



CONVENTION ON MIGRATORY SPECIES

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CLIMATE CHANGE AND MIGRATORY SPECIES

(Prepared by the Scientific Council)

Summary:

This document reports on implementation of **Resolution 12.21** and **Decision 13.128**. It proposes a revision of Resolution 12.21 to update it, and new decisions for the triennium following COP14.

Revision 1 incorporates edits to account for ~~four~~five information documents that have now been produced based on the draft report of the review undertaken by the United Kingdom of Great Britain and Northern Ireland:

Inf 30.4.1: Climate Change and Migratory Species: a review of impacts, conservation actions, ecosystem services and indicators – it is aimed that this will become a summary for policy makers

Inf ~~30~~3012.4.1.1: Impacts of climate change on migratory species

Inf ~~30~~3012.4.1.2: Conservation of Migratory Species and the use of Indicators for Monitoring Climate Change Impacts

Inf ~~30~~3012.4.1.3: Migratory Species and Their Role in Ecosystems

Inf ~~30~~3012.4.1.4: Case Studies

Parties are invited to read the Inf documents in parallel with Document 30.1.4.

CLIMATE CHANGE AND MIGRATORY SPECIES

Background

1. At the 12th meeting of the Conference of the Parties, [Resolution 12.21](#) was adopted. Resolution 12.21 was the result of a consolidation of all previous Resolutions and recommendations on climate change since the 5th meeting of the Conference of the Parties. At the 13th meeting of the Conference of the Parties, [Decisions 13.126 – 13.128](#) were adopted.
2. Annexed to Resolution 12.21 is a programme of work on climate change and migratory species. In addition, [Annex 6 of Resolution 13.2](#) contains a programme of work for the Convention, including activities relating to climate change. One of those activities is “*Review evidence for climate change impacts on migratory species; vulnerability assessment and develop guidelines for adaptation measures*”.
3. The United Kingdom of Great Britain and Northern Ireland has undertaken a review of the impacts of climate change on migratory species which is reported below. In addition, work has been undertaken to provide guidance on historical range of CMS-listed species in relation to climate change (Decision 13.128), and that is also reported below. Information on the implementation of Decisions 13.126 and 13.127 will be provided in separate documents written by the Secretariat.
4. The Scientific Council Working Group on Climate Change met twice (26 and 27 April 2023) to consider the work undertaken to implement Resolution 12.21 and Decision 13.128, and to consider potential changes to the Resolution and potential new Decisions in the light of the current situation.

Reviewing the impact of climate change on migratory species

5. The vulnerability of migratory species to climate change was reviewed in 2005¹, 2006² and 2010³. The United Kingdom of Great Britain and Northern Ireland, through a contract to the British Trust for Ornithology funded by the Department of Environment, Food and Rural Affairs via the Joint Nature Conservation Committee, has undertaken a new review of climate change and migratory species. The project had four work packages:
 - **Work Package 1: Impact of climate change on migratory species.** Review the current impact of climate change on migratory species and their habitats, using the previous review completed in 2010 as a key reference document and baseline.
 - **Work Package 2: Migratory species and their role in ecosystems.** Demonstrate the key role that migratory species play in ecosystem management and consequently in climate regulation.
 - **Work Package 3: Future scenarios.** Show that the conservation of migratory species can have wide benefits, both for local communities and reducing the overall impact of climate change on ecosystems.

¹ BTO Research Report 414. Climate Change and Migratory Species. 2005. Robert A. Robinson, Jennifer A. Learmonth, Anthony M. Hutson, Colin D. Macleod, Tim H. Sparks, David I. Leech, Graham J. Pierce, Mark M. Rehfish and Humphrey Q.P. Crick. A Report for Defra: Research Contract CR0302.

² UNEP-CMS, 2006, Migratory Species and Climate Change: Impacts of a changing Environment on wild animals. ISBN 3-937429-09-3. https://www.cms.int/sites/default/files/publication/cms_pub_pop-series_migratory_species%26climate_change_e.pdf

³ UNEP-CMS/ScC17/Inf.9. 2010 Vulnerability of migratory species to climate change. ZSL. https://www.cms.int/sites/default/files/publication/cms_climate_change_vulnerability_3_0_0.pdf.

- **Work Package 4: Conclusions and recommendations.** Provide practical recommendations for action by CMS and by Parties that could be implemented to help the conservation of migratory species in the face of rapidly changing climatic conditions.

6. At the point this document was being finalised (May 2023), a draft report of the first work package was available and some key findings are provided below. The results of the contract will be made available to the Sessional Committee meeting through ~~four~~five information documents:

- [UNEP/CMS/COP14/Inf 30.4.1: Climate Change and Migratory Species: a review of impacts, conservation actions, ecosystem services and indicators – it is aimed that this will become a summary for policy makers](#)
- ~~UNEP/CMS/ScC-SC6~~UNEP/CMS/ScC-SC6/Inf 12.4.1a: Impacts of climate change on migratory species
- UNEP/CMS/ScC-SC6/Inf 12.4.1b: Conservation of Migratory Species and the use of Indicators for Monitoring Climate Change Impacts
- UNEP/CMS/ScC-SC6/Inf 12.4.1c: Migratory Species and Their Role in Ecosystems
- UNEP/CMS/ScC-SC6/Inf 12.4.1d: Case Studies.

It is anticipated that these will be combined into one document in advance of COP14. The results of the contract will be launched at COP14.

6.7. Key findings from the first work package:

Increases in temperature:

- Globally, temperatures have increased and will continue to do so. There is strong evidence that such increases in temperatures have affected most species groups. There are a wide range of ways (depending on species group) by which increased average temperatures ultimately impact migratory species; impacts are mostly negative.
- Many seabird species are negatively impacted by increases in sea-surface temperature with well-demonstrated effects on survival, breeding success and population abundance.
- As temperatures increase, the area of sea-ice is reducing. Although only affecting a relatively small number of marine species, there is strong evidence of negative impacts on these populations due to changes in the reproduction and survival of krill, a food source for marine mammals and seabirds.
- Rising temperatures can cause heat stress in terrestrial mammals and seabirds like penguins and albatrosses, impacting populations through its effects on reproductive outputs.
- Poleward range shifts are one of the most frequently demonstrated impacts of climate change on migratory animals; however, whether such impacts are positive or negative depends very much on the individual species' ecology.
- There is strong evidence for changes in the timing of migration, mostly in response to increased temperatures. Responses vary between species and groups, and impacts on population status may be either positive or negative.

Changes in Water availability

- Alongside increased temperatures, in many regions there will be a reduction in water availability, through reduced precipitation or more rapid evaporation, increased

frequency of droughts but also increased human abstraction of water; although in some areas rates of precipitation will increase.

- Species occurring in drier temperate and subtropical areas, or relying on freshwater habitats, will be negatively affected whether they are migratory or not.
- The migration of fish and waterbirds is likely to be particularly impacted by loss of wetlands and reduced river flows.

Extreme climate events

- The frequency and intensity of storms and other extreme weather events is expected to increase although, by their very nature, the pattern of occurrence is hard to predict.
- Evidence of long-lasting impacts is scattered, but they are likely to be negative where they do occur. Habitat destruction caused by land-slips has already been observed at some seabird breeding sites. Individual events are starting to be attributed to climate change – this is no longer a future problem.

Oceanic currents and sea-level rise

- Changes in oceanic currents are likely to have far-reaching consequences, altering the nature and functioning of many marine and terrestrial ecosystems. There is strong evidence that migratory seabirds and marine mammals will be impacted, but evidence for other groups (such as migratory fish) is so far apparently lacking; due, in part, to the difficulties of gathering evidence.
- Globally sea-levels are rapidly rising and there is strong evidence that species breeding in low-lying coastal areas will be negatively impacted through loss of habitat e.g. turtle nesting beaches, especially in areas with high levels of human developments or exposed to storm surges.
- Changes in salinity and pH of water are predicted as CO₂ emissions increase, but, so far, there is limited published evidence of impacts on migratory species directly. It should be noted that such changes are having marked impacts on particular marine habitats, such as coral reefs, which will have impacts on any migratory species that use such habitats as nursery areas, for example.

7-8. The review also contains a number of case studies, chosen to illustrate issues faced by particular species and habitats. In addition to this document, ~~four~~ five information documents which provide the information collated in phases 1 and 2 of the review (UNEP/CMS/COP14/INF.30.4.1, UNEP/CMS/ScC-SC6/Inf.12.4.1a, 12.4.1b, 12.4.1c and 12.4.1d) were considered by the 6th meeting of the Sessional Committee of the Scientific Council in the presentation of recommendations from the Scientific Council to the 14th meeting of the Conference of the Parties.

Implementation of Decision 13.128

13.128 Decision directed to: Scientific Council

The Scientific Council is requested, subject to the availability of resources, to provide advice on how the interpretation in paragraph 9 of Resolution 12.21 Climate Change and Migratory Species could be turned into pragmatic good practice.

8-9. Resolution 12.21⁴ Paragraph 9 states:

⁴ https://www.cms.int/sites/default/files/document/cms_cop12_res.12.21_climate-change_e.pdf

Agrees that Article I (1) (c) (4) of the Convention, on the definition of “favourable conservation status” could be interpreted as follows in light of climate change, and invites the governing bodies of relevant CMS instruments to also approve this interpretation:

According to Article I (1) (c) (4) of the Convention, one of the conditions to be met for the conservation status of a species to be taken as “favourable” is that: *“the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management”*. Whereas there is a continued need to undertake conservation action within the historic range of migratory species, such action will increasingly also need to be taken beyond the historic range of species in order to ensure a favourable conservation status, particularly with a view to climate-induced range shifts. Such action beyond the historic range of species is compatible with, and may be required in order to meet the objectives and the obligations of Parties under the Convention;

9-10. Over a sufficiently long timescale, no migratory route is fixed. Instead, animals change where and when they migrate in response to environmental drivers, including changes in climate. Contemporary climate change, as a result of greenhouse gas emissions, poses a particularly severe threat to many migratory species. Firstly, the pace of change exceeds that observed in the geological record, making it harder for species and ecosystems to adapt. Secondly, the capacity of migratory species to shift their ranges is already limited by a range of other pressures resulting from human activity.

10-11. The Scientific Council at the fifth meeting of the Sessional Committee considered a document on Decision 13.128 which had been drafted by the Joint Nature Conservation Committee of the United Kingdom of Great Britain and Northern Ireland:

- UNEP/CMS/ScC-SC5/Doc.6.4.5: <https://www.cms.int/en/document/discussion-paper-scientific-council-decision-13128-climate-change-and-migratory-species>

11-12. The document considered three case studies for terrestrial and freshwater species: desertification, Arctic vegetation shifts and sea level rise; plus three further case studies with regards to marine species: ocean warming, Arctic sea ice loss and ocean acidification. All were chosen to illustrate the diversity of threats posed to ecosystems and to the migratory species which rely on them. Following these case studies, the document considered scenarios and potential actions that Parties could undertake – supported by a decision framework which provides a guide for action.

12-13. Four scenarios were explored:

- i. Species not present throughout suitable range;
- ii. Species range limited by natural barrier(s);
- iii. Species range limited by anthropogenic barrier(s);
- iv. Species range likely to be limited by anthropogenic barrier(s) in future.

13-14. The decision framework is intended as a basis to guide the engagement between Range States and for the prioritization of actions for migratory species at risk from climate change. By combining this framework with careful analysis of scientific evidence for each species, strategies can be focused on actions which make best use of resources to protect species and their migration routes. Four potential strategies are considered:

- i. Conservation;
- ii. Restoration;

- iii. Adaptation;
- iv. Translocation.

[44.15.](#) It is proposed that the decision framework should be annexed to Resolution 12.21 as guidance for Parties in the interpretation of paragraph 9 of Resolution 12.21.

Discussion and analysis

15-16. The impacts of climate change are being felt by migratory species *now*. These can be catastrophic. For example, wildfires⁵ and extreme weather events such as hail⁶, heatwaves⁷ and land-slips⁸ have led to the losses of thousands of birds and significant losses in the area of available nesting habitat. The previous reviews predicted many possible effects of climate change on migratory species; it should be stressed that evidence they are actually occurring is now self-evident.

16-17. Changes in climatic conditions are happening faster than originally anticipated. The impacts of these changes on migratory species are becoming more serious, less predictable, and harder to mitigate. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR6) has also identified that hard and soft limits to adaptation have already been reached in some ecosystems and regions⁹.

17-18. Significant changes in the distribution, numbers, and overall ecology of migratory species are already observed. For example, changes are being reported in patterns of migration, including the routes used and the timing of the migration itself. Similarly, changes in climate are already altering the survival of many migratory species. Rapid changes in the timing of migration, and in the number of migrants, have the potential to disrupt ecosystem functioning globally as well as the services these ecosystems provide to humanity.

18-19. The situation is however complex. The 26th and 27th sessions of the Conferences of the Parties of the Framework Convention on Climate Change (UNFCCC COP 26 and COP 27) strongly emphasised the interlinkage of the twin emergencies of climate change and nature loss. Accordingly, climate change impacts need to be addressed alongside nature recovery, and the recovery of nature is a key part of the solution to rapidly changing climatic conditions, including through the deployment of nature-based solutions. The conservation of migratory species is a key part of nature recovery, and the potential for migratory species to aid the stabilisation of ecosystem functioning, thereby contributing to both climate change mitigation and adaptation efforts, needs to be highlighted.

19-20. A fundamental part of assessing the impact of climate change on migratory species will be to evaluate the level of risk from climate change alongside the other risks that species already experience. There is likely to be a spectrum of sensitivity to climate change, with some species being highly vulnerable and likely to be seriously impacted, while others will be more resilient to change at least in terms of their overall numbers, even though their migratory behaviour may alter. Understanding species' vulnerability to climate change will help inform management and help focus attention on those species most likely to be impacted in future.

20-21. Ultimately, given the extent and speed of climate change it seems that many migratory species (including those listed on the appendices of CMS), will not be able to maintain their current numbers, distribution, and existing annual patterns (routes and timing) of migration. Conservation management decisions will therefore need to be made about

⁵ Woinarski JCZ *et al.* (2023) International Journal of Wildland Fire <https://www.publish.csiro.au/wf/WF22229>.

⁶ Weston KA and Fraser I, *Notornis*, 2020, Vol. 67: 481-484

⁷ Piatt JF *et al.* <https://dx.plos.org/10.1371/journal.pone.0226087>

⁸ <https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/reports/201920-annual-plan/pop2019-03--white-chinned-petrel-on-antipodes-final-report.pdf>

⁹ https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_SPM.pdf

what is the priority for action and what resources are available. It seems inevitable that conservation management in these cases will need to focus on adaptation, with decisions to facilitate, accept, or resist change. Whilst a new picture of numbers, distribution and ecology will emerge as species adapt, this could be significantly different from present conditions. In these circumstances it is critical to undertake an evaluation of the possible impacts of climate change on migratory species and to develop clear advice for governments and others on what actions are needed and which are likely to be effective.

21-22. Consolidating both the information above and the Working Group's discussions, it is clear that although there have been substantial improvements in knowledge in the past decade about the impacts of climate change on migratory species, more attention needs to be paid to: adaptation processes; the underpinning processes which influence different climate impacts; the interlinked threats which affect many species; regional data gaps; and species specific impacts within the broad picture for taxonomic groups.

22-23. Key areas which could be highlighted for future work include:

- i. Developing a better understanding of the importance of interactions between climate change and other drivers of species loss (for example, invasive species, disease and land use change);
- ii. Developing a better acknowledgement of the catastrophic impacts of extreme events on species;
- iii. Providing evidence around the rate of change;
- iv. Developing a better understanding and stronger evidence base around how changes in migrating species populations can lead to ecosystem-wide impacts;
- v. Improving our ability to predict the current and future vulnerability of migrating species and populations to climate change;
- vi. Building in resilience to give species the space to adapt/shift range, for example through coherent networks of stopover/resting sites; and
- vii. Developing a better understanding of which mitigation and adaptation measures are most effective for particular migratory species and their habitats.

23-24. It is therefore essential, for the benefit of the conservation of migratory species, that CMS further engages in work on climate change, both within the Convention itself through its Scientific Council and also by forging stronger relationships with other frameworks concerned with climate change such as the UNFCCC, and makes the case for how migratory species are both affected by climate change, and are potentially part of the solution for mitigation and adaptation.

24-25. Accordingly, a revision of Resolution 12.21, to update it to current circumstances, and new decisions for the triennium between the 14th and 15th Conferences of the Parties, are proposed.

Recommended actions

25-26. The Conference of the Parties is recommended to:

- a) take note of the information documents [UNEP/CMS/CoP14/Inf.30.4.1.](#), [UNEP/CMS/ScC-SC6/Inf.12.4.1a](#), [12.4.1b](#), [12.4.1c](#), and [12.4.1d](#).
- b) adopt the draft amendments to Resolution 12.21 contained in Annex 1 of this document;
- c) adopt the draft Decisions contained in Annex 2 of this document;
- d) delete Decisions 13.126–13.128.

ANNEX 1

PROPOSED REVISION TO RESOLUTION 12.21 (REV. COP14)

CLIMATE CHANGE AND MIGRATORY SPECIES

Adopted by the Conference of the Parties at its 12th Meeting (Manila, October 2017); Revised by the Conference of the Parties at its 14th meeting (Samarkand, October 2023).

Resolution 12.21 was adopted following a consolidation of Recommendation 5.5 and Resolutions 8.13, 9.7, 10.19, and 11.26 which were then repealed. The Resolution was further amended at COP14.

NB: Proposed new text is underlined. Text to be deleted is ~~crossed out~~.

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
<i>Recalling</i> Recommendation 5.5 and Resolutions 8.13, 9.7, 10.19, and 11.26 ¹⁰	Secretariat advice is to retain a preambular clause in resolutions that have been consolidated or amended, laying out the history, along with a footnote. The operative paragraph that repeals previous resolutions is to be deleted.	<i>Recalling</i> Recommendation 5.5 and Resolutions 8.13, 9.7, 10.19, and 11.26 ¹⁰ ,
<u><i>Recognising with extreme concern that climate change impacts are happening now, that some of the impacts on migratory species are catastrophic, and that changes are occurring both to individual species, and at ecosystem level,</i></u>	New paragraphs to recognise the urgency of climate change happening now	<i>Recognising with extreme concern that climate change impacts are happening now, that some of the impacts on migratory species are catastrophic, and that changes are occurring both to individual species, and at ecosystem level,</i>

¹⁰ The *Recommendation* and *Resolutions* were repealed and consolidated into Resolution 12.21.

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
<p><u>Further concerned</u> that the frequency and intensity of severe weather events, and the likelihood of severe impact of these events, are increasing.</p> <p><u>Recalling</u> evidence that protecting and restoring wild animals and their habitats can enhance natural adaptation and mitigation potential, including through sequestration.</p> <p><u>Recognising with equal concern that hard and soft limits to adaptation have been reached in some ecosystems and regions, thus impacting on migratory species and their habitats,</u></p>		<p><i>Further concerned</i> that the frequency and intensity of severe weather events, and the likelihood of severe impact of these events, are increasing,</p> <p><i>Recalling</i> evidence that protecting and restoring wild animals and their habitats can enhance natural adaptation and mitigation potential, including through sequestration,</p> <p><u><i>Recognising with equal concern that hard and soft limits to adaptation have been reached in some ecosystems and regions, thus impacting on migratory species and their habitats,</i></u></p>
<p><u>Recognizing</u> that climate change is already having an adverse impact on migratory species and the phenomenon of animal migration (predicted in UNEP/CMS/ScC17/Inf.12, and evidenced in UNEP/CMS/ScC-SC6/Inf.12.4.1a, 12.4.1b, 12.4.1c and 12.4.1d),</p>	<p>Retain; edit to include all three INFs,</p>	<p><i>Recognizing</i> that climate change is already having an adverse impact on migratory species and the phenomenon of animal migration (predicted in UNEP/CMS/ScC17/Inf.12, and evidenced in UNEP/CMS/ScC-SC6/Inf.12.4.1a, 12.4.1b, 12.4.1c and 12.4.1d),</p>
<p><i>Recognizing</i> that due to climate change, ranges of migratory species are changing and that CMS instruments may need to adapt to these variations,</p>	<p>Retain</p>	<p><i>Recognizing</i> that due to climate change, ranges of migratory species are changing and that CMS instruments may need to adapt to these variations,</p>
<p><i>Acknowledging</i> that changes in human activities as a result of climate change, including adaptation and mitigation measures, may have <u>significant</u> the most immediate negative impacts on migratory species and their habitats,</p>	<p>Retain with edit</p>	<p><i>Acknowledging</i> that changes in human activities as a result of climate change, including adaptation and mitigation measures, may have significant impacts on migratory species and their habitats,</p>
<p><i>Acknowledging</i> the considerable threat that climate change poses for migratory species and their habitats based upon the findings of the 56th Assessment of the Intergovernmental Panel on Climate Change (IPCC) and its Synthesis Report and Summary for Policymakers, <u>and the IPBES-IPCC co-sponsored workshop on biodiversity and climate change,</u></p>	<p>Update ref to latest IPCC document and the IPBES-IPCC joint workshop</p>	<p><i>Acknowledging</i> the considerable threat that climate change poses for migratory species and their habitats based upon the findings of the 6th Assessment of the Intergovernmental Panel on Climate Change (IPCC) and its Synthesis Report and Summary for Policymakers, and the IPBES-</p>

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
		IPCC co-sponsored workshop on biodiversity and climate change,
<p><i>Recognizing</i> that the best available scientific information indicates that action to help migratory species adapt to climate change is urgently required in order to meet the objectives of the Convention; to give proper effect to Articles II and III, and to the instruments adopted under Article IV, whereas at the same time there is a need to expand and refine knowledge concerning the impacts of climate change on migratory species,</p>	Retain	<p><i>Recognizing</i> that the best available scientific information indicates that action to help migratory species adapt to climate change is urgently required in order to meet the objectives of the Convention; to give proper effect to Articles II and III, and to the instruments adopted under Article IV, whereas at the same time there is a need to expand and refine knowledge concerning the impacts of climate change on migratory species,</p>
<p><i>Emphasizing</i> the need to coordinate action to help migratory species adapt to climate change within the framework of the CMS instruments,</p>	Retain.	<p><i>Emphasizing</i> the need to coordinate action to help migratory species adapt to climate change within the framework of the CMS instruments,</p>
<p><u><i>Acknowledging</i> the importance of current protected areas and protected area networks for migratory species conservation as a result of climate change, and <i>recognizing</i> the need to enhance them in order to maximize representativeness and <i>improve connectivity within and between them</i>, thereby increasing their contribution to migratory species conservation in light of climate change, including through their better integration into wider landscapes and seascapes, and through the use of Other Effective area-based Conservation Measures,</u></p>	Revision of following two paragraph to streamline and combine	<p><i>Acknowledging</i> the importance of current protected areas and protected area networks for migratory species conservation as a result of climate change, and <i>recognizing</i> the need to enhance them in order to maximize representativeness and <u><i>improve connectivity with and between them</i></u>, thereby increase-increasing their contribution to migratory species conservation in light of climate change, including through their better integration into wider landscapes and seascapes, and through the use of Other Effective area-based Conservation Measures,</p>
<p><i>Acknowledging</i> that recent scientific evidence indicates that the importance of current protected areas and protected area networks for migratory species conservation is not expected to diminish on account of climate change and in many instances may increase,</p>	Delete – merged with paragraph below.	

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
Recognizing that it will often <u>may</u> be necessary to enhance protected areas and networks in order to maximize representativeness and thereby increasing their contribution to migratory species conservation in light of climate change, and to better integrate these into wider landscapes and seascapes,	Delete – merged with paragraph above.	
Mindful of the call on Parties and Signatories to CMS instruments in Resolution 10.19 to enable the full participation in CMS and CMS instruments of States that are not currently within the range of the species involved, but are expected to become Range States in the future due to climate change,	Repeal as unnecessary / out of date?	
Further recognizing that the understanding of certain terms in the Convention, in particular the term “historic coverage” in Article 1(1)(4)(c), should be re-examined in the current era of climate change, bearing in mind that the Convention was concluded before the implications of climate change for migratory species conservation became apparent,	Repeal: in Operational Paragraphs, so not needed here.	
Recalling that Resolution 10.19 of the Tenth Conference of the Parties (COP10) established the position of a COP-Appointed Councillor for Climate Change and requested the preparation of a Programme of Work and the convening of an intersessional Working Group,	Repeal as unnecessary / out of date?	
Taking note of the report of the workshop that took place in Guácimo (Province of Limón, Costa Rica) from 9 to 11 April 2014, and thanking the Government of Costa Rica and its agency for protected areas, SINAC (National System for Conservation Areas), for very effectively hosting this workshop,	Repeal as unnecessary / out of date?	
Further noting the report of the ACCOBAMS Expert Workshop on the impact of climate change on cetaceans of the Mediterranean and	Repeal as unnecessary / out of date?	

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
Black Sea which took place in Monaco on 11 June 2014, and its recommendations, including Key Messages to Governments and Others,		
Acknowledging with thanks the contributions of the members of the Climate Change Working Group established under the Scientific Council,	Edit to refer to group in general; moved to make it the last pre-ambular paragraph?	
Further acknowledging the key role of the financial donors of this project which made it possible to develop the Programme of Work, in particular the Governments of Germany and Monaco for their voluntary contributions, and SINAC and the United Nations Development Programme (UNDP) for their in-kind contributions,	Repeal as unnecessary / out of date?	
Acknowledging the report “Climate Change Vulnerability of Migratory Species” by the Zoological Society of London (ZSL) and the report of the CMS Working Group on Climate Change, which were presented at the 16th Meeting of the Scientific Council,	Repeal as unnecessary / out of date?	
Noting with satisfaction the outcomes of the CMS technical workshop on the impact of climate change on migratory species (Tour du Valat, France, 6-8 June 2011), thanking the Government of Germany for financially supporting the workshop, and recalling the recommendations submitted to the workshop by members of the Scientific Council (UNEP/CMS/ScC17/Inf.12),	Repeal as unnecessary / out of date?	
<p><i>Recognizing</i> that mitigation measures, such as renewable, low carbon and “clean” energy development, may significantly affect migratory species and their habitats depending on how the installations are <u>designed</u>, sited and operated, and that further research and impact assessments, especially for new technologies, are required,</p> <p><u><i>Recognizing</i> the importance of appropriate environmental and social safeguards and strategic environmental assessment processes for</u></p>	Retain with edit, new text added	<p><i>Recognizing</i> that mitigation measures, such as renewable, low carbon and “clean” energy development, may affect migratory species and their habitats depending on how the installations are designed, sited and operated, and that further research and impact assessments, especially for new technologies, are required,</p> <p><i>Recognizing</i> the importance of appropriate environmental and social safeguards and strategic</p>

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
<u>renewable energy developments, including cumulative impact assessments,</u>		environmental assessment processes for renewable energy developments, including cumulative impact assessments,
Recalling Resolution 7.5 on wind turbines and migratory species, which, inter alia, calls for the application of strategic environmental impact assessment procedures to identify appropriate construction sites, and instructs the Scientific Council to develop guidelines for the construction of offshore wind farms aimed at minimizing the negative impacts on migratory species,	Resolution 7.5 is still extant, therefore retain reference to that, but delete instruction to the Scientific Council as that should be a Decision if still needed.	<i>Recalling</i> Resolution 7.5 on wind turbines and migratory species, which, <i>inter alia</i> , calls for the application of strategic environmental impact assessment procedures to identify appropriate construction sites,
<i>Also recalling</i> Resolution 11.27, <i>Renewable Energy and Migratory Species</i> , which endorses the Scientific Council’s “Renewable Energy Technologies and Migratory Species: Guidelines for Sustainable Development” (UNEP/CMS/COP11/Doc.23.4.3.2),	Resolution 11.27 is still extant, therefore retain	<i>Also recalling</i> Resolution 11.27, <i>Renewable Energy and Migratory Species</i> , which endorses the Scientific Council’s “Renewable Energy Technologies and Migratory Species: Guidelines for Sustainable Development” (UNEP/CMS/COP11/Doc.23.4.3.2),
Recalling Resolution 6.6 of the African-Eurasian Migratory Waterbird Agreement (AEWA), and Resolution 4.14 of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS) on climate change and migratory species,	Repeal as unnecessary: not referred to in operational paragraphs	
Noting Decision X.33 of the Convention on Biological diversity (CBD) on biodiversity and climate change which calls for, <i>inter alia</i>, specific measures for species that are vulnerable to climate change, including migratory species, and recognizing the important role of traditional knowledge and the full involvement of indigenous and local communities in planning and implementing effective activities to mitigate and adapt to climate change, as well as the need to develop appropriate assessments of ecosystem and species vulnerability, and CBD Decision XII.20, biodiversity and climate change and	Repeal as unnecessary: not referred to in operational paragraphs	

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
disaster risk reduction, and CBD Decision XIII.4 on biodiversity and climate change,		
Also noting Ramsar Convention Resolution X.24 on climate change and wetlands,	Repeal as unnecessary: not referred to in operational paragraphs	
Noting decisions IX/1 and IX/2 of the 9th and decision X/37 of the 10th meeting of the Conference of the Parties to the CBD concerning biodiversity and biofuels, and Ramsar COP10 Resolution X.25 on wetlands and biofuels and COP11 Resolution XI.10 on wetlands and energy issues,	Repeal as unnecessary: not referred to in operational paragraphs	
Acknowledging the Convention on the Conservation of European Wildlife and Natural Habitats recommendation 135 on addressing the impacts of climate change on biodiversity and recommendation 143 on further guidance for Parties on biodiversity and climate change,	Repeal as unnecessary: not referred to in operational paragraphs	
Welcoming the Paris Agreement, concluded in Paris on 12 December 2015 in the framework of the United Nations Framework Convention on Climate Change (UNFCCC),	Repeal as unnecessary: not referred to in operational paragraphs	
Conscious of the relevance of the research undertaken by IUCN to assess the susceptibility of IUCN Red List species to climate change,	Repeal as unnecessary	
Welcoming the outcomes of the three climate change workshops conducted under the auspices of the International Whaling Commission (IWC) to date (Hawaii, USA, March 1996; Siena, Italy, February 2009; Vienna, Austria, November/December 2010),	Repeal as unnecessary / out of date?	
Welcoming the report on Climate Change and Migratory Species commissioned by the Government of the United Kingdom in 2005 highlighting the specific adverse effects and interactions of climate change on populations of migratory species, as well as strategies for adaptation recognized by Resolution 8.13,	Repeal as unnecessary / out of date?	

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
Aware of the report on Indicators of the Impact of Climate Change on Migratory Species prepared by the British Trust for Ornithology in 2008, specifically that individual species groups such as Trans-Saharan migrant birds may be a suitable indicator for assessing the impact of climate change on a number of migratory species,	Repeal as unnecessary / out of date?	
Welcoming the project launched in 2016 to assess vulnerability of wetland landscapes to climate change and support the development of a climate resilient network of critical sites for waterbird populations in the African-Eurasian flyway, including through a redeveloped open-access Critical Site Network Tool, under the aegis of AEWA and implemented under the lead of Wetlands International and BirdLife International with the support of the Government of Germany,	Repeal as unnecessary / out of date?	
<i>Aware</i> that the Small Island Developing States (SIDS) and developing countries with small islands, which are important migratory sites for various species of birds, marine mammals, reptiles and fish, are highly vulnerable to impacts of climate change and are in need of support including capacity building to address these issues ^{7.1}	Retain	<i>Aware</i> that the Small Island Developing States (SIDS) and developing countries with small islands, which are important migratory sites for various species of birds, marine mammals, reptiles and fish, are highly vulnerable to impacts of climate change and are in need of support including capacity building to address these issues,
<i>Acknowledging</i> with thanks the contributions of the members of the Climate Change Working Group established under the Scientific Council ^{7.2}	Edit to refer to group in general; moved to make it the last pre-ambular paragraph?	<i>Acknowledging</i> with thanks the contributions of the Climate Change Working Group established under the Scientific Council.

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

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
<p>1. <u>Strongly u</u>rges Parties, and non-Party Range States, despite the remaining uncertainty surrounding the full scale of the impacts of climate change on migratory species, to take both mitigation and adaptation actions now not to delay related decision-making and action, especially in the light of impacts which are already being observed;</p>	<p>Edit to make focus on need for action <u>now</u> Moved from 2nd to 1st OP.</p>	<p><i>Strongly urges</i> Parties, and non-Party Range States, to take both mitigation and adaptation actions now, especially in the light of impacts which are already being observed;</p>
<p>2. Endorses the Advice to Parties and other stakeholders “Programme of Work on Climate Change and Migratory Species” (the POW) adopted through Resolution 11.26 as annexed to this Resolution and urges Parties and Signatories to the CMS instruments and encourages non-Parties to put in place, as appropriate, legislative, administrative, management or other measures necessary to implement actions set out in this POW, including by considering the incorporation of such measures migratory species issues in national climate change strategies, nationally determined contributions, national adaptation plans, and National Biodiversity Strategies and Action Plans (NBSAPs) as a matter of priority, if applicable and to the extent possible appropriate given the particular circumstances of each Party and non-Party;</p>	<p>Suggest edit to recast Annex I as actions and remove references here and below to a PoW; follows through on subsequent paragraphs to remove references to PoW. Add reference to NDCs and national adaptation plans.</p>	<p><i>Endorses</i> the Advice to Parties and other stakeholders on Climate Change and Migratory Species annexed to this Resolution and <i>urges</i> Parties and Signatories to the CMS instruments and <i>encourages</i> non-Parties to implement actions including the incorporation of migratory species issues in national climate change strategies, nationally determined contributions, national adaptation plans, and National Biodiversity Strategies and Action Plans (NBSAPs) to the extent appropriate given the circumstances of each Party and non-Party;</p>
<p>3. <i>Encourages</i> Parties and other stakeholders 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 spatial planning in terrestrial, freshwater and marine ecosystems. This should include Strategic Environmental Assessments and Environmental Impact Assessments, in line with the provisions of Resolution 7.2 on impact assessment and migratory species and Resolution 11.27</p>	<p>Edit to simplify, but also to note spatial rather than just land based planning</p>	<p><i>Encourages</i> Parties and other stakeholders to take into account potential impacts on migratory species when developing and implementing relevant climate change mitigation and adaptation action and spatial planning in terrestrial, freshwater and marine ecosystems, in line with the provisions of Resolution 7.2 on impact assessment and</p>

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
<p>on renewable energy and migratory species. Assessments should take into account the needs of CMS-listed species, and actions should involve, where appropriate, multilateral development banks, the energy sector and other stakeholders;</p>		<p>migratory species and Resolution 11.27 on renewable energy and migratory species;</p>
<p>4. Requests Parties and Signatories to the CMS instruments to assess what steps are necessary to help migratory species cope with adapt to climate change and changes in human activities as a result of climate change and of mitigating its effects, that have an impact on migratory species and take action<u>actions as listed in the Annexes to this Resolution</u> to give effect to the POW on Climate Change;</p>	<p>Edit to simplify</p>	<p><i>Requests Parties and Signatories to the CMS instruments to assess what steps are necessary to help migratory species adapt to climate change and changes in human activities as a result of climate change and take actions as listed in the Annexes to this Resolution;</i></p>
<p>5. Requests the Scientific Council, subject to the availability of resources, and the Working Group on Climate Change to promote work to address key gaps in knowledge and future research directions, in particular through the analysis of existing long-term and large-scale datasets, and through join-up with other relevant work under the Convention and other frameworks such as United Nations Framework Convention on Climate Change;</p>	<p>Edit to clarify resources required and focus on links with other CMS WGs and other Conventions such as UNFCCC.</p>	<p><i>Requests the Scientific Council, subject to the availability of resources, to promote work to address key gaps in knowledge and future research directions, in particular through the analysis of existing long-term and large-scale datasets, and through join-up with other relevant work under the Convention and other frameworks such as United Nations Framework Convention on Climate Change;</i></p>
<p>6. Instructs the Secretariat, in collaboration with Parties and relevant international organizations, subject to the availability of funds resources from both public and private sources, to address specific issues and promote the implementation of the POW<u>actions in the annexes of this Resolution</u>, and share best practice and lessons learnt in the effective mitigation of climate change impacts, including through the organization of <u>thematic and regional</u> workshops;</p>	<p>Edit to clarify</p>	<p><i>Instructs the Secretariat, in collaboration with Parties and relevant international organizations, subject to the availability of resources from both public and private sources, to promote the implementation of the actions in the annexes of this Resolution, and share best practice and lessons learnt in the effective mitigation of climate change impacts, including through the organization of thematic and regional workshops;</i></p>
<p>7. Calls on Parties, non-Parties and stakeholders, with the support of the Secretariat, to strengthen national and local capacity for the implementation of the POW and the protection of species impacted</p>	<p>Retain with edits</p>	<p><i>Calls on Parties, non-Parties and stakeholders, with the support of the Secretariat, to strengthen national and local capacity for the protection of</i></p>

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
<p>by climate change, including, <i>inter alia</i>, by developing partnerships with key stakeholders and organizing training courses, translating and disseminating examples of best practice, sharing and implementing protocols and regulations, transferring technology, and promoting the use of online and other tools to address specific issues contained in the POW;</p>		<p>species impacted by climate change, including, <i>inter alia</i>, by developing partnerships with key stakeholders and organizing training courses, translating and disseminating examples of best practice, sharing and implementing protocols and regulations, transferring technology, and promoting the use of online and other tools to address specific issues;</p>
<p>8. Urges Parties and Signatories to CMS instruments, and encourages non-Parties exercising jurisdiction over areas that a migratory species inhabits or is expected to inhabit in the near future due to climate change, to participate in CMS and relevant CMS instruments, in order to promote timely conservation measures where migration patterns have changed due to climate change;</p>	<p>Retain</p>	<p><i>Urges Parties and Signatories to CMS instruments, and encourages non-Parties exercising jurisdiction over areas that a migratory species inhabits or is expected to inhabit in the near future due to climate change, to participate in CMS and relevant CMS instruments, in order to promote timely conservation measures where migration patterns have changed due to climate change;</i></p>
<p>9. Agrees that Article I (1) (c) (4) of the Convention, on the definition of “favourable conservation status” could be interpreted as follows in light of climate change, and <i>invites</i> the governing bodies of relevant CMS instruments to also approve this interpretation:</p> <p><i>According to Article I (1) (c) (4) of the Convention, one of the conditions to be met for the conservation status of a species to be taken as “favourable” is that: “the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management”. Whereas there is a continued need to undertake conservation action within the historic range of migratory species, such action will increasingly also need to be taken beyond the historic range of species in order to ensure a favourable conservation status, particularly with a view to climate-induced range shifts. Such action beyond the historic range of species is compatible with, and may be required in order</i></p>	<p>Retain.</p>	<p><i>Agrees that Article I (1) (c) (4) of the Convention, on the definition of “favourable conservation status” could be interpreted as follows in light of climate change, and invites the governing bodies of relevant CMS instruments to also approve this interpretation:</i></p> <p><i>According to Article I (1) (c) (4) of the Convention, one of the conditions to be met for the conservation status of a species to be taken as “favourable” is that: “the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management”. Whereas there is a continued need to undertake conservation action within the historic range of migratory species, such</i></p>

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
<p><i>to meet, the objectives and the obligations of Parties under the Convention;</i></p>		<p><i>action will increasingly also need to be taken beyond the historic range of species in order to ensure a favourable conservation status, particularly with a view to climate-induced range shifts. Such action beyond the historic range of species is compatible with, and may be required in order to meet, the objectives and the obligations of Parties under the Convention;</i></p>
<p>10. Urges Parties and invites relevant international organizations, bilateral and multilateral donors <u>and private sector organizations</u> to support financially the implementation of the POW <u>of actions in the Annexes of the Resolution</u> including through the provision of financial and other assistance to developing countries, <u>Small Island Developing States, and economies in transition</u> for relevant capacity-building;</p>	<p>Retain with edits</p>	<p><i>Urges Parties and invites relevant international organizations, bilateral and multilateral donors and private sector organizations to support the implementation of actions in the Annexes of the Resolution including through the provision of financial and other assistance to developing countries, Small Island developing States, and economies in transition for relevant capacity-building;</i></p>
<p>11. <u>Requests the Scientific Council, subject to the availability of resources, to implement work to support this resolution, including, if appropriate, through an intersessional working group set up with Terms of Reference operating within the rules of procedure of the Scientific Council;</u> Proposes the continuation of the Climate Change Working Group after COP12, extending its membership to incorporate expertise from geographical regions currently absent, and to prioritize, facilitate and monitor the implementation of the POW;</p>	<p>Revise to shape as requesting the Scientific Council to to set ToR and oversee work. Repeal existing text as CC WG should be a Decision not in the Resolution.</p>	<p><i>Requests the Scientific Council, subject to the availability of resources, to implement work to support this resolution, including, if appropriate, through an intersessional working group set up with Terms of Reference operating within the rules of procedure of the Scientific Council;</i></p>
<p>12. Requests the Secretariat to liaise with the secretariats of relevant MEAs, including in particular the secretariats of <u>Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification (UNCCD), the Ramsar Convention on Wetlands of International Importance (Ramsar)</u> and the World</p>	<p>Retain, edit to write names of Conventions in full, implement through a Decision.</p>	<p><i>Requests the Secretariat to liaise with the secretariats of relevant MEAs, including in particular the secretariats of Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to</i></p>

Existing text with edits shown in underline and strikethrough	Commentary	Clean new text proposed
<p>Heritage Convention (<u>WHC</u>), in collaboration with/through the Biodiversity Liaison Group, to promote synergies and coordinate activities related to climate change policies affecting migratory species, including, where appropriate, the organization of back-to-back meetings and joint activities;</p>		<p>Combat Desertification (UNCCD), the Convention on Wetlands of International Importance (Ramsar) and the World Heritage Convention (WHC), in collaboration with/through the Biodiversity Liaison Group, to promote synergies and coordinate activities related to climate change policies affecting migratory species, including, where appropriate, the organization of back-to-back meetings and joint activities;</p>
<p>13. <i>Further urges</i> Parties and Signatories to CMS instruments to enable and support the full participation in CMS of those States where migratory species are expected to occur in the near future due to climate change;</p>	<p>Retain</p>	<p><i>Further urges</i> Parties and Signatories to CMS instruments to enable and support the full participation in CMS of those States where migratory species are expected to occur in the near future due to climate change;</p>
<p>14. <u>Requests Parties, non-Parties and other stakeholders at a range of geographic scales to ensure that investments in both renewable and non-renewable energy technologies are implemented in a way to minimise their impacts on biodiversity in general, and migratory species in particular, through application of appropriate impact assessments, design and siting;</u></p>	<p>Add new OP on ensuring investments in renewable energy minimise impacts on migratory species</p>	<p><i>Requests</i> Parties, non-Parties and other stakeholders at a range of geographic scales to ensure that investments in both renewable and non-renewable energy technologies are implemented in a way to minimise their impacts on biodiversity in general, and migratory species in particular, through application of appropriate impact assessments, design and siting ;</p>
<p>15. Repeals the following Resolutions and Recommendation: a) Resolution 11.26, Programme of Work on Climate Change and Migratory Species; b) Resolution 10.19, Migratory Species Conservation in Light of Climate Change; c) Resolution 9.7, Climate Change Impacts on Migratory Species; d) Resolution 8.13, Climate Change and Migratory Species; and e) Recommendation 5.5, Climate Change and its Implications for the Bonn Convention.</p>	<p>Repeal</p>	<p>Secretariat's advice is to detail reference to the history in the preambular part, and delete from the operative part.</p>

Annex to Resolution 12.21

Existing Programme of work available at <https://www.cms.int/en/document/climate-change-and-migratory-species-3>

Omitted here due to length, and because the proposal is to recast the programme of work as advice on priority actions for Parties and other stakeholders.

Revised Annex 1 to Resolution 12.21

Advice to Parties and other Stakeholders on priority actions to address the issues migratory species face as a result of climate change

Parties and other stakeholders are encouraged to implement actions, appropriate to their circumstances, to address the issues migratory species face in responding to climate change.

Measures to facilitate species adaptation in response to climate change

- Prepare single or multi-species action plans for CMS listed species considered to be most vulnerable to climate change. Action plans should be prepared at an appropriate level (species or management unit level), but measures may be implemented at the national level. For species already covered by existing CMS instruments, those action plans should be developed and implemented under those instruments, where required. For other species, Range States should work collaboratively to prepare action plans at an appropriate scale.
- Improve the resilience of migratory species and their habitats to climate change, and ensure habitat availability for the full lifecycle of the species, now and in the future, *inter alia* through the following actions:
 - Identify and prioritize areas currently experiencing rapid climate impacts that are important to migratory species.
 - Ensure that individual sites are sufficiently large, holding appropriate habitats and topography.
 - Ensure there is ecological connectivity between sites, aiding species dispersal and colonization when distributions shift.
 - Consider the designation of seasonal protected areas or restrictions on land-use in areas where migratory species occur at critical stages in their lifecycle and would benefit from such protection.
 - Undertake specific management to eliminate, counteract or compensate for detrimental impacts of climate change and other potential threats that may interact with or exacerbate climate change.
 - Consider expanding existing protected area networks to cover important stop-over locations and sites for potential colonization, and ensure the effective protection and appropriate management of sites to maintain or to increase the resilience of vulnerable populations to extreme stochastic events. This may include increasing both the number and size of protected sites, and/or improving current management regimes.
 - Ensure effective monitoring of the site network in order to detect threats, and act on any deterioration in site quality, implementing specific actions to address important threats to sites.
 - Undertake the restoration of degraded habitats and landscapes/seascapes.

- Cooperate in respect of transboundary protected areas and populations, ensuring that barriers to migration are to the greatest possible extent eliminated or mitigated, and that migratory species are managed under commonly agreed guidelines. Where appropriate, this should be done within the framework of applicable CMS instruments.
- Identify migratory species that have special connectivity needs - those that are resource, area, and/or dispersal limited.
- Consider ex-situ measures and assisted colonization, including translocation, as appropriate, for those migratory species most severely threatened by climate change while bearing in mind the need to minimize the potential for unintended ecological consequences.
- Periodically monitor the effectiveness of conservation actions in order to guide ongoing efforts and apply suitable adaptive responses as appropriate.

Vulnerability assessment

- Undertake climate change vulnerability assessments for CMS listed species at an appropriate scale (national, regional, international), including consideration of the impacts of changes in the ecosystems that migratory species use, to identify those species most susceptible to climate change.
- Undertake climate change vulnerability assessments for other migratory species, not currently listed on CMS, to identify which, if any, may benefit from work under the CMS family instruments.
- Model projected future impacts of climate change to inform vulnerability assessments and action plans.
- Determine if species vulnerable to climate change should be listed on the CMS Appendices, as appropriate.

Monitoring and research

- Undertake research on the status, trends, distribution, and ecology of migratory species and their habitats, and ecosystem services provided by them. This includes identifying knowledge gaps and may require the use and refinement of existing technologies and tools, the development of new ones, promotion of citizen science, and coordination / knowledge exchange to improve capacity.
- Develop an understanding of migration routes, how they are changing and the connectivity between populations to identify key breeding, stopover and wintering locations and appropriate management units for particular species.
- Develop and implement monitoring regimes that are adequate to distinguish declines in populations from transboundary range shifts; that diagnose the causes of decline, and help identify the impact of climate change on migratory species.
- Continue to fill information gaps through research and monitoring, in order to make explicit the associated synergies and any trade-offs between biodiversity conservation, mitigation and adaptation efforts.
- Identify cases where the contribution of migratory species to the functioning of ecosystems maintains and enhances the ability of such ecosystems to provide nature-

based solutions to climate change, and promote the inclusion of measures to conserve such species in strategies and plans to address climate change.

Climate change mitigation, human adaptation, and land use planning

- Identify, evaluate, and reduce the additional impacts on migratory species resulting from changes in human behaviour due to climate change (the so-called “tertiary effects”).
- Develop and/or revise environmental sensitivity and zoning maps, to include critical and important sites for migratory species, as a tool for sustainable spatial planning and management and adaptation projects.
- Develop guidelines (generic, national and/or sub-national as appropriate) for mitigation and human adaptation projects to ensure that they are not harmful to migratory species.
- Ensure that strategic environmental assessment of programmes, environmental impact assessment of projects, and cumulative impact assessments of multiple projects, are conducted prior to undertaking major adaptation and mitigation projects, as well as exploration and production projects, taking into account impacts on migratory species, to identify win-win solutions and avoid projects leading to perverse outcomes.
- Ensure that projects incorporate adaptive management in mitigation and adaptation activities, including understanding how the impact of projects may vary according to time of day or weather; for example in their visibility to migrating species.
- Recognizing that there is considerable uncertainty regarding the potential effectiveness of offsetting as an approach to compensate for detrimental impacts of mitigation and human adaptation; undertake research to inform assessments of the likely role of compensatory or offsetting approaches designed to reduce and prevent detrimental impacts of mitigation and adaptation projects upon migratory species.
- Develop and apply appropriate methodologies to consider potential cumulative impacts of mitigation and adaptation projects across the entire life-cycle and range of migratory species. These may need to be applied at regional, national or international population levels, as appropriate.
- Ensure that where impacts on migratory species are significant, renewable energy and other climate change mitigation or adaptation structures are designed, sited and operated in ways that minimize negative effects on migratory species (for example, including short-term shutdowns or higher turbine cut-in speeds, with regard to wind farms).
- Ensure that any climate change mitigation and adaptation action has appropriate social and environmental safeguards in place at all stages, taking into account the needs of CMS-listed species.
- Ensure that the best available scientific information on the impacts of climate change on migratory species is accessible and useable for planning and decision-making.

Knowledge exchange and capacity-building

- Increase awareness of the impacts of climate change on migratory species and the benefits of conservation of migratory species for addressing climate change in appropriate authorities.

- Commission technical reviews and best-practice guidelines and encourage the publishing, sharing and distribution of periodic scientific reviews on the following topics:
 - the impacts of climate change on migratory species;
 - the potential for conservation management to increase the resilience and adaptation of migratory species populations to climate change; and
 - the impacts of anthropogenic climate change adaptation and mitigation on migratory species;
 - the potential role of conserving migratory species in maintaining and enhancing the functionality of ecosystems important for mitigating and adapting to climate change.
- Disseminate the outcomes of such reviews through the CMS website and other appropriate channels, where possible translating the results of those reviews into different languages.
- Establish better links between developing country needs and developed country research through CMS Family instruments to promote collaboration and coordinated actions.
- Increase the capacity of natural resource managers and other decision makers and enhance their ability to address the impacts ~~on~~ of climate change on migratory species and take advantage of the benefits of conserving migratory species for tackling climate change.
- Monitor the effectiveness of capacity building efforts on climate change and migratory species.

Cooperation and implementation

- Work closely with national Focal Points of the United Nations Framework Convention on Climate Change to provide expert guidance and support on how migratory species can be affected by human mitigation and adaptation activities, such as renewable energy and bio-energy development, and collaborate to develop joint solutions aimed at minimizing negative impacts on migratory species, as well as to promote the benefits of incorporating measures to conserve migratory species into actions to address climate change.
- Strengthen synergies with the National Focal Points of the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, the United Nations Convention on Combating Desertification, the Convention on Wetlands of International Importance (Ramsar), the World Heritage Convention, the International Whaling Commission, the Arctic Council, the Convention on Arctic Fauna and Flora, the Convention on the Conservation of European Wildlife and Natural Habitats (Bern), and other international instruments and arrangements.
- Engage in and support work related to climate change across the CMS family.
- Incorporate appropriate legislative, administrative, management and other measures in national climate change strategies, Nationally Determined Contributions (NDCs) and National Adaptation Plans, National Biodiversity Strategies and Action Plans (NBSAPs), protected area management plans, and other relevant policy instruments and processes.

[New] Annex 2 of Revised Resolution 12.21**DECISION FRAMEWORK TO PROVIDE GUIDANCE TO PARTIES ON IMPLEMENTATION OF PARAGRAPH 9 OF RESOLUTION 12.21 (REV. COP14).**

Resolution 12.21¹¹ Paragraph 9 states:

Agrees that Article I (1) (c) (4) of the Convention, on the definition of “favourable conservation status” could be interpreted as follows in light of climate change, and invites the governing bodies of relevant CMS instruments to also approve this interpretation:

According to Article I (1) (c) (4) of the Convention, one of the conditions to be met for the conservation status of a species to be taken as “favourable” is that: *“the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management”*. Whereas there is a continued need to undertake conservation action within the historic range of migratory species, such action will increasingly also need to be taken beyond the historic range of species in order to ensure a favourable conservation status, particularly with a view to climate-induced range shifts. Such action beyond the historic range of species is compatible with, and may be required in order to meet, the objectives and the obligations of Parties under the Convention;

The 5th and 6th meetings of the Sessional Committee of the Scientific Council considered the text above and provided the following guidance.

1. Scenarios and Actions

Four scenarios are considered which cover the different statuses of migratory species with respect to climate induced range shifts. In the following, the term “barrier” is used to refer to any factor which inhibits migratory species from expanding their range or acts as an impediment to connectivity of their migratory route.

2. Categorizing scenarios**i. Species not present throughout suitable range**

Some CMS-listed species have been so severely depleted that they only occupy a small part of the range which is climatically suitable for them, such as addax (*Addax nasomaculatus*), or are extinct-in-the-wild, such as scimitar-horned oryx (*Oryx dammah*).

ii. Species range limited by natural barrier(s)

As climate change degrades habitat in one location, it may not be possible for that habitat to naturally recover in adjacent areas. Examples include the coral reef systems used by hawksbill turtles (*Eretmochelys imbricata*). A related issue is where breeding or nesting grounds are required to stay geographically fixed, whilst foraging grounds are pushed away by climatic change, as may be the case for loggerhead turtles (*Caretta caretta*) and grey-headed albatross (*Thalassarche chrysostoma*).

¹¹ https://www.cms.int/sites/default/files/document/cms_cop12_res.12.21_climate-change_e.pdf

iii. Species range limited by anthropogenic barrier(s)

Where there is no natural barrier to range expansion, there may instead be a barrier resulting from human activity. This is the case at nesting sites for seabird species such as the black-footed albatross (*Phoebastria nigripes*), where sea level rise may push birds to nest at higher altitudes on islands which are unsuitable due to the presence of invasive predators and human disturbance. Anthropogenic barriers may also be present at boundaries between Regional Fisheries Management Organisations (RFMOs) where a range expansion may take species into seas with different bycatch mitigation standards.

iv. Species range likely to be limited by anthropogenic barrier(s) in future

Even where there is currently capacity for species to adapt their movements in response to climate change, there may be a probability that these future habitats will undergo changes which will make them unsuitable. This is particularly an issue in the Arctic, where retreating sea ice is permitting greater navigation and therefore more industrial activity. Whilst much of the Arctic could currently accommodate polewards shifts of species such as bowhead whale (*Balaena mysticetus*), by the time these range shifts occur the Arctic marine environment may be further developed and thus less accommodating than it is today. Similarly, wetlands which are currently unused by waterbirds and under consideration for development may become more in demand as stopover sites due to sea level rise. Finally, the advance of aridification in the Sahara and changing rainfall in the Sahel could push species such as Dorcas gazelle (*Gazella dorcas*) to compete for habitat with land increasingly needed for agriculture.

3. A framework for action

The following decision framework is influenced by approaches to ecosystem observation and management in fisheries (Link, *et al.*, 2020); by decision science used to prioritize conservation (Xiao, *et al.*, 2021) and by ranking of research priorities (Rushing, *et al.*, 2020) for migrating birds. It is intended as a basis for engagement between Range States and for prioritization of actions for migratory species at risk from climate change. By combining this framework with careful analysis of scientific evidence for each species, strategies can be focused on actions which make best use of resources to protect species and their migration routes.

Four strategies are considered:

i. Conservation

Examples of conservation strategies include setting aside buffer zones inland from current coastal wetlands (Wikramanayake, *et al.*, 2020), and limiting industrial expansion into the Arctic, the latter perhaps utilizing tools such as the World Wildlife Fund (WWF) ArcNet¹².

ii. Restoration

Examples of restoration strategies include removal of invasive predators from potential seabird nesting sites (Reynolds, *et al.*, 2015) and enhanced bycatch mitigation measures across fishery boundaries (Krüger, *et al.*, 2018).

¹² <https://arcticwwf.org/work/ocean/arcnet/>

iii. Adaption

Examples of possible adaption strategies include rebuilding of coral reef systems (Rinkevich, 2014) and construction of artificial nesting sites for turtles and other coastal breeding species.

iv. Translocation

Examples of translocation strategies include the reintroduction of captive addax (*Addax Nasomaculatus*) into protected areas of north Africa (Newby, *et al.*, 2016), and the use of light aircraft to guide Siberian crane (*Leucogeranus leucogeranus*) migration (the “Flight of Hope” project) in Russia.

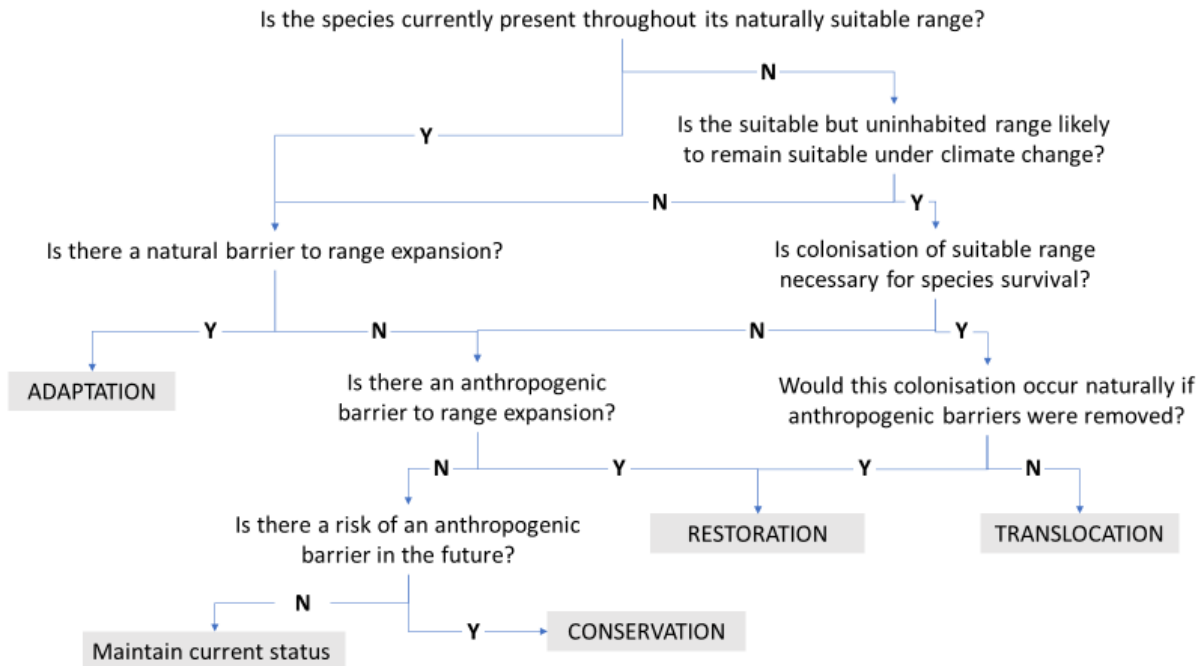


Figure 1. Decision framework using yes/no (Y/N) questions to link diagnosed scenarios to possible strategies for ensuring/restoring favourable conservation status of migratory species.

At each stage of the decision process, other factors will have to be taken into account, such as cost (Shoo, *et al.*, 2013) and the potential risks and benefits incurred by other species which share the habitats in question. In particular, any attempt at translocation – either for assisted colonisation or recolonisation – should follow the International Union for Conservation of Nature (IUCN) Guidelines for Reintroduction and Other Conservation Translocations¹³.

¹³ <https://www.iucn.org/content/guidelines-reintroductions-and-other-conservation-translocations>

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DRAFT DECISION(S)

CLIMATE CHANGE AND MIGRATORY SPECIES***Directed to Parties***

14.AA Parties are requested to:

- a) Incorporate the impacts of climate change on migratory species and the benefits of conserving migratory species for enhancing actions to address climate change when developing, *inter alia*, national climate change strategies, national adaptation plans, Nationally Determined Contributions, National Biodiversity Strategies and Action Plans, implementing the Kunming-Montreal Global Biodiversity Framework, designating/implementing Protected Areas and Other Effective area-based Conservation Measures and other habitat protections;
- b) Implement actions to address the effects of climate change on migratory species and their habitats as identified in Annex 1 of Resolution 12.21 (Rev. COP14) appropriate to national circumstances;
- c) Develop and implement adaptation plans for migratory species based on the framework outlined in Annex 2 of Resolution 12.21 (Rev. COP14), recognizing that different conservation actions may be needed in different parts of a species' life-cycle, in marine, freshwater and terrestrial environments, and that the appropriate actions may change as climate change progresses;
- d) Place increased emphasis on the need for international co-operation and concerted action to maintain and improve the connectivity of migration routes, for example by addressing the multiple threats that species face as a result of being migratory, and by considering potential/probable changes in migration routes in response to climate change;
- e) Include the implications of extreme weather events on migratory species in their human-related contingency planning for climate change adaptation and mitigation;
- f) Report to the Conference of Parties at its 15th meeting on the progress in implementing this decision through the provision of case studies, and via their National Reports.

Directed to Parties, intergovernmental and non-governmental organizations

14.BB Parties, intergovernmental and non-governmental organizations are encouraged to

- a) Consider and use the framework outlined in Annex 2 of Resolution 12.21 (Rev. COP14);
- b) Provide financial resources and/or in-kind support to allow the Scientific Council to convene an international in-person workshop on migratory species and climate change;

- c) Provide the Secretariat, at least six months in advance of COP15, with case studies of climate change adaptation and nature recovery, including the use of nature-based solutions, that may help Parties to implement the framework in real-world scenarios.

Directed to the Standing Committee

14.CC The Standing Committee is requested to:

- a) Review/amend the National Report format to capture Parties' responses to Resolution 12.21 (Rev. COP14) and the climate change related Decisions agreed at COP14;
- b) Report to the Conference of Parties at its 15th meeting on the progress in implementing this Decision.

Directed to the Scientific Council

14.DD The Scientific Council is requested, subject to the availability of resources, to:

- a) Re-establish its Climate Change Working Group for the next triennium and develop Terms of Reference for the Working Group according to the rules of procedure of the Scientific Council;
- b) Identify those species that, on balance, are likely to be negatively impacted by climate change, especially those that are likely to need human-mediated interventions, such as translocations, to moderate the impact of climate change;
- c) Identify species which have a high probability of changing their migration routes as a result of climate change;
- d) Identify further case studies of the role of migratory species in maintaining and enhancing climate change mitigation and adaptation (and other related ecosystem services) and develop guidance—resources for Parties to promote greater understanding of the provision of ecosystem services by migratory species;
- e) Propose measures to help facilitate migratory species' range changes;
- f) Provide advice on possible interventions, including nature-based solutions, in relation to conserving migratory species habitats, including maintaining or enhancing connectivity and ecosystem integrity;
- g) Provide advice on how work under CMS on climate change could interact with implementation of the Kunming-Montreal Global Biodiversity Framework, including, but not limited to, area-based conservation measures, connectivity and restoration, the Paris Agreement and the United Nations Framework Convention on Climate Change;
- h) Develop an interpretation of the term "barrier", so that there is consistency in the obligation to remove barriers to migratory species;
- i) Convene an international in-person workshop on migratory species and climate change to facilitate implementation of the actions above, and provide support to Party implementation of Resolution 12.21 (Rev. COP14);
- j) Report to the Conference of the Parties at its 15th meeting on the progress in implementing this Decision.

Directed to the Secretariat and the COP-Appointed Councillor for Climate Change

- 14.FF The Secretariat and the COP-Appointed Councillor for Climate Change, subject to the availability of external resources, should:
- a) Engage with other MEAs, including in particular the UN Framework Convention on Climate Change, the Convention on Biological Diversity, and the United Nations Convention to Combat Desertification, at relevant meetings, to provide information about the impact of climate change on migratory species, and the ways in which the conservation of migratory species can enhance nature-based solutions that can be part of the solution to climate change adaptation and mitigation, leading to win-win results.
 - b) Promote knowledge exchange between relevant authorities about the impacts of climate change on migratory species including changes in Range State status that may occur, and the benefits of conservation of migratory species for enhancing climate change mitigation and adaptation;
 - c) Propose revisions to the National Report format for consideration by Standing Committee at its 54th and/or 55th Meeting;
 - d) Support the Scientific Council in convening an international in-person workshop on migratory species and climate change;
 - e) Report to the Sessional Committee of the Scientific Council at its meetings before COP15, and to the Conference of Parties at its 15th meeting, on the progress in implementing this Decision.

Draft TERMS OF REFERENCE FOR THE CMS SCIENTIFIC COUNCIL WORKING GROUP ON CLIMATE CHANGE AND MIGRATORY SPECIES

The 14th meeting of the Conference of the Parties decided to re-establish a Working Group on Climate Change and Migratory Species under the Scientific Council with the aim of enhancing the scientific understanding of climate change issues in relation to migratory species and providing advice to Parties on actions they can take to mitigate the impacts of climate change on migratory species, and the benefits of migratory species conservation for enhancing action to combat climate change.

1. Background

Climate Change is a key pressure affecting migratory species. Increasing attention and importance are being given to the role that climate change plays in nature conservation in the face of the biodiversity crisis. The Fourteenth Meeting of the Conference of the Parties to the CMS (COP14) adopted a revised Resolution and several Decisions on climate change and migratory species.

2. Purpose

- A. The Working Group will support the implementation of relevant Resolutions and Decisions directed to the Scientific Council, as contained in the Programme of Work of the Sessional Committee.
- B. The Working Group will support CMS' implementation of climate change related goals and targets within the Strategic Plan for Migratory Species 2023-20xx as well as the [Kunming-Montreal Global Biodiversity Framework](#) and the further development of its monitoring framework, and, where relevant, the UNFCCC and Paris Agreement.
- C. The Working Group will provide a platform to discuss and exchange CMS-related information and scientific findings on climate change-related matters.
- D. The Working group will advise on an update of the CMS webpage on Climate Change <https://www.cms.int/en/workinggroup/working-group-climate-change>.

3. Membership

- A. Membership of the Working Group can include both members of the Scientific Council and observers; in balance as set by the Rules of Procedure of the Scientific Council.
- B. The Working Group will strive to maintain a balance of gender, regional representation and taxonomic categories of expertise.
- C. The involvement of Working Group members is entirely on a voluntarily basis.
- D. If needed, experts external to the Working Group and interested in contributing to the objectives of the Working Group may occasionally be invited to join meetings or to support specific tasks.

4. Organization of work

- A. The Working Group will be chaired by the COP-Appointed Councillor for Climate Change. If the Chair has to leave her/his position, a new Chair will be appointed from among the remaining

Sessional Committee / Scientific Council members of the Working Group until a new COP-Appointed Councillor is appointed.

- B. The Working Group will mainly operate electronically by communicating via email and, if appropriate/available, by making use of a dedicated workspace. Meetings (in-person or virtual) may be held in the margins of Sessional Committee meetings, or, if resources are available, may be held in the intersessional period between the Conferences of the Parties.
- C. The Chair of the Working Group will report on progress to the Sessional Committee.
- D. The CMS Secretariat will support and facilitate the coordination of the activities and the organization of meetings of the Working Group.

5. Duration

The Working Group will stand until the 15th meeting of the Conference of the Parties, at which point, Parties will decide whether the group should continue for the following intersessional period based on a mandate agreed at COP15.