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Gandhinagar, India, 17 - 22 February 2020

Agenda Item 26.4.1

### **CONSERVATION IMPLICATIONS OF ANIMAL CULTURE AND SOCIAL COMPLEXITY**

*(Prepared by the Expert Working Group on Animal Culture and Social Complexity,  
the Secretariat and the Scientific Council)*

#### **Summary:**

This document reports on progress in implementing Decisions 12.75 to 12.77 *Conservation Implications of Animal Culture and Social Complexity*. It also provides the progress report of the Expert Working Group on Animal Culture and Social Complexity to the Scientific Council (Annex 1 and 2) and recommends new Decisions to carry forward this work (Annex 3).

It has been revised by the Sessional Committee of the Scientific Council at its 4th session in November 2019.

## CONSERVATION IMPLICATIONS OF ANIMAL CULTURE AND SOCIAL COMPLEXITY

### Background

1. The potential relevance of animal culture for conservation efforts was first addressed in a Scientific Council workshop held in 2014. Its outputs were used by Parties in a Resolution specific to cetacean culture at COP11, and an Expert Group was established to develop advice for the Council's consideration. At its 12<sup>th</sup> meeting (COP12, Manila, 2017), the Conference of the Parties enlarged the focus to cover all species listed under CMS for which there is evidence that influence of culture and social complexity may be a conservation issue. Parties adopted Decisions 12.75 to 12.77 on Conservation Implications of Animal Culture and Social Complexity.

#### **12.75 Directed to the Expert Working Group on Animal Culture**

*Subject to the availability of resources, the Expert Group is requested to:*

- a) *Develop a workplan to take this work forward, using the case studies appended to the full report contained in UNEP/CMS/COP12/Inf.14 as a basis for identifying and developing further case studies for CMS-listed species;*
- b) *Develop a list of priority species listed on the CMS Appendices for a comprehensive investigation of culture and social structure and commence more detailed analysis as appropriate, including for example developing a list of key factors that should be taken into consideration for effective conservation;*
- c) *Using the model developed by Whitehead and Rendell at the 2014 workshop (see UNEP/CMS/COP11/Inf.18), develop a taxonomy of culture across other taxa of relevance to CMS to assist in determining priority species for case studies;*
- d) *Make recommendations to the Meeting of the Sessional Committee of the Scientific Council preceding the 13<sup>th</sup> meeting of the Conference of the Parties, based on the evidence presented in the case studies appended to UNEP/CMS/COP12/Inf.14.*

#### **12.76 Directed to the Secretariat**

*The Secretariat should, subject to the availability of resources, convene a workshop to assist the Expert Working Group on Culture and Social Complexity to:*

- a) *Develop a list of key factors for identifying priority species and populations listed under CMS where social learning may influence their conservation;*
- b) *Explore the opportunities for engagement across the CMS daughter agreements.*

#### **12.77 Directed to the Scientific Council**

*The Scientific Council should, subject to the availability of resources, consider the outputs of the Expert Group on Culture and Social Complexity and make recommendations to the 13<sup>th</sup> meeting of the Conference of the Parties, based on its findings.*

## Implementation of Decision 12.75 to 12.77

2. As instructed in Decision 12.76, the Secretariat organized the First CMS Workshop on Conservation Implications of Animal Culture and Social Complexity, which was held from 12 to 14 April 2018 in Parma, Italy, made possible thanks to support by the Appennino Tosco-Emiliano National Park, the Fondazione Monteparma, and the Government of the Principality of Monaco. This cross-taxa workshop gathered a small group of experts specially selected for their relevant expertise. The agenda was focused on developing the advice necessary to inform the policy processes under CMS, in particular by advising how animal culture and social complexity can be used as a component of conservation strategies and models across the wide range of taxa covered by the Convention. The workshop report has been made available to the 3<sup>rd</sup> Meeting of the Sessional Committee as [UNEP/CMS/ScC-SC3/Inf.8](#).
3. At the workshop, participants also agreed on a Statement, contained in Annex 2. Based on the outcomes of the workshop, the Expert Working Group on Animal Culture and Social Complexity continued their work towards providing the requested guidance to Parties, as described in their detailed report on the implementation of Decision 12.75 and its related activities (Annex 1). They further collaborated on a joint publication in *Science* (see UNEP/CMS/COP13/Inf.10) charting the progress of this issue through CMS.
4. Decisions 12.75 and 12.76 can be regarded as completed.
5. The Scientific Council will have the opportunity to discuss the outputs of the Parma workshop and the resulting recommendations in more detail at its 4<sup>th</sup> Sessional Committee Meeting, fulfilling Decision 12.77.

## Discussion and Analysis

6. Significant progress has been made on this topic; however, there is still a need to develop the findings and recommendations of the Parma workshop in a way that provides concrete guidance to the Scientific Council and Parties as to how this complex issue can be accounted for in conservation efforts for CMS-listed species. The Expert Working Group on Animal Culture and Social Complexity has therefore made proposals for further work, which will lead to the development of robust criteria and a management tool for prioritizing species and social groups on the CMS Appendices.
7. To achieve the necessary progress, the Expert Working Group is proposing a second workshop, which should ideally be convened in 2020. Details as to the objectives and recommended process can be found in the Draft Decisions provided as Annex 3.

## Recommended Actions

8. The Conference of the Parties is recommended to:
  - a) adopt the Decisions contained in Annex 3 of this document;
  - b) delete Decisions 12.75, 12.76 and 12.77.

**REPORT FROM THE EXPERT WORKING GROUP ON ANIMAL CULTURE  
AND SOCIAL COMPLEXITY**

**Background**

At COP12 Resolution 11.23 (Rev.COP12) noted *inter alia*, that the CMS Scientific Council endorsed the recommendations of the expert workshop on the conservation implications of cetacean culture ([UNEP/CMS/COP11/Inf.18](#)); recognized that a number of socially complex mammalian species, such as several species of cetaceans, great apes and elephants, show evidence of having non-human culture; and noting concern that highly social species face unique conservation challenges, the resolution requested the CMS Scientific Council to maintain an intersessional expert working group dealing with the conservation implications of culture and social complexity and for the expert group to report its findings and any proposals for future work through the CMS Scientific Council to each meeting of the Conference of the Parties.

**Decisions**

**12.75 a) Develop a workplan to take this work forward, using the case studies appended to the full report contained in [UNEP/CMS/COP12/Inf.14](#) as a basis for identifying and developing further case studies for CMS-listed species;**

Following COP 12, a series of case studies was examined during the 2018 workshop on the Conservation Implications of Animal Culture and Social Complexity held in Parma, Italy, 12-14 April 2018 ([UNEP/CMS/ScC-SC3/Inf.8](#)). Further case studies, across a range of taxa, are under development by various experts within the working group. These case studies will inform the ongoing work to develop a management tool for identifying priority species and social groups.

The proposed workplan for the expert group in the interim is focused on:

- a) continued collaboration between experts to identify CMS relevant case studies;
- b) development of criteria and distillation of a management tool for prioritizing species and social groups on the CMS Appendices.

**12.75 b) Develop a list of priority species listed on the CMS Appendices for a comprehensive investigation of culture and social structure and commence more detailed analysis as appropriate, including for example developing a list of key factors that should be taken into consideration for effective conservation;**

This work will be conducted in the next triennium, once the management tool and an agreed set of criteria for prioritization (described above) are agreed by the expert group.

**12.75 c) Using the model developed by Whitehead and Rendell at the 2014 workshop (see [UNEP/CMS/COP11/Inf.18](#)), develop a taxonomy of culture across other taxa of relevance to CMS to assist in determining priority species for case studies;**

Discussion at the 2018 Parma workshop led to the conclusion that rather than develop a taxonomy of culture across other taxa, a more practical solution for informing management will be to distil common processes and scenarios from the vast array of examples available to help in developing a more concrete management tool that can more directly be used to identify priority species where aspects of sociality can significantly influence conservation efforts (positively or negatively). The consensus being that this field can inform both *what* should be the focus of conservation efforts (in terms of the ‘unit to conserve’) and *how* conservation is conducted (for example, utilizing knowledge on social learning to improve reintroduction efforts).

**12.75 d) Make recommendations to the Meeting of the Sessional Committee of the Scientific Council preceding the 13<sup>th</sup> meeting of the Conference of the Parties, based on the evidence presented in the case studies appended to [UNEP/CMS/COP12/Inf.14](#).**

It is recommended that:

- a) in order to progress the work on the development of the relevant management tool a workshop is hosted in 2020, with the specific task of road-testing the tool on the CMS Appendices and identifying priority species and social groups;
- b) a regional workshop be convened for the concerted action on eastern tropical Pacific Sperm Whales (*Physeter macrocephalus*) with the goal of establishing protocols and data sharing between research groups across the Range States;
- c) in the interim, the expert group continues further development of case studies – and collaboration with researchers beyond the core group – so that these can be brought forward at the 2020 workshop to inform this process; and
- d) once key priority species have been established, that the expert group develop a more comprehensive workplan beyond 2020, which should include disseminating the findings across the relevant daughter agreements.

## **Activities**

### **1. 2018 Workshop**

In accordance with Decision 12.76, the Secretariat convened a workshop on the Conservation Implications of Animal Culture and Social Complexity, in Parma, Italy, 12-14 April 2018. The report of the workshop was presented to the 3<sup>rd</sup> Meeting of the Sessional Committee of the CMS Scientific Council ([UNEP/CMS/ScC-SC3/Inf.8](#)). A summary of the recommendations is provided here. In addition, the workshop participants also developed a statement (see Annex 3) which concluded, *inter alia*, that '*Whilst there are many challenges associated with identifying repositories of social knowledge and protecting social capital within a social unit, it was agreed that some populations may be best delineated by cultural behaviour, rather than just differentiated by genetic diversity or geographic isolation*'.

#### **1.1 Summary of workshop recommendations**

Overarching Recommendations:

- Conserving cultural repositories and capacities (e.g. cultural inheritance systems) should be integrated into the development of IUCN, CMS and other conservation and management strategies, including but not limited to assessing populations and designating units to conserve, *in situ* monitoring, human-wildlife conflict, reintroduction programmes, etc.
- Education and raising awareness about the value of conserving cultural diversity should be a priority of the CMS initiative on culture and social complexity in animals.
- Empirical evidence of behavioural diversity, social learning networks and migratory behaviour and connections should be collected for taxa of relevance to CMS.
- Theoretical models of social transmission and population level effects should be developed to inform mitigation and investigate future scenarios for conservation issues for taxa of relevance to CMS.
- It was further recommended that cataloguing the dimensions of cultural diversity in animals may be important to assist in:
  - identifying and conserving cultural capacities and repositories
  - driving conservation actions and strategies.

Potential key dimensions of cultural traits of note:

- What is the domain of trait? foraging, tool use, migration, habitat utilization, communication, social interactions, etc.

- Who performs the behaviour? Is it specific to a particular age/sex class, aspects of age-structure populations (demography), social status within social units, social connectedness?
- What is the spatial occurrence of the trait? E.g., is it a proportion of the range of population /sub-species.
- What is the temporal nature of the trait or the information it conveys? Does the trait have temporal variables, what is its frequency of occurrence and does it show long-term persistence, does the trait convey long-term (e.g., migratory destination) or ephemeral (e.g., food source) information.
- What is the function of the trait? Does it relate to reproduction, growth/maintenance, social relationships, etc. – or no obvious adaptive value?
- Patterns of transmission: evidence of form or forms of cultural transmission, e.g. observational learning, teaching; vertical or horizontal transmission.

Further recommendations arising from sub-group discussions:

- Enhance communication around animal culture and social complexity, especially in areas with human-wildlife conflict (HWC)
- Utilize animal – and human – social learning to facilitate better conservation outcomes in HWC and other conservation management strategies.
- Move beyond counting numbers of individuals when assessing the conservation status of highly social species and the outcomes of conservation actions
- Cultural units should now be considered as potentially meriting conservation efforts, contrasting with the traditional focus on species, and on genetics (Table 3 provides suggestions for criteria that may be used to consider conservation strategies in culturally defined units)
- Consider the overall age and social structure of populations to maintain cultural capacity. If particularly important classes of individuals can be identified (e.g. social brokers, matriarchs, individuals with resident knowledge), focus on protecting these individuals and connections.
- Where possible maintain population connections across the species' range.
- Identify important keystone “information source” species within wider species communities, and consider their impact on the conservation of target species.
- For reintroduction programmes:
  - Wherever possible, individuals should be exposed to experienced conspecifics interacting with a range of stimuli that they are likely to encounter in the wild (e.g. conspecifics; foods; predators);
  - Where cultural knowledge has been entirely lost in the wild, human tutors may need to be used to re-establish desired behaviour in the first instance;
  - In species that show parental care, intensive support should be provided to achieve breeding in reintroduced populations, so that future generations can learn from the most competent surviving conspecific parental models;
  - Programmes should take into account likely social learning biases – e.g. individuals may be more likely to learn from adults, or from resident individuals;
  - Programmes should monitor and maintain detailed data encompassing individuals' social interactions (e.g. social affiliations; exposure to human or conspecific models) and exposure to stimuli pre- and post-release
- Recognizing that culture is another aspect of biology that should be considered within existing conservation initiatives, it is recommended that the social learning and culture are integrated into efforts to:
  - i. assess populations and designate units to conserve
  - ii. assess the impact of introgression and hybridization
  - iii. manage endangered populations and reintroduction schemes
  - iv. mitigation planning for environmental change and development
- Develop rapid assessment tools and emerging technologies to provide direct and indirect evidence of social transmission, migration routes, social networks, as well as anthropogenic effects on behaviour, informing conservation and management

- i. Acoustics: passive acoustic monitoring (Wrege et al. 2017); acoustic identification of population units; autonomous recording with identification software (Zimmer 2011 *Passive acoustic monitoring of cetaceans*, Cambridge University Press)
- ii. Biologging: movement and activity tracking; direct and indirect encounter mapping for social network building (Krause et al. 2013, *Tr. Ecol. Evol.* 28:541- 551; Kays et al. 2015, *Science*; Hussey et al. 2015, *Science*)
- iii. Genetic and genomic techniques including eDNA and minimally-invasive sampling to identify kin groups, population structure and migratory connections (Carroll et al. 2018; Arandjelovic and Vigilant 2018)
- iv. Stable isotopes, fatty acids and other biochemical makers to delineate population segments with distinct habitat use, as well as transmission patterns of foraging behaviour
- v. Proxies of culture that can be assessed more easily. For example, in tool-using New Caledonian crows, the idea has been explored to rapidly map possible regional variation in foraging behaviour, using vocal dialects as ‘markers’ (Bluff et al. 2010, *Biol. J. Linn. Soc.*). The Pan African Programme: the Cultured Chimpanzee of the Max Planck Institute for Evolutionary Anthropology, is underway using camera traps, quantification of resource availability, and other rapid assessment techniques to survey further diversity of behaviour amongst chimpanzees across 40 African study sites, and has already revealed forms of behaviour previously unknown (Kuhl et al. 2016).

## 1.2 Resulting collaboration

Discussions at the Parma workshop highlighted the fact that to understand the far-reaching implications of animal culture and other aspects of animal sociality for conservation, insights from a broad range of taxa are required to draw out key themes and processes of relevance to conservation. It was further evident that cross-pollination of ideas between experts will be essential for understanding in this field to grow and that the Expert Working Group on Animal Culture and this ongoing process through CMS is an important foundation stone for this field. The collaboration arising from the Parma workshop resulted in the publication of an article in *Science* (see Inf.10) charting the progress of this issue through CMS and highlighting two relevant case studies: the vocal clans of Sperm Whales in the eastern tropical Pacific and socially transmitted nut cracking in chimpanzees (*Pan troglodytes verus*) in West Africa (<https://science.sciencemag.org/content/363/6431/1032>, and UNEP/CMS/COP13/Inf.10). The article concludes:

*“Our growing understanding of the conservation relevance of cultural variation urges that scientists and policy-makers collaborate closely to ensure that policy is informed by the latest scientific advances. Many cultural systems are highly complex, and the conservation impact of cultural processes is context dependent, necessitating careful case-by-case consideration.... A key challenge will be to determine if evidence warrants explicitly recognizing some distinct cultural units listed in the CMS Appendices, and how insights from this work can be used to inform conservation efforts across the entire CMS portfolio of agreements”.*

And further, in relation to the Post-2020 Biodiversity Framework, that:

*“Given the prevalence of social learning and cultures across a wide range of taxa, a comprehensive, integrated approach is essential to maintaining the natural diversity and integrity of Earth’s rich ecosystems”* (Brakes et al. 2019)<sup>1</sup>.

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<sup>1</sup> Brakes, P., Dall, S.R.X., Aplin, L.M., Bearhop, S. et al. (2019) Animal cultures matter for conservation. *Science* 363:1032–4.

## 2. Proposal for 2020 Workshop

During the collaboration between workshop participants that followed the 2018 Parma workshop, the experts determined that despite there being a large body of evidence, there are many different scenarios under which animal culture and other aspects of sociality are relevant to conservation efforts. Thus, it was agreed that establishing a robust set of criteria for determining priority species for consideration on the CMS Appendices can best be achieved by undertaking a comprehensive synthetic review of the field. This synthetic review is now in progress and target of this process it is developing a management tool for prioritizing key populations and social groups, which can be used to prioritize species on the CMS Appendices.

As a next stage in developing this tool and prioritizing species, a proposal for a second workshop in 2020 has been discussed, with the key objectives of:

- a) continuing to explore the conservation implications of this cutting edge area of science as evidence continues to emerge, by bringing together experts from a range of taxa to examine specific CMS case studies - including a focus on Italian and European species, but drawing on examples from around the world - to continue to explore the interface between science and policy in this field and develop practical management advice for conserving cultural species;
- b) developing further CMS case studies which will be used, to explore, in particular, the consequences of the loss of cultural knowledge from populations and consider practical measures that may be undertaken to reinstate cultural knowledge, to improve the efficacy of conservation efforts (e.g. cranes and other migratory birds);
- c) further develop and test the prioritization tool for assessing social groups and species on the CMS Appendices;
- d) explore rapid assessment techniques of relevance to CMS species and concerted actions and develop recommendations for disseminating these methods for relevant taxa (particular where these techniques can be ancillary to ongoing fieldwork).

Hosting this workshop in 2020 would be particularly timely and may be helpful in informing the post-2020 biodiversity framework in relation to identifying relevant phenotypic variation.

## 3. Case studies

During the deliberations of the expert group many examples were discussed, to begin to distil common themes. Several case studies are highlighted here to provide context for the relevance of sociality to CMS-listed taxa. In addition to those listed here, future efforts of the working group will also be directed towards examining case studies for social learning of migration in CMS-relevant bird and fish species.

### 3.1 Acoustic clans of sperm whales in the eastern tropical Pacific

This case study was discussed as part of a concerted action for Sperm Whales at CoP12 in Manilla (UNEP/CMS/COP12/Doc.26.2.2) and an update is provided in document 28.1.2. The sub-populations (known as clans) are derived from culturally transmitted vocal dialects. Evidence suggests that these vocal clans have different foraging success in different oceanographic conditions, indicating that the cultural clans have differential use of the resources in their environment. The following map (extracted from Brakes *et al.* 2019) provides insights into the challenges associated with managing culturally-structured populations across multiple Range States. The coloured lines indicate individuals of known clans moving across jurisdictional boundaries (conceptual map, not to scale).

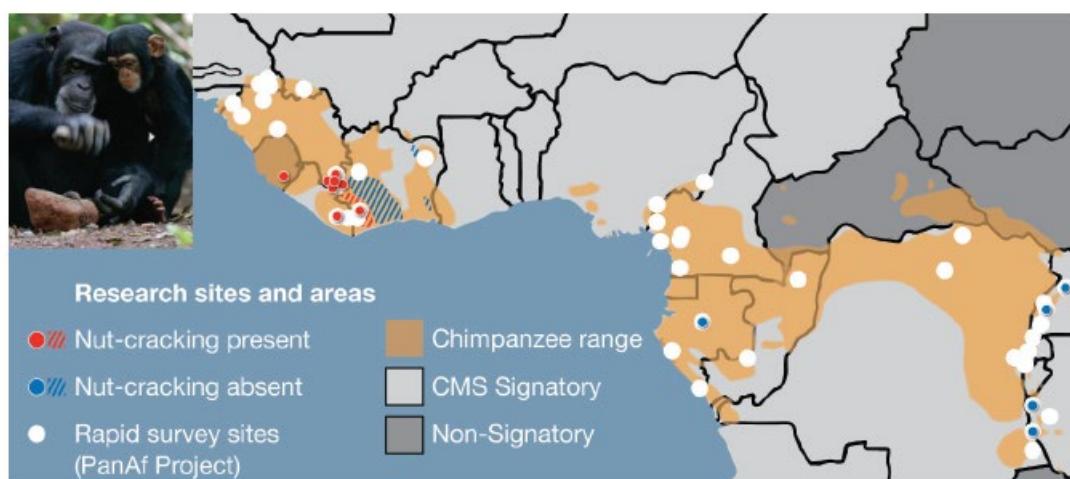


**Figure 1.** Sperm Whale vocal clans of the eastern tropical Pacific (extracted from Brakes *et al.* 2019)

### 3.2 Primates

Dr Martha Robbins (participant at the Parma 2018 workshop) gave a presentation on culture to delegates and observers at the CMS Gorilla Agreement meeting in Uganda, June 2019, which was greeted with interest on how insights on aspects of sociality can be used to inform conservation efforts.

Further, primate experts from the Parma workshop, together with other field primatologists, have developed a comprehensive case study on nut cracking in chimpanzees (*P.t.versus*). Further collaboration may facilitate a better understanding of the conservation implications of this cultural behaviour. A proposal for concerted action has been submitted for consideration: Proposal for a CMS Concerted Action - The unique nut-cracking chimpanzee cultures of West Africa (Doc.28.2.1).



**Figure 2.** Chimpanzee nut cracking (figure extracted from Brakes *et al.* 2019 supplement).

### **3.3 West African elephant culture project**

A third case study, which aims to explore the interface between human traditional knowledge and animal culture and sociality, is being developed by the Government of Ghana and Wild Migration. The project is focused on aspects of elephant sociality from both a human traditional knowledge and scientific perspective. While the funding for this project has been delayed, the intention remains to develop greater understanding about effective elephant conservation measures that can have broad applicability to African elephant conservation. This project will gather current scientific knowledge about elephant culture and social complexity in the region and be enhanced with qualitative and quantitative data on human traditional knowledge about elephant conservation and elephant sociality, collected through community interviews in Ghana, Benin, and Togo. The Project Outcomes Report will be reviewed by a Project Steering Committee, the CMS Scientific Council Expert Group on Animal Culture and Social Complexity (ACSC), and the IPBES Task Force on Indigenous and Local Knowledge.

#### **Recommended Actions**

The Expert Working Group should:

- a) continue collaboration between experts to identify CMS relevant case studies;
- b) develop robust criteria and a management tool for prioritising species and social groups on the CMS Appendices;
- c) develop any relevant concerted actions arising from the prioritisation process;
- d) identify key daughter agreements which might benefit from dissemination of this work.

The Expert Working Group should further:

- a) progress the work on the development of the relevant management tool at a workshop proposed for later in 2020, with the specific task of testing the tool on the CMS Appendices and identifying priority species and social groups;
- b) continue further development of case studies so that these can be brought forward at the 2020 workshop to inform this process; and
- c) once key priority species have been established, develop a more comprehensive workplan beyond 2020, which should include disseminating the findings across the relevant daughter agreements.

The Expert Working Group suggests that the Secretariat should, subject to the availability of resources, convene a workshop in 2020, to facilitate the ongoing progress of this work to identify priority species and populations on the CMS Appendices and specifically to provide advice to Parties on rapid assessment techniques and how to augment existing conservation efforts using insights on aspects of sociality.

**ANNEX 2**

**Statement from the CMS Workshop on Conservation  
Implications of Animal Culture and Social  
Complexity  
held in Parma, Italy, from 12 to 14 April 2018**

A group of international experts in behavioural ecology and conservation biology met for a workshop under the auspices of the Scientific Council of the United Nations Convention on Migratory Species, in Parma, Italy, to examine the implications of non-human (hereafter ‘animal’) culture and sociality for conservation efforts. The workshop was kindly supported by the Appennino Tosco-Emiliano National Park and Fondazione Monteparma and the Government of Monaco under the Migratory Species Champion Programme.

The Parma workshop participants explored and acknowledged that there is now an impressive body of scientific evidence for culture and transmission of social knowledge across a wide range of vertebrate and invertebrate taxa, (including cetaceans, great apes, elephants, other mammals, birds, fish and some reptiles). In some cases, this gives rise to a number of challenges – and new opportunities – associated with conserving these social species.

The UN Convention on Migratory Species, which spearheaded this initiative, is the first multilateral environmental agreement to tackle the issue of social learning and culture and their significance for conservation outcomes. These issues have been discussed at the highest level of the Convention – by the Conference of the Parties to the treaty – where the Parties have agreed and formally endorsed this initiative, acknowledging the importance of considering these emergent aspects of conservation management efforts.

Evidence-based evaluation of social learning and resultant non-human culture (hereafter ‘culture’) indicates that these processes may be important for population trends across a wide range of vertebrate taxa. The social transmission of knowledge between individuals, and culture, may increase social group and population viability and provide opportunities for the rapid spread of innovations and thus adaptation to environmental change. It can also act as a proxy for identification of population structure which is important for conservation.

Burgeoning threats to habitats and species, from climate change and other anthropogenic influences, necessitate that conservation efforts are as streamlined and efficient as possible. The strategic use of knowledge regarding social learning processes may be an important tool to facilitate restoration across a broad range of migratory taxa. For example, in helping released birds re-learn historical migration routes.

Resource requirements and management of social units may differ across cultures within the same species, for example across cultures characterised by very different foraging strategies. Thus, the conservation and management of these social units may need to be adapted according to their resource needs.

Where social information is important to the survival of a social group, and specifically where the social group relies upon individuals, classes of individuals or groups that act as repositories of social knowledge, the removal of individuals from populations of socially complex species may have consequences beyond simply a reduction in absolute numbers and repercussions for the transmission of foraging traditions, migratory routes and other behaviours critical for populations to thrive: individuals matter. More broadly this has implications for preserving age structure in populations where possible.

Whilst there are many challenges associated with identifying repositories of social knowledge and protecting social capital within a social unit, it was agreed that some populations may be best delineated by cultural behaviour, rather than just differentiated by genetic diversity or geographic isolation.

Thus, concerned that highly social species face unique conservation challenges, the participants at the workshop advocate a precautionary and practical approach for the management of populations for which there is scientific evidence that the influence of culture, demography, social network structure and connectivity should be considered along with other aspects of conservation for that species.

**ANNEX 3****PROPOSED DECISIONS****CONSERVATION IMPLICATIONS OF ANIMAL CULTURE  
AND SOCIAL COMPLEXITY*****Directed to Parties***

13.AA Parties are requested to:

- a) liaise with the chair and vice-chair of the Expert Working Group on Animal Culture and Social Complexity regarding the development of concerted action for species or populations identified as priorities;
- b) submit to the Secretariat for transmission to the Expert Working Group on Animal Culture and Social Complexity information on any assessments of anthropogenic threats to socially complex mammalian species on the basis of evidence of interactions of those threats with social structure and culture, as well as any publications of pertinent data for advancing the conservation management of these populations and discrete social groups;
- c) support the implementation of these Decisions with voluntary contributions.

***Directed to the Expert Working Group on Animal Culture***

13.BB The Expert Group is requested to:

- a) progress work on the development of a management tool at a workshop proposed for 2020, with the specific task of testing the tool on the CMS Appendices and identifying priority species and social groups;
- b) continue further development of case studies so that these can be brought forward at the 2020 workshop to inform this process;
- c) once key priority species have been established, develop a more comprehensive workplan beyond 2020, which should include:
  - Identification of case studies relevant to CMS;
  - Development of robust criteria and a management tool for prioritising species and social groups on the CMS Appendices;
  - Development of any relevant concerted actions arising from the prioritisation process;
  - Identification of key daughter agreements which might benefit from dissemination of this work;
- d) make recommendations to the Meeting of the Sessional Committee of the Scientific Council preceding the 14th meeting of the Conference of the Parties.

***Directed to the Secretariat***

13.CC The Secretariat shall:

- a) request Parties to submit about 18 months before the 14<sup>th</sup> meeting of the Conference of the Parties information on any assessments of anthropogenic threats to socially complex mammalian species on the basis of evidence of interactions of those threats with social structure and culture, as well as any publications of pertinent data for advancing the conservation management of these populations and discrete social groups for transmission to the Expert Working Group on Animal Culture and Social Complexity;
- b) subject to the availability of resources, convene a workshop to assist the Expert Working Group on Animal Culture and Social Complexity with identifying priority species and populations on the CMS Appendices and specifically to provide advice to Parties on rapid assessment techniques and how to augment existing conservation efforts using insights on aspects of sociality.

***Directed to the Scientific Council***

13.DD The Scientific Council should:

- a) invite newly appointed Councillors that have relevant expertise to engage in the Expert Working Group on Animal Culture and Social Complexity;
- b) consider the outputs of the Expert Working Group on Animal Culture and Social Complexity and make recommendations to the 14<sup>th</sup> meeting of the Conference of the Parties, based on its findings.