Convention on the Conservation of Migratory Species of Wild Animals

LEGISLATIVE GUIDANCE FOR MAINTAINING, IMPROVING, AND RESTORING ECOLOGICAL CONNECTIVITY

Summary:

The *Legislative Guidance for Maintaining, Improving, and Restoring Ecological Connectivity*, a resource document developed with the help of legal scholars from Lewis & Clark College, Global Law Alliance for Animals and the Environment, articulates an initial approach for countries to enhance ecological connectivity through targeted legal frameworks. It aims to provide countries with actionable recommendations to ensure long-term compliance with the CMS Article III.4(a) and (b) and to promote, maintain, and restore ecological connectivity in line with CMS objectives, ultimately contributing to global biodiversity conservation efforts.

The document suggests that national legislation can be instrumental in maintaining existing ecological connections, restoring degraded habitats, and mitigating threats posed by infrastructure development and land use changes. It proposes the integration of connectivity considerations into spatial planning and area-based management and highlights the importance of conducting Environmental Impact Assessments and Strategic Environmental Assessments that evaluate potential impacts on connectivity and incorporate measures to mitigate adverse effects. Additionally, the guidance addresses special considerations for marine, hydrological and transboundary connectivity as well as the participation of Indigenous Peoples in planning processes to ensure their rights and knowledge are respected. Finally, the guidance emphasizes the importance of ecological connectivity in adapting to and mitigating climate change impacts.

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Background

1. One of the greatest drivers of biodiversity loss is changes in land- and seascape uses resulting in the destruction and fragmentation of natural ecosystems. It is well established that ecological connectivity is essential for healthy ecosystems and for the survival of wild species.

2. The importance of ecological connectivity has become increasingly recognized in the past decades. In 2010, the Parties to the Convention on Biological Diversity (CBD) adopted the Strategic Plan for Biodiversity 2011–2020 (Strategic Plan), built around 20 targets known as the Aichi Biodiversity Targets.

3. Aichi Biodiversity Target 11 explicitly recognized the need for ecological connectivity and a landscape approach to area-based conservation measures, providing as follows: "By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas … are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes."

4. The IPBES Global Assessment on Biodiversity and Ecosystem Services (2019) found that while the numeric components of Aichi Target 11 were on a path to being achieved, other important aspects of the target, including the connectivity and ecological representativeness of protected areas, made little or no progress. In the context of IPBES' work, the Tenth session of the IPBES Plenary (2023) approved the undertaking of a methodological assessment on integrated biodiversity-inclusive spatial planning and ecological connectivity.[1] The IPBES tenth Plenary approved the undertaking of a methodological assessment of integrated biodiversity-inclusive spatial planning and ecological connectivity.

5. The IUCN Members' Assembly has adopted over 30 policy resolutions since 1996 to advance international efforts for conserving ecological connectivity, including *Resolution 7.073 Ecological connectivity conservation in the post-2020 global biodiversity framework: from local to international levels* (Marseille, 2020) calling on Members "to promote use of the IUCN 'Guidelines for conserving connectivity through ecological networks and corridors'" that provide definitions of "ecological corridor" and "ecological network" for contiguous or non-contiguous applications across terrestrial, freshwater, marine and/or aerial realms.[2]

[1] Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Tenth session, *Report of the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on the work of its tenth session*, https://www.ipbes.net/resource-file/104975, p.10, para 62

[2] Hilty, J., G.L. Worboys, A. Keeley, S. Woodley, B. Lausche, H. Locke, M. Carr, I. Pulsford, J. Pittock, J.W. White, D.M. Theobald, J. Levine, M. Reuling, J.E.M. Watson, R. Ament, and G.M. Tabor. 2020. *Guidelines for Conserving Connectivity through Ecological Networks and Corridors*. Best Practice Protected Area Guidelines Series no. 30. Gland, Switzerland: IUCN. https://portals.iucn.org/library/node/49061.

6. Ecological connectivity is given a much more prominent role in the Kunming-Montreal Global Biodiversity Framework - the successor to the Aichi Targets. It is included in the ecosystem component of Goal A, Target 2 (Ecosystem Restoration), Target 3 (Protect and Conserve Land and Sea - "30 x 30" target), and Target 12 (Increase access to Blue and Green Spaces), and is implicit in Target 1 (Spatial planning). Ecological connectivity needs to be scaled up. As UNEP-WCMC and IUCN *Protected Planet Report 2024* indicates, "8.52% of the world's terrestrial surface is protected and connected. This is an improvement on the figure of 7.84% reported in the previous Protected Planet Report (UNEP-WCMC and IUCN 2021) but still indicates that a further 21.48% is needed to reach Target 3 by 2030."[3]

7. The importance of connectivity was also recognized in the second Global Land Outlook report (2022), the flagship publication of the United Nations Convention to Combat Desertification (UNCCD), which drew attention to the key role of ecological connectivity in effectively ensuring long-term positive impacts of interventions for restoring degraded lands and ecosystems. The UNCCD COP15 "Land, Life and Legacy" Declaration[4] encourages Parties to avoid, reduce, and reverse land degradation by accelerating the implementation of existing national commitments to achieve land degradation neutrality by 2030, taking into account the connectivity of ecosystems.

8. The Intergovernmental Panel on Climate Change (IPCC) Report Climate Change 2022: Impacts, Adaptation and Vulnerability, its Technical Summary and Summary for Policymakers highlight that adaptation actions for ecosystems and biodiversity include increasing habitat connectivity of river systems, and between conserved or protected areas facilitating the movement of species to new ecologically appropriate locations.

9. The United General Assembly also recognized the value of connectivity in Resolution 75/271 "Nature knows no borders: transboundary cooperation a key factor for biodiversity conservation, restoration and sustainable use".[5] It recognized the importance of maintaining and enhancing connectivity among ecosystems and habitats for the conservation and restoration of biodiversity and called for increased international cooperation to improve connectivity of transboundary habitats, avoiding their fragmentation and preserving their health.

10. The Global Environment Facility 8th replenishment (GEF-8) gives strong emphasis to connectivity. 6 out of the 11 Integrated Programs - including the Global Wildlife Program and the Amazon Sustainable Landscapes Program - and 3 of the 5 Focal Areas of GEF-8, include provisions for restoring, maintaining and promoting connectivity whether it is in relation to infrastructure development, securing key ecosystems or wildlife populations.

[3] UNEP-WCMC and IUCN (2024). Protected Planet Report 2024. UNEP-WCMC and IUCN: Cambridge, United Kingdom; Gland, Switzerland; p.34.
[4] UNCCD Decision 29/COP.15.
[5] Resolution 75/271 adopted by the United Nations General Assembly on 16th April 2021

Ecological connectivity and migratory species

11. The definition of ecological connectivity is "the unimpeded movement of species, connection of habitats without hinderance and the flow of natural processes that sustain life on Earth".[6] While connectivity is important for a wide variety of ecological functions, it is essential for migratory species, which depend on a network of suitable habitats for breeding, resting, and feeding. It is a powerful concept to ensure that wild species of animals and the habitats they need can co-exist with social and economic development and human well-being.

12. Ecological connectivity is essential for migratory species, which are species that depend on their ability to move freely across distinct geographic areas for their survival, often crossing national borders and even continents. The Convention on the Conservation of Migratory Species of Wild Animals (CMS) includes an obligation with respect to species listed on its Appendix I; "Parties shall endeavor to prevent, remove, compensate for or minimize as appropriate the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species."[7]

13. Over the years the CMS Conference of the Parties (CMS COP) has adopted resolutions and decisions aimed at enhancing the understanding, promotion, and implementation of actions to address ecological connectivity for migratory species, which is one of the key objectives of the current CMS Samarkand Strategic Plan for Migratory Species.[8]

14. CMS COP14 adopted the Resolution 14.16 *Ecological Connectivity*, in which the Parties stressed the importance of connectivity and its crucial role in the GBF. Moreover, the 14th Meeting of the CMS COP adopted the Resolution 14.3 *CMS Engagement in CBD processes including the Global Biodiversity Framework*, which, among other points, acknowledges "the work of CMS in facilitating international cooperation and engagement in protecting migratory species, as well as conserving and restoring the ecological connectivity and integrity of ecosystems to support the conservation of migratory species and their habitats, including the natural movements of animals necessary for their survival and wellbeing".[9]

15. Given the mandates to address connectivity under CMS, the GBF, and its relevance for climate change and restoration, it is vital that countries address connectivity at the national level. This document offers legislative guidance for countries to that end.

16. This legislative guidance is specifically aimed at connectivity and migratory species. However, it will be relevant to achieving other mandates and objectives cited above. It aims to provide a checklist to ensure legal frameworks help to promote, maintain, and restore ecological connectivity and ensure the favorable conservation status of migratory species and their habitats. This legislative guidance draws heavily from the paper and associated case studies *"The Legal Aspects of Connectivity: A Concept Paper"* by Barbara J. Lausche et al., published by the IUCN.[10]

[6] UNEP/CMS/Resolution 14.16, paragraph 3
[7] CMS Article III.4 (b)
[8] See Appendix A: Migratory Species and ecological connectivity
[9] CMS Resolution 14.3 *CMS Engagement in CBD processes including the Global Biodiversity Framework*
[10] Lausche, Barbara, David Farrier, Jonathan Verschuuren, Antonio G. M. La Viña, Arie Trouwborst, Charles-Hubert Born, Lawrence Aug. *The Legal Aspects of Connectivity Conservation. A Concept Paper* (IUCN 2013).

17. The following recommendations highlight a wide range of legislative approaches that support connectivity objectives. Each country's national legislative landscape and each context in which connectivity may be a priority will dictate an approach that is specifically tailored and fit-for-purpose for each country.

Recommendations for national legislation to achieve ecological connectivity

Introduction

18. National legislation can be used to **maintain, enhance or restore connectivity**. First, the laws may act to maintain connectivity, e.g., in the establishment of area-based conservation measures such as protected areas and other effective conservation measures. Second, laws can be used to increase, restore, and improve ecological connectivity. Third, laws can address the potential threats to connectivity, such as from infrastructure or production activities.

19. The following recommendations identify the various types of legislation that may be relevant to connectivity. Appendix B provides a "connectivity planning tool" that may be helpful as a checklist for a national assessment of existing legislation or the development of new legislation.

Legislation on Ecological Connectivity	
Recommendation 1	Amend existing legislation, as needed, or consider developing stand-alone legislation that prioritizes and achieves connectivity, including the identification, delineation, and conservation of ecological networks and corridors as spatially explicit conservation measures.
Spatial Planning Instruments	
Recommendation 2	Include research, and ecological network and corridor mapping initiatives, monitoring and evaluation, and public participation mechanisms in spatial planning.
Recommendation 3	Establish connectivity as a primary land use goal in zoning laws and identify critical zones that provide safe movement and where there are barriers, bottlenecks, and pinch points that disrupt, or could fragment connectivity in both landscapes and seascapes.
Recommendation 4	Consider the design and siting of buildings in planning tools, as well as subdivision controls that set parameters on density, land use, design, and buildings in ways sensitive to connectivity.
Recommendation 5	Consider the location of ecological networks and corridors in the siting of linear infrastructure development and in the implementation of restoration projects.
Area-based Management Instruments	
Recommendation 6	Integrate ecological connectivity into the delineation and designation of protected areas and other area- based conservation measures to encourage the formation of ecological networks.
Recommendation 7	Require all protected area management plans to include connectivity management and planning.

Recommendation 8	Ensure that relevant laws allow for the designation of buffer zones and ecological networks and corridors.
Recommendation 9	Include protected area management authorities in broader spatial planning decisions.
Environmental Impact Assessment/Strategic Environmental Assessment	
Recommendation 10	Undertake Environmental Impact Assessment for any project that may have a deleterious impact on connectivity.
Recommendation 11	Include baseline studies that evaluate connectivity needs in EIAs as well as assessments and documentation of potential, likely, and certain impacts on connectivity; identification of mitigation measures and alternatives; and establishment of monitoring programs.
Recommendation 12	Use Strategic Environmental Assessment across landscapes, policies, and/or sectors to plan for and prioritize connectivity.
Economic-based Instruments	
Recommendation 13	Use all available and design new non-market-based tools, such as restrictive covenants, conservation and connectivity easements, and private protected areas.
Recommendation 14	Use all available and design new market-based tools, such as indirect payment programs, direct funding programs, and market creation programs.
Recommendation 15	Use negative incentivization schemes to require compensation for any impairment to connectivity.
Special Considerations for Marine Connectivity	
Recommendation 16	Provide for the establishment of marine protected area networks and ecological networks and corridors into legislation based on spatial conservation tools supported by the best available science.
Recommendation 17	Include broad stakeholder participation, ecosystem-based planning and integrated planning into marine spatial planning and consider future uses and future adaptation needs, such as to climate change and evolving human needs.
Special Considerations for Hydrological Connectivity	
Recommendation 18	Include environmental flows for non-consumptive uses of water as a legal mandate.
Special Considerations for Transboundary Connectivity	
Recommendation 19	Consider establishing a governance structure, decision-making process, planning, monitoring and assessment mechanisms in legal instruments that are relevant for transboundary connectivity.

Special Considerations for Indigenous Peoples and Connectivity	
Recommendation 20	Respect Indigenous Peoples' decision-making rights in land management policy and in integration of Indigenous Peoples' lands into connectivity planning, addressing tenure security, granting collective ownership rights where culturally or environmentally required, ensuring prior consultation, and protecting land, water, and resource rights.
Special Considerations for Climate Change and Connectivity	
Recommendation 21	Ensure climate change adaptation and mitigation actions are taken into account in legislation aiming to maintain, enhance, and restore connectivity.

Legislation on Ecological Connectivity

Recommendation 1: Amend existing legislation, as needed, or consider developing stand-alone legislation that prioritizes and achieves connectivity**, **including the identification, delineation, and conservation of ecological networks and corridors as spatially explicit conservation measures.

20. **In many circumstances, it may be beneficial and most efficient to use existing legislation, amended as needed**. This will involve looking into national legislation addressing issues such as spatial planning, environmental impact assessment, land use, protected areas, and wildlife management. It is worth noting that often the inclusion of language on ecological connectivity in national legislation offers greater policy certainty and legislative authority for other units of the government (ministries, agencies, subnational governments, etc.) to enact connectivity-specific laws, policies, regulations, by-laws, and other measures or to attract greater investment for connectivity-specific policies from national, regional, and international sources.

21. It will further lead to identifying legislative gaps that may have adverse impacts on ecological connectivity, and addressing them comprehensively, amending what is necessary to prioritize and achieve ecological connectivity. It may also take the form of incorporating safeguards or elements of ecological connectivity in adjacent legislation and policies in other sectors such as agriculture, mining, transport, and real estate.

22. However, in some countries, new laws focused on connectivity or aspects thereof might be preferred. While it is most likely that a variety of laws and legal tools across a national legislative landscape are key to implementing a connectivity strategy, alternatively stand-alone legislation that gives the issue primacy and robust consideration could be considered.

23. In that case, **stand-alone legislation** can set out **a specific object and purpose relating to connectivity**, and it can either establish new legal tools or establish a framework and reference or build-out pre-existing legal tools to be deployed specifically and strategically to achieve connectivity goals.

24. Stand-alone connectivity legislation should also **contain procedural elements,** including funding and support for scientific research (both biological sciences and social sciences), mapping, planning that incorporates robust public participation and impact assessment,

which should apply to both the siting of new connectivity projects and development projects that might interfere with or disrupt connectivity.

25. Finally, stand-alone legislation must address, where relevant, **cooperation and variances in authority and autonomy throughout various levels of government and across jurisdictions**. In many contexts, across a national landscape, multiple political entities have relevance, and multi-layered approaches to planning, institutional engagement, and management are necessary.

Example 1:

Kazakhstan: National legislation addressing ecological connectivity: Kazakhstan's law on specially protected natural areas (Law of the Republic of Kazakhstan of July 7, 2006 N 175)[11] provides a definition for ecological corridor. Article 81 in Chapter 17 of the Law titled "Ecological corridors" details the law's provisions related to corridors. Some aspects include: corridors are to be established to protect animal migratory routes and plant distribution (Sections 1 and 2); land owners and land users are not to be removed from corridors (Section 1); corridors are to be scientifically justified and delineated by natural geographic boundaries (Section 3); - corridors are to be established by executive bodies at local, regional or national levels (Section 3); corridors are to be managed by the relevant wildlife management agency (Section 3); and the integrity of corridors is to be considered in all sustainable development processes (Section 4).

Example 2:

Florida (United States): Subnational government with stand-alone legislation on ecological connectivity: The Florida Wildlife Corridor Act 2021[12] was enacted with the objective of creating incentives for conservation and sustainable development in the Florida Wildlife Corridor. The Act is the foundation for connectivity-oriented policies and programs in the state with the purpose of creating incentives for conservation and sustainable development. It therefore prescribes certain actions including: ensuring the corridor maintains wildlife access to habitats; preventing habitat fragmentation; protecting headwaters of major watersheds; increasing resiliency of lands to guard against sea-level rise; protecting watersheds critical for ground water recharge; constructing wildlife crossings where required; and preserving working forests, ranches, and farms that provide compatible habitats. A crucial part of the Act is its direction to the Florida Department of Environmental Protection to foster investments especially in the identified "opportunity areas". To support such investment, the legislature dedicated $300 million in the state budget in addition to an already allocated $100 million allocated to the state's Florida Forever program. As of March 2025, 84 properties totaling roughly 317,000 acres (128,285 hectares) had been approved for protection in or adjacent to the Florida Wildlife Corridor since the signing of the Act.

[11] https://adilet.zan.kz/rus/docs/Z060000175_#z325
[12] https://www.flsenate.gov/Session/Bill/2021/976/BillText/er/HTML

Spatial Planning Instruments

Recommendation 2: Include research and ecological network and corridor mapping initiatives, monitoring and evaluation, and public participation mechanisms in spatial planning.

26. Whether establishing a planning mechanism through stand-alone connectivity legislation or drawing on or integrating already existing planning mechanisms into a national connectivity strategy, it is crucial to prioritize some form of legally mandated planning for connectivity. Connectivity plans can guide development decisions and provide some assurance that localized or decentralized decisions and national-level goals are harmonized.

27. Ideally, connectivity plans are both legally mandated and legally binding. However, in some cases, when creating such connectivity plans is not possible, non-legally binding connectivity planning instruments, which have limited legal consequences, can still be valuable tools. These planning tools may be valuable to the extent they persuasively guide decision-makers and establish both substantive and procedural norms, as well as measurable connectivity targets. One such policy tool is National Biodiversity Strategies and Action Plans (NBSAPs), which can integrate connectivity considerations and be a first step to guide the development of a law.

28. A planning mechanism for connectivity should integrate input or planning processes at both the national and all relevant subnational levels and across relevant government agencies, such as protected area authorities, as noted above. One more common approach to this is to provide for planning stages that coincide with relevant levels of government and institutional competence. This could follow a top-down or a bottom-up approach. For example, a connectivity law, policy, or strategy might provide that an initial step is for a national-level body to undertake a planning process that establishes connectivity goals for various sectors or for various jurisdictions. Following the adoption of that plan, subsidiary institutions or levels of government are required to establish plans that provide for the implementation and achievement of national-level goals.

29. In reverse, localized entities or governments may be required to submit to a national entity connectivity plan that identifies barriers and needs, and the national entity may be required to produce a plan for funding and supporting local initiatives and goals.

30. Similarly, an integrative approach to land-use planning across sectors would facilitate planning for connectivity and it would ensure that all landscape uses consider impacts, positive or negative, on connectivity. Integrated land-use planning assesses and assigns land uses by taking into account a balancing of economic, social, and environmental values at national and sub-national levels and across sectors.[13] Integrated land-use planning is necessary in landscapes that serve multiple interests, and so is especially key, when interests, such as connectivity and agricultural development, urban development, or natural resource extraction—by way of example—dictate potentially opposite or conflicting ways forward. Such an approach should facilitate the selection of a combination of land uses that are able to meet multiple demands, such as both connectivity and urban growth.

[13] *See e.g.* P.H. Verburg, G. Metternicht, E. Aynekulu, X. Deng, K. Schulze, S. Herrmann, N. Barger, V. Boerger, F. Dosdogru, H. Gichenje, M. Kapović-Solomun, Z. Karim, R. Lal, A. Luise, B.S. Masuku, E. Nairesiae, N. Oettlé, A. Pilon, O. Raja, N.H. Ravindranath, R. Ristić and G. von Maltitz. 2022. The Contribution of Integrated Land Use Planning and Integrated Landscape Management to Implementing Land Degradation Neutrality: Entry Points and Support Tools. A Report of the Science-Policy Interface. United Nations Convention to Combat Desertification (UNCCD), Bonn, Germany.

31. In some cases, spatial planning or land use laws may be utilized to achieve connectivity because they offer designation or classification opportunities or provide authority to limit or prevent incompatible activities. While planning itself represents a procedural mechanism, in some cases, existing laws may provide opportunities to substantively address connectivity needs. Planning laws may be designed to designate core areas, buffer zones, and ecological networks and corridors, with corresponding prohibitions or conditions for development.

32. Planning legislation or connectivity legislation that includes planning mechanisms should also consider establishing research and mapping initiatives. Research and mapping initiatives contribute to the body of best available science on which to develop plans. These can be equally useful in urban and rural contexts.

33. *Public participation:* Any legislation or regulations adopted to establish a planning mechanism should provide for robust and meaningful public participation. Public participation should be mandated by law or regulation, as should public notice and comment, if possible. Both offer opportunities to secure community buy-in and to shape and design planning outcomes that consider community needs. Additionally, any relevant legal instrument should ensure that consultation and comments are taken into account during the planning process.

Example 1:

Czech Republic: National legislation defining "bio-corridors" and integrating them in territorial planning: The Czech Republic's Act on Protection of Nature and the Landscape establishes 'specially protected areas' (Act No. 114/1992).[14] It employs the phrase "system of ecological stability," and defines it in Part I of the Act as a "mutually integrated complex of natural and changed - though nearly natural ecosystems - which maintain a natural stability" (FAO, n.d.)[15]. For the purpose of addressing connectivity, the legislation also defines 'Territorial System of Ecological Stability of the Landscape' (TSES), which can be considered an ecological network, as a continuous network of areas with relatively high ecological stability ("biocenters" and "bio-corridors") for the purpose of preserving or restoring the biological diversity of the landscape and supporting the surrounding less ecologically stable parts of the landscape (Bores et al., 2022)[16]. It also provides a comprehensive definition of a "bio-corridor" as biotic dispersal and migration corridors that are areas which do not enable permanent long-term existence of the critical part of organisms but facilitate their migration and/or dispersal between "biocentres" that thus creates a real interconnected network of isolated biocentres (Bores et al., 2022). The "bio-corridors" have been integrated - utilizing the Construction Act - into all levels of land use planning of municipalities, towns, regional districts, Protected Landscape Areas (PLAs), and National Parks with any intervention in the TSES requiring approval.

[14] Act No. 114/1992

[15] https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC183146/

[16] Bores, J., Meyer, H , Underwood, E, Sirychenko, M.,Wouter Langhout, W., von Döhren, P.,, Veríssimo, D., Horváth, B., Meganck, K., BlagaSmith,A, Ingvarsson, M., Aubert,G., Herrero,B., Osti, M., Puymartin, A.: Review of EU and Danube-Carpathian countries' laws, regulations and governance, and finance mechanisms related to the establishment of the Trans-European Nature Network (TEN-N) . https://naturaconnect.eu/wp-content/uploads/2025/01/D2.1-PEA-in-the-Carpathians-Appendix-1.pdf

Example 2:

Quebec (Canada): Subnational government adopting spatial planning guidelines to identify and manage ecological corridors: Quebec's Guidelines on Regional Planning: Provincial guidelines on land use planning (*Orientations gouvernementales en aménagement du territoire en vigueur (OGAT)*)[17] have been in effect since December 2024. They define the aspects that local municipalities, regional county municipalities (RCMs), and metropolitan communities (MCs) must address in land use planning. These guidelines are in furtherance of the 2023-2027 implementation plan of the National Policy on Architecture and Regional Planning (PNAAT) that informs land use planning across Canada. The OGAT addresses protection, restoration, and enhancement of ecological connectivity, with municipalities and regional governments being required to integrate corridors in their urban plans and development schemes. Under the terms of OGAT, the municipalities and communities are expected to identify and manage ecological corridors based on ecological importance and factors such as forest cover. Land use plans are also required to stipulate "compatible uses" — ways for people can use the land without hindering ecological connectivity". Additionally, counties are invited to "promote the creation of wildlife passages (aquatic and terrestrial)" like crossings under or over when repairing or constructing new roads. As updated land use plans are written and reviewed, ecological corridors can be better considered in meeting conservation objectives.

Example 3:

India: National Environmental Impact Assessment regime requiring public consultation: As per the EIA Notification of 1994[18], the undertaking of any new project or the expansion/modernization of any existing project of the nature listed in Schedule I of the Notification will require the project proponents to conduct a public hearing. The Notification requires that for any highway or pipeline projects, public hearings shall be conducted in each of the districts through which that pipeline or highway passes. Schedule V of the notification provides detailed guidance on issuing notice for the environmental public hearings, composition of the public hearing panel, providing access to the public to the summary and complete version of the EIA report.

Recommendation 3: Establish connectivity as a primary land use goal in zoning and identify critical zones that provide safe movement and where there are barriers, bottlenecks, and pinch points that disrupt, or could fragment connectivity in both landscapes and seascapes.

34. *Zoning:* Zoning is one of the most common land-use planning tools, classifying different pieces of land based on different types of land use, and is used to direct and control development. Where zoning forms an integral component of land use or spatial planning, it performs two important functions, and its role could be linked directly to connectivity. First, zoning may provide designation or classification opportunities that establish connectivity as a primary land use goal. Designations or classifications may serve to gradate uses related to connectivity. For example, zones may distinguish between core connectivity zones and buffer zones, enabling a more strategic approach to development and use-related activities that might interfere with connectivity goals but may also provide necessary infrastructure for communities living or using the area. Second, zoning laws may provide opportunities for

[17] https://www.quebec.ca/habitation-territoire/amenagement-developpement-territoires/amenagement-territoire/orientations-gouvernementales
[18] https://dest.hp.gov.in/sites/default/files/eia_1994_A1b.pdf

direct regulation of activities or uses incompatible with connectivity goals. In such cases, decision-makers may be authorized to deny permits or concessions or impose conditions or mitigation measures to preserve connectivity.

35. *Monitoring and evaluation:* An additional element in the legal design of a planning process is monitoring and evaluation. A well-designed planning process will include monitoring and evaluation of outcomes but also of all interim stages of implementation and across all relevant levels of government.

Example 1:

Slovakia: National legislation defining obligations of including connectivity in territorial planning: Slovakia's Nature and Landscape Protection Act (No. 543/2002)[19] establishes the Terrestrial System of Ecological Stability (TSES) and has undergone several revisions to achieve greater harmony with EU legislation and international policy. The TSES is a document that guides ecological stability in an area and is prepared at the national, regional, and municipal levels. The Act on Territorial Planning and Construction Order (No. 50 of 1976)[20] defines that the elements of TSES are obligatory on all levels of territorial plans.

Example 2:

Florida (United States): Subnational government identifying critical zones for connectivity: The Florida Wildlife Corridor Act[21] directs the Florida Department of Environmental Protection to foster investments that protect and enhance the corridor, especially in "opportunity areas" identified as high priority lands for conservation. Roughly 46 percent of the corridor, or 8.1 million acres (approximately 3,237,485 hectares) comes under this category. "Opportunity areas" are defined as "lands and waters within the wildlife corridor that are not conserved lands, and green spaces within the corridor which lack conservation status and/or are contiguous or between conserved lands."[22] The Act defines the Florida Greenways Network (FEGN)[23] under Section 3(c) as a periodically updated model developed to delineate large, connected areas of statewide ecological significance. In operation, FEGN is a statewide database that identifies and prioritizes a functionally connected statewide ecological network of public and private conservation lands. It provides the primary data used to identify high-priority conservation areas for the Florida Forever Program, Rural and Family Lands Protection Program, and other state, federal and regional land acquisition programs. It is the foundational scientific effort behind the FWLC and aids in the prioritization of the most important ecological corridors and intact landscapes across the state for protection of Florida's native biodiversity and ecological integrity. The database is updated every five years, with the most recent updates being made in 2021 and the next updates underway.

Example 3:

Canada: National government agency identifying critical zones for connectivity: Parks Canada's National Program for Ecological Corridors (NPEC) was launched in 2022 with an investment of $60.6 million (Canadian) over five years. The NPEC identifies National Priority Areas for Ecological Corridors (NPAECs)[24] using national-scale data and novel methods to

[19] https://www.fao.org/faolex/results/details/ar/c/LEX-FAOC079610/
[20] https://www.fao.org/faolex/results/details/en/c/LEX-FAOC062007/
[21] https://www.flsenate.gov/Session/Bill/2021/976/BillText/er/HTML
[22] https://floridadep.gov/sites/default/files/Florida_Wildlife_Corridor.pdf
[23] https://conservation.dcp.ufl.edu/fegn/
[24] https://parks.canada.ca/nature/science/conservation/corridors-ecologiques-ecological-corridors/prioritaires-priorities#section-2

indicate where they are most urgently needed to conserve and/or restore connectivity while benefiting biodiversity and contributing to climate change adaptation. The resulting 23 NPAECs are not ecological corridors but broad geographic areas identified as being nationally important across Canada that:

- "are critical for terrestrial wildlife movement
- contain high biodiversity values
- are important for species at risk and species of cultural importance
- are experiencing habitat degradation and loss due to development pressure and/or climate change
- contain climate change refugia and/or climate corridors".

Recommendation 4: Consider the design and siting of buildings in planning tools, as well as subdivision controls that set parameters on density, land use, design and building in ways sensitive to connectivity.

36. *Considerations in urban, suburban, and peri-urban areas*: In urban, suburban, and peri-urban areas, planners must do more than manage generic land uses. As applicable to these areas, any measures taken to apply planning tools to connectivity goals should require consideration of the design and siting of buildings, as well as subdivision controls that set parameters on density, land use, design, and buildings in ways sensitive to connectivity. Moreover, considerations could be made to prohibit or manage (under/overpasses) linear infrastructure development in ecological corridors.

Example 1:

India: National legislation promoting compatible land uses for connectivity: India's Wildlife (Protection) Act, 1972 (as amended)[25] is the foundational legislation for wildlife conservation in India providing for the declaration of areas as protected areas, buffer zones, and community reserves. It also establishes the National Tiger Conservation Authority (NTCA) under Chapter IV(B) that is empowered under Section 38(O) to ensure that the tiger reserves and areas linking one protected area or tiger reserve with another are not diverted for ecologically unsustainable uses. As per the Act, the State Government under Section 38(V) is mandated to prepare a Tiger Conservation Plan which, among other things, is required to ensure ecologically compatible land uses in the tiger reserves and corresponding corridors. It also notes the importance of such regulated and sustainable land use for providing dispersal habitats and corridors for spill-over populations of wild animals from the designated core areas of tiger reserves or tiger breeding habitats within other protected areas. Clearance from the NTCA is required for any project passing through tiger corridors.

Recommendation 5: Consider the location of ecological networks and corridors in the siting of linear infrastructure development and in the implementation of restoration projects.

37. It is crucial that planners and decision-makers ensure projects and programs are supported by the best available knowledge in order to avoid any negative environmental and social impacts. Early consideration of ecological networks and corridors during the planning stage will help optimize social and economic benefits, while minimizing environmental and biodiversity impacts. Such considerations will support the identification of priority areas for linear infrastructure development and restoration efforts, where social, environmental and

[25] https://www.indiacode.nic.in/bitstream/123456789/6198/1/the_wild_life_%28protection%29_act%2C_1972.pdf

economic benefits are maximized, and reduce the need for potential investment in social and environmental mitigation measures later on.

Example 1:

India: National policy informing mitigation of linear infrastructure development: India's National Environment Policy 2006,[26] as per section '5.2.3 Forests and Wildlife', calls for programs for conservation of endangered species outside protected areas, while reducing human-wildlife conflicts. Existing and planned roads and railways are a major threat to maintaining ecological connectivity outside protected areas throughout India, including the Kanha-Pench Corridor. When National Highway 44 – India's longest highway and a critical North-South Road running through the Kanha-Pench Corridor in different sections – was proposed to be upgraded to four-lanes, permission was granted on condition of providing wildlife crossings. To inform the necessary mitigation, the Wildlife Institute of India (WII) carried out assessments of the existing road and provided preliminary and additional recommendations for wildlife crossings (Habib, et al. 2015).[27] When eventually approved, WII's work resulted in the National Highway Authority of India being required to undertake scientifically informed placement and construction of India's first purpose-built wildlife crossings completed at the end of 2018.

Area-based Management Instruments

Recommendation 6: Integrate ecological connectivity into the delineation and designation of protected areas and other area-based conservation measures to encourage the formation of ecological networks.

38. Area-based conservation measures, including protected areas, are a key approach to biodiversity conservation. As reflected in Target 3 of the Kunming-Montreal Global Biodiversity Framework, one key aspect of such measures is that they ensure that they achieve ecological connectivity. Legislation addressing area-based conservation can deliberately target connectivity by establishing connectivity between areas important for biodiversity as one of several overriding goals. Legislation could require connectivity to be a key factor in the selection of what areas to protect; require site-specific management plans to include management for connectivity; authorize the creation and management of buffer zones and ecological corridors;[28] create linkages between protected area authorities and spatial planning bodies; and possibly authorize and incentivize the establishment of "private protected areas" to supplement traditional public protected areas. Resolution 14.16 *Ecological Connectivity* specifically calls upon Parties to take into consideration these elements when designating and managing protected areas and networks that support ecological connectivity.

Example 1:

[26] https://policy.asiapacificenergy.org/sites/default/files/National%20Environment%20Policy%202006.pdf

[27] Habib, B., Saxena, A., Mondal, I., Rajvanshi, A., Mathur, V. B. & Negi, H. S. (2015). '*Proposed mitigation measures for maintaining habitat contiguity and reducing wild animal mortality on NH 6 & 7 in the Central Indian Landscape'*. Technical Report No. 2015/006. Dehradun: Wildlife Institute of India & New Delhi: National Tiger Conservation Authority. Available at: https://www.researchgate.net/publication/293813360_Proposed_Mitigation_Measures_for_Maintaining_Habitat_Contiguity_and_Reducing_Wild_Animal_Mortality_on_NH_6_7_in_the_Central_Indian_Landscape (Accessed: 22 June 2025).

[28] An ecological corridor is a clearly defined geographical space that is governed and managed over the long term to maintain or restore effective ecological connectivity. *IUCN Guidelines for conserving connectivity through ecological networks and corridors*. Best Practice Protected Area Guidelines Series No. 30. Gland, Switzerland (2020)

Bhutan: Ecological corridors recognized as protected areas: Eight biological corridors were established by Bhutan in 1999[29] to connect existing protected areas and maintain animal and plant movement and gene flow. Since their establishment, the following policies and plans have been created to further refine their recognition and management:

- In 2007, the Executive Order on the Management of Biological Corridors in Bhutan[30] altered the protocols surrounding the biological corridors. It allowed the Department of Forest to propose designating any area as a corridor if it was determined critical for the safe movement of wildlife;
- In 2010 the Regulatory Framework for Biological Corridors[31] proposed revisions of the original plan to improve the effectiveness of the corridors. Recommendations included promoting the status of the biological corridors by recognizing them as part of the Protected Area system;
- In 2017, the revision of the Forest and Nature Conservation Rules and Regulations[32] upgraded the biological corridors' protection status to give them the same status as other national protected areas. This made the corridors equivalent to national parks, wildlife sanctuaries, and nature reserves under strict protection. It also changed the previous designation process and management approach toward the corridors.

Example 2:

Brazil: National law mandating consideration of connectivity for protected areas: Brazil's Federal Law No. 12.651 (2012)[33], the Native Forest Code, requires that Forest Reserves consider river basin plans, ecological-economic zoning, and the creation of ecological corridors linking protected areas. Ecological corridors are specified three times in the law as core considerations for establishing Forest Reserves. For example, "Art. 14. The location of the Reserve area […] must take into consideration the following studies and criteria:

I – the river basin plan;
II – the Ecological-Economic Zoning;
III – the formation of ecological corridors with another Legal Reserve, with a Permanent Preservation Area, with a Conservation Unit or with another legally protected area;
IV – the areas of greatest importance for the conservation of biodiversity; and
V – the areas of greatest environmental fragility."

39. If protected areas' legislation includes an objectives section (however termed), **one of the objectives should be to preserve and enhance ecological connectivity through the creation of a network of protected areas or other effective conservation measures (OECMs) established and managed under an ecosystem approach.**

40. Traditionally, governments have designated protected areas based on unique ecological features of such areas (intact landscapes, outstanding aesthetic value, unique or representative flora and fauna, etc.) Ideally, however, protected areas legislation will build on these more traditional criteria by **including connectivity as an important factor in the selection and designation of protected areas and the creation of networks.**[34]

[29] https://www.cbd.int/doc/world/bt/bt-nr-01-en.pdf
[30] https://faolex.fao.org/docs/pdf/bhu82936.pdf
[31] https://conservationcorridor.org/cpb/Wildlife_Conservation_Division_Royal_Government_of_Bhutan_2010.pdf
[32] https://bhutan.eregulations.org/media/FNCRR%202017.pdf
[33] https://www.fao.org/faolex/results/details/en/c/LEX-FAOC113357/
[34] CMS Resolution 14.16 also encourages Parties and Range States, when identifying areas of importance to migratory terrestrial, avian and aquatic species, to take into account and make explicit by description, schematic maps or conceptual models the relationship between those areas and other areas which may be ecologically linked to them, in physical terms, for example as connecting corridors, or in other ecological terms, for example as breeding areas related to non-breeding areas, stopover sites, feeding and resting places.

Example 3:

Ecuador: National legislation including connectivity as a factor in the selection and designation of protected areas and the creation of networks:
Ecuador's National System of Protected Areas (SNAP) comprises approximately 76 protected areas, covering over 260,000 square kilometers or 19.42 percent of Ecuadorian territory. The country's 2017 Environmental Code[35] officially recognizes connectivity corridors as Special Areas for Conservation of Biodiversity within SNAP. Therefore, promoting connections among different ecosystems is a key objective of the System. Ecological Connectivity Areas are officially recognized in Ecuador's 2017 Environmental Code as Special Areas for Conservation of Biodiversity within its National System of Protected Areas (SNAP). This approach of establishing and connecting ecological networks granted the Environment Ministry authority to adopt Ministerial Agreement No. MAAE 2020-019[36] establishing technical guidelines and criteria for identification, verification, and management of Ecological Connectivity Areas.

Recommendation 7: Require all protected area management plans to include connectivity management and planning.

41. Many legislative frameworks command authorities to develop a site-specific management plan for each protected area. The legislation itself often spells out the basic components of such plans, leaving administrative authorities the discretion to fill in the details according to the characteristics and needs of each protected area. To ensure that management plans consider both threats to connectivity and ways in which the area might be managed to enhance connectivity, legislation could require authorities to address these concerns in each management plan.

Example 1:

Tanzania: National implementing legislation for integrating connectivity in protected areas management: *Tanzania's Wildlife Conservation Regulations (Wildlife Corridors, Dispersal Areas, Buffer Zones, and Migratory Routes)* (2018)[37] approves regulations that provides for designated areas (Wildlife Corridors, Dispersal Areas, Buffer Zones, and Migratory Routes) to have Joint Management Committees that, among other functions, as per Section 15 (d) are to: "implement agreed joint management programmes with adjacent protected area authorities;"

Recommendation 8: Ensure that relevant laws allow for the designation of buffer zones and ecological networks and corridors.

42. Buffer zones have become a familiar tool to protect core protected areas. Although not normally part of the protected area, as such, they provide a transitional zone between core protected areas and areas that may be subject to no special management rules. As such, they prevent human activities, directly adjacent to protected areas, from undermining the conservation goals of the protected area.

43. Ecological corridors may be an integral part of a protected area, designed to link together two or more protected areas. For protected areas legislation to maximize connectivity

[35] https://www.ambiente.gob.ec/wp-content/uploads/downloads/2018/01/CODIGO_ORGANICO_AMBIENTE.pdf
[36] https://faolex.fao.org/docs/pdf/ecu200528.pdf
[37] https://tanzlii.org/akn/tz/act/gn/2018/123/eng@2018-03-16

options, both buffer zones and ecological corridors should be authorized and even mandated (at least in certain circumstances).

Example 1:

Hungary: National legislation requiring protected areas and ecological corridors for ecological networks: Hungary's Act No. 53 of 1996[38] on Nature Conservation, which defines the "National Ecological Network" (*Nemzeti Ökológiai Hálózat*).[39] The law requires the identification, designation, and long-term protection of core areas and ecological corridors that ensure landscape permeability. The National Ecological Network, a spatial planning instrument, includes core areas, buffer zones, and ecological corridors. It was mapped in 2000 at a scale of 1:50,000 and covers 36% of the country comprising 55% core zones, 25% corridors, and 20% buffer zones (Sipos, 2023).[40] The National Land Use Framework Plan, which is renewed every six years, includes a series of thematic maps that indicate the National Ecological Network. This higher level land use planning must be incorporated into the County Land Use Framework Plans and municipal land use plans (Bores et al., 2022).[41] Hungary also updates a National Nature Conservation Master Plan as an integrated strategy to preserve its biodiversity.

Example 2:

Tanzania: National implementing legislation for designation: Tanzania's *Wildlife Conservation Regulations (Wildlife Corridors, Dispersal Areas, Buffer Zones, and Migratory Routes)* (2018)[42] – subject to Section 22 of The Wildlife Conservation Act[43] - provide that, in consultation with local authorities, the designation and special management of wildlife corridors, dispersal areas, buffer zones, and migratory routes may occur in areas: "(a) outside National Parks, Ngorongoro Conservation Areas, Game Reserves and Game Controlled Area; or within village land, general land and any other land under which a right of occupancy operates." It also directs the Director of Wildlife to develop priority corridor action plans that consider biological and ecological importance, wildlife populations, and the integrity of Tanzania's Protected Area System.

Recommendation 9: Include protected area management authorities in broader spatial planning decisions.

44. Depending on national context, it may be important to invest in protected area authorities the power and duty to participate in broader spatial planning decisions. For instance, if provincial or municipal governments engage in land-use zoning (e.g., designating certain areas as urban, others as agricultural, etc.) it may be important for protected areas authorities to participate in the process. Such participation allows protected areas authorities to raise connectivity concerns—and, more generally, flag any issues relating to how zoning or land-use decisions might affect a protected area. Relatedly, if buffer zones and ecological corridors are not directly under the exclusive jurisdiction of protected areas

[38] https://faolex.fao.org/docs/pdf/hun11619.pdf
[39] https://faolex.fao.org/docs/pdf/hun11619.pdf
[40] Sipos K. (2023)Chapter 18: Hungary In: Tucker G, ed. *Nature Conservation in Europe: Approaches and Lessons*. Cambridge University Press; 2023:374-392. https://www.cambridge.org/core/books/abs/nature-conservation-in-europe/hungary/6E6D7B51FA41F33423EAA25BA09586BF
[41] Bores, J., Meyer, H , Underwood, E, Sirychenko, M.,Wouter Langhout, W., von Döhren, P.,, Veríssimo, D., Horváth, B., Meganck, K., BlagaSmith,A, Ingvarsson, M., Aubert,G., Herrero,B., Osti, M., Puymartin, A.: Review of EU and Danube-Carpathian countries' laws, regulations and governance, and finance mechanisms related to the establishment of the Trans-European Nature Network (TEN-N) . https://naturaconnect.eu/wp-content/uploads/2025/01/D2.1-PEA-in-the-Carpathians-Appendix-1.pdf
[42] https://tanzlii.org/akn/tz/act/gn/2018/123/eng@2018-03-16
[43] https://maliasili.go.tz/assets/pdfs/CHAPTER283-THEWILDLIFECONSERVATIONACTrevisededition.pdf

authorities (and this is to be expected, given the nature of such zones and corridors as a step removed from protected areas), then protected areas authorities should at least have a significant role in the management of such areas (e.g., under a cooperative arrangement with provincial and/or municipal governments).

Example 1:

Romania: Spatial planning including protected areas and corridors: Romania's National Spatial Plan directs the inclusion of protected areas into local spatial planning, while the County Spatial Plans determine core areas and the connecting corridors between them. It is required that protected areas and ecological corridors must be highlighted in national, zonal, and local urban and spatial plans, in cadastral plans and land books.[44]

Example 2:

Spain: National strategies and plans for addressing spatial planning and protected area management: Spain's *National Green Infrastructure, Connectivity, and Restoration Strategy*,[45] approved in 2021, establishes ecological connectivity, ecological networks and corridors, as fundamental to the country's biodiversity strategy. The Strategy is a comprehensive treatment of Spain's green infrastructure and provides direction to both the national Ministries and regional governments to establish, govern, and monitor ecological networks. Complementary is the *Strategic Plan on Natural Heritage and Biodiversity to 2030*,[46] revised in 2023 that addresses ecological corridors and Spain's commitment to significantly advance management tools for Protected Areas, including new management plans for marine areas in the Natura 2000 Network and marine migratory corridors.

Environmental Impact Assessment/Strategic Environmental Assessment

Recommendation 10: Undertake Environmental Impact Assessment for any project that may have a deleterious impact on connectivity.

45. The environmental impact assessment process is important to a legal toolbox for connectivity because if connectivity is given due consideration in any environmental impact assessment, modifications, degradation, or disruption to connectivity should be mitigated, leaving connectivity intact. As a baseline, the recommendations made in Resolution 7.2 (Rev.COP14) *Impact Assessment and Migratory Species* should be taken into account, but specifically addressing connectivity may require incorporation of additional considerations as outlined here.

Example 1:

Argentina: National Forest Law requiring Environmental Impact Assessment
In Argentina, the Forest Law (Law No. 26.331)[47] establishes minimum environmental protection standards for the enrichment, restoration, conservation, use and sustainable management of native forests and the environmental services that they provide. This Law requires provincial level planning to include a 'Territorial Planning of Native Forests' ('*Ordenamento Territorial Bosques Nativos*', OTBN) which includes zoning that designates areas into Category I, II, and III ranging from high to low conservation value.[48] Any proposal to convert a native forest requires an approved Land Use Change (PCUS) Plan and Environmental Impact Assessment

[44] https://naturaconnect.eu/wp-content/uploads/2025/01/D2.1-PEA-in-the-Carpathians-Appendix-1.pdf
[45] https://www.miteco.gob.es/content/dam/miteco/es/biodiversidad/temas/ecosistemas-y-conectividad/eniv_2021_tcm30-515864.pdf
[46] https://www.miteco.gob.es/content/dam/miteco/es/biodiversidad/publicaciones/estrategias/peepnb2030-difusion.pdf
[47] https://www.argentina.gob.ar/normativa/nacional/ley-26331-136125/texto
[48] Van Dam, J., Van Den Hobergh, and Hilders, M. (2019). An analysis of existing laws on forest protection in the main soy producing counties in Latin America. IUCN Netherlands
https://www.iucn.nl/app/uploads/2021/03/an_analysis_of_existing_laws_on_forest_protection_la_final.pdf

Example 2:

India: National Environmental Impact Assessment requirements for projects: As per the EIA Notification of 1994[49], the undertaking of any new project or the expansion/modernization of any existing project of the nature listed in Schedule I of the Notification will require the project proponents to conduct a public hearing. The Notification requires that for any highway or pipeline projects, public hearings shall be conducted in each of the districts through which that pipeline or highway passes. Schedule V of the notification provides detailed guidance on issuing notice for the environmental public hearings, composition of the public hearing panel, providing access to the public to the summary and complete version of the EIA report.

Recommendation 11: Include baseline studies that evaluate connectivity needs in EIAs as well as assessments and documentation of potential, likely, and certain impacts on connectivity; identification of mitigation measures and alternatives; and establishment of monitoring programs.

46. It is useful, by way of either legislation or regulation, to provide that any environmental impact assessment process takes connectivity or related goals, such as ecological integrity, into account. Fully taking connectivity into account could entail the following: undertaking baseline studies; assessing and documenting potential, likely, and certain impacts; and identifying mitigation measures.[50] The twin goals of maintenance and restoration play a significant role in shaping procedural steps, especially in identifying mitigation measures. Taking these goals into account is especially critical when designing mitigation measures as permit holders then bear responsibility for improving connectivity, rather than just maintaining it. Furthermore, where restoration is a stated goal, impact assessments should be based on scenarios that take into account factors such as climate change.

47. To ensure that decision-makers systematically analyze connectivity in EIAs, EIA legislation or implementing regulations should specify, in concrete terms, the variables requiring analysis. In many cases, these will be familiar variables adapted to the connectivity context. The following table sets forth several of the core considerations that a connectivity-sensitive EIA would include – and that connectivity-sensitive legislation or regulations would demand.

[49] https://dest.hp.gov.in/sites/default/files/eia_1994_A1b.pdf

[50] In Resolution 7.2 (Rev.COP14) on Impact Assessment and Migratory Species, the CMS COP urged Parties to include in EIA and SEA, wherever relevant, as complete a consideration as possible of effects involving impediments to migration, in furtherance of Article III (4) (b) of the Convention.

Component	Detail
Description of area	This content will normally already be required under existing EIA legislation.
Description of proposed activity	This content will normally already be required under existing EIA legislation.
Impacts on ecological connectivity	Details of: ● How migratory species use the project area and surrounding vicinity (e.g., as migratory pathways, as sites for mating, as sites for feeding, as sites for rearing, etc.); ● How other ecological processes take place (e.g., hydrological processes such as rivers and streams) in, across and around the project area; ● The current state of ecological connectivity in the project area and surrounding vicinity (i.e., discerning the baseline of connectivity/fragmentation); ● Whether or how the project will contribute to fragmentation/impairment of connectivity.
Impacts on species flowing from impacts on ecological connectivity	Details of: ● How migratory species will be impacted as a result of the identified impacts on ecological activity; ● When possible, quantification of harm to population numbers as a result of the identified impacts on ecological activity.
Indirect impacts and cumulative impacts, including climate change	● When analyzing impacts to ecological connectivity and associated impacts to migratory species, the EIA should consider not only direct impacts but also indirect impacts and cumulative impacts. ● Direct impacts are the immediate impacts of the proposed activity (e.g., in the context of a new highway, impacts from the construction activity and the road itself). ● Indirect impacts are impacts caused by the activity that are later in time or farther removed in distance but are still reasonably foreseeable (e.g., in the context of a new highway, increased noise pollution, air pollution, and animal-car collisions following the road's inauguration). ● Cumulative impacts, in contrast, address the impact of the proposed activity when added to other past, present and reasonably foreseeable future activities and circumstances (e.g., in the context of a new highway in an area already bisected by an abundance of linear infrastructure and growing human presence, taking the existing baseline of fragmentation into account). In essence, the cumulative-impacts analysis forces a *contextual* analysis. In isolation, a project may appear to have but a limited adverse impact on connectivity. In context, the same project may reveal itself as reaching a tipping point beyond which connectivity is severely impaired. ● When analyzing the proposed activity through a cumulative-impacts lens, the reasonably foreseeable effects of climate

	change and other environmental changes should be taken into consideration. Climate-change models should be used to consider how an evolved climate may alter the proposed activity's impact on connectivity (e.g., the impacts may appear worse in light of a climate predicted to be drier in a given area, with a corresponding loss of habitat).
Alternatives to the proposed activity	● The alternatives analysis should include exploration of alternatives with a lesser adverse impact on connectivity.
Mitigation and monitoring plans	● As is the case with other impacts, a connectivity-sensitive EIA should include measures specifically designed to mitigate foreseen impacts to connectivity. ● Likewise, the EIA should include a monitoring plan designed to detect and assess both (a) adverse impacts to connectivity, and (b) the success of any mitigation measures.

Example 1:

India: National Environmental Impact Assessment requirements for projects: The Environmental Impact Assessment (EIA) Notification, 2006 (as amended)[51] issued under the Environment Protection Act 1986 requires all large infrastructure projects, as defined under the Rules, to undergo EIA. The EIA process includes site visits, public hearings, and a final clearance only after mitigation of corridor impacts and an environmental/wildlife management plan is agreed upon.

Recommendation 12: Use Strategic Environmental Assessment across landscapes, policies, and/or sectors to plan for and prioritize connectivity.

48. Whereas EIAs focus on proposed physical developments such as highways, power stations, water resource projects, and large-scale industrial facilities, SEAs focus on a broader spectrum of proposed actions at a "higher" level. SEAs may be conducted with respect to a particular landscape or region (e.g., national, regional, or local levels or within a specific protected area), across a specific sector (e.g., spatial planning, transport, agriculture, forestry, fisheries, energy, waste/water management, tourism), or with respect to a specific law or policy (e.g., legislation, lending, policies, plans or programs concerning climate change, biodiversity, or connectivity). The benefit of SEAs is that they can influence development choices and planning initiatives at early stages by defining the contours of allowable activities and necessary mitigation in a particular area, relative to legal and policy initiatives, or within a particular sector, before an EIA is conducted with respect to a specific activity at a specific location.

49. SEAs are often thought of as providing a framework approach that can be used to establish important baseline priorities; as such, SEAs may be a useful tool for connectivity planning across landscapes, policies, and/or sectors, and in many countries adoption of a connectivity law that calls for SEAs would be an important first step in incorporating connectivity goals into national, regional, and local planning and decision-making.

[51] http://environmentclearance.nic.in/writereaddata/EIA_notifications/2006_09_14_EIA.pdf

50. As an example of application, SEAs followed up with site-specific EIAs are the necessary tools to ensure that the impacts of renewable energy deployment on migratory species are minimized and should be in place and applied. In the frame of CMS and its daughter agreements, including the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA), important guidance for avoiding and minimizing negative impacts of renewable energies and related infrastructure including power lines on migratory species has been endorsed, for example, through CMS Resolution 11.27 (Rev.COP13) *Renewable Energy and Migratory Species*.[52]

51. The guidance and tools endorsed under CMS and its daughter agreements have been promoted particularly through the multi-stakeholder *Task Force on Reconciling Selected Energy Sector Developments with Migratory Species Conservation* (the CMS Energy Task Force, ETF).[53] Several member countries and organizations participating in the ETF process have developed best practice guidance and outputs in the context of SEAs and EIAs to avoid negative impacts from renewable energy and related infrastructure in specific regional or local context, e.g. the *Best-Practice Guidelines for assessing and monitoring the impact of wind energy facilities on birds in southern Africa*[54] and results from an SEA undertaken in Kenya, indicating that:

    i.) there is a favorable policy environment for wind power development in Kenya;
    ii.) there are a large number of planned wind energy developments, most of which target locations where potential biodiversity impacts are likely to be low or manageable;
    iii.) there are large areas of economically viable wind potential in Kenya of low or manageable biodiversity risk, with only 17% of economic wind areas classed as very high sensitivity for species and sites such as IBAs;
    iv.) poorly planned wind power can have significant cumulative impacts, especially on wide-ranging or migratory, collision-prone bird and bat species; and
    v.) avoidance of impacts to biodiversity through proper site location should be emphasized, following the mitigation hierarchy approach and use of sensitivity mapping.

52. Various planning tools, such as the AVISTEP - Avian Sensitivity Tool for Energy Planning[55], developed by BirdLife International, and the IUCN guidelines for project developers on mitigating biodiversity impacts associated with solar and wind energy development, are also useful to consider.[56]

[52] In the CMS Resolution 11.27 (Rev.COP13) *Renewable Energy and Migratory Species*, the Conference of the Parties endorsed the document *Renewable Energy Technologies and Migratory Species: Guidelines for Sustainable Deployment*; urged Parties and encouraged non-Parties to implement these voluntary Guidelines as applicable depending on the particular circumstances of each Party, and to apply appropriate SEA and EIA procedures, including an appropriate ecological assessment if protected and sensitive areas in particular for migratory species are likely to be affected, when planning the use of renewable energy technologies, avoiding existing protected areas in the broadest sense and other sites of importance to migratory species.
[53] the CMS Energy Task Force, ETF
[54] Best-Practice Guidelines for assessing and monitoring the impact of wind energy facilities on birds in southern Africa
[55] https://avistep.birdlife.org/
[56] Mitigating biodiversity impacts associated with solar and wind energy development. Synthesis and key messages, IUCN 2021.

53. Furthermore, EIA and SEA are effective instruments to address the impact of linear infrastructure development on migratory species. The Intersessional Working Group on Linear Infrastructure (IWG-LI) attached great importance to good quality SEAs in the early stages of planning linear infrastructure projects to avoid and mitigate negative impacts on migratory species. However, it identified the limited availability and accessibility of data and information on migratory species movements and linear infrastructure as a limiting factor in conducting good quality SEAs. The IWG-LI also identified insufficient awareness of the importance of animal movements among decision-makers in the financial, planning and development sectors, as well as low capacity to implement relevant international policies and existing standards and guidelines, as further limiting factors to conducting high-quality SEAs.[57]

Economic-based Instruments

Non-Market Tools

Recommendation 13: Use all available and design new non-market-based tools, such as restrictive covenants, conservation and connectivity easements, and private protected areas.

54. When the government does not own the land or water essential for connectivity, and there are no legal limitations on land use, legal instruments such as non-market tools that promote voluntary action are essential. Non-market tools are beneficial because the implementation responsibilities are understood and agreed by all parties. These agreements may be paired with compensatory programs or other positive incentives.

55. Understanding the property laws in a particular context is critical for ensuring that any agreements or commitments run with the land and are secure over time, even as landowners and land occupiers change.

56. Agreements may be used to maintain, improve, and restore connectivity by:
    - restricting future development or usage;
    - restricting or modifying existing uses; and
    - actively managing land.

[57] The IWG-LI made recommendations to amend Resolution 7.2 (Rev. COP12) Impact Assessment and Migratory Species and drafted decisions for COP14 to consider that aim to contribute to enabling conditions for good quality SEAs. COP14 adopted the Resolution 7.2 (Rev.COP14) and Decisions 14.204-14.206 *Impact Assessment and Migratory Species*.

Examples of Non-Market-Based Tools that Support Connectivity Conservation Actions	
Restrictive covenants	Legally enforceable commitments often included in real estate deeds and leases. - Negative restrictive covenants prevent certain uses or actions - Positive restrictive covenants mandate actions
Conservation or connectivity easements	Restrict the use of land and preserve its use for a specific purpose. Holder title varies depending on the local legal context. Legislation could specifically: - Allow non-governmental organizations to hold easements over land; - Grant rights to registered land trusts; - Allow government, or specific bodies within the government, to hold exclusive rights to negotiate and hold easements.
Private protected areas	Lands held by private individuals, and in some cases communally by Indigenous Peoples, and managed according to protected area standards.

57. Restrictive covenants are legally enforceable commitments that are most often included in real estate deeds and leases. Frequently used to maintain or restore the character of land or water – to the actual or perceived benefit of neighboring areas – restrictive covenants can in fact be either “negative” or “positive” in character. A negative restrictive covenant presents certain uses or actions (e.g., a covenant that prohibits felling of trees). A positive covenant, in contrast, mandates actions (e.g., a covenant to plant native species in a deforested area).
58. Conservation or connectivity easements are agreements that restrict the use of land and preserve its use for a specific purpose. Who can negotiate and hold these easements varies depending on the local legal context. In some cases, legislation specifically allows non-governmental organizations to hold easements over land, but in other cases, the right is granted only to registered land trusts. In yet other contexts, it may be the government, or specific bodies within the government, which hold exclusive rights to negotiate and hold easements.

59. Historically, protected areas have been established on public lands or waters (i.e., territories owned and/or managed by the State or a sub-national government). In recent years, however, countries have begun to experiment with so-called “private protected areas” - lands held by private individuals, and in some cases communally by Indigenous Peoples, and managed according to protected area standards.

60. In Peru, for example, the National Protected Areas System includes public, private, and community-based protected areas, all of which are contemplated in the protected area law.[58] Currently, Peru boasts some 147 private protected areas. Legally, such areas are not “created” but rather are “recognized” through government decree upon the voluntary application of a landowner and following satisfaction of management criteria designed to ensure that the area is, in substance, the functional equivalent of a public protected area.

[58] Ley de Áreas Naturales Protegidas, Ley N.° 26834 (National Protected Areas Law); Reglamento de la Ley de Áreas Naturales Protegidas, Decreto Supremo N° 038-2001-AG (Regulation of National Protected Areas Law).

Although the system in Peru is entirely voluntary, national legislation could also include direct incentives for the development of private protected areas, including tax benefits, offset credits, public grants, and more.

Example 1:

Florida (United States): Subnational government utilizing conservation easements for connectivity: Chapter 51-7 of the Florida Administrative Code[59] acknowledges the purpose of the Rural and Family Lands Protection Program to bring under public protection lands that serve to limit subdivision and conversion of agricultural and natural areas that provide economic, open space, water, and wildlife benefits. The Program therefore seeks to achieve policy coherence by pursuing protection of viable agricultural lands, while also protecting essential natural resources. It seeks to do the same through conservation easements that encourage economically and ecologically viable agricultural practices. The program has successfully executed permanent rural lands protection easements for over 125,000 acres of working agricultural land. It stands as a recognition of the complementary importance of agricultural land and natural resources to Florida's future.[60]

Example 2:

Kenya: National legislation empowering communities and landowners to steward connectivity values: Kenya's Wildlife Conservation and Management Act (2013)[61] is foundational legislation promoting decentralized wildlife governance, adopting an ecosystem approach, and recognizing wildlife conservation as a formal land-use with benefit-sharing for conservation directed to land users.

Market-based Tools

Recommendation 14: Use all available and design new market-based tools, such as indirect payment programs, direct funding programs, and market creation programs.

61. A second category of tools for achieving voluntary actions is the use of market-based tools. These tools may comprise positive incentivization or negative incentivization, but the commonality is that these approaches have a link to a market and, as such, they can be broadly described as economic instruments.

Examples of Market-Based Tools that Support Voluntary Actions	
Positive Incentivization Approaches	***Negative Incentivization Approaches***
• Indirect Funding Programs • Direct Funding Programs • Market Creation Programs	• Charges and fees • Taxation programs • Polluter pays programs
• Ecosystem services payments	

[59] https://www.law.cornell.edu/regulations/florida/department-5/division-5I/chapter-5I-7
[60] https://www.fdacs.gov/Consumer-Resources/Protect-Our-Environment/Rural-and-Family-Lands-Protection-Program
[61] https://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/WildlifeConservationandManagement%20Act2013.pdf

62. Market-based approaches that draw on positive incentivization are most common. These approaches fall into a few categories: payment programs, direct funding, and market creation.

63. *Indirect payment programs*: Payment programs can include subsidies or tax reductions that either promote certain undertakings or compensate for opportunity costs that result from foregoing an activity. Where a large-scale aim exists across a particular sector or significant area of land, such as a reduction of the use of pesticides or preservation of a certain type of habitat, a subsidy or tax incentive program may be more achievable at scale, with fewer transaction costs, than a contract or grant program that requires individualized tailoring, as discussed below.

64. *Direct funding programs*: Incorporating the development of direct funding programs into connectivity legislation should include clear identification of a revenue stream, a management or advisory board, a leadership and decision-making hierarchy, a set of guiding principles, and the types of activities that may be funded. Additionally, the distribution process for direct funding should be clearly defined in the law. Many different means of distribution are possible, including by contract, by grant, or by tender or some combination of these methods. The distribution method may depend on the scale of the direct funding program and the type of influence the program intends to achieve. Where connectivity needs or goals are focused on specific areas or target specific, localized activities, contract or grant programs may be a good option.

65. Where the government bears the burden of the cost of a market-based program, identification of a revenue stream to support the program is often necessary. As discussed below, linking negative incentive programs to positive incentive programs is a means of securing both funding and implementation.

66. *Market creation programs*: Market creation programs include mechanisms that require offsetting of destructive or disruptive activities and assign property rights or interests in the offset that can be bought, sold, traded, or otherwise transferred so that the monetary value of the property interest may be captured.

67. In most market creation programs, the government must create demand for property interest. For example, in the pollution context, the government may limit pollution emission to a fixed level, and then in order to release a particular substance into the environment beyond that threshold, the government may require a developer to purchase a credit or some other property interest in a pollution-mitigation initiative. Likewise, in the connectivity context, any harm to connectivity could be “offset” through the purchase of a credit that supports the maintenance, improvement, or restoration of connectivity.

68. Programs of this nature would need to consider two main variables: the activities in need of mitigation and the types of programs eligible for offset credit. Working within these variables, a country might decide that developments within a forested ecological corridor may only occur to the extent that the developer purchases credits to finance reforestation projects in other areas; that shipping firms may only operate vessels contributing to marine noise pollution to the extent that they purchase credits to finance conservation activities supporting migratory marine fauna; and so forth.

69. In designing such programs, governments would need to distinguish carefully between those activities that should be prohibited outright and those activities that might be tolerated *if* offset with an appropriate credit.

70. Connectivity "banks" is one approach to setting up such a program. In a connectivity bank program, legislation would allow landholders to enter into an agreement with the government that sets explicit expectations regarding the use and management of the land and that establishes review, oversight, and enforcement mechanisms. The incentivization occurs because once approved as a connectivity bank, the landholder may sell credits into a marketplace that provides offsets for activities that might impact connectivity. Legislative design should include parameters such as ensuring that any offset does two things: First, it should be a "like-kind" offset–in other words, an offset should function in a particular landscape to offset a similar harm to connectivity in a similar landscape. Second, the harmful activity and the offset should occur in the same area so that local, specific connectivity goals can be achieved through such programs. For example, mitigating harm to a flyway in a mountainous region of a country with an offset in a coastal region may not serve to meet overall connectivity goals. Consideration should also be given to ensuring that programs are designed in ways that move beyond a net-zero impact to connectivity toward increasing connectivity. An additional legislative design element is consideration of returning a portion of the proceeds of the sale of any offset to the government to provide for the longevity and security of the program, as well as future potential management needs. The latter portion could be held in a trust. Finally, legislative design should determine who bears the risks of natural disasters and other impacts on the value of the land to connectivity goals, as well as the actions and commitment of future landholders.

71. Ecosystem services payments are an incentivization approach, often used as direct funding tools. Via payment, farmers or landowners are incentivized to, for example, adopt sustainable practices or restore their land, which in return provide ecosystem services.

Example 1:

Brazil: Subnational support for protecting connectivity in a specific biome: The Brazilian state of Mato Grosso do Sul is protecting ecological connectivity in the Pantanal through Decree 16.388[62] that creates the Pantanal Climate Fund for environmental services. Priority for fund dispersal will be given to "the protection and recovery of springs and the vegetation in degraded areas that are strategic for the formation of ecological corridors."

Recommendation 15: Use negative incentivization schemes to require compensation for any impairment to connectivity.

72. *Market-based Approaches and Negative Incentives:* Negative incentivization schemes require landowners, land users, or developers to pay for any negative externalities, such as any impairment of connectivity.

73. These mechanisms compensate for the loss of or damage to connectivity, but they are only a means of maintaining, improving, or restoring connectivity when the cost is sufficiently high to deter particular activities or force positive connectivity benefits and when the relevant government establishes a fund that supports connectivity work. Useful ways to deploy these

[62]https://aacpdappls.net.ms.gov.br/appls/legislacao/secoge/govato.nsf/fd8600de8a55c7fc04256b210079ce25/8d1022d2e9721d4804258ac80044984f?OpenDocument

funds could be by providing funding to any non-market-based approaches to voluntary actions, positive incentive schemes, or government agencies involved in maintaining or restoring connectivity on public lands. In this way, negative incentivization schemes can function as offset mechanisms.

74. Polluter pays and ecosystem service payments (when beneficiaries are using ecosystem services) are two increasingly common market-based negative incentive programs. These programs may be established as direct costs, through fees or taxes, imposed on developers, farmers, extractive industries or development projects, or, in some cases, internal government policy might direct certain revenue streams, such as those generated from government concessions for water or land use, toward funding market-based positive incentive programs.

Example 1`:

Brazil: Subnational regulation for protecting connectivity in a specific biome: The Brazilian state of Mato Grosso do Sul is protecting ecological connectivity in the Pantanal through Decree 16.388.[63] The 2024 decree sets out restrictions[64] on certain agricultural practices and development within the Pantanal. Among these stipulations, the focus is on limiting removal of native vegetation. While landowners are permitted to clear some of their land for economic use, the decree emphasizes the importance of preserving ecological corridors, especially remnant corridors which can continue to connect reserves and other intact habitat.

Special Considerations for Marine Connectivity

Recommendation 16: Provide for the establishment of marine protected area networks and ecological networks and corridors into legislation based on spatial conservation tools supported by the best available science.

75. Ecological connectivity is critical for sustaining marine biodiversity, including migratory species that travel across the globe to make use of different habitats for breeding, foraging, nesting and to perform other essential stages of their annual cycle.[65] As on land, marine ecological connectivity is threatened by habitat destruction and fragmentation, coupled with the impacts of cumulative anthropogenic activities predominant in the marine environment (such as shipping and fishing) that may negatively impact marine biodiversity including from overfishing, marine pollution, ship strikes, bycatch, introduction of alien species and underwater noise, as well as by the cross-cutting effects of climate change as drivers of change for migratory patterns.

76. Maintaining, improving, and restoring marine ecological connectivity is challenged by the marine environment characteristics and its governing regimes that must respond to migratory species undertaking journeys across vast marine spaces.

77. Still, many marine migratory species spend a significant portion of their life in the High Seas where area-based management tools and other measures to promote connectivity may only

[63] https://aacpdappls.net.ms.gov.br/appls/legislacao/secoge/govato.nsf/fd8600de8a55c7fc04256b210079ce25/8d1022d2e9721d4804258ac80044984f?OpenDocument
[64] https://agenciabrasil.ebc.com.br/en/geral/noticia/2023-12/new-state-law-protects-pantanal-biome-mato-grosso-do-sul
[65] M. S., Webster et al. 2002. Links between worlds: unraveling migratory connectivity. Trends in Ecology & Evolution. 17. 2. Pp 76-82.

be implemented under appropriate intergovernmental authority or instrument.[66] The recent adoption of a new international legally binding instrument under UNCLOS on the conservation and sustainable use of marine biological diversity of ABNJ (BBNJ agreement) is an opportunity for unifying and creating this authority where there is a lack of mandate to establish MPAs outside national jurisdiction as it promotes the establishment of ecologically representative and well-connected MPA networks.[67] The regulation of connectivity in ABNJ is outside of this guidance's scope, however it is recommended that States ratify the BBNJ agreement which has not entered into force.

78. Depending upon each national context, national legislation may integrate marine ecological connectivity in areas discussed in previous sections of this guidance and adapt legislative instruments to the marine environmental like through Marine Spatial Planning (MSP), Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA), plus other types of laws including wildlife conservation and fisheries law.

79. Special consideration for maintaining, improving, and restoring marine ecological connectivity should be given to legislation providing for area-based management tools, especially the establishment and management of MPA networks and transboundary MPAs based on scientific spatial conservation tools supported by the best available science, including the following:
    - The obligation or authority to implement connectivity as a criterion for the establishment of representative networks of MPAs and for assessing their ecological coherence;[68]
    - The obligation to make use of available spatial conservation tools for the identification, design, and management of MPA networks and transboundary MPAs. Spatial conservation tools include Ecologically or Biologically Significant Marine Areas (EBSAs) which support the implementation of the ecosystems approach by providing guidance on areas that, for example, are of special importance for life-history stage of migratory species.[69] Applying this EBSA criteria requires the consideration of the connectivity between life history stages and linkages between areas including breeding grounds, spawning areas, nursery areas, juvenile habitat, and other areas important for migratory species for feeding, wintering and resting purposes or their migratory routes;[70]
    - The obligation or authority to establish marine ecological corridors between MPAs or between MPAs and other areas, with corresponding regulatory provisions;
    - Requiring an ecosystem-based approach to marine and coastal conservation management;

[66] UNEP-WCMC. 2017. Governance of areas beyond national jurisdiction for biodiversity conservation and sustainable use: Institutional arrangements and cross-sectoral cooperation in the Western Indian Ocean and the Southeast Pacific. Cambridge (UK): UN Environment World Conservation Monitoring Centre. 6 pp.

[67] Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. (adopted 19 June 2023) (BBNJ Agreement). Art 17 (a) establishes the objective to: (a) *"Conserve and sustainably use areas requiring protection, including through the establishment of a comprehensive system of area-based management tools, with ecologically representative and well-connected networks of marine protected areas* (…)(…)".

[68] Annex II, Decision IX/20 of the Conference of the Parties of the Convention on Biological Diversity (CBD COP) provides scientific guidance for selecting areas to establish a representative network of MPAs, including connectivity, EBSAs representativity, replicated ecological features, adequate and viable sites.

[69] The criteria for EBSAs identification were adopted under CBD COP Decision IX/20. There are seven EBSA criteria, connectivity is not an explicit criterion for site-selection. However, criteria including the special importance for life-history stages of species have a direct impact in marine ecological connectivity. EBSA criteria include (i) Uniqueness or rarity, (ii) special importance for life-history stage of species, (iii) importance for threatened, endangered or declining species and/or habitats, (iv) vulnerability, fragility, sensitivity or slow recovery, (v) biological productivity, (vi) biological diversity, (vii) naturalness.

[70] CBD COP Dec IX/20, Annex I.

- Consider and address unique height and depth dimensions of marine and freshwater ecosystems, as vertical zoning for commercial purposes or issuance of subsurface rights to the seafloor may undermine conservation objectives in such habitats.
- When possible, make use of existing ocean governance frameworks for the establishment of transboundary MPAs and to foster cooperation with relevant States; and
- The obligation to develop or adjust existing legislation on MSP to account on the connectivity between land and sea through coastal ecosystems and the anthropogenic activities in these ecosystems that may negatively impact MPAs from threats like pollution and sedimentation.

80. While individual MPAs have demonstrated to mitigate biodiversity loss through the persistence, recovery and growth of populations (each within their own management category), MPA networks[71] and in particular, marine corridors, can conserve known migration routes and bottleneck zones, such as those between islands that are vulnerable to human activities. Marine ecological corridors may be especially important for species that use different environments at different stages of their life cycles and can facilitate the role of MPAs as sources of species replenishment to populations elsewhere. The use of buffer zones, limited take/fishing zones, and rules regarding navigation and marine noise can also establish connectivity between MPAs. The creation/use of dynamic or seasonal MPAs should also be considered as a means to improve connectivity for migratory species.

81. Finally, because many marine ecosystems—like their terrestrial counterparts—span multiple countries, international MPAs can be an effective way to promote connectivity and other conservation goals across marine borders.

82. Another scientific spatial conservation tool that can support the identification or expansion of existing MPAs and MPA networks, their modification and monitoring are Important Marine Mammal Areas (IMMAs).[72] IMMAs are *a discrete portion of habitat, important for marine mammal species, which aims to have the potential to be delineated and managed for conservation*[73] and work around criteria including the identification of areas that are key for marine mammal life-cycle activities including reproduction, feeding and migration (Criterion C, Sub criteria C1, C2 and C3).[74] The use of IMMAs to guide the design and management of MPA networks and transboundary MPAs facilitate the evaluation of potential impacts on marine mammal species in certain areas including from ship strikes, underwater noise, and bycatch.

[71] Marine Protected Area networks are defined as “an organized collection of individual MPAs operating co-operatively and synergistically, at various spatial scales and with a range of protection levels, to fulfill ecological aims more effectively and comprehensively than individual sites could alone”. See Laffoley, D. d’A., (ed.) 2008. Towards Networks of Marine Protected Areas. The MPA Plan of Action for IUCN’s World Commission on Protected Areas. IUCN WCPA, Gland, Switzerland. 28 pp. ISBN: 978-2-8317-1091-4

[72] Created in 2016 by the IUCN Marine Mammal Protected Areas Task Force. N SSC-WCPA Marine Mammal Protected Areas Task Force. Important Marine Mammal Areas (2023). https://www.marinemammalhabitat.org/

[73] E., Hoyt. 2022. Ocean Governance Important Marine Mammal Area (IMMA) Report In support of the Twinning on Marine Mammals’ Protection, a way to enhance transatlantic cooperation between MPAs. Page 1

[74] Criterion A-Species or Population Vulnerability in Marine Mammal Protected Areas Task Force. 2023. IMMA Selection Criteria. https://www.marinemammalhabitat.org/immas/imma-criteria/. Other IMMA criteria include Species or population vulnerability (Criterion A), distribution and abundance (Criterion B), and Special Attributes (Criterion D).

83. Finally, the Important Shark and Ray Areas (ISRAs) are another spatial conservation tool that may inform the identification, design, and management of MPAs based on areas that are important to sharks based on biological, ecological and environmental requirements (as well as for MSP, monitoring, and EIAs, etc.). The ISRA criteria allow the identification of areas that are important to sharks based on vulnerability, range restriction, special attributes like distinctiveness and diversity, and especially important for connectivity, life-history stages including areas used by sharks regularly or predictably during their migrations for reproduction, feeding, resting, moving, and for undefined aggregations that contribute to connectivity of other functionally important areas.[75]

Example 1:

Spain: National strategy addressing marine connectivity: Spain's *Strategic Plan on Natural Heritage and Biodiversity to 2030*,[76] revised in 2023, addresses ecological corridors and Spain's commitment to significantly advance management tools for Protected Areas, including new management plans for marine areas in the Natura 2000 Network and marine migratory corridors. This includes commitment to approve, update, and implement management instruments or marine protected areas under national jurisdiction such as the Mediterranean Cetacean Migration Corridor Marine Protected Area and in the Natura 2000 Network.

Recommendation 17: Include broad stakeholder participation, ecosystem-based planning and integrated planning into marine spatial planning and consider future uses and future adaptation needs, such as to climate change and evolving human needs.

84. To guide national authorities in the creation and implementation of MPAs, MPA networks, and marine ecological corridors, as well as other marine governance instruments, regulations may direct authorities to engage in Marine Spatial Planning (MSP).

85. MSP is a planning tool that aims to track how the ocean is being used and what habitat and natural resources exist at any given time. Legislation can require authorities to make decisions based on, or at least in reference to, MSP documents.

86. In most coastal and marine areas there are already many existing uses, such as artisanal, sport, and industrial fishing; tourism and recreation; habitat for endangered marine species; navigation; harbors and ports; mineral extraction; and scientific research. Anticipated uses also need to be taken into account, as marine ecosystems are dynamic, human needs change, and climate change impacts will increasingly require adaptation.

87. As an organizational and decision-making tool, MSP requires all concerned agencies to work collaboratively to collate uses, conservation needs, and risks, and to engage in long-term planning based on the collective assessment.

[75] IUCN SSC Shark Specialist Group. 2022. Important Shark and Ray Area (ISRA): Guidance on criteria application. Version 1, August 2022. Dubai: IUCN SSC Shark Specialist Group.
[76] https://www.miteco.gob.es/content/dam/miteco/es/biodiversidad/publicaciones/estrategias/peepnb2030-difusion.pdf

88. Early lessons from country experiences highlight five elements that are critical for a successful MSP process:
    - **Authority** to require all agencies to comply with the approved marine spatial plan;
    - **Broad participation**, meaning all key stakeholders must be involved because MSP aims to achieve multiple objectives, and different stakeholders reflect these interests;
    - **Ecosystem-based planning** such that the final plans reflect ecosystem patterns and processes at appropriate spatial and temporal scales and address fundamental conditions enabling identification and protection of the most ecologically and economically valuable places;
    - **Integrated planning** to address multiple objectives and integrate a wide range of uses and issues;
    - **Future-oriented and adaptive scope** because it is important to focus on the future, as MSP is most useful as a dynamic process anticipating changes, not only programming based on the past.

89. In a similar vein, authorities should consider use of dynamic MPAs, whose inherent flexibility allows for adaptive management and regulatory approaches that may be feasible in situations where a permanent, no-take MPA is not practicable. The design of dynamic MPAs can be tailored to prevailing conditions and conservation needs. For instance, a dynamic MPA might provide for the automatic closure of a given fishery when a fixed bycatch threshold is met. Contemporary monitoring, control, and surveillance (MCS) technology allow for near real-time tracking—both of fisheries activity and, in some cases, movement of protected species—making such approaches increasingly effective.[77]

90. Safeguards should be provided to ensure meaningful participation of affected stakeholders at all levels, considering traditional and local knowledge, accountability and transparency in decision making. Where the interests of Indigenous Peoples and local communities are compatible with conservation connectivity objectives, governance arrangements will be easier to secure. Bottom-up initiatives that empower communities are more likely to succeed where the communities have a clear interest at stake that benefits from cooperation with connectivity conservation.

91. In sum, important elements to consider for connectivity conservation when strengthening or developing new marine and coastal legislation – or other relevant legislation, however styled (e.g., protected areas legislation) – include creating ecologically-based marine and coastal protected area networks (not just separate sites), providing scientific and ecological criteria for selecting sites for such networks, requiring an ecosystem-based approach to marine and coastal conservation management, and promoting area-based conservation and management through tools such as MSP, ocean zoning, and integrated marine and coastal resource management.

[77] *See generally* Eric Gilman, et al., *Do static and dynamic marine protected areas that restrict pelagic fishing achieve ecological objectives?* Ecosphere, Vol. 10, e02968 (2019), https://doi.org/10.1002/ecs2.2968.

Special Considerations for Hydrological Connectivity

Recommendation 18: Include environmental flows for non-consumptive uses of water as a legal mandate.

92. The hydrologic cycle is the continuous movement of water on, above, and below the surface of the Earth, which includes groundwater, watersheds, rivers, lakes, and high-mountain catchments. In the context of connectivity, river systems, watersheds and catchments provide important habitats and natural linkages for many different organisms and for maintaining basic ecological processes and healthy ecosystems.

93. Of course, freshwater systems and water flows also are in high demand for human uses (e.g., hydropower generation, irrigation, drinking water, and recreation). As these uses increase, it becomes progressively more important that the law prevents such uses from coming at the expense of ecosystem needs and connectivity.

94. Many of the tools and mechanisms discussed above are applicable to hydrological connectivity; however, special consideration may be necessary to address certain aspects of hydrological connectivity, as highlighted in this section.

95. A starting point for freshwater management through law is a concept called environmental flow, which has been defined as the minimal water flow within a river, wetland, or other freshwater system necessary to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated.[78]

Example 1:

Spain: National strategy addressing hydrological connectivity: Spain's *Strategic Plan on Natural Heritage and Biodiversity to 2030*,[79] commits to restoring 3,000 km of river corridors by 2030 by understanding the ecological status of all water bodies and applying restoration measures to eliminate barriers to sedimentary dynamics, improve liquid and solid flow regimes, provide functional connectivity for fauna, expand free-flowing spaces, and regenerate riparian ecosystems.

Example 2:

Costa Rica: National program for connectivity of protected areas and ecosystem services such as water: Costa Rica's "Biological Corridors" are a national strategy for connecting protected areas, safeguarding water sources, and supporting ecological processes and biodiversity.[80] The National Biological Corridors Program (*Programa Nacional de Corredores Biológicos*)[81] was established in 2006 and is housed in the National System of Conservation Areas (SINAC; *Sistema Nacional de Áreas de Conservación*) under the Ministry of Environment and Energy (*Ministerio de Ambiente y Energía*). The program's function as a national biodiversity conservation strategy was further clarified in 2017.[82] Biological corridors are considered a key

[78] Dyson, Megan, ed.; Bergkamp, Ger, ed.; Scanlon, John, ed., Flow: The essentials of Environmental Flows (IUCN 2008).
[79] https://www.miteco.gob.es/content/dam/miteco/es/biodiversidad/publicaciones/estrategias/peepnb2030-difusion.pdf
[80] https://conservationcorridor.org/ccsg/what-we-do/projects-and-activities/guidelines/case-studies/costarica/
[81] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=57278&nValor3=107129&strTipM=TC
[82] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=57278&nValor3=107129&strTipM=TC

pillar of Costa Rica's objectives for in-situ conservation and the overall objective of the corridor program[83] is the "promotion of biodiversity conservation and sustainable use from the perspective of structural and functional ecosystem connectivity." Specific objectives include: in 2017.[84] Biological corridors are considered a key pillar of Costa Rica's objectives for in-situ conservation and the overall objective of the corridor program[85] is the "promotion of biodiversity conservation and sustainable use from the perspective of structural and functional ecosystem connectivity." Specific objectives include:

- strengthening of protected areas and their connectivity
- climate change adaptation and mitigation
- maintenance of ecosystem services
- synergies with other sectors
- strengthening models of stakeholder engagement and governance for the benefit of society.

Special Considerations for Transboundary Connectivity

Recommendation 19: Consider establishing a governance structure, decision-making process, planning, monitoring and assessment mechanisms in legal instruments that are relevant for transboundary connectivity.

96. Connectivity, and especially large-scale connectivity, can span multiple jurisdictions. This can occur within a single country, where connectivity requires linking lands or waters managed by different authorities or different levels of government. Or it can occur where connectivity plans span two or more countries. In these cases, to address the range of government actors, a specific legal instrument can be designed to address site-specific needs. Depending on the nature of the site and the need for cooperative management, the legal instrument of choice may be stand-alone legislation, a policy instrument, or a formal agreement, such as a Memorandum of Understanding (MOU).

97. In designing any of these instruments, attention should be given to the establishment of a lead agency, secretariat, or focal point. To set a clear policy and management approach across multiple jurisdictions, the legal instrument should designate either a lead government body or create a new body, comprising all relevant governments or authorities, which has the power to make necessary decisions. A decision-making process should include thorough consultation across the range of relevant government entities, as well as with all other stakeholders and communities. Both planning and assessment should be integrated into the legislation, taking into account the considerations outlined above.

98. Collaboration between the Republic of Tanzania and Mozambique is a good example. Based on an initiative evolving from the Southern African Development Community (SADC), which adopted the Protocol on Wildlife Conservation and Law Enforcement of 1999,[86] the two countries signed in 2007 a Memorandum of Understanding on the Transfrontier Conservation Area (TFCA) spanning an area of 154,000km^2, including the Niassa National Reserve in Mozambique and the Selous Game Reserve in Tanzania, as well as a wildlife corridor of approximately 170 kms length, linking the two protected areas. Having cooperated based on the non-legally binding MOU with no institutional structure to support

[83] https://www.sinac.go.cr/ES/partciudygober/Paginas/pncb.aspx
[84] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=57278&nValor3=107129&strTipM=TC
[85] https://www.sinac.go.cr/ES/partciudygober/Paginas/pncb.aspx
[86] Protocol on Wildlife Conservation and Law Enforcement, Southern African Development community (SADC) 1999.

it, the Parties recently agreed on turning the MOU into a legally binding agreement under the auspices of SADC and with the support of the CMS Secretariat. The new treaty will establish a comprehensive governance structure consisting of a Secretariat, ministerial, national, and local committees, as well as a joint management committee to administer, manage and develop the TFCA. Both Parties will have to allocate resources to the management of the TFCA and a fund will be established to support the implementation of programmes in the TFCA.

99. Connectivity initiatives involving two or more countries might require either an MOU or a regional agreement to ensure harmonization of policies and management measures. As described above, a governance structure, decision-making process, and planning and assessment should all be incorporated into the agreement. Two additional key considerations are funding and the establishment of a Secretariat.

Example 1:

Spain: National strategy addressing transboundary connectivity conservation: Spain's *Strategic Plan on Natural Heritage and Biodiversity to 2030*,[87] explicitly states that it will promote bilateral agreements on natural heritage and biodiversity with the neighboring countries of France, Portugal, and Morrocco. This includes interstate collaboration and coordination for conserving biodiversity on the Iberian Peninsula, as well as cross-border actions with special attention to ecological corridors, river corridors, and mountain systems.

Special Considerations for Indigenous Peoples and Connectivity

Recommendation 20: Respect Indigenous Peoples' decision-making rights in land management policy and integration of Indigenous Peoples' lands into connectivity planning, addressing tenure security, granting collective ownership rights where culturally or environmentally required, ensuring prior consultation, and protecting land, water, and resource rights.

100. Lands and other territories inhabited by Indigenous Peoples play an important role in ecological connectivity. Although natural habitats, wildlife, and the benefits that people receive from nature are declining at an alarming rate, their decline is generally slower in Indigenous Peoples' lands and territories. Thus, Indigenous Peoples and their territory hold great promise for ecological conservation in general and connectivity in particular.

101. From a legal perspective, however, Indigenous Peoples' lands and territories introduce unique considerations. Specifically, using national law to promote connectivity on Indigenous Peoples' lands and territories requires addressing tenure security, prior consultation norms, and substantive land, water, and natural-resource rights recognized under customary law, national law, and international instruments. One way of granting security of tenure to indigenous communities granting collective ownership rights over their land. This ensures that parcels of land belonging to individuals or families are not sold off so as to fragment the larger landscape.

[87] https://www.miteco.gob.es/content/dam/miteco/es/biodiversidad/publicaciones/estrategias/peepnb2030-difusion.pdf

Example 1:

Namibia: National legislation defining communal and traditional lands: The Republic of Namibia, through the Nature Conservation Amendment Act 1996,[88] expanded the definition of communal lands to include "any geographic area of land habitually inhabited by traditional communities." Through the additions of Section 24A and B, communities were given the option to declare such 'community land' as a conservancy, in addition to also establishing a wildlife council for the area. This played a key role in preventing the fragmentation of such habitats, in addition to providing greater negotiating power to the local communities and direct benefits from tourism and other activities on their land.

Example 2:

South Sudan: National legislation categorizing community lands: South Sudan's Land Act 2009[89] is another example that categorizes land as community land in order to prevent land grabbing and protect traditional and sustainable use. The Land Act reiterates the Constitutional provisions that it is the people of South Sudan that own land and that the government shall regulate its usage. It provides for community land to be registered in the name of a community, clan or a family in accordance with the customary practices applicable in that area.

102. Once Indigenous Peoples' tenure is enshrined in the law, respecting procedural decision-making rights is paramount. Indigenous Peoples should be involved in the dialogue on the land management policy. For instance, Indigenous Peoples should especially be involved in local governments or local management committees when these committees manage large biological corridors or areas that involve Indigenous Peoples' areas. When Indigenous Peoples have a strong voice or direct decision-making power about what activities may occur within Indigenous Peoples' lands – particularly as concerns extractive projects, infrastructure projects, and other large-scale developments – they are better positioned to prevent activities that threaten ecosystems and connectivity.

Special Considerations for Climate Change and Connectivity

Recommendation 21: Ensure climate change adaptation and mitigation actions are taken into account in legislation aiming to maintain, enhance, and restore connectivity.

103. Climate change combines with other phenomena – deforestation, land degradation, direct exploitation of wildlife – to threaten ecological connectivity at an even greater scale. Among other consequences, climate change disrupts habitat (e.g., dry tropical forests transform into savannas, wildfires increase in frequency and magnitude, ocean acidification degrades reef environments, etc.), which can provoke shifts in species' ranges and plummeting populations. Its own source of pressure on wildlife and nature, climate change also exacerbates other existing environmental problems, acting as a threat multiplier.

[88] https://www.npc.gov.na/wp-content/uploads/2022/06/Nature-Conservation-Amendment-Act-5-of-1996.pdf
[89] https://mojca.gov.ss/wp-content/uploads/2023/03/Land-Act-2009.pdf

104. At the same time, maintaining, improving, and restoring connectivity can be an important means of both adapting to and mitigating climate change. In fact, nature-based solutions to climate change directly link biodiversity conservation and climate-change mitigation. As policymakers develop Nationally Determined Contributions (NDCs) and related projects, national, regional, and local-level connectivity goals can be incorporated, providing both financial and administrative efficiencies as well as conservation efficiencies.sdf

105. Legislation aiming to maintain, improve, and restore connectivity should take climate change into account. CMS Resolution 12.21 (Rev.COP14) *Climate Change and Migratory Species* also encourages Parties to take into account potential social and environmental impacts on migratory species when developing and implementing relevant climate change mitigation and adaptation action and land use planning including Strategic Environmental Assessments and Environmental Impact Assessment. Many of the legislative approaches discussed in this document can take climate change into account.

106. For example, just as EIA legislation should require that EIAs include an analysis focused on impacts to connectivity, the same legislation should require consideration of the proposed activity in light of climate change and projected conditions in a warming planet. Such an analysis – sometimes treated as a "cumulative impacts" analysis – may suggest that certain direct impacts (e.g., reduced flow from a diversion dam) are in fact more serious when added to current and expected pressure from climate change. Similarly, when analyzing connectivity within an EIA, climate-change cognizance may add to connectivity concerns (e.g., the same diversion dam may impair hydrological connectivity, with that impairment further exacerbated by expected reduced flows in any event from climate change).

107. Protected areas legislation, too, might require authorities to consider climate change, and its effects on connectivity, when establishing and managing protected areas, buffer zones, and ecological corridors. Study of expected impacts from climate change, for instance, might reveal that a particularly important species will shift its range from an area currently protected to an area that is not so protected. Or climate-change analysis may reveal that hydrologic-recharge zones will face new stressors from climate change, necessitating the expansion of buffer zones to protect water sources originating outside of protected areas.

108. Anticipating climate change may also reveal the need for new or more aggressive incentive programs to encourage connectivity on private lands. If climate change causes the degradation of habitat on public lands and/or protected areas, private lands may be used to pick up the slack. Thus, incentive programs (e.g., reforestation with native species, water conservation programs, erosion control initiatives, fence removal) may be ramped up to meet the heightened connectivity concerns accompanying climate change.

109. National lawmakers should examine opportunities in all laws to mitigate or otherwise respond to connectivity threats generated or amplified by climate change. The legal recognition of climate change as a driver of range shifts could provide the legal foundation for enforcing conservation strategies that encourage connectivity through various means such as expanding existing protected areas and OECMs, locating reserves in areas of high heterogeneity, widening connectivity areas, etc.

Example 1:

Spain: National plan addressing connectivity for climate change adaptation: In alignment with the *Law on Climate Change and Energy Transition*,[90] Spain's *Strategic Plan on Natural Heritage and Biodiversity to 2030*[91] includes objectives to promote adaptation criteria for planning and managing protected areas, as well as including the conservation and expansion of ecological corridors to promote adaptive responses of species.

[90] https://climate-laws.org/documents/law-7-2021-on-climate-change-and-energy-transition_8c2d?id=law-7-2021-on-climate-change-and-energy-transition_f039

[91] https://www.miteco.gob.es/content/dam/miteco/es/biodiversidad/publicaciones/estrategias/peepnb2030-difusion.pdf

APPENDIX A

MIGRATORY SPECIES AND ECOLOGICAL CONNECTIVITY

The Convention Text
CMS Article III.4.b) "Parties that are Range States of a migratory species listed in Appendix I shall endeavor to prevent, remove, compensate for or minimize, as appropriate, the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species"
CMS Samarkand Strategic Plan for Migratory Species 2024-2032 **Res. 14.1**
Vision: "By 2032, migratory species are thriving and live in fully restored and connected habitats." **Goal 2:** The habitats and ranges of migratory species are maintained and restored, supporting their connectivity. **Target 2.2:** By 2032, all important habitats for migratory species listed in CMS Appendices are protected, effectively conserved, managed and restored through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures.

CMS COP Resolutions and Decisions	
Resolution 14.3	Engagement in CBD processes including the Global Biodiversity Framework
Resolution 14.16	Ecological Connectivity
Resolution 12.11 (Rev.COP14)	Flyways
Resolution 12.21 (Rev.COP14)	Climate Change and Migratory Species
Resolution 11.27 (Rev.COP13)	Renewable Energy and Migratory Species
Resolution 10.8 (Rev.COP14)	Cooperation between the Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) and CMS
Resolution 10.11 (Rev.COP13)	Power Lines and Migratory Birds
Resolution 7.2 (Rev.COP14)	Impact Assessment and Migratory Species

Resolution 7.5 (Rev.COP12)	Wind Turbines and Migratory Birds
CMS COP14 Decisions	14.6-14.7 *CMS Engagement in CBD processes including the Global Biodiversity Framework* 14.11-14.14 *Cooperation between the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and CMS* 14.137-14.142 *Flyways* 14.194-14.196 *Ecological Connectivity* 14.197-14.199 *Transfrontier Conservation Areas for Migratory Species* 14.201-14.203 *Infrastructure Development and Migratory Species* 14.204-14.206 *Impact Assessment and Migratory Species* 14.207-14.210 *Renewable Energy and Migratory Species* 14.211-14.215 *Climate Change and Migratory Species*
CMS Guidelines and publications	
Rethinking Ecological Connectivity – A pathway towards living in harmony with Nature (April 2021). A publication developed in partnership with CMS, UNESCO and POST2020 Biodiversity Framework EU Support	
CMS/COP12/Inf.Doc.20 - Migratory Animals Connect the Planet: the Importance of Connectivity as a Key Component of Migration Systems and a Biological Basis for Coordinated International Conservation Policies	
CMS/COP11/Inf.Doc.22 - Ecological Networks: Case studies, Challenges and Lessons Learned	
CMS Technical Series No.41 (2019) Central Asian Mammals Migration and Linear Infrastructure Atlas - CMS Technical Series No. 41	
Living Planet: Connected Planet - Preventing the End of the World´s Wildlife Migrations through Ecological Networks	
CMS Family Guidelines on Environmental Impact Assessments for Marine Noise-generating Activities	

Appendix B

A Connectivity Planning Tool

Planning Tools	Response Yes/No	Comments When answering yes, please indicate the law and /or provide the specific provisions or details
Do planning laws prioritize connectivity?		
Do planning laws incorporate both private and public lands?		
Do planning activities include researching and mapping in support of connectivity?		
Do designations or classifications exist such that connectivity zoning occurs?		
Do planning laws include measurable connectivity mandates (e.g., minimal percentages of territory designated as “green spaces,” “ecological corridors,” etc.)?		
Are planning processes open to public participation?		
Is the implementation of spatial planning monitored and evaluated with connectivity in mind?		
Protected Area Legislation		
Is connectivity an objective of any protected area legislation?		
Is connectivity a factor in designating protected areas?		
Do management plans for protected areas consider connectivity?		

Planning Tools	Response Yes/No	Comments When answering yes, please indicate the law and /or provide the specific provisions or details
Does Protected Areas law contemplate buffer zones?		
Does Protected Areas law contemplate the creation of ecological corridors?		
Do protected area managers participate in spatial planning processes and decisions?		
Voluntary Action Incentives and Tools		
Do laws provide or authorize incentives for connectivity maintenance or enhancement by private landowners?		
If available in law, are restrictive covenants used to incentivize connectivity? if yes, what type of restrictive covenant?		
If available in law, are easements used to promote connectivity? If yes, what type of easements?		
Does the law allow the designation of private protected areas?		
Is connectivity subsidized, through direct subsidies or tax reductions?		
Are grant or contract programs established to support connectivity?		
If available in law, do market-creation programs serve connectivity?		

Planning Tools	Response Yes/No	Comments When answering yes, please indicate the law and /or provide the specific provisions or details
Do relevant laws consider polluter-pays mechanisms to disincentivize connectivity disruptions?		
Environmental Impact Assessments and Connectivity		
Are connectivity baseline studies required?		
Does EIA law include requirement to study impacts on connectivity?		
Is mitigation required for any disruptions or modifications to connectivity?		
If required by law, do strategic environmental assessments require consideration of connectivity goals?		
Marine Connectivity		
Are ecologically based marine protected areas provided for in law?		
Do relevant laws require marine spatial planning and ocean zoning?		
Is stakeholder participation accommodated in all planning and all designations?		
Hydrological Connectivity		
Does the law manage water resources for environmental flows for non-consumptive uses?		

Planning Tools	Response Yes/No	Comments When answering yes, please indicate the law and /or provide the specific provisions or details
Does the law contemplate planning at the watershed level?		
Is stakeholder participation accommodated in all planning and all designations?		
Legal Recourse		
Do citizens have the right to challenge government or private-party action in contravention of the aforementioned laws? Can they do so both administratively (e.g., an appeal to a higher level within the relevant administratively) and in court?		