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Messages relevant in East-Central and Central Europe related to traditional, indigenous and local knowledge in the Global, and the Europe and Central Asia Assessments of IPBES

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Abstract: The Global Assessment on Biodiversity and Ecosystem Services released in May 2019 by the United Nations' Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) acknowledged that nature conservation could become more efficient with the inclusion of traditional, indigenous and local knowledge, and the participation of holders of these knowledges. This article provides a summary of key messages supporting this reasoning and recommendation specifically relevant for the East-Central and Eastern European regions. We drew upon multiple sources of evidence (assessments, scientific publications and grey literature). We interpreted these sources from the perspective of and relevance to our regions. We also collated original quotations (*in italics*) to help, among others, local policy makers, practitioners, students and the wider public to find and understand these messages. All quotes were translated into Hungarian in the main part of the article to help non-English speaking Hungarian readers.

“This is like home, you can't tell it. It has to be felt. This is the single sentence you can say. You don't have to add anything else. In springtime when you go out and smell the fresh air, it can not be told, the feeling of how wonderful it is.” (Sándor Barta, cattle herder, in Kis et al. 2017, the opening quote of the 2nd chapter of the Regional assessment report on for Europe and Central Asia, Martín-López et al. 2018)

Introduction

The United Nations' Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) published its Global Assessment on Biodiversity and Ecosystem Services in May 2019 (IPBES 2019a,b). The IPBES assessments are the first regional and global assessments that use not only evidence coming from natural and social sciences, but are also strongly based on local and traditional ecological knowledge of Indigenous Peoples and local communities. These assessments argue that the knowledge systems and the traditional extensive land-use practices of Indigenous Peoples and local communities often actively and positively contribute to biodiversity and its conservation, but also can help us change our behaviour and move towards more sustainable ways of using

our natural heritage and natural resources (Díaz *et al.* 2018). In this paper we summarize the key messages of the Global Assessment (GA, IPBES 2019a, b) and the Europe and Central Asia Regional Assessment (ECA, IPBES 2018a,b, including some of their particular chapters (Elbakidze *et al.* 2018, Martín-López *et al.* 2018, Purvis *et al.* 2019) and the Indigenous and local knowledge dialogue proceeding volume for Europe and Central Asia (Roué & Molnár 2017), focusing on those messages that are related to Indigenous and Local Knowledge and Indigenous Peoples and local communities and are relevant in Central and Eastern Europe.

The structure and style of the paper is a bit unusual because it is dominated by original quotes. Our main goal is to select and show the main results and conclusions of the IPBES ECA and GA assessments in their original wording, to help the readers find the most relevant messages of these extensive reports. The other goal of the paper is to put these messages into a Central and Eastern European context, to help the regional and local utilization of the reports.

The Global Assessment (IPBES 2019a,b) provides a brief summary of status and trends of nature on areas managed and used by Indigenous Peoples and local communities, their drivers and consequences on local livelihoods: “*Nature managed by indigenous peoples and local communities is under increasing pressure. Nature is generally declining less rapidly in indigenous peoples’ land than in other lands, but is nevertheless declining, as is the knowledge of how to manage it. At least a quarter of the global land area is traditionally owned, managed, used or occupied by indigenous peoples. These areas include approximately 35 per cent of the area that is formally protected, and approximately 35 per cent of all remaining terrestrial areas with very low human intervention [see in detail: Garnett *et al.* 2018]. In addition, a diverse array of local communities, including farmers, fishers, herders, hunters, ranchers and forest-users, manage significant areas under various property and access regimes. Among the local indicators developed and used by indigenous peoples and local communities, 72 per cent show negative trends in nature that underpin local livelihoods and well-being [see in detail: Purvis *et al.* 2019]. The areas managed (under various types of tenure and access regimes) by indigenous peoples and local communities are facing growing resource extraction, commodity production, mining and transport and energy infrastructure, with various consequences for local livelihoods and health. Some climate change mitigation programmes [e.g. afforestations, energy crops] have had negative impacts on indigenous peoples and local communities. The negative impacts of all these pressures include continued loss of subsistence and traditional livelihoods from ongoing deforestation, loss of wetlands, mining, the spread of unsustainable agriculture, forestry and fishing practices and impacts on health and well-being from pollution and water insecurity. These impacts also challenge traditional management, the transmission of indigenous and local knowledge, the potential for sharing of benefits arising from the use of, and the ability of indigenous peoples and local communities to conserve and sustainably manage, wild and domesticated biodiversity that are also relevant to the broader society*” (IPBES 2019a).

The authors of the Global Assessment emphasize that “*A wide diversity of traditional practices actively and positively contribute to wild and domestic biodiversity through «accompanying» natural processes with anthropogenic assets (knowledge, practices and technology). Indigenous peoples often manage the land and coastal areas based on culturally specific world views, applying principles and indicators such as the health of the land, caring for the country and reciprocal responsibility. As lifestyles, values and external pressures change with globalization, however, unsustainable practices are becoming increasingly common in certain regions*” (IPBES 2019a). The following list aims to illustrate, not represent, the types and diversity of the contributions of Indigenous Peoples and local communities to biodiversity and its conservation (for more information see Figure 5 in IPBES 2019a):

- domestication and maintenance of locally adapted crop and fruit varieties and animal breeds;
- creation of species-rich habitats and high ecosystem diversity in cultural landscapes (e.g., hay meadows, wood-pastures);
- identification of useful plants and their cultivation in high-diversity ecosystems (e.g., multi-species tropical forest gardens);
- management and monitoring of wild species, habitats and landscapes for wildlife and for increased resilience (e.g., aboriginal burning);
- restoration of degraded lands;
- preventing deforestation in recognized indigenous territories (e.g., the Amazon region); furthermore
- providing alternative worldviews on the relation between humankind and nature.

What is traditional knowledge and what is its role in heritage protection, identity and sustainability?

“Indigenous peoples and local communities hold distinct knowledge about nature and its contributions to people (a related term to ecosystem services, Díaz et al. 2018) that have significant value for many local communities” (IPBES 2018a,b) and for the majority of our societies, too. The Global Assessment argues that *“Indigenous and local knowledge systems are locally based, but regionally manifested and thus globally relevant”* (IPBES 2019a,b).

IPBES uses the term Indigenous and Local Knowledge (ILK) to refer to space-based knowledges, practices and worldviews and argues that such knowledge can provide information, methods, theory and practice for sustainable ecosystem management, in intellectual, physical and spiritual terms. The Convention on Biological Diversity uses (since 1992) the term traditional knowledge (TK) or traditional ecological knowledge (TEK). In the countries of Central and Eastern Europe, indigenous and local knowledge (ILK) and traditional ecological knowledge (TEK) can be regarded as more or less synonymous (Molnár *et al.* 2008), and we recommend the use of the latter term (cf. Berkes *et al.* 2000).

In Europe, we have a wide range of experiences how local communities ((semi-)traditional and long-settled multi-generational farmers, herders and fishers pursuing extensive land and water management) and their traditional knowledge and practices contributed and still contribute to the development of our natural and biocultural heritage (for example, Gugič 2009, Fernández-Giménez and Estaque 2012, Molnár 2012, Bürgi *et al.* 2013, Babai *et al.* 2014, Hernández-Morcillo *et al.* 2014, Kis *et al.* 2017).

“There has been, however, a loss of indigenous and local knowledge about ecosystems and species.” “ECA Authors (IPBES 2018a,b) argue that *“Seven [out of 18] of nature’s contributions to people [see more details on this new term in Díaz et al. 2018] are known to be declining in Europe and Central Asia, in particular regulating contributions and learning derived from indigenous and local knowledge”,* and there is a *“loss of food-related indigenous and local knowledge”,* too, despite being indispensable for daily subsistence. Authors also emphasize that *“the knowledge and customary practices of indigenous peoples and local communities also enhance people’s quality of life by fostering cultural heritage and identity.”* Consequently, *“the decline of indigenous and local knowledge has negatively impacted on the heritage and identity of indigenous peoples and local communities [in Europe and Central Asia].”* They conclude that we need to develop *„robust and inclusive decision-making processes that facilitate the positive contributions of indigenous peoples and local communities to sustainability by incorporating locally attuned management systems and indigenous and local knowledge”* (IPBES 2018a,b).



Figure 1. Knowledge co-production with herders. The IPBES Global Assessment is the first global evaluation of status and trends of biodiversity and ecosystem services and their consequences on nature's contributions to people and human well-being that strategically involved the traditional, indigenous and local knowledge of people living in close contact with nature and managing nature for local livelihoods for many generations. Knowledge co-production with farmers and herders is an effective way to develop locally, culturally and ecologically appropriate conservation management regimes (Babai *et al.* 2015, Molnár *et al.* 2016, Varga *et al.* 2016a) (photo: Ábel Molnár, Nyírség, Hungary, 2014, and Kiskunság, Hungary, 2016)

Traditional land management for sustainability, nature conservation and restoration

“The land area, where traditional practices are still applied has substantially decreased in many regions of Europe and Central Asia (Rotherham 2007) as a result of socioeconomical changes and land-use intensification. However, many practices have survived on marginal lands, in protected areas, or as a result of socio-cultural preferences (Juler 2014, Lieskovský et al. 2014, Molnár et al. 2016).” “Production-based subsidies have driven growth in agriculture, forestry and natural resource extraction, but this often impinges on traditional land users. The loss of traditionally managed semi-natural habitats has resulted in a decline and loss of associated biodiversity and ecosystem functions. Demographic trends, including urbanization, continue to diminish indigenous and local communities, with concomitant negative impacts on traditional landuse knowledge, culture and identities.” “Ceasing traditional land use reduces semi-natural habitats of high conservation value and associated indigenous and local knowledge and practices” (Elbakidze et al. 2018).

Local communities are monitoring many of these changes in nature, society and land management (Roué & Molnár 2017, Reyes-García *et al.* 2019). In spite of this, the ECA Assessment contains only limited information on how local communities themselves perceive the deterioration of biodiversity in their home landscapes. Scenarios developed by local traditional knowledge holders and experts is also missing from the assessment. One of the lessons of the IPBES assessments is that effective and ethical knowledge co-production by scientists and local knowledge holders is a challenge especially for scientists not familiar with indigenous and local knowledge and value systems (Ulicsni *et al.* 2019). At the same time, the IPBES assessments made a significant progress in improving knowledge co-production and knowledge syntheses at the regional and global levels.

Conflicts around conservation have a long history. *“A major factor affecting the establishment or successful management of protected areas in Europe and Central Asia relates to the manner in which they navigate local use conflicts arising as a result of protection status and management (Babai et al. 2015). Protected area governance and management regimes are often characterized as top-down with low levels or quality of public participation; inflexible responsible authorities and insufficient consideration of the local context; engendering negative public perceptions; and resistance amongst members of local communities (Blicharska et al. 2016; Carrus et al. 2005; Elbakidze et al. 2013; Grodzinska-*

Jurczak & Cent, 2011; Mathevet et al. 2016)” (Elbakidze *et al.* 2018). Many of these conflicts could be avoided or resolved if we knew more about local communities, about their ecological knowledge and attitudes towards nature and conservation (Kelemen *et al.* 2013, Kalóczkai *et al.* 2015, Molnár *et al.* 2016, Babai *et al.* 2017, Juhász *et al.* 2017, Kovács *et al.* 2017, Mihók *et al.* 2017).

“The mutual dependence of extensive land use and conservation management has become apparent in the last 20-30 years. Small-scale extensive land use often survives in protected areas only, in the form of conservation management, and is largely side-lined in regulatory frameworks. Regulations introduced to protect such areas often apparently do not consider local world views, or the effects of local practices. This results in the restriction of local people’s activities (Babai et al. 2015, Molnár et al. 2016) and conflict between locals and the protected area’s authority (Kelemen et al. 2013). The adoption of a more integrated, participatory approach to the governance and management of protected areas is suggested as a potential remedy to local use conflicts, particularly in protected areas established in cultural, small-scale, or indigenous landscapes. There is a need for «hybrid people» who have knowledge of traditional practices and world views, as well as of mainstream nature conservation ideas (Molnár et al. 2015). Additionally, the introduction of agroenvironmental schemes in protected areas can mitigate the loss of traditional management practices and so prevent biodiversity loss accompanying land abandonment (Babai et al. 2015). One approach might be for landscape- and culturally-specific agricultural regulatory frameworks and subsidy systems that include local and traditional knowledge to produce tailored local solutions that respect the strong link between natural and cultural capital (Molnár & Berkes 2017)” (Elbakidze *et al.* 2018).

How traditional knowledge can help management and policy?

Conservation management of our national parks and other protected areas in East Central Europe is well developed if compared to other regions of the world (Mihók *et al.* 2017). However, there are still many problems to solve, for example,

- how to help the sustainable use of high nature-value areas in cultural landscapes,
- how to improve livelihoods of local communities in these landscapes without jeopardizing biodiversity,
- how to use local traditional knowledge in conservation,
- how to assess and prevent loss of local knowledge on nature ((e.g., in a concrete area see Molnár 2011a,b, 2012a,b,c, 2015),
- how to help the further development and adaptation of these local knowledges in the context of global changes, and
- how to improve communication, trust and respect between nature conservation practitioners and local landscape stewards (e.g. farmers, herders) (Agnoletti 2006, Fischer *et al.* 2012, Oteros-Rozas *et al.* 2013, Varga *et al.* 2016b, Demeter 2017, Molnár & Berkes 2018, Biró *et al.* 2019, Reyes-García *et al.* 2019).

The Europe and Central Asia Regional Assessment argues that *“The practices and knowledge of indigenous peoples and local communities in Western and Central Europe have continued to decline since the 1960s and have often not been fully respected or even marginalized, in contrast to [Aichi Biodiversity] Target 18 (traditional knowledge respected).”* (IPBES 2018a,b). *“While some instruments of the European Union Common Agricultural Policy support extensive management practices, others are less well suited to, or implemented by, particularly, Central European countries of the European Union, to support indigenous and local knowledge and practices of small and semi-subsistence farms in high nature value farmland”* (IPBES 2018a,b).

ECA authors further argue that *“The economic viability of indigenous and local communities can be supported by green tourism, demand for products derived from traditional practices and subsidies for traditional land uses.”* *“Agri-environmental schemes, ecological restoration and sustainable approaches to agriculture, such as agroecology and agroforestry, mitigate some of the adverse effects of intensive agriculture.”* (IPBES 2018a). We would add that respect for local knowledgeable farmers, herders and fishers and knowledge co-production with them on topics key to conservation could efficiently help human well-being of local communities and the maintenance and application of their knowledge for sustainable use of biodiversity (Meuret & Provenza 2014, Fabók et al. 2015, Kovács et al. 2016, Molnár et al. 2016, Varga et al. 2016a).

ECA authors also found that *“Enhanced implementation through participatory planning, knowledge management and capacity-building (Strategic Goal E) has been positive where the Aichi Biodiversity Targets [a set of 20 global targets under the Strategic Plan for Biodiversity 2011–2020] have informed the development of national-level targets. This has not been achieved, however, where indigenous and local knowledge and practices have declined or not been fully respected in relation to traditional land use”* (IPBES 2018a). Knowledge co-production between conservation practitioners, local farmers, herders and fishers and scientists to maintain, adapt or develop locally adaptive and culturally appropriate biodiversity management practices is an efficient way of knowledge management and participation. Conservation rangers are in a position to efficiently help this knowledge co-production (Varga et al. 2016a) and can contribute to reciprocal learning between science and local traditional knowledge (see the term: ‘conservation herder’, Molnár et al. 2016). Using both science and traditional knowledge to assess status and trends of biodiversity and nature’s contributions to people is one of the main objectives of the IPBES assessments (Díaz et al. 2018).

ECA authors argue that *“While decisions by multilateral environmental agreements are implemented at the national level, the recognition of human rights, and in particular the rights of indigenous peoples, in relation to sustainable use of biodiversity varies considerably between countries in Europe and Central Asia. Further efforts would be required for the full integration of the fundamental principles of good governance; equalizing power relations and facilitating capacity building”* (IPBES 2018a). Rights-based approaches and customary norms are the least developed and applied instrument category, indicating knowledge gaps or possibly a lack of attention or even acknowledgement to indigenous and local knowledge and practices. Authors add that *“the erosion of indigenous and local knowledge and the associated decline in sustainable traditional land use threatens the region’s contribution to accomplishing Goal 2 and Goal 4 (zero hunger and quality education).”* They emphasize the need to *“promote and strengthen community-based management and governance, including customary institutions and management systems, and co-management regimes involving indigenous peoples and local communities”* (IPBES 2018a,b).



Figure 2. Traditionally managed hay meadows in Gyimes (Eastern Carpathians). European Union and national-level agricultural regulations and subsidies often aim to support traditional management of species-rich cultural landscapes in Natura 2000 areas and other protected areas, but may have detrimental impacts on local management if developed and controlled without the proper understanding of the local socio-ecological systems and without knowledge co-production with local farmers (Babai *et al.* 2015, Molnár *et al.* 2016, photo: Abel Molnár, Gyimes, Romania, 2014)

Key knowledge gaps

The Europe and Central Asia Assessment identified 8 groups of knowledge gaps. Two of these explicitly refer to traditional knowledge:

“Gaps in our understanding of the contribution of indigenous and local knowledge: *Little research has been conducted on the integration of indigenous and local knowledge into national and international policy frameworks and initiatives to create synergies across knowledge systems. These knowledge gaps exist not only for biodiversity, but also in sectors of direct relevance to biodiversity, such as agriculture, forestry, fisheries, water and climate change”* (IPBES 2018a,b).

“Gaps in our understanding of nature’s contributions to people: *There is a need for better understanding, quantification and integrated monitoring of the diverse values of nature’s contributions to people. Moreover, there is limited understanding of how these diverse values are endorsed by different social groups and genders. Indigenous and local knowledge systems and scientific knowledge could coproduce such understanding in the future”* (IPBES 2018a,b).

Why does all this matter?

“Areas of the world projected to experience significant negative effects from global changes in climate, biodiversity, ecosystem functions and nature’s contributions to people are also home to large concentrations of indigenous peoples and many of the world’s poorest communities. Because of their strong dependency on nature and its contributions for subsistence, livelihoods and health, those communities will be disproportionately hard hit by those negative changes. Those negative effects also influence the ability of indigenous peoples and local communities to manage and conserve wild and domesticated biodiversity and nature’s contributions to people. Indigenous peoples and local communities have been proactively confronting such challenges in partnership with each other and with an array of

other stakeholders, through co-management systems and local and regional monitoring networks and by revitalizing and adapting local management systems. [Despite these,] regional and global scenarios lack an explicit consideration of the views, perspectives and rights of indigenous peoples and local communities, their knowledge and understanding of large regions and ecosystems and their desired future development pathways” (IPBES 2019a,b).

Furthermore, authors of the Global Assessment argue that “*transformations towards sustainability are more likely when efforts are directed at the following key leverage points, where efforts yield exceptionally large effects.*” Among these authors list several that are directly linked to Indigenous Peoples and local communities and their management practices: “*ensuring inclusive decision-making*”, “*adherence to human rights in conservation decisions*”, and “*promoting education, knowledge generation and maintenance of different knowledge systems, including the sciences and indigenous and local knowledge regarding nature, conservation and its sustainable use*” (IPBES 2019a,b).

“*Recognizing the knowledge, innovations and practices, institutions and values of indigenous peoples and local communities and their inclusion and participation in environmental governance often enhances their quality of life, as well as nature conservation, restoration and sustainable use, which is relevant to broader society. Governance, including customary institutions and management systems, and co-management regimes involving indigenous peoples and local communities, can be an effective way to safeguard nature and its contributions to people, incorporating locally attuned management systems and indigenous and local knowledge. The positive contributions of indigenous peoples and local communities to sustainability can be facilitated through national recognition of land tenure, access and resource rights in accordance with national legislation, the application of free, prior and informed consent, and improved collaboration, fair and equitable sharing of benefits arising from the use, and co-management arrangements with local communities*” (IPBES 2019a,b).

Conclusions

Many high nature-value ecosystems need active management in Central and Eastern Europe, for example, almost all meadows, most formerly or presently pastured grasslands and some open woodland and some marshland types (Halada *et al.* 2011, Babai *et al.* 2014, Öllerer 2014, Varga *et al.* 2016a, Biró *et al.* 2019). Traditional management practices – with some necessary modifications – are often suitable for conservation management (Fisher *et al.* 2012, Varga *et al.* 2016a, Biró *et al.* 2019).

In many countries of the region indigenous and local knowledge / traditional ecological knowledge is still widely applied especially in marginal landscapes with low agricultural potential, where often protected areas are also situated (Roué & Molnár 2017). In many protected areas people still actively farm or graze livestock (Molnár 2012, Varga *et al.* 2016b). In these cultural landscapes special regulations are needed to achieve management that is culturally appropriate, sustainable and as beneficial to biodiversity as possible. These regulations can be built on common interests between conservation and local resource management.

In many countries and landscapes in our region traditional management is disappearing but the related indigenous and local knowledge / traditional ecological knowledge still exists as part of social memory (ecological memory of the older generations). These memories can be highly useful to help reconstruct local landscape history, changes in land use and in ecosystems and help develop adequate conservation management practices (Molnár *et al.* 2016, Varga *et al.* 2016b).

Traditional and local knowledge is often well respected in our region, well studied and documented (for example, knowledge related to traditional handicrafts, folk medicine, folk music and folk dancing, traditional customs and feasts) but the ecological aspects of local

and traditional knowledge is usually much less recognized, respected, studied and documented (Molnár *et al.* 2008). As time is passing, we are losing many of the active practitioners and people having living ecological memories. This can reduce the ecological resilience of these landscapes by decreasing the available local biodiversity-related information for planning and executing conservation management.

To conclude, we hope that the IPBES Global Assessment, and the Europe and Central Asia Assessment will contribute to a higher recognition of local traditional knowledge holders, better co-production of knowledge between science and local knowledge, while helping us achieve a better management of our natural and biocultural heritage and drive progress towards a more sustainable future.

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