications*, 8(1), 1124 [online]. [Cited 24 September 2020]. <https://doi.org/10.1038/s41467-017-00923-8>
- Bloomfield L.S.P., McIntosh T.L., & Lambin E.F.** 2020. Habitat fragmentation, livelihood behaviors, and contact between people and nonhuman primates in Africa. *Landscape Ecology*, 35: 985-1000 [online]. [Cited 24 September 2020]. <https://doi.org/10.1007/s10980-020-00995-w>
- Coad L., Fa J.E., Abernethy K., van Vliet N., Santamaria C., Wilkie D., El Bizri H.R., Ingram D.J., Cawthorn D.M. & Nasi R.** 2019. *Towards a sustainable, participatory and inclusive wild meat sector*. Bogor, Center for International Forestry Research [online]. [Cited 24 September 2020]. <https://doi.org/10.17528/cifor/007046>
- Convention on Biological Diversity (CBD).**2017. *Guidance on integrating biodiversity considerations into One Health approaches*. [online]. Montreal, Canada. [Cited 24 September 2020]. <https://www.cbd.int/doc/c/501c/4df1/369d06630c901cd02d4f99c7/sbstta-21-09-en.pdf>
- Convention on Biological Diversity (CBD).**2016. *Decision adopted by the Conference of the Parties to the Convention on Biological Diversity* [online]. Cancun, Mexico. [Cited 24 September 2020]. <https://www.cbd.int/doc/decisions/cop-13/cop-13-dec-06-en.pdf>
- Cooney R. & Jepson P.** 2006. The international wild bird trade: what's wrong with blanket bans?. *Oryx*, 40(1): 18-23 [online]. [Cited 24 September 2020]. <https://doi.org/10.1017/S0030605306000056>
- Daszak P., Olival K. & Li H.** 2020. A strategy to prevent future epidemics similar to the 2019-nCoV outbreak. In: *Biosafety and Health*, 2 (1): 6-8. [online]. [Cited 24 September 2020]. <http://dx.doi.org/10.1016/j.bsheat.2020.01.003>
- Eskew, E.A. & Carlson, C.J.** 2020. Overselling wildlife trade bans will not bolster conservation or pandemic preparedness. *The Lancet Planetary Health*, 4(6): 215–216. (also available at [https://doi.org/10.1016/S2542-5196\(20\)30123-6](https://doi.org/10.1016/S2542-5196(20)30123-6)).
- FAO.** 2020a. *Global emergence of infectious diseases: links with wild meat consumption, ecosystem disruption, habitat degradation and biodiversity loss* [online]. Rome, FAO. [Cited 24 September 2020]. <http://www.fao.org/documents/card/en/c/ca9456en>
- FAO.** 2020b. Members of the Collaborative Partnership on Sustainable Wildlife Management. In: *FAO* [online] Rome. [Cited 24 September 2020]. <http://www.fao.org/forestry/wildlife-partnership>.
- FAO.** 2015. *Sustainable Wildlife Management and Biodiversity*. CPW Fact Sheet 1. Rome, Italy. (also available at <http://www.fao.org/3/a-i5182e.pdf>).
- Garnett S.T., Burgess N.D., Fa J.E., Fernández-Llamazares A., Molnár Z., Robinson C.J., Watson J.E.M., Zander, K., Austin B., Brondizio E., Collier N.F., Duncan T., Ellis E., Geyle H., Jackson M.V., Jonas H., Malmer P., McGowan B., Sivongxay A., & Leiper I.** 2018. A spatial overview of the global importance of Indigenous lands for conservation. *Nature Sustainability*, 1: 369–74 [online]. [Cited 24 September 2020]. <https://doi.org/10.1038/s41893-018-0100-6>
- Gibb R., Redding D.W., Chin K.Q., Donnelly, T.M., Blackburn, T.N., & Jones, K.E.** 2020. Zoonotic host diversity increases in human-dominated ecosystems. *Nature*, (584): 398-402 [online]. [Cited 24 September 2020]. <https://doi.org/10.1038/s41586-020-2562-8>
- Gottdenker N.L., Streicker D.G., Faust C.L. & Carroll C.R.** 2014. Anthropogenic land use change and infectious diseases: a review of the evidence. *Ecohealth*, 11(4):619-632 [online]. [Cited 24 September 2020]. <https://doi.org/10.1007/s10393-014-0941-z>
- Johnson C.K., Hitchens P.L., Pandit P.S., Rushmore J., Evans T.S., Young C.C.W. & Doyle M.M.** 2020. Global shifts in mammalian population trends reveal key predictors of virus spillover risk. *Royal Society*, 287: 20192736 [online]. [Cited 24 September 2020]. <http://dx.doi.org/10.1098/rspb.2019.2736>
- Jones B.A., Grace D., Kock R., Alonso S., Rushton J., Said, M.Y., McKeever M., Mutua F., Young J., McDermott J. & Pfeiffer, D.U.** 2013. Zoonosis emergence linked to agricultural intensification and environmental change. *Royal Society*, 110(21): 8399–8404 [online]. [Cited 24 September 2020]. <https://doi.org/10.1073/pnas.1208059110>
- Jones, K.E., Patel, N.G., Levy, M.A., Storeygard, A., Balk, D., Gittleman, J.L. & Daszak, P.** 2008. Global trends in emerging infectious diseases. *Nature*, 451 (7181): 990–993 [online]. [Cited 24 September 2020]. <https://doi.org/10.1038/nature06536>

- Lam S.D., Bordin N., Waman V.P., Scholes H.M., Ashford P., Sen N., van Dorp L., Rauer C., Dawson N.L., Pang C.S.M., Abbasian M., Sillitoe I., Edwards S.J.L., Fraternali F., Lees J.G., Santini J.M. & Orenge C.A.** 2020. SARS-CoV-2 spike protein predicted to form complexes with host receptor protein orthologues from a broad range of mammals. *BioRxiv*. [online]. [Cited 24 September 2020]. <https://doi.org/10.1101/2020.05.01.072371>
- Lycett S.J., Duchatel F. & Digard P.** 2019. A brief history of bird flu. *Royal Society*, 374: 20180257. 993 [online]. [Cited 24 September 2020]. <http://dx.doi.org/10.1098/rstb.2018.0257>
- Leroy, E.M., Rouquet, P., Formenty, P., Souquière, S., Kilbourne, A., Froment, J-M. Bermejo M., Smit, S., Karesh W., Swanepoel R., Zaki, S.R. & Rollin, P.** 2004. Multiple Ebola Virus Transmission Events and Rapid Decline of Central African Wildlife. *Science*, 303(5656):387–390. [online]. [Cited 24 September 2020]. <https://doi.org/10.1126/science.1092528>
- Morse, S.S., Mazet, J.A.K., Woolhouse, M., Parrish, C.R., Carroll, D., Karesh, W.B., Zambrana-Torrel, C., Lipkin, W.I. & Daszak, P.** 2012. Prediction and prevention of the next pandemic zoonosis. *Lancet*, 380 (9857):1956–1965 [online]. [Cited 24 September 2020]. [https://doi.org/10.1016/S0140-6736\(12\)61684-5](https://doi.org/10.1016/S0140-6736(12)61684-5)
- Parrotta J.A., Wildburger C., Mansourian S., eds.** 2012. *Understanding Relationships between Biodiversity, Carbon, Forests and People: The Key to Achieving REDD+ Objectives*. A Global Assessment Report [online]. Vienna, Austria. International Union of Forest Research Organizations (IUFRO) [Cited 24 September 2020]. <https://www.fs.usda.gov/treearch/pubs/47822>
- Roe D. & Booker F.** 2019. Engaging local communities in tackling illegal wildlife trade: A synthesis of approaches and lessons for best practice. *Conservation Science and Practice*, 1(5):265 [online]. [Cited 24 September 2020]. <https://doi.org/10.1111/csp2.26>
- Ripple W.W., Newsome C., Galetti T., Alamgir M., Crist M., Mahmoud E., Laurance M., Alonso W.B. & Luis J.** 2017. World Scientists' Warning to Humanity: A Second Notice. *BioScience*, 67: 1026–1028 [online]. [Cited 24 September 2020]. <https://doi.org/10.1093/biosci/bix125>
- Secretariat of the Convention on Biological Diversity (SCBD).** 2020. *Global Biodiversity Outlook 5*. [online] Montreal. [Cited 30 September 2020]. <https://www.cbd.int/gbo/gbo5/publication/gbo-5-en.pdf>
- Settele D., Diaz S., Brondizio E., & Daszak P.** 2020. COVID-19 Stimulus Measures Must Save Lives, Protect Livelihoods, and Safeguard Nature to Reduce the Risk of Future Pandemics. In: *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services IPBES Expert Guest* [online] Bonn. [Cited 24 September 2020]. <https://ipbes.net/covid19stimulus>
- Vira B., Wildburger C., Mansourian S. eds.** 2015. *Forests, Trees and Landscapes for Food Security and Nutrition. Contributing to the "Zero Hunger Challenge. Policy Brief*. Vienna, Austria. International Union of Forest Research Organizations (IUFRO) (also available at https://www.cifor.org/publications/pdf_files/Books/BIUFRO1501.pdf).
- UNEP and ILRI.** 2020. *Preventing the Next Pandemic: Zoonotic diseases and how to break the chain of transmission*. Nairobi, Kenya. (also available at <https://wedocs.unep.org/bitstream/handle/20.500.11822/32316/ZP.pdf?sequence=1&isAllowed=y>).
- UN.** 2007. United Nations Declaration on the Rights of Indigenous Peoples. In: *United Nations* [online]. New York. [Cited 13 September 2020]. <https://www.un.org/development/desa/indigenouspeoples/declaration-on-the-rights-of-indigenous-peoples.html>
- White, L.A., Forester, J.D. & Craft, M.E.** 2018. Disease outbreak thresholds emerge from interactions between movement behaviour, landscape structure, and epidemiology. *Proceedings of the National Academy of Sciences*, 115 (28): 7374–7379 [online]. [Cited 24 September 2020]. <https://doi.org/10.1073/pnas.1801383115>
- Wilkinson D.A., Marshall J.C., French N.P. & Hayman D.T.S.** 2018. Habitat fragmentation, biodiversity loss and the risk of novel infectious disease emergence. *Royal Society*, 15(149): 20180403. [online]. [Cited 24 September 2020]. <http://dx.doi.org/10.1098/rsif.2018.0403>
- WHO.** 2020a. Coronavirus disease (COVID-19) pandemic. In: *World Health Organization* [online] Geneva. [Cited 24 September 2020]. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- WHO.** 2020b. WHO Manifesto for a healthy recovery from COVID-19, In: *World Health Organization* [online]. Geneva. [Cited 24 September 2020]. <https://www.who.int/news-room/feature-stories/detail/who-manifesto-for-a-healthy-recovery-from-covid-19>
- WHO.** 2017. One Health approach. In: *World Health Organization* [online]. Geneva. [Cited 24 September 2020]. <https://www.who.int/news-room/q-a-detail/one-health>
- WHO and CBD.** 2015. *State of Knowledge Review on Biodiversity and Health, Connecting Global Priorities: Biodiversity and Human Health*. [online]. Geneva. [Cited 24 September 2020]. <https://www.who.int/globalchange/publications/phe-pr.pdf?ua=1>

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