

## Ecological Connectivity in the Post-2020 Global Biodiversity Framework

### Background

The 48th Meeting of the CMS Standing Committee (2018) endorsed the establishment of a Working Group on the development of CMS Family contributions to the post-2020 Global Biodiversity Framework. The Working Group has met twice to date, on 25 October 2018 and 18 November 2019. It is composed of members of the CMS Standing Committee, members of the Sessional Committee of the CMS Scientific Council, NGOs and the Secretariats of the CMS Family instruments, thus involving both scientific and policy perspectives.

The Working Group highlighted the importance of the post-2020 Framework addressing international cooperation and coordination, and the need to reflect CMS priorities in a range of potential future targets. The Working Group also determined that the conservation needs of migratory species can be best represented in the post-2020 Global Biodiversity Framework through the concept of **ecological connectivity**.

The discussions of the Working Group have been complemented by collaboration with other experts who are working in the area of ecological connectivity. This includes two informal meetings on connectivity convened in Bonn, by the CMS and the IUCN Beyond the Aichi Targets Task Force in May 2019 and November 2019, which included members of the Working Group, the Connectivity Conservation Specialist Group of the IUCN World Commission on Protected Areas, and other experts. The lists of participants of this year meetings are available at.

- [First Informal Meeting on Connectivity, 7 May 2019](#)
- [Second Informal Meeting on Connectivity, 11 November 2019](#)
- [Second Meeting of the WG on the CMS Family inputs to the post-2020 framework, 18 November 2019](#)

Outcomes of the discussions in both the informal meeting and the meeting of the Working Group include:

- 1) a definition of ecological connectivity,
- 2) agreement that connectivity should be reflected in the post-2020 global biodiversity framework as both a **stand-alone target**, and **also integrated into other relevant targets**,
- 3) a proposal for a standalone target and proposals for elements in other targets,
- 4) the post-2020 framework should include **commitments to international cooperation**, and **NBSAPS should include reference to other biodiversity-related Conventions**.

## Definition of ecological connectivity

The agreed definition is as follows:

**“Ecological Connectivity is the unimpeded movement of species and the flow of natural processes that sustain life on Earth”.**

The definition is accompanied by some supporting points that illustrate its key features, including points relating it to the specific context of individual MEAs. These supporting points are an open-ended list of examples that can be expanded and adapted as the context requires. At present they include the following:

*Ecological connectivity encompasses:*

- The conditions that are needed to support the movement of individuals and populations of species and the flow of natural processes on land, in the air and at sea;
- A central principle for ensuring ecological interlinkages and ecosystem services in line with social and cultural connections with nature, traditional knowledge systems, and the needs of human development;
- The conservation of existing intact ecosystems and the restoration of ecological integrity in ways that support the natural movements of animals;
- The conservation and recovery of species and ecosystem integrity in ways that support integrated risk management, including ecosystem-based approaches to climate change mitigation and adaptation, as well as disaster risk reduction.
- Connections across space and time;
- Connections facilitated by ecological networks and ecological corridors;
- Connections that are the basis for particular ecosystem services that benefit people;
- Connections that make animal migration possible;
- Connections that make pollination, dispersal, genetic mixing, hydrological cycling and other vital environmental processes possible;
- Connections within and across national borders;
- Connections that involve people and require cooperative approaches at all levels.

*Other particular contextual amplifications can be added, for example:*

In the CBD context, this particularly includes *(for example)*:

- An approach for contributing to the achievement of all three CBD objectives in terms of:
  - conserving species by allowing movements and adaptation to environmental change, and addressing threats created by obstacles to movement;
  - safeguarding ecosystem services and functions that make important contributions to human survival; and
  - fostering sustainable development by supporting the functioning of agriculture, forestry and fisheries, as well as recreational and cultural activities.

In the CMS context, this particularly includes *(for example)*:

- Systems that maintain the cyclical and predictable movements of animals through and between areas which may or may not be contiguous;
- An expression of conservation objectives in terms of whole migration systems and functionality of the migration process itself, not just the status of populations or habitats.

In the context of the Ramsar Convention on Wetlands, this particularly includes (for example):

- Hydrological connectivity at the river basin/river catchment scale;
- Scaled up wetland ecosystem restoration, linked to the UN Decade on Ecosystem Restoration 2021-2030.

In the UNFCCC context, this particularly includes (*for example*):

- Internationally-coordinated nature-based solutions incorporating ecological connectivity, as a holistic and essential component of the overall global efforts for climate change mitigation, resilience and adaptation.

In the UNCCD context, this particularly includes (*for example*):

- Actions designed to achieve targets for Land Degradation Neutrality (maintaining or enhancing the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security).

In the ABNJ context, this particularly includes (*for example*):

- Delivery of the ecosystem approach for the conservation and sustainable use of marine biodiversity beyond national jurisdiction;
- Geographical linkages of individuals and populations throughout their migratory cycles in areas beyond national jurisdiction.

## A “standalone” target on ecological connectivity

The discussions referred to above, having considered several options for ways in which connectivity could/should feature in the post-2020 Framework, favoured the development of a “standalone” target, complemented by inclusion of connectivity in other parts of the post-2020 Framework.

A proposed standalone target on connectivity reads as follows:

**“Coordinated approaches for maintaining and restoring ecological connectivity are integrated into national and local planning and management processes, and international cooperation, leading to improved conservation status of species, habitats and genetic diversity”.**

Several other suggestions were highlighted in this context. These could be addressed either through notes/guidance on interpretation of the elements in this target, or through associated “sub-targets”, or both. Issues of measurement of progress towards achievement of the target were also raised, and these should be re-visited when attention turns to the development of indicators. The points include, for example:

- Ecological connectivity should be strengthened by (*inter alia*) including (x) % of the world in ecological networks or other spatial planning arrangements that maintain ecological connectivity. (Sub-target).
- Halting species population declines and improving the status of threatened species through improvements in ecological connectivity, including through international cooperation. (Sub-target – links also to possible successor targets to Aichi Target 12 on species conservation).
- International cooperation to promote ecological connectivity is integrated into [at least 50%] of legal and policy measures to preserve, manage, and restore ecosystems and species, at the national and local levels. (Sub-target).

- Ecological connectivity is restored, sustained and integrated in landscapes and seascapes through effective policy and conservation measures implemented at local, national, regional, and international levels. (Sub-target).
- “Structural and functional ecological connectivity is maintained, enhanced and restored”. (Suggested wording that could be incorporated in a sub-target).
- All countries have put in place measures that promote ecological connectivity to ensure effective conservation and management of migratory species. (Sub-target).
- Human activities are planned and implemented in ways that maintain and/or restore the conditions for ecological connectivity. (Sub-target).
- At least 30% of the world is covered by well-connected systems of protected areas and Other Effective Area-Based Conservation Measures (OECMs), and managed, where appropriate, as ecological networks. (Sub-target)
- Elaboration of what is envisaged by “processes”. (Guidance).
- Measuring coverage of the world by “well-connected” conserved areas (as for existing Aichi Target 11). (Indicators).

### Opportunities for better reflecting ecological connectivity in other potential targets under consideration

A selection of themes and possible targets has been identified for reflecting connectivity. These include: **habitats, species, land-use change and climate change.**

Following the structure set out for SBSTTA 23 in document CBD/SBSTTA/23/2/Add.4, the priorities are grouped as follows:

*Under the theme “Biodiversity and conservation outcomes”:*

- **Habitats**
- **Species**

*Under the theme “Direct drivers”:*

- **Land-use change**
- **Climate change**

Suggestions on these were as follows:

Target topic	How connectivity could/should feature in new/revised targets
<b>Biodiversity and conservation outcomes</b>	
<b>Habitats</b>	<p><b><i>Reducing habitat loss</i></b></p> <ul style="list-style-type: none"> <li>• If <b>Aichi Target 5</b> is used as a basis for this, it should be amended to read (red text is proposed insertion); “The rate of loss of all <b>ecologically connected</b> natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced”.</li> </ul> <p><b><i>Area-based measures</i></b></p> <ul style="list-style-type: none"> <li>• <b>Aichi Target 11</b> is viewed as an inadequate basis for a future target on this. The suggestion is for a new target (or a main target plus sub-targets) that could lead with the outcome (i.e. “biodiversity is effectively conserved by...”) and would potentially address some or all of the following elements: <ul style="list-style-type: none"> <li>- The quality, integrity, resilience, functioning and connectivity of habitats in general (not just protected areas and OECMs).</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>- Maintenance, enhancement and restoration of structural and functional ecological connectivity of habitats.</li> <li>- Establishment, protection, connection, buffering and effective management of protected and conserved areas and other areas of importance for the conservation of biodiversity.</li> <li>- Inclusion of all identified important areas for biodiversity in local, national and internationally-coordinated landscape-scale conservation regimes that give due attention to (<i>inter alia</i>) connectivity. (Or a % coverage target/targets building on existing Aichi Target 11).</li> <li>- Enabling delivery of benefits to people through enhanced connectivity (etc) of habitats.</li> </ul> <p><b>Conservation/restoration of habitats important for carbon sequestration</b></p> <ul style="list-style-type: none"> <li>• If <b>Aichi Target 15</b> is used as a basis for this, it should be amended to read (red text is proposed insertion); “Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, <b>especially of ecological connectivity</b>, thereby contributing to climate change mitigation and adaptation and to combating desertification”.</li> </ul>
<b>Species</b>	<p><b>Improving species conservation status</b></p> <ul style="list-style-type: none"> <li>• If <b>Aichi Target 12</b> is used as a basis for this, it should be amended to read (red text is proposed insertion, bracketed text is possible deletion) “The extinction of [known threatened] species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained <b>throughout their range</b>”.</li> </ul> <p>(If sub-targets of existing Target 12 are developed, one suggestion is to include a sub-target specifically on migratory species).</p> <ul style="list-style-type: none"> <li>• <b>Target 12</b> is however viewed as an inadequate basis for a future target on this. The suggestion is for a new target that would potentially address some or all of the following elements: <ul style="list-style-type: none"> <li>- Halting of overall population declines, prevention of human-driven extinctions of known threatened species, and enhancement of the conservation status of (x) % of known threatened species.</li> <li>- Maintenance of species abundance, population health, natural population dynamics and connectivity.</li> <li>- Maintenance or enhancement of the conservation status of species through international cooperation and measures to maintain or restore ecological connectivity.</li> </ul> </li> </ul> <p><b>Minimizing genetic erosion</b></p> <ul style="list-style-type: none"> <li>• If <b>Aichi Target 13</b> is used as a basis for this, it should be amended to read (red text is proposed insertion) “The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity, <b>including through the maintenance and restoration of ecological connectivity</b>.”</li> </ul>
<b>Direct drivers</b>	
<b>Land-use change</b>	<ul style="list-style-type: none"> <li>• There is currently no Aichi target on this. This issue is encompassed in the standalone connectivity target proposed above; but a new target on land-use change could also address the need for land-use changes to be planned and implemented in ways that maintain and/or restore the conditions for ecological connectivity.</li> </ul>
<b>Climate change</b>	<ul style="list-style-type: none"> <li>• Ecological connectivity plays a critical role in responses to climate change. There is currently no Aichi target on climate change threats to biodiversity or on the role of biodiversity in climate change responses. The suggestion is for a new target that would potentially address some or all of the following elements:</li> </ul>

	<ul style="list-style-type: none"> <li>- Investment in internationally-coordinated nature-based solutions incorporating ecological connectivity, as a holistic and essential component of the overall global effort to achieve the goals of the Paris Agreement on Climate Change.</li> <li>- Ensuring that nature’s transformative potential, supported by ecological connectivity, is fully valued and realized in decision-making in relation to climate action.</li> <li>- Scaling up and mainstreaming of nature-based solutions for climate change mitigation, resilience and adaptation that support the conservation and restoration of biodiversity, within national governance, climate action and climate policy-related instruments, including Nationally Determined Contributions, Adaptation Communications, long-term low greenhouse gas emission development strategies, and in spatial planning that maintains and enhances ecological connectivity.</li> <li>- Protection and conservation of biodiversity, ecosystems and ecological connectivity to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change, as well as to maintain the capacity of ecosystems to store carbon.</li> <li>- Maintenance of the range of distribution of species and of the functioning of ecological connectivity required for this, including for example migration systems, through measures to ensure adaptation by species to changing patterns of seasonality, shifts in the location of necessary conditions for survival, etc.</li> <li>- Integration of climate change considerations into the design, connectivity and management of protected areas and other measures for the conservation and sustainable use of biodiversity.</li> </ul>
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## OTHER TOPICS

Other topics in the table of themes and possible targets were also identified as open to enhancement with references to ecological connectivity and it was noted that opportunities exist primarily in relation to those listed below (and potentially to a number of others too). Details were not discussed in the meeting and are not provided here. However some initial internal thinking has been done on this and proposals will be elaborated in due course.

Potential post-2020 target topic	Existing Aichi Target link
<b>Direct drivers</b>	
(Drivers in general)	<ul style="list-style-type: none"> <li>• (Not as such – suggestion to look at SPMS Target 7)</li> </ul>
<b>Use and value of nature</b>	
(Various ecosystem services target possibilities)	<ul style="list-style-type: none"> <li>• Target 14</li> </ul>
Existence and intrinsic values of nature	<ul style="list-style-type: none"> <li>• (None)</li> </ul>
<b>Enabling conditions</b>	
Traditional knowledge	<ul style="list-style-type: none"> <li>• Target 18</li> </ul>
National (and local) planning processes and NBSAPs	<ul style="list-style-type: none"> <li>• Targets 2 &amp; 17</li> </ul>
International cooperation (Not included in the SBSTTA document table, but merits addition).	<ul style="list-style-type: none"> <li>• (None)</li> </ul>