

Briefing

Biodiversity; Natural resource management

Key findings and recommendations from IIED and partner research and action for owners and managers of initiatives involving wild species



Issue date
March 2026

Key points

Use of wild species supports the livelihoods of billions of people. However, unsustainable use of these species is a key driver of biodiversity loss. The Global Biodiversity Framework includes targets to ensure the use of wild species is legal, sustainable and safe.

Sustainability is conventionally considered a three-dimensional concept, encompassing ecological, social and economic factors, but this does not factor in newer concerns around the interrelatedness of human, animal and environmental health.

An expanded concept of sustainability that explicitly considers human health, animal health and welfare, as well as legality can help a wide range of stakeholders to ensure wild species use is not just economically, ecologically and socially sustainable but also legal and safe.

A framework for assessing this revised concept has been developed and tested and is now ready to be rolled out to a wide variety of wild species uses and contexts.

Redefining sustainable use of wild species in a post-pandemic world: a five-dimensional assessment tool

Billions of people across the world use wild species for a wide variety of reasons and the sustainable use of wild species is an essential part of sustainable development. Yet some doubt whether the regulatory frameworks governing such use are strong enough. There are also concerns about the human and animal health and welfare implications of some forms of wild species use. This briefing outlines a novel, five-dimensional framework for assessing the sustainability of wild species use that takes these concerns into account. This includes a tool for assessing progress towards targets 5 and 9 under the Global Biodiversity Framework in ensuring that use of wild species is not just sustainable but also legal and safe.

The importance of ensuring sustainability of wild species use

People use wild species for a range of reasons, including for food, medicine, recreation and income (see Figure 1). It has been estimated that between 3.5 and 5.8 billion people (40–70% of the world's population) use tens of thousands of wild plant, animal and fungus species and products in raw and processed forms.¹ According to the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES), “70% of the world's poor are directly dependent on wild species”.²

IPBES therefore describes sustainable use of wild species as an essential part of sustainable development, without which the ability of governments, the private sector and community

actors to manage wildlife populations, incentivise conservation and meet the United Nation's (UN) Sustainable Development Goals would be at risk.³

Yet, unsustainable use of wild species is one of the key drivers of biodiversity loss. It is therefore critical that such use is sustainable. Indeed, sustainable use of biological resources – including wild species – is one of three pillars of the UN Convention on Biological Diversity (CBD), alongside conservation and equitable benefit sharing.⁴

There are concerns, however, about both the weakness of regulatory frameworks governing the sustainable use of wild species⁵ and the human and animal health and welfare implications of some forms of wild species use

– particularly since the outbreak of COVID-19.⁶ The Kunming-Montreal Global Biodiversity Framework (GBF), adopted in 2022, reflects these concerns, with Target 5 noting that the use of wild species should not just be sustainable but also safe and legal.⁷

While in most cases the legality of use may be relatively straightforward to determine, sustainability and safety are more difficult to assess.

Sustainability is most commonly described in terms of three dimensions: social, economic and environmental/ecological, often depicted as three nested or overlapping circles or three pillars. Some argue that this three-dimensional view of what is or is not sustainable is inadequate and that consideration should be given to other dimensions, including animal health and welfare⁸ and human health⁹.

These two issues are of course related, as evidenced in the 'safe' clause in the GBF Target 5 language. That was introduced in the second draft of the framework, the negotiations for which took place at the height of the COVID-19 pandemic, therefore reflecting an enhanced recognition of the risk of zoonotic diseases spilling over from animals to humans. The concept of 'safe' in this context resonates with that of 'One Health', which emerged based

on the observation that the health of humans, animals, plants and the wider environment is closely linked and interdependent, and needs to be addressed in a coordinated way.¹⁰

A five-dimensional concept of sustainability

To better reflect concerns about the human and animal health and welfare aspects associated with the use of wild species, IIED, Endangered Wildlife Trust, EPIC Biodiversity, the International Union for Conservation of Nature Sustainable Use and Livelihoods Specialist Group (IUCN-SULi) and TRAFFIC developed a novel, five-dimensional sustainability assessment framework (5DSAF) for wild species use.¹¹ Development of the framework was supported by a multidisciplinary expert advisory group, including experts in animal welfare, human health, ecological, economic and social sustainability, standards and certification, and wild species users/producers.

The 5DSAF consists of 42 principles – seven for each of the five dimensions and seven cross-cutting principles that are relevant to all five dimensions (for example, compliance with relevant local, national and international laws). The principles were derived from an analysis and synthesis of existing global, sectoral and species-specific standards, principles and guidelines. Each principle is assessed based on four indicators that identify how closely the use of wild species is aligned with the principle. Each indicator is associated with a score from 0–3, which indicate the following:

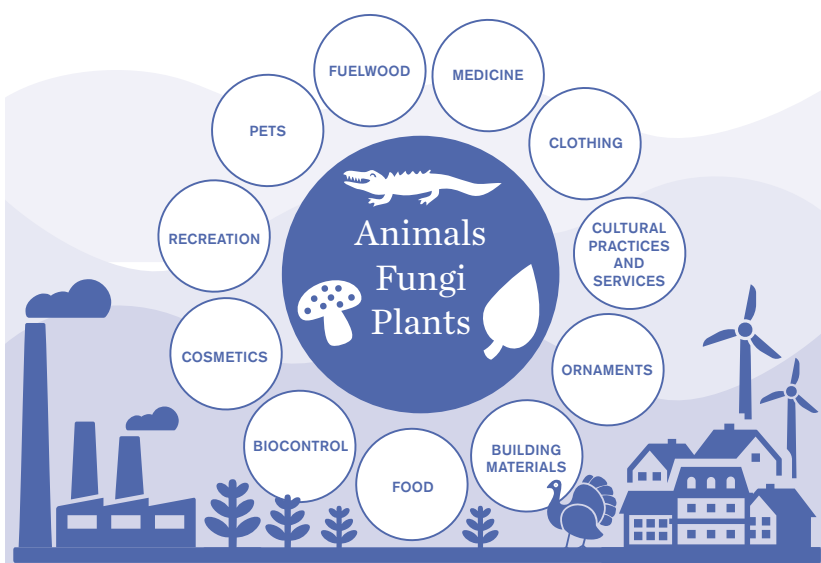
- 0 = no evidence of alignment with the principle (bad practice)
- 1 = evidence of some but insufficient alignment with the principle (emerging good practice)
- 2 = evidence for good overall alignment, albeit with some weaknesses (good practice)
- 3 = evidence that the provisions of the principle are met or even exceeded (best practice).

Figure 2, on the following page, presents a simplified version of this framework. Full details of the principles, criteria and how to apply the assessment framework can be found in a toolkit, available at: www.iied.org/22609iied

(Continues on page 4)






The 5DSAF has been designed to be applied to all wild species – animal, plant and fungi

Figure 1. The myriad purposes for which animals, fungi and plants are used



Source: image adapted from IUCN SULi

Figure 2. Summary of the 5D sustainability assessment framework

 Animal welfare	 Human health	 Ecological	 Social	 Economic
Access to food and water	Personal health, hygiene and biosecurity standards	System in place to govern scale and rate of use of target species	No harmful discrimination limiting involvement in species use	Business plan in place
Access to shelter, resting places and free movement	Biosecurity, hygiene and safety measures in animal handling facilities	Alignment with existing species conservation plans	Formal or customary access and use rights are respected	Appropriate enabling environment to ensure financial viability
Minimisation of pain stress and suffering in all procedures	Health and safety in activities involving wild species	No adverse effects on conservation status of the target species	Agreements with local communities based on free, prior and informed consent	Clear market for the product
Stocking densities that allow for normal behaviours	No sick, contaminated, decaying or toxic plants or animals enter human food chains	No adverse effects on other aspects of biodiversity/ environment	Visitor behaviour regulated on local communities' land	The specific type of use is more competitive than alternatives
No facilitation of disease or parasite transmission	Short and simple trade chains	No introduction or spread of invasive species or non-native species	Fair employment conditions and labour rights	The use contributes to local or national economy
Prompt treatment of health issues	Disease surveillance systems in place	Energy efficient, minimal waste and non-polluting practices employed	No undermining or displacement of local communities	Value chain understood and acceptable to those involved
Sufficient knowledge held by people working with animals	Appropriate training, equipment and work environment to ensure health and safety	No negative impact on areas/sites important for biodiversity	Contribution to the wellbeing of local communities	Sufficient revenue to invest in the maintenance of the resource
◀ Cross-cutting principles ▶				
Compliance with applicable local, regional, national and international law				
Application of relevant best practice guidance				
Monitoring and adaptive management				
Precautionary approach to risks				
Good governance				
Traceable supply chains				
Well-trained and knowledgeable personnel				

A more detailed version of this table is included in the [5DSAF toolkit](#). It can also be downloaded separately at: bit.ly/5d-assessment

Applying the framework

The 5DSAF has been designed to be applied to all wild species – animal, plant and fungi – and to a wide variety of uses at different scales, from individual enterprises, ranches or farms to an entire sector. Not all the principles are applicable to all species and all uses. For example, the entire animal health and welfare dimension of the framework is clearly not relevant to plants and fungi. This is taken into account when using the framework to assess a particular species use.

An Excel-based tool guides the assessment process. Each principle is allocated a score based on the four indicators. Once all the relevant principles in each dimension have been scored, the tool presents the results in the form of a radar chart that shows how the enterprise/initiative is performing against each dimension. While the radar chart provides a visual representation of areas where the enterprise/initiative is performing well and less well, the tool also provides space for users to record specific actions needed to improve performance against each principle.

There is no specific requirement as to how the assessment should be conducted. Much will depend on the context in which the wild species use takes place and the characteristics of the initiative that is being explored. For example, an individual owner/manager of an enterprise may decide to simply run through the tool in a desk-based exercise, as a checklist to inform management practices. In other cases, it may be

useful to bring a group of stakeholders together in a workshop to collectively go through the process. In a workshop scenario it may be useful for one person to conduct the assessment ahead of the workshop and then share the results and discuss and amend as needed, or it may be useful to complete the assessment collectively through the workshop process.

Looking ahead

The 5DSAF has been piloted in a number of different contexts: python harvesting in Indonesia; game ranching (for tourism, hunting and meat) in South Africa; game meat production in Tanzania; and crocodile farming and hunting in Zimbabwe.¹² The pilots provide proof of concept that the 5DSAF is: a) useful as a management tool at an enterprise/initiative level; b) meaningful for evaluating entire industry sectors; c) straightforward to apply; and d) offers insights into the 'safe' element of Target 5 of the GBF as well as the more conventional aspects of sustainability and legality.

Although currently designed as a self-assessment tool, it is hoped that over time the 5DSAF will become the gold standard that government, private sector and civil society actors use to assess the sustainability, legality and safety of all value chains for wild species and products.

Dilys Roe and Anastasiya Timoshyna

Dilys Roe, principal researcher, IIED; Anastasiya Timoshyna, director – Europe, TRAFFIC. The authors would like to thank Monica Lopez Conlon and Vanessa Tyaba of the United Nations Environment Programme (UNEP) for reviewing this briefing.



Knowledge Products

IIED's mission is to build a fairer, more sustainable world, using evidence, action and influence in partnership with others.

Contact

Dilys Roe
dilys.roe@iied.org

44 Southampton Buildings
London, WC2A 1AP
United Kingdom

Tel: +44 (0)20 3463 7399
www.iied.org

IIED welcomes feedback
via: www.linkedin.com/company/iied

ISBN: 978-1-83759-152-7



The project to develop the 5DSAF was funded by the UK government through the Darwin Initiative. Production of this publication was supported by UNEP through funding received from the government of Finland. The views expressed herein are those of the authors and do not necessarily reflect the views of UNEP, the UN, or the governments of Finland or the UK.

Notes

¹ Shackleton, CM and de Vos, A (2022) How many people globally actually use non-timber forest products? *Forest Policy and Economics*, 135, 102659. doi:10.1016/j.forpol.2021.102659. / ² Fromentin, JM, Emery, MR, Donaldson, J, Danner, M-C, Hallosserie, A and Kieling, D (eds) (2022) Thematic Assessment Report on the Sustainable Use of Wild Species of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES secretariat, Bonn. doi:10.5281/zenodo.6448567. / ³ See note 2. / ⁴ Convention on Biological Diversity (CBD), The Convention on Biological Diversity, www.cbd.int/convention/text. Accessed 12 May 2025. / ⁵ Macdonald, DW, Harrington, LA, Moorhouse, TP and D'Cruze, N (2021) Trading Animal Lives: Ten Tricky Issues on the Road to Protecting Commodified Wild Animals, *BioScience*, 71(8), pp.846–860. doi:10.1093/biosci/biab035. / ⁶ Wyatt, T, Maher, J, Allen, D, Clarke, N and Rook, D (2022) The welfare of wildlife: an interdisciplinary analysis of harm in the legal and illegal wildlife trades and possible ways forward, *Crime, Law and Social Change*, 77, pp.69–89. doi:10.1007/s10611-021-09984-9. / ⁷ CBD (2022) Kunming-Montreal Global Biodiversity Framework. Conference of the Parties to the CBD, 15th meeting – Part II, Montreal, Decision 15/4. / ⁸ Broom, DM (2019) Animal welfare complementing or conflicting with other sustainability issues, *Applied Animal Behaviour Science*, 219, 104829. doi:10.1016/j.applanim.2019.06.010. / ⁹ National Academy of Sciences (2013) Public Health Linkages with Sustainability: Workshop Summary. Roundtable on Environmental Health Sciences, Research, and Medicine; Board on Population Health and Public Health Practice; Institute of Medicine. National Academies Press, Washington DC. Ch. 2. / ¹⁰ Tripartite and United Nations Environment Programme (UNEP) (2021) Tripartite and UNEP support OHHLEP's definition of "One Health". Joint statement, 1 December. / ¹¹ IIED, Endangered Wildlife Trust, EPIC Biodiversity, IUCN-SULi and TRAFFIC (2025) Five-dimensional sustainability assessment: a tool for assessing if wild species use is sustainable, legal and safe. IIED, London. / ¹² Timoshyna, A, Roe, D, Aust, P, Compton, J, Hiller, C, Kagembe, Q, Long, N, Natusch, D, Taylor, WA and K. Rock (2025) Safe, sustainable, legal use and trade in wild species: testing a new five-dimensional sustainability assessment, *One Health*, 21, 101245. doi:10.1016/j.onehlt.2025.101245.

FIND OUT MORE

Our work on this topic was undertaken as part of IIED's 'Developing and testing a sustainability assessment framework for wildlife use' project, run in partnership with Endangered Wildlife Trust, EPIC Biodiversity, IUCN-SULi and TRAFFIC. Find out more about our work on sustainable wildlife use at www.iied.org/assessing-sustainability-wild-species-use

