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CONVENTION ON MIGRATORY SPECIES

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DRAFT GLOBAL GAP ANALYSIS OF THE CONVENTION ON MIGRATORY SPECIES

Summary

Resolution 10.9 on the Future Structure and Strategies of the CMS and CMS Family requested *a global gap analysis at Convention level: including which issues are being addressed, which issues are not being addressed, if another organization is addressing these issues, a scientific gap analysis and what research is required.* The document attached to this note has been prepared by the Secretariat as a contribution towards the development of the analysis, focusing on conservation issues being addressed by the Convention and possible existing gaps in the taxa included in CMS Appendices.

DRAFT GLOBAL GAP ANALYSIS OF THE CONVENTION ON MIGRATORY SPECIES

(Prepared by UNEP/CMS Secretariat)

1. In Resolution 10.9 on the Future Structure and Strategies of the CMS and CMS Family, the Conference of the Parties at its Tenth Meeting (COP10), held in Bergen, Norway, in November 2011, requested *a global gap analysis at Convention level: including which issues are being addressed, which issues are not being addressed, if another organization is addressing these issues, a scientific gap analysis and what research is required* (Res.10.9, Annex I, Activity 5, Short Term deliverable 1). The analysis was included in the list of activities to be funded by voluntary contributions in the triennium 2012-2014, contained in Annex II to Resolution 10.1 on Financial and Administrative Matters.

2. In the absence of voluntary contributions in the first part of the triennium in support of this analysis, and with a view to making some progress in the activity, notably a further definition of its scope and methodological approach, the Secretariat prepared a first draft of an analysis focusing on conservation issues being addressed by the Convention and possible existing gaps in the taxa included in CMS Appendices, which was tabled at the Strategic and Planning Meeting of the Scientific Council which took place on the 9-11 October 2013 in Formia, Italy for review and advice (document UNEP/CMS/ScC/SPM/Doc.2)[1].

3. The draft analysis annexed to this note is a revised version of the document tabled at the Formia Meeting. It is submitted to the 18th Meeting of the Scientific Council (ScC18) for advice on the possible further development of this activity.

Action requested:

The Scientific Council is invited to:

(a) Take note of progress in the development of this activity.

(b) Consider the type of input that could be provided by the Scientific Council to the further development of the analysis, and the feasibility of a continuation of the activity in the absence of financial resources to support it.

(c) Consider the possibility of establishing a steering group to provide guidance towards the further development of the activity.

[1] Available for downloading at http://www.cms.int/sites/default/files/document/doc02_draft_gap_analysis.pdf.

Annex

DRAFT GLOBAL GAP ANALYSIS OF THE CONVENTION ON MIGRATORY SPECIES

Introduction

1. In Resolution 10.9 on the Future Structure and Strategies of the CMS and CMS Family, the Conference of the Parties at its Tenth Meeting (COP10), held in Bergen, Norway, in November 2011, requested *a global gap analysis at Convention level: including which issues are being addressed, which issues are not being addressed, if another organization is addressing these issues, a scientific gap analysis and what research is required* (Res.10.9, Annex I, Activity 5, Short Term deliverable 1).

2. Pursuant to this request, this document identifies some threats and challenges as well as other cross-cutting issues that have not been directly addressed by CMS so far, but that have the potential to become relevant in the near future. This document also identifies gaps in the CMS Appendices, highlighting species that are not listed yet but could benefit from listing in the near future.[2]

Rationale and Methodology

3. The rationale for the global gap analysis takes as baseline the CMS Updated Strategic Plan 2006-2014. This document was initially adopted at COP8 in Nairobi and subsequently extended until 2014 at COP10 in Bergen, without major changes. The Updated Strategic Plan identifies the following threats to migratory species[3].

- Unsustainable hunting and fishing practices
- Bycatch
- Habitat destruction
- Introduction of alien species
- Industrial and agricultural pollutants
- Climate change
- Desertification of semi-arid areas
- Barriers to migration (dams, fences, power lines and wind farms)

4. In addition COP has adopted a number of resolutions on other specific threats, including marine noise, marine debris and wildlife diseases.

5. On the basis of these threats this paper examines to what extent these issues have been addressed in CMS COP Resolutions and which are the main gaps still to be addressed.

6. The analysis in this paper has benefited from a discussion at the Strategic and Planning Meeting of the Scientific Council, held in Formia, Italy, from 9 to 11 October 2013.

[2] The document does *not* analyze the effectiveness of the CMS with regards to the issues already addressed - though this might be a useful exercise to undertake in the future.

[3] At the time of writing the new Strategic Plan for the period 2015 - 2023, is still under development. It is likely to deal with matters at a more aggregate level than the previous Strategic Plan.

7. Gaps in the appendices are identified based on a list of migratory species that could potentially qualify for listing under CMS. The list, prepared by the Secretariat, contains over 250 migratory species from different taxa which have an IUCN threat status of "Near Threatened" or higher[4].

Issues being addressed

8. A number of critical issues to migratory species are already being addressed under the Convention usually through the work of the Scientific Council or in the form of COP resolutions and related follow-up actions.

Unsustainable hunting and fishing practices

9. These issues have generally been addressed within the context of sustainable use. COP8 addressed sustainable use, and in particular the applicability of the *Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity* in Resolution 8.1. A Working Group on Sustainable Use was active within the Scientific Council between COP8 and COP10. Some CMS instruments contemplate sustainable use as part of their objectives. These include for instance the Memorandum of Understanding (MoU) concerning Conservation, Restoration and Sustainable Use of the Saiga Antelope (*Saiga spp.*) and the International Single Species Action Plan for the conservation of the Argali (*Ovis ammon*) (still in draft form at the time of writing).

Bycatch

10. The CMS Conference of the Parties adopted several resolutions and recommendations addressing specifically by-catch, namely: Res.6.2, Rec.7.2, Res.8.14, Res.9.18 and Res.10.14. In addition, several other resolutions include provisions concerning by-catch, e.g. Res.10.15 *Global Programme of Work for Cetaceans*. To strengthen the capacity of the Scientific Council to support COP and Parties in tackling by-catch of migratory species, COP8 approved the appointment of a specialist councilor on by-catch. The councilor on by-catch promotes and coordinates the activity of the By-catch working Group within the Council. By-catch is also addressed by numerous CMS instruments, namely: ACAP, ACCOBAMS, AEWA, ASCOBANS, Wadden Sea Seals, Marine Turtles Africa MoU, Marine Turtles IOSEA MoU, Pacific Islands Cetaceans MoU, Sharks MoU.

Habitat destruction

11. Habitat destruction is perhaps the most important cause of species decline and loss worldwide. Conversion of land for agriculture is the principal cause of habitat destruction. Other important causes of habitat destruction include mining, logging, trawling, urban sprawl and infrastructure development. A wide range of organizations is dealing with different aspects of habitat destruction, including UNEP, FAO, the Ramsar Convention and UNESCO's World Heritage Convention.

[4] The list was annexed to a previous version of this document. It has been removed from this version to avoid confusion and possible interference with the discussion on the use of IUCN Red List Categories in assessing proposals for amendment of the Appendices of the Convention, ongoing within the Scientific Council. The list and the approach used for its compilation can be found in the version of the analysis which was tabled at the Strategic and Planning Meeting of the Scientific Council which took place on the 9-11 October 2013 in Formia, Italy http://www.cms.int/sites/default/files/document/doc02_draft_gap_analysis.pdf.

12. The issue that is being only partially addressed by CMS. Resolution 10.3 on Ecological Networks attempts to emphasize the key role of critical sites and networks for migratory species, but this Resolution has only been adopted at the last COP. The whole concept of connectivity and protection of migration corridors has still to be developed.

Introduction of alien species

13. Invasive Alien Species (IAS) are considered to be one of the main direct drivers of biodiversity loss across the globe. IAS may directly impact upon migratory species through predation, competition, transmission of disease and genetic changes through hybridization. IAS may also impair breeding, stop-over and wintering grounds as well as cause loss of resources crucial for migratory species. These ecological interactions may result in local extinction or a decline in number of migratory species as well as changes in the migration pattern. Organizations dealing with Invasive Alien Species include the CBD, CITES, the International Plant Protection Convention and FAO.

14. Currently a review of invasive alien species and their impacts on migratory species is being undertaken for CMS by the IUCN Invasive Species Specialist Group, but to date there has been no Resolution adopted on this topic.

Industrial and agricultural pollutants

15. Pollution was addressed by Resolution 7.3 on Oil Pollution and Migratory Species. Bird poisoning is now being addressed through Resolution 10.26 Minimizing the Risk of Poisoning to Migratory Birds and the Working Group that has been established under the Scientific Council. Currently, guidelines on bird poisoning are being prepared.

Climate change

16. Resolutions on climate change were adopted as Res.5.5, Res8.13, Res.9.7 and subsequently Resolution 10.19 on Migratory Species Conservation in the Light of Climate Change. There has also been a Working Group on Climate Change within the Scientific Council for several years. In addition, a major review on climate change and migratory species has been undertaken by the British Trust for Ornithology, followed by another study supported by the UK. Since COP10 there is a COP Appointed Scientific Councilor for Climate Change.

Desertification of semi-arid areas

17. Desertification has been indirectly addressed through the Sahelo-Saharan Megafauna Concerted Action.

Barriers to migration (dams, fences, power-lines, wind farms)

18. This is partially being addressed through Res.7.5 on Wind Turbines and Migratory Species. Resolution 10.11 on Power Lines and Migratory Birds welcomed guidelines on how to avoid or mitigate the impact of electricity power grids on migratory birds in the African-Eurasian region. Res.7.5 looks at the impact of wind farms and Resolution 10.12 on Freshwater Fish mentions the problem of dams as a great barrier for these species.

Furthermore, Resolution 10.3 highlights the role of ecological networks and the importance of connectivity in the conservation of migratory species.

Renewable energy

19. The expansion of renewable energy production often causes land use change and degradation of habitat of migratory species. This has been noted, for example with regards to biofuel production and hydropower development. Solar power stations and tidal power plants might also have negative effects. The impacts of renewable energy production are addressed by a number of organizations, including CBD, FAO and UNEP. CMS is starting to address the issue and has commissioned a consultancy, co-funded by International Agency for Renewable Energy (IRENA), AEWA and BirdLife International, to review the interaction between Renewable Energy Technologies Deployment and Migratory Species and develop guidelines to minimize impacts.

20. In addition the Scientific Council has undertaken taxonomic reviews on sharks and freshwater fish in collaboration with the respective IUCN SSC Specialist Groups. Reviews of CMS instruments and projects concerning terrestrial mammals (including bats) and marine turtles have been undertaken in 2011 by the UNEP World Conservation Monitoring Centre (UNEP-WCMC). An assessment of threats on cetaceans and a review of action and instruments addressing those threats has been undertaken in the context of the development of the CMS global Programme of Work for Cetaceans (2012-2024), adopted by COP10.

Issues not addressed

21. Despite the broad range of issues that CMS is already addressing, there are a number of issues that are not being addressed. Some of these are related to emerging threats to migratory species and others present opportunities for the promotion of migratory species. There are also some taxonomic groups that have received very little attention from CMS, despite having species listed in the Appendices. Critical issues of all these categories include, but are not limited to, the following:

Threats to migratory species

Resource extraction

22. Resource extraction is often closely linked to habitat destruction. Mining and other forms of resource extraction (e.g. "fracking") are known, for example, to cause degradation and pollution, especially groundwater contamination. Other organizations dealing with environmental impacts of mining include for example The World Bank. Large scale mining projects like the one that is planned for Mongolia is likely to have a huge impact on migratory species, not only because of the mining per se but also because of the infrastructures that are linked to it (roads, railways, new settlements, etc). Strong and effective legal and regulatory frameworks, policies and practices for the mining sector are needed, including biodiversity safeguards for species and habitats.

Wildlife crime

23. Wildlife crime is a threat of growing importance to migratory species. Many endangered species are of considerable economic value, so even when conservation legislation exist, they are often illegally hunted, sometimes by well organized groups. Organizations focusing on wildlife crime include, CITES, Interpol, WCO, UNODC, TRAFFIC and UNEP. Elephants, sharks and the Saiga antelope are particular examples.

Opportunities

Business and biodiversity

24. Cooperation between the business and biodiversity conservation communities is essential to achieve goals for global sustainability. Within the international conservation community the inclusion of the private sector has been frequently discussed (e.g. TEEB[5] Business and Enterprise). Also within the UN System there are efforts to do so, e.g. the UN Global Compact. Other organizations addressing the issue include TEEB, UN Global Compact and CBD.

Economic valuation of migratory species

25. Migratory species provide a large number of ecosystem services including food, medicines/pharmaceuticals, biochemicals, seed and nutrient dispersal, pollination and cultural, intellectual and spiritual inspiration. They play an important role in people's livelihoods and in local, national and regional economies. Based on the TEEB reports, IPBES in its 2014-2018 work programme will carry out fast-track assessments on values, valuation and accounting of biodiversity and ecosystem services. This assessment and others with a more specific focus on migratory species could yield key information to increase public awareness about the economic and cultural value of migratory species.

Marine Areas Beyond National Jurisdiction

26. Marine Areas Beyond National Jurisdiction (ABNJs), commonly called the high seas, are often considered the world's last global commons. ABNJs are key habitats for many migratory species. ABNJs suffer from inadequate governance, affecting the conservation and sustainable use of migratory (and non-migratory) species. Current ongoing processes in international fora on conservation in ABNJs present opportunities for the improved conservation of migratory species. ABNJS are addressed under UNCLOS, UNGA, Regional Fisheries Management Organizations (RFMOs) and the World Bank.

Sustainable Tourism

27. Sustainable tourism is a specific area being considered in the context of sustainable use. It follows the paradigm that tourism should not harm the environment. At the same time the tourism activity should raise awareness, interest and compassion that result in increased public engagement for environmental conservation. This approach is suitable to apply, e.g. to increase awareness of a charismatic migratory species. Also a dialogue with the public, including knowledge transfer, can take place. This results in more conscientious behaviour towards nature and migratory species. Other organizations dealing with sustainable tourism include the UNWTO and UNEP.

[5] TEEB stands for The Economics of Ecosystems and Biodiversity.

Telecommunication

28. The increase in coverage and intensity of wireless telecommunication systems, such as WWAN (Large Area Wireless Technologies), or Google's Project Loon[6] could have negative effects on migratory species (Cucurachi et al, 2012). At the same time, these technologies create opportunities for research and data transmission in remote areas and possible synergies in facilitating the tracking of migratory species.

Migration ecology (Tracking animal movement)

29. For many migratory species knowledge of their migration routes, the timing of their migration and consequently threats during their migration is missing. Furthermore there is a high number of endangered species, especially smaller ones, where it is unknown if they exhibit migratory behaviour. New technologies, such as those developed under the ICARUS project[7], and new methodologies will make tracking of smaller animals feasible. Increasing application of existing animal tracking methodology and adoption of new technology and methods, holds great promise to improve knowledge on the migratory behaviour of many species. Several research institutes and universities advance research on tracking animal movement, including, for example, the Max Planck Institute for Ornithology and the members of ICARUS. Keeping up to date on these new technologies and promoting their use among CMS Parties is an issue that can help bring forward the CMS agenda in the coming years, particularly the Convention's work on connectivity and ecological networks.

Gaps in the Appendices

30. Of a total of approximately 3,000 species known to be migratory (Riede 2004), currently some 1,100 are species listed on the CMS Appendices. Perhaps another 300 species are known to be under some form of threat and could be listed if Parties so wished. At the same time, concrete conservation action is taken only on a fraction of the species currently listed under CMS.

31. Species are listed in the Appendices at each COP at the proposal of the Parties. This procedure depends very much on the interest and opportunity of each particular Party and does not follow a systematic approach.

32. In this document the species are suggested for a potential listing on CMS Appendix I and/or II on the basis of their status on the IUCN Red List. As a general approach, "Critically Endangered" or "Endangered" species are tentatively suggested for listing on Appendices I and II, "Vulnerable" or "Near Threatened" species on Appendix II.[8] Species that are defined as Least Concern by the IUCN have not been considered in this document.

6 For more information, see: http://www.google.com/loon/

7 For more information, see: http://www.icarusinitiative.org/

8 As already indicated (note 3 to paragraph 7), this analysis has been removed from this version of the document to avoid confusion and possible interference with the discussion on the use of IUCN Red List Categories in assessing proposals for amendment of the Appendices of the Convention, ongoing within the Scientific Council. The list and the approach used for its compilation can be found in the version of the analysis which was tabled at the Strategic and Planning Meeting of the Scientific Council which took place on the 9-11 October 2013 in Formia, Italy http://www.cms.int/sites/default/files/document/doc02_draft_gap_analysis.pdf.

33. Inclusion of species in the Appendices and which species qualify for listing is an issue that is closely related to the availability of criteria for listing. In this respect a working group has been established under the Scientific Council to develop these criteria, and the results of this work are expected to be presented to the Scientific Council and subsequently to COP in 2014. The adoption of criteria would obviously be of great relevance for any exercise aiming at identifying potential species for listing. In this regard, this analysis should be seen as provisional at this stage and would have to be revised when criteria would eventually become available.

Mammals

Terrestrial Mammals

34. Among the main threats for terrestrial mammals are habitat loss and degradation as well as unsustainable hunting. In addition, many species suffer from human wildlife conflict.

35. Gaps in the CMS Appendices exist in relation to many herbivorous species such as *Elephantidae* (Elephants) and the *Bovidae* (Bovids) to which both bisons and gazelles belong. Regarding elephants, several populations are currently of particular concern because of the poaching crisis. Elephants are currently listed on CMS Appendix II but several populations could potentially qualify for a listing on Appendix I. The Asian elephant *(Elephas maximus)* may be another species that could potentially be listed. Once widespread throughout the Asian continent, elephants have become extinct in many areas, and the global population is now fragmented in small, mostly isolated populations. The species is assessed as Endangered in the IUCN Red List, with a downward population trend. Despite the fragmentation of the population, transboundary movements are still recorded between e.g. India and neighbouring Nepal, Bhutan and Bangladesh.

36. Other species include *Panthera leo* (Lion), *Panthera tigris* (Tiger) and *Pantholops hodgsonii* (Tibetan antelope). For the lion and the Tibetan antelope draft listing proposals already exist which are currently being consulted within the Scientific Council.

Aquatic Mammals

37. A listing proposal for *Ursus maritimus* (Polar Bear) is currently being consulted within the Scientific Council. Species of seals and sea lions from the families *Otariidae* and *Phocidae* could meet the criteria to be listed on the Appendices. These species are predominantly threatened by fishing practices, both directly as bycatch and indirectly through depletion of their prey. Diseases, loss of genetic diversity and changing ecological interactions caused e.g. by climate change are also major threats that affect these species. Pollution through marine debris and industrial production and human disturbance by recreational activities cause further concern.

38. Bycatch, prey depletion, underwater noise, marine debris and climate change are major threats to cetacean species which would qualify for listing. Especially the *Delphinidae* are frequently subjected to directed takes. Other threats are entanglement in fishing gear, vessel collision, disturbance by underwater noise, oil spills and climate change.

39. A high number of aquatic mammals are data deficient and research is needed to improve knowledge on their conservation status.

Bats

40. There is a large number of bat species that are listed as least concern under IUCN. Gaps on the CMS Appendices exist particularly with regards to African and South and Central American species. Among the main threats are the destruction or disturbance of caves and killing species due to an erroneous belief in vampire bats.

Birds

41. The CMS Appendices already contain a large number of bird species, but there are still many gaps, particularly regarding *Procellariiformes* (Seabirds), *Sphenisciformes* (Penguins), *Psittaciformes* (Parrots) as well as some *Columbiformes* (Pigeons).

42. Among the main threats to birds are habitat loss and degradation due to energy production and mining, agriculture and aquaculture as well as logging and unsustainable hunting and trapping. Competition by invasive alien species is also a serious problem.

43. For the *Procellariiformes* climate change connected to changing weather patterns and sea level rise represents another specific threat. Furthermore the *Procellariiformes* are the birds most affected by the rapidly increasing plastic pollution.

44. For the *Psittaciformes* the illegal pet trade is an issue. Habitat degradation and loss due to deforestation and timber production add to the pressure on this species group.

Fish

Elasmobranchii

45. The IUCN Species Survival Commission's Shark Specialist Group's Review of Chondrichthyan Fishes (2007) identified 46 species within the class of Elasmobranchii that would be suitable for a CMS listing, including 13 Ray species (*Rajiformes*), 30 sharks species (belonging to the orders: *Carcharhiniformes* (19), *Lamniformes* (7), *Squaliformes* (1), *Squatiniformes* (1) and *Pristiformes* (5, Sawfish). The main threats for rays, sharks and sawfish are unsustainable fishing and harvesting.

Actinoptygerii

46. According to Hogan (2011), gaps in the CMS Appendices exist with regards to *Clupeiformes (*e.g. herring), *Cypriniformes* (e.g. carp), *Siluriformes* (Catfish) and *Salmoniformes* (Salmon). For all freshwater fish species habitat loss and degradation resulting from river damming, energy production and mining are major threats. In addition, competition with invasive alien species, unsustainable fishing and harvesting are threatening these species. A particular species that could potentially qualify for listing is *Anguilla anguilla* (European Eel), for which a listing proposal is currently under development. A well-known catadromous migrant, the species has undergone a sharp decline in recruitment, yield and stock, and has been assessed as Critically Endangered by IUCN, despite some recent signs of recovery at least in terms of recruitment.

Reptiles

47. No gaps in the CMS Appendices could be identified with regards to reptiles. However, it is unclear if freshwater crocodiles migrate seasonally, as this behaviour is known for saltwater crocodiles (*Crocodylus porosus*).

Amphibians

48. No gaps could be identified with regards to migratory amphibians. However, this is likely to be a reflection of the poor data available on amphibian migratory behaviour and/or threat status.

Invertebrates

49. There is only one invertebrate species which is listed under CMS, the Monarch butterfly (*Danaus plexippus*), listed in Appendix II. However there are many other insects that are highly migratory and fulfil the requirements to be covered by CMS according to the definitions of Appendix I and Appendix II. An example is the Globe Skimmer (*Pantala flavescens*), a dragonfly that undertakes a yearly migration from India to East Africa in great numbers. This is one of the biggest gaps of the Convention and an issue that requires attention from the Scientific Council.

Marine invertebrates

50. Within the marine realm, there are many invertebrate species that may also be migratory. For instance, species of the genus *Loligo* are known to undertake significant migrations. However, species of marine invertebrates have not been considered so far for listing under CMS.

References

Cucurachi, S., Tamis, W.L.M., Vijver, M.G., Peijnenburg, W.J. G. M. Peijnenburg, Bolte, J.F.B., de Snoo, G.R. (2012): A review of the ecological effects of radiofrequency electromagnetic fields (RF-EMF). Environment International. Volume 51.

Hogan, Z. (2011): Review of Migratory Freshwater Fish. CMS. COP10. Bergen, NOR.

IUCN (2010): IUCN Red List of Threatened Species. Version 2010.1. URL: www.iucnredlist.org. Last assessed on 5 July 2013.

IUCN Species Survival Commission's Shark Specialist Group (2007): Review of Chondrichthyan Fishes. IUCN, UNEP & CMS. Oxford, UK & Bonn, GER.

Kirby, J. (2010): Review 2 - Review of Current Knowledge of Bird Flyways, Principal Knowledge Gaps and Conservation Priorities. CMS Scientific Council: Flyway Working Group Reviews. UK.

Mickleburgh, S., Waylen, K. & Racey, P. (2009): Bats as bushmeat: a global review. In: Fauna & Flora International, Oryx. Pages: 217–234.

Riede, K. (2004): Global Register of Migratory Species – from Global to Regional Scales. Federal Agency for Nature Conservation. Bonn, GER.

Sutherland, W.J. et al. (2009): One hundred questions of importance to the conservation of global biological diversity. In: Conservation Biology. Vol. 23, No. 3.

UNEP-WCMC (2011): Review of CMS existing instruments and projects on terrestrial mammals (including bats). UNEP/CMS/Inf.10.15. UNEP-WCMC, Cambridge, UK.

UNEP-WCMC (2011): Review of CMS existing instruments and projects on marine turtles. UNEP/CMS/Inf.10.16. UNEP-WCMC, Cambridge, UK.