



**CONVENTION ON
MIGRATORY
SPECIES**

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**IMPROVING WAYS OF ADDRESSING CONNECTIVITY IN THE
CONSERVATION OF MIGRATORY SPECIES**

(Prepared by the Scientific Council)

Summary:

Resolution 11.25 on *advancing ecological networks to address the needs of migratory species* identified a list of matters requiring further work in relation to ecological networks, including improved understanding of connectivity issues and improved ways of addressing these issues in actions for the conservation of migratory species.

The Strategic Plan for Migratory Species emphasizes that migratory species exhibit special forms of dynamic connectivity that make them keystone components of ecosystems, while also exposing them to particular vulnerabilities. Target 9 of the Strategic Plan seeks the application of a “migration systems approach”, and Target 10 concerns the adoption of a more functional basis for area-based conservation measures.

Members of the Scientific Council and others have given focused attention to this during the triennium, and a draft Resolution and a draft Decision are now presented for consideration and possible adoption by the Parties.

IMPROVING WAYS OF ADDRESSING CONNECTIVITY IN THE CONSERVATION OF MIGRATORY SPECIES

Background

1. Since its entry into force in 1983, the Convention on Migratory Species has provided the primary specialized intergovernmental framework for cooperative efforts on issues of connectivity in relation to the conservation and management of migratory species. The implementation of relevant provisions under the Convention forms a key contribution to the achievement of objectives adopted in other intergovernmental fora, including Goals 14 and 15 in “Transforming our World” (the UN’s 2030 Agenda for Sustainable Development) and Aichi Targets 11 and 12 in the Strategic Plan for Biodiversity 2011-2020. The functional basis for the actual connections involved, however, is an area of knowledge that remains in need of further conceptual development, scientific research and innovative applications in practice. At the same time a number of clear areas for action by Contracting Parties and others have been set out already in adopted texts, and the need to implement these is increasingly urgent.
2. The Convention has taken a number of steps to enhance understanding and delivery in this area in recent years, mainly in the context of work on “ecological networks”. The Conference of Parties at its tenth meeting in 2011 adopted Resolution 10.3 on *The role of ecological networks in the conservation of migratory species*, which encourages Parties to enhance connectivity of protected areas and to make explicit the relationship between areas of importance for migratory species and other areas that may be ecologically linked to them, for example, as connecting corridors or as breeding areas related to non-breeding areas, stopover sites, feeding areas and resting places. It advocates the selection of areas for conservation in such a way as to address the needs of migratory species throughout their life cycles and migratory ranges; and to set network-scale objectives for the conservation of migratory species, relating for example to the restoration of fragmented habitats and removal of barriers to migration on land and at sea.
3. Resolution 10.19 further highlights the critical importance of connectivity for conservation and management of migratory species in the context of climate change.
4. These decisions were followed by the compilation of *Ecological networks: a strategic review of aspects relating to migratory species*, which was launched at the 11th meeting of the Conference of the Parties (COP11) in 2014 as document UNEP/CMS/COP11/Doc.23.4.1.2, accompanied by a series of case studies in document UNEP/CMS/COP11/Inf.22.
5. The Parties at COP11 responded with the adoption of Resolution 11.25 on *Advancing ecological networks to address the needs of migratory species*, which expresses deep concern at the increasing fragmentation of habitats for migratory species, and urges Parties to promote connectivity *inter alia* through the development of site networks that are appropriately defined, coordinated and managed, and other measures which cater for the entire migratory range and migratory lifecycle requirements of the animals concerned.
6. The Resolution further urges that consideration be given to ways in which connectivity can contribute to the elimination of obstacles to migration, including disturbance, habitat fragmentation and discontinuities in habitat quality as well as more obvious physical obstacles, while also taking care to assess any risks of potential unwanted consequences of increased connectivity (such as the spread of diseases or of additional predators).
7. The Strategic Plan for Migratory Species 2015-2023, adopted at the same meeting, emphasizes that the conservation of migratory species at the population level demands the application of a migration systems approach, involving conservation strategies that give holistic attention to populations, species and habitats as well as the entire span of migration routes and the

functioning of the migration process. It further emphasizes that the multi-dimensional connectedness of migratory species gives them a special role as ecological keystone species and as indicators of the linkages between ecosystems and of ecological change, while also exposing these species to special vulnerabilities.

8. Two of the Targets in the Strategic Plan make specific reference to this issue; namely Target 9, which concerns the application of a migration systems approach in cooperative activities between States, and Target 10, which concerns the adoption of a functional basis for area-based conservation measures.
9. The CMS Programme of Work on Migratory Birds and Flyways 2014-2023, adopted by Resolution 11.14, includes as one of its six themes “Ensuring migratory bird conservation through flyway/ecological networks and critical sites and habitats and addressing key threats”, which seeks *inter alia* the establishment of formal protection or other relevant measures for all sites of critical importance for migratory birds as well as the development and implementation of management plans to address the needs of these species.
10. The evolution of recent thinking on migratory species connectivity issues has drawn particular attention to:
 - the need to express conservation objectives in terms of *whole migration systems*, and in terms of what is needed for the functioning of the migration process itself, not just the status of populations or habitats;
 - the opportunity to define actions addressed at the connections between places (or times);
 - the opportunity to improve connectivity by correcting the most obvious instances of problematic *discontinuity* in migration systems, such as barriers to migration, fragmented resources, disrupted ecological processes, genetic isolation, altered behaviour patterns, disconnections in distribution caused by climate change or depletion of food or water resources, inconsistencies in management across and beyond national jurisdictions, and other factors;
 - the need to work with a wide range of stakeholders in government authorities, local communities, the private sector and others at a variety of scales including the landscape and seascape scale to promote the restoration and management of habitats used by migratory species with particular regard to issues of connectivity;
 - the importance of developing understanding about the links between connectivity and resilience; and
 - the need to develop indicators of progress in implementing relevant targets in the Strategic Plan for Migratory Species.
11. With the support of a number of organizations (the Veneto Po Delta Regional Park, ISPRA, the Municipality of Rosolina, the Regione Veneto, the Ministero dell’Ambiente e della Tutela del Territorio e del Mare (Ministry of the Environment, and Protection of Land and Sea), the Fondazione CARIPARO and the Marcegaglia Group), two workshops were held in Italy in September 2015 and May 2017 respectively, under the auspices of the CMS Scientific Council, to take forward further work on migratory species connectivity. The workshops reviewed available scientific evidence and experiences, and developed recommendations which are the basis of the proposals outlined further below.

Discussion and analysis

12. Resolution 11.25 made clear the scope of the work that remains to be done to realize more fully the application of evolving insights on connectivity in implementation of the CMS and of the Strategic Plan for Migratory Species. An annex to the Resolution suggested ten “useful areas for further work” which included developing measurement methods, directing research towards further improving knowledge and understanding, enhancing data tools, promoting exchange of

data and experiences, fostering synergies among international instruments and developing new advice and guidance where necessary.

13. Many of these priority areas of need have been considered by the workshops referred to above. The output of this recent work includes a publication aimed at a wide public readership, featuring examples from a range of different taxonomic groups that illustrate the importance of connectivity as a key component of migration systems and a key priority in conservation strategies for migratory species. A scientific journal paper is also in preparation.
14. During the first meeting of the Sessional Committee of CMS Scientific Council held in Bonn in April 2016 the Chair of the Scientific Council reported on the outcomes of the workshop on connectivity held in September 2015 and referred to above. The ensuing discussion confirmed a growing interest in connectivity in both terrestrial and marine environments, and to the potential for connectivity to be a hallmark of CMS. The follow-up meeting in May 2017 generated the initial texts of the draft Resolution and Decision tabled now for consideration by the Conference of the Parties at its 12th meeting (COP12).
15. These concentrated efforts during the triennium have drawn upon a wide spectrum of specialised expertise in the developing field of connectivity, and they have generated a robust expression of priority needs for the future. Agreeing the steps recommended below will allow the CMS to continue to provide leadership on this issue for the global community at large, and to equip Parties and others with the tools and other support necessary to make significant improvements in the way that these new understandings are incorporated into effective planning and actions for the conservation of migratory species.

Recommended actions

The Conference of the Parties is recommended to:

- a) take note of the document *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* presented to the COP as document UNEP/CMS/COP12/Inf.20;
- b) Adopt the draft Resolution contained in Annex 1 of the present document;
- c) Adopt the draft Decision contained in Annex 2 of the present document.

DRAFT RESOLUTION

**IMPROVING WAYS OF ADDRESSING CONNECTIVITY IN THE
CONSERVATION OF MIGRATORY SPECIES**

Recalling Article III.4 of the Convention under which Parties shall endeavour to conserve and restore the habitats of Appendix I species and to prevent obstacles that impede the migration of the species, and Article V.5 under which Agreements in respect of Appendix II species should provide for networks of habitats “appropriately disposed in relation to migration routes”;

Also recalling Article I.1 of the Convention under which “range” is defined for the purposes of the Convention as all the areas of land or water that a migratory species inhabits, stays in temporarily, crosses or overflies at any time on its normal migration route

Noting that the Strategic Plan for Migratory Species 2015-2023 emphasizes that the conservation of migratory species at the population level demands the application of a migration systems approach¹, involving conservation strategies that give holistic attention to populations, species and habitats as well as the entire span of migration routes and the functioning of the migration process;

Further noting that the Strategic Plan emphasizes that the multi-dimensional connectedness of migratory species gives them a special role as ecological keystone species and indicators of the linkages between ecosystems and of ecological change, while also exposing these species to special vulnerabilities;

Noting in particular Target 9 of the Strategic Plan which concerns the application of a migration systems approach in cooperative activities between States, and Target 10 which concerns the adoption of a functional basis for area-based conservation measures;

Acknowledging that since its entry into force in 1983 the Convention on Migratory Species has provided the primary specialized intergovernmental framework for cooperative efforts on issues of connectivity in this context, and that the implementation of relevant provisions under the Convention forms a key contribution to the achievement of objectives adopted in other intergovernmental fora including Goals 14 and 15 in “Transforming our World”, the UN’s 2030 Agenda for Sustainable Development, Aichi Targets 11 and 12 in the Strategic Plan for Biodiversity 2011-2020 and the Ramsar Strategic Plan 2016-2024;

Recalling Resolution 10.3 on the role of ecological networks in the conservation of migratory species and Resolution 10.19 on climate change, both of which highlight the critical importance of connectivity for conservation and management of migratory species, and in the case of Resolution 10.3 encourages Parties to enhance connectivity of protected areas and to make explicit the relationship between areas of importance for migratory species and other areas which may be ecologically linked to them; to select areas for conservation in such a way as to address the needs of migratory species throughout their life cycles and migratory ranges; and to set network-scale objectives for the conservation of migratory species relating for example to restoration of fragmented habitats and removal of barriers to migration on land and at sea;

Recalling Resolution 11.25 on advancing ecological networks to address the needs of migratory species, which expresses deep concern at the increasing fragmentation of habitats for migratory species and urges Parties to promote connectivity *inter alia* through the development of site networks

¹ *Note for the drafting process [to be removed later]*: The advice of the 2015 Albarella workshop was to avoid trying to give a definition of “connectivity”, since the term is used in disparate and sometimes contradictory ways in migration literature; and to rely instead on the concept articulated in the Strategic Plan for Migratory Species of a “migration systems approach”.

that are appropriately defined, coordinated and managed, and other measures which cater for the entire migratory range and migratory lifecycle requirements of the animals concerned, giving consideration to ways in which connectivity can contribute to the elimination of obstacles to migration, including disturbance, habitat fragmentation and discontinuities in habitat quality as well as more obvious physical obstacles, while also taking care to assess any risks of potential unwanted consequences of increased connectivity;

Recognizing the important role played by existing ecological networks worldwide in the conservation of migratory species particularly through the role of these networks in supporting connectivity, including the networks reviewed for COP11 in document UNEP/CMS/COP11/Doc.23.4.1.2 as well as those operated at national level;

Acknowledging the relevance of the Critical Site Network Tool developed initially for waterbird populations in the African-Eurasian flyway under the aegis of AEWA and led by Wetlands International and BirdLife International with the support of the Government of Germany, and its recent redevelopment as an open-access web portal providing a strong basis for identifying ecological networks and emphasizing their connectivity aspects, while also providing insights into climate change vulnerability and informing conservation decision-making at site, national and international levels;

Taking note of [UNEP/CMS/COP12/Doc.19.2 / Resolution] concerning the revision of the format for national reports, including the [proposed] questions relating to ecological networks and connectivity;

Welcoming the report of the expert meetings on connectivity, convened in Italy in 2015 and 2017, provided to the present meeting in document UNEP/CMS/COP12/Inf.20;

Having regard to the report of the Scientific Council;

*The Conference of the Parties to the
Convention on the Conservation of Migratory Species of Wild Animals*

1. *Urges* Parties and *invites* others to give special attention to the issues highlighted in this Resolution when planning, implementing and evaluating actions designed to support the conservation and management of migratory species, both at national level and in the context of international cooperation, including in particular when:
2.
 - (i) devising strategic conservation objectives, so that these may more often be expressed in terms of whole migration systems, and in terms of the requirements for the functioning of the migration process itself, as opposed to merely the status of populations or habitats;
 - (ii) identifying, prioritizing, developing and managing protected areas and other effective area-based conservation measures, both within and beyond areas of national jurisdiction, taking account *inter alia* of the need for connectivity to be a key factor in the definition of appropriate conservation management units, including at the landscape or seascape scale, and the need for actions to be addressed to the connections between places as well as to the places themselves;
 - (iii) strengthening and expanding ecological networks to conserve migratory species worldwide and enhancing their design and functionality in accordance with Resolutions 10.3 and 11.25;
 - (iv) evaluating the sufficiency and coherence of ecological networks in functional and qualitative terms as well as in terms of extent and distribution, having regard to Resolution 11.25 and to the desirability of sharing experiences and best practices on this issue;
 - (v) monitoring and assessing the effectiveness of the protection and management of the areas and networks referred to in the present paragraph;

3. *Encourages Parties and invites others*, working with all relevant stakeholders in government authorities, local communities, the private sector and other sectors, to intensify efforts to address threats to the conservation status of migratory species which are manifested as threats to connectivity, including barriers to migration, fragmented resources and disrupted processes, genetic isolation, population non-viability, altered behaviour patterns, shifts in range caused by climate change or depletion of food or water resources, inconsistencies in management across and beyond national jurisdictions, and other factors;
4. *Further encourages Parties to [make good use of the questions in the revised format for national reports to share information on implementation activities and experiences concerning ecological networks and connectivity and to]*² take all appropriate opportunities for sharing knowledge and best practices on these subjects and for supporting relevant initiatives designed for this purpose;
5. *Requests* the Secretariat to facilitate the sharing of information on connectivity within and between the instruments of the CMS Family, biodiversity-related multilateral environmental agreements and others including bringing this Resolution to the attention of the process under the auspices of the Convention on Biological Diversity for identifying and describing Ecologically or Biologically Significant Marine Areas, the process under the auspices of the UN General Assembly to develop an international legally binding instrument 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, the UNEP Global Connectivity Conservation Project and the IUCN WCPA Connectivity Conservation Specialist Group;
6. *Invites Parties, other States and relevant organizations* to provide support for the long-term maintenance of large-scale databases on migratory species distributions, movements and abundance such as EURING, Movebank, the International Waterbird Census, BirdLife International's Seabird Tracking Database, the UNESCO-IOC Ocean Biogeographic Information System;
7. *Further invites Parties, other States and relevant organizations* to provide support for the enhancement of the databases referred to in the preceding paragraph in order to address in more targeted ways a range of connectivity questions of relevance to CMS implementation as well as to engage in targeted joint analyses of animal movements and other factors using these databases in an integrated way across the marine and terrestrial realms so as to improve understanding of the biological basis of migratory species connectivity; and
8. *Urges Parties and invites others* to foster the development of radio receiver systems that could be deployed worldwide to detect movements of small animals on land and at sea.

² *Note for the drafting process [to be removed later]* This is square bracketed because it is contingent on decisions to be taken about revising the report format.

DRAFT DECISION

**IMPROVING WAYS OF ADDRESSING CONNECTIVITY IN THE
CONSERVATION OF MIGRATORY SPECIES**

Directed to Parties

12.AA Parties are requested to:

- a) review the means by which the measures for addressing connectivity in the conservation of migratory species set out in decisions of the Conference of the Parties including Resolutions 10.3, 11.25, 12.[XX]³ and others can be applied more effectively through their national laws, policies and plans and through international cooperation;
- b) support the development of the African-Eurasian Bird Migration Atlas and the proposed CMS Global Atlas of Migratory Animal Movements, as well as the further redevelopment and application of the African-Eurasian Critical Site Network tool, as contributions to the provision of a sound scientific basis for action and as contributions also to the fostering of greater public awareness concerning connectivity issues;
- c) provide support, both financial and in kind, for the work of the Scientific Council described below.

Directed to the Scientific Council

12.BB The Scientific Council, subject to the availability of resources, shall undertake the following tasks for enhancing the scientific understanding of connectivity issues in relation to migratory species:

- a) review the scope for existing major databases to support relevant analyses and syntheses of information on connectivity, and identify options *inter alia* for ensuring sustainability and enhanced operability and coordination of such databases for this purpose;
- b) investigate options for creating relevant data and knowledge holding capabilities and for enhancing analysis capabilities under the auspices of the CMS, in collaboration with suitably qualified institutions and processes;
- c) investigate and report on the linkages between migratory species connectivity and ecosystem resilience;
- d) having regard in particular to the Strategic Plan for Migratory Species, assess the needs and develop focused objectives for new research on key connectivity issues, including but not limited to climate change, which affect the conservation status of each of the major taxonomic groups of migratory wild animals covered by the CMS in each of the world's major land and oceanic regions, and produce a report on the findings of this assessment prior to the thirteenth meeting of the Conference of Parties;
- e) consider the need for additional guidance within the framework of the CMS on assessing threats to migratory species connectivity in particular priority situations identified by the work described in sub-paragraph (d) above; and

³ The Resolution on Connectivity

- f) make recommendations as appropriate arising from the work described in this paragraph.

Directed to the Secretariat

12.CC The Secretariat, subject to the availability of resources, shall:

- a) explore options for establishing a working mechanism which would *inter alia* promote the sharing and review of information on connectivity within and between the instruments of the CMS Family, biodiversity-related multilateral environmental agreements and others, and where appropriate would facilitate joint attention by such instruments, agreements and organizations at strategic level to the matters covered by Resolution 12.[XX]⁴;
- b) develop proposals for consideration by Parties on guidance for further improving the effective application of measures for addressing connectivity in the conservation of migratory species through national laws, policies and plans and through international cooperation;
- c) in cooperation with partners and as soon as possible after the conclusion of the twelfth meeting of the Conference of Parties, mobilize the provision of support to interested Parties who are otherwise unable to do so from their own resources to undertake wide dissemination and deployment of a large number of energy-efficient and low-cost radio base stations coupled with radio transmitters in solar-powered "life-long" tags for tracking migratory species so as to improve knowledge about connectivity issues affecting these species; and
- d) in cooperation with partners, identify opportunities for reserving small allocations of the radio frequency spectrum in a standardized way among interested Range States for tracking migratory species and transferring data from radio tags.