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CRITICAL SITES AND ECOLOGICAL NETWORKS FOR MIGRATORY SPECIES

(Prepared by the CMS Secretariat, with contributions from Alterra University and Research Centre)

Background

1. Habitat destruction and fragmentation are among the primary threats to migratory species. The identification and conservation of habitats, in particular the critical sites and connecting corridors (where appropriate, e.g. terrestrial mammals), are thus of vital importance for the conservation of these species.

2. An ecological network is defined as: "a coherent system of natural and/or semi-natural landscape elements that is configured and managed with the objective of maintaining or restoring ecological functions as a means to conserve biodiversity while also providing appropriate opportunities for the sustainable use of natural resources" (Bennett 2004). Ecological networks usually include core areas and corridors, and sometimes also restoration areas and buffer zones. Such critical site networks are particularly relevant in the context of acute habitat fragmentation, which is being observed on a global scale.

3. Ecological connectivity can have multiple advantages, such as maintenance and restoration of viable populations and migratory pathways, reduced risk of extinction and higher resilience to climate change. In the case of birds, networks of "stepping stone" habitat should cover entire flyways to be effective. In a CMS context, the pathways for seasonal migrations for terrestrial mammals, freshwater fish, marine species, birds and insects would be a primary reason for the Convention to become involved with ecological networks.

4. Existing initiatives for ecological networks exist both at national and international levels. Both are relevant and can support transboundary migration. International initiatives usually concentrate on sites of international importance (e.g. the Ramsar Convention). While it is relevant to be aware of the limitations of the protected area approach, research has shown that protected areas can be a highly effective tool for biodiversity conservation.

5. The Convention on Biological Diversity (CBD) addresses this issue through its Programme of Work on Protected Areas, and IUCN through its Commission on Protected Areas. Networks of protected areas are a cornerstone of the Ramsar Convention, the EU Habitats and Birds directives, the Bern Convention and, though not yet implemented as such, in AEWA. These

'networks' are, however not always networks of physically connected sites but rather 'archipelagoes of isolated sites'. They may be interconnected by areas under national or regional protection or a biodiversity-rich countryside. For migratory birds such 'stepping stones' can be effective and it is worth noting that the coverage of critical sites for migratory water birds is rather good. The Wings Over Wetlands project (http://www.wingsoverwetlands.org) and other research have shown however that the results are still insufficient and further attention to the matter is urgently required.

6. A more ambitious step is to establish networks of critical sites in order to achieve connectivity among them and to protect migratory species along their entire migration route. Rivers, mountain ranges and coastlines are examples of natural corridors that migratory species use as points of reference during their journeys. However, it is important that the nature of the corridors meets the requirements of the species that need these connections by, for example, linking feeding and breeding areas, summer and winter ranges, etc., across a mosaic of different habitats.

7. The designation of protected areas across very large extensions is not always possible. Additional wider countryside measures usually need to be applied. Since many species are widely dispersed across their breeding and non-breeding ranges, it is essential to address and mitigate the anthropogenic changes at the wider landscape scale.

8. The practical approach to the identification, designation, protection and management of critical sites will vary from one taxonomic group to another or even from species to species. The requirements of fish, insects, birds, marine turtles, terrestrial mammals and marine mammals are quite different. The work on birds is well advanced, and the flyway approach provides a useful framework to address habitat conservation and species protection along migration routes. The work of AEWA and the Flyways Working Group of the CMS Scientific Council therefore fit well in an ecological network approach.

9. A flyway is defined as the entire range of a migratory bird species (or groups of related species or distinct populations of a single species), through which it moves on an annual basis from the breeding grounds to non-breeding areas, including intermediate resting and feeding places as well as the area within which the birds migrate.

10. Multi-species flyways are defined by the Ramsar Convention as follows: "a single flyway is composed of many overlapping migration systems of individual waterbird populations and species each of which has different habitat preferences and migration strategies. From knowledge of these various migration systems it is possible to group the migration routes used by waterbirds into broad flyways, each of which is used by many species, often in a similar way, during their annual migrations."

11. Freshwater fish and other aquatic species require linear corridors such as large rivers from the sea up to its headwaters. Many of these have been made inaccessible in the past due to damming and river regulation. Fish can only migrate if rivers are not blocked by dams and have good water quality, as it is also the case with West African Manatees (*Trichechus senegalensis*) which sometimes need to be rescued when they become trapped by small dams that can be built relatively quickly. Corrective and mitigation measures have to be incorporated into these infrastructures in order to allow the movements of migratory aquatic animals.

12. The Serengeti-Mara Ecosystem in Kenya and the United Republic of Tanzania is an example of a migration corridor for terrestrial mammals in Africa. In Kenya the area is protected through inclusion in the Masai Mara National Reserve and in Tanzania by the Serengeti National Park. There are many other examples throughout the continent where populations of wildebeest, antelopes, elephants, zebras and other terrestrial mammals regularly migrate between their dry and wet season ranges or between high and low elevations. The migration of White-eared kob (*Kobus kob leucotis*) between Ethiopia and Sudan is one of the greatest animal movements in Africa and international cooperation will be essential for the long-term preservation of this unique process.

13. Ecological networks have been designed in many countries aiming at a high degree of connectivity between protected areas. However, implementation is more often done at the local than at the national level. International corridors are even more difficult to develop and there is a lack of international legislation on linking critical sites through corridors. Some NGOs such as WWF are developing international connectivity between National Parks through the Peace Parks project in southern Africa (http://www.peaceparks.org).

14. Stakeholder involvement from an early stage is important to implement ecological networks, including an analysis of the cultural settings. Embedding of ecological networks in a societal context is a key issue for maintaining multifunctional landscapes that deliver a range of ecosystem services. No programme of the breadth and ambition of an ecological network can achieve results without the active support of local communities and key stakeholders.

Potential role of ecological networks within the CMS framework

15. In its implementation CMS has so far focused on species rather than habitat conservation, but it is worth noting that the Convention text makes specific reference to habitat conservation:

> **"Article III - Endangered Migratory Species: Appendix I:**
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> 4. Parties that are Range States of a migratory species listed in Appendix I shall endeavour:
>
> a) to conserve and, where feasible and appropriate, restore those habitats of the species which are of importance in removing the species from danger of extinction;
> b) To prevent, remove, compensate for or minimize, as appropriate, the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species;
>
> **Article V: Guidelines for AGREEMENTS**
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> 5. Where appropriate and feasible, each AGREEMENT should provide for, but not be limited to:
>
> e) conservation and, where required and feasible, restoration of the habitats of importance...;
> f) …maintenance of a network of suitable habitats appropriately disposed in relation to the migration routes;
> h) elimination… or compensation for activities and obstacles which hinder or impede migration;"

16. The Convention also assigns a role to the Scientific Council in relation to habitat conservation. The relevant Article VIII. 5 e) reads:

> "The functions of the Scientific Council, which may include:
> e) recommending to the COP solutions to problems relating to the scientific aspects of the implementation of the Convention, in particular with regard to the habitats of migratory species."

17. Some CMS instruments have already undertaken work contributing to the implementation of the mandates listed above. For example, the AEWA Strategic Plan 2009-2017 includes the setting up of a "comprehensive and coherent flyway network of protected and managed sites and other adequately managed sites, of international and national importance for waterbirds, taking into account existing networks and climate change". The recently developed Critical Site Network (CSN) Tool (http://wow.wetlands.org) by a partnership of AEWA, Ramsar, Wetlands International and Birdlife International is a state-of-the-art web portal for flyway-level information on waterbirds and the sites they use in the African-Eurasian region, to underpin planning and management at site level. CSN is a very powerful tool that should be extended to other flyways across the globe.

18. Other examples include:

- IOSEA is working on a network of critical sites for marine turtles in the region, largely focussing on the nesting beaches that are essential for the reproduction of these species.
- EUROBATS has published a report on protecting and managing underground sites for bats, including a conservation code and practical recommendations for site protection and management.
- The Birds of Prey Memorandum of Understanding (Raptors MoU) has a similar provision on a habitat network as AEWA has.

19. With this in mind the 16th Meeting of the Scientific Council (June 2010) discussed possibilities for site conservation and ecological networks in the framework of CMS, building on and in synergy with similar work by other instruments (e.g. Ramsar Convention, Bern Convention, CBD, etc.), and recommended the preparation of a Resolution for COP10. The 37th Meeting of the Standing Committee (Bonn, November 2010) endorsed this recommendation.

20. CMS could apply the network approach in a number of ways, as listed below. It is noteworthy that all of these activities are dependent on close cooperation and the input of the range states, in the first instance by CMS Parties and Signatories of daughter agreements.

- Identification and inventory of the most important sites and corridors for selected cases, starting with existing CMS instruments and instruments under development, building on and in synergy with existing initiatives at national (protected areas systems) and international (Ramsar, CBD, etc.) levels;
- Develop general policies and guidelines for the conservation and management of critical habitats, migration corridors and ecological networks for CMS species; Consideration of ecological networks in the implementation of existing CMS instruments, initiatives and concerted actions;
- Promoting the designation of protected areas as critical sites, assessing the contribution of relevant protected areas in climate change mitigation and enhancing synergies with the LifeWeb initiative of UNEP and CBD;

- Promoting habitat restoration at key sites and corridors;
- Reviewing barriers to migration for different taxonomic groups (birds, mammals, fish) and proposing mitigation measures;
- Entering into partnerships with other organizations already involved in work on ecological networks;
- Organizing meetings and workshops to bring together Parties and stakeholders that share international migration corridors.

Action requested:

The Conference of the Parties is invited to:

a. consider the proposed draft Resolution on the protection of critical sites and ecological networks (Resolution 10.3); and
b. examine and discuss how best this Resolution could be implemented in the next triennium, including priorities for action.

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