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Agenda Item 32.3

PROPOSAL FOR A CONCERTED ACTION FOR THE STRAW-COLORED FRUIT BAT (*Eidolon helvum*) ALREADY LISTED ON APPENDIX II OF THE CONVENTION*

Summary:

The Governments of Cameroon, Ghana, Kenya, Rwanda, and Uganda, and the Max Planck Institute of Animal Behavior (MPI-AB), Germany, the Rwanda Wildlife Conservation Association, and Ngaoundere University, Cameroon have submitted the attached proposal* for a ***Concerted Action for the*** **straw-colored fruit bat** ***(Eidolon helvum***) **already listed in Appendix II of the CMS Convention** in accordance with the process elaborated in Resolution 12.28 (Rev.COP13).

*The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CMS Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

CONCERTED ACTION FOR THE STRAW-COLORED FRUIT BAT (*Eidolon helvum*)

(i) Proponents

The Government of Cameroon (M. Joseph Lekealem, Ministere des Forets et de la Faune).
The Government of Ghana (Mr. Bernard Asamoah Boateng, Wildlife Division, Forestry Commission).
The Government of Kenya (Dr. Patrick Omondi, Wildlife Research and Training Institute).
The Government of Rwanda (Dr. Richard Muvunyi, Rwanda Development Board (RDB).
The Government of Uganda (Mr. George Owoyesigire, Ministry of Tourism, Wildlife and Antiquities).
Natalie Weber, Max Planck Institute of Animal Behavior (MPI-AB), Germany.
Dr. Dina Dechmann, Max Planck Institute of Animal Behavior (MPI-AB), Germany.
Dr. Olivier Nsengimana, Rwanda Wildlife Conservation Association (RWCA), Rwanda.
Dr. Patrick Jules Atagana, Ngaoundere University, Cameroon.

(ii) Target species, lower taxon or population, or group of taxa with needs in common

Class: Mammalia
Order: Chiroptera
Suborder: Yinpterochiroptera
Family: Pteropodidae
Genus: Eidolon
Species: helvum
Listed in CMS Appendix II

(iii) Geographical range

The species is distributed in the forest and savanna zones of sub-Saharan Africa with records from the following countries:

Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, The Democratic Republic of the Congo, Côte d'Ivoire, Equatorial Guinea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.

It has further been recorded in Saudi Arabia and Yemen, and might occur in Djibouti and Eritrea.

(iv) Summary of Activities

The proposed Concerted Action for the straw-colored fruit bat (*Eidolon helvum*) will implement the proposed activities to reach the goals 1, 2, and 3 and the overall vision of the Strategic Plan for Migratory Species (SPMS) for the CMS Convention. In addition, the Concerted Action will contribute to the implementation of target 7, 8 and 15 of the SPMS.

(v) Activities and expected outcomes

Activities:

a) Inform the different stakeholders in as many range states as possible about the importance of *Eidolon helvum* as an ecological key species, and about the background of its CMS status (e.g. authorities, communities, development projects,

NGOs...). To this end, organize a “Eidolon Conservation Meeting” with as many range states and country partners as possible, and address national and transborder aspects;

b) Develop a 3-year Conservation Action Plan with as many range states as possible, based on the current status of the species in each of the countries, including but not limited to:
   i. Outreach and awareness raising among local populations about importance and risks (governments/focal points; country partners, MPI-AB);
   ii. Work towards protection of roosting sites across the migratory range, and restoration where (traditional) roost sites have been destroyed;
   iii. Work towards banning of wildmeat hunting (on administrative/legal level)

Independent of the above:

c) Study migration across range (conducted by MPI-AB, government, country partners);
d) Expand monitoring network across range (https://www.eidolonmonitoring.com/)

Further mid-term goals are to:

e) Organize a workshop with governments in range states, provide report to range states of monitoring activity/ecosystem role;
f) Initiate and promote ecotourism with *E*. *helvum* as flagship species at suitable sites.

Outcomes:

i. Improved recognition of the CMS status of *E*. *helvum* in all countries where the species occurs;
ii. Increased awareness for the species’ conservation needs and change of perception of bats by humans on different scales (local to national);
iii. Improved conservation status of *E*. *helvum* (safer day roosts, reduced hunting pressure);
iv. Set foundation for stabilization of populations across species range to counter currently observed population declines;
v. Increased scientific information to better understand the species’ ecology and population developments;
vi. Increased capacity for monitoring and conservation in the range states, and increased collaboration between Range States.

(vi) Associated benefits

i. Protection of other species that share habitat with *E*. *helvum* (umbrella species principle), and better recognition of bats in general as integral parts of our ecosystems;
ii. Preservation of keystone long-distance ecosystem services and environmental benefits (reforestation and vegetation regeneration through seed dispersal and pollination, carbon offset by *E. helvum* roosts);
iii. Preservation of collective behaviors depending on large populations;
iv. Promotion for the maintenance of healthy environments.

(vii) Timeframe

Timeframe for the above actions is the CMS Triennium 2024-2026.

(viii) Relationship to other CMS actions

The Strategic Plan for Migratory Species (2015-2023; SPMS) vision is to value, conserve, restore and wisely use the populations and habitats of migratory species where the people will live in harmony with nature.

The proposed Concerted Action will implement the proposed activities to reach the goals (1, 2, and 3) and the overall vision of SPMS. In addition, the Concerted Action will contribute to the implementation of target 7, 8 and 15 of SPMS.

The inclusion of *E. helvum* onto Appendix II of the CMS back in 2001 already revealed that this species has an unfavorable conservation status across its range states. Implementing the proposed Concerted Action would therefore support the establishment of multinational agreements for the conservation of this species, in line with previously published CMS COP Resolutions (e.g. Improving Ways of Addressing Connectivity in the Conservation of Migratory Species).

(ix) Conservation priority

Eidolon helvum is listed as “Near Threatened” on the IUCN Red List and considered to be close to “Vulnerable” (IUCN 2022-2). An estimated loss of 25–30% of the population over the past 15 years (IUCN 2022-2) is alarming, especially when taking into account that bats have only one or two offspring per year. The species is currently facing multiple threats, likely having cumulative effects, resulting in significant population declines (IUCN 2022-2). Environmental degradation and habitat loss from deforestation and fragmentation are increasing in the species’ range states. These pressures are greatly exacerbated by the destruction of roosting sites, over-hunting (Kamins et al. 2011) and persecution due to a negative image of bats in general - a phenomenon which has gained considerable weight in the last decade and is based on the attitudes of people that they are a symbol of bad omen and that they are a viral reservoir. Due to its long-range migration, it further faces threats at multiple locations, requiring cross-country efforts for its conservation (Richter and Cumming 2008).

Eidolon helvum aggregate in patchily distributed large colonies, which makes its population vulnerable to persecution and disturbance at roost sites (Costa et al. 2020). Monitored roost sites in Ruhango and Kigali in Rwanda, in Vihiga County in Kenya, and in Yaounde in Cameroon are recent examples where roosting trees of *E. helvum* were cut down. Another important traditional roost site in Accra in Ghana has already been reduced and is continually diminishing due to construction works and discomfort of residents about the bats. This is primarily due to the limited awareness and knowledge of people of the ecological role *E. helvum* play across the range. Beyond the direct loss of roosting space, it is not known to which extent this loss affects the ecology and migration of the species, as the original colony might be forced to split up between several smaller roost sites. Unpublished data suggest a steep drop in numbers at the largest known roost of *E. helvum* in the Kasanka National Park in Zambia, which constitutes another major concern. Therefore, this proposal aims to outline the critical next steps that must be taken to address the immediate conservation needs of this species.

(x) Relevance

This bat is a keystone species for Africa (Richter and Cumming 2008, Fahr et al. 2015, van Toor et al. 2019). It comprises one of the largest mammal migrations in Africa. According to current knowledge there is no single other species that transports seeds and pollen over comparable distances (more than three times more than the distances recorded from elephants; Abedi-Lartey et al. 2016). The fact that studies indicate that more than 90% of seeds transported into clearcut, deforested areas are carried in by fruit bats speaks for itself.

As emerging evidence also indicates that collective behaviors (Hurme et al. 2022), especially migration timing and accuracy, depend on large colony sizes, increased safeguarding of traditional large colonies together with more coordinated efforts across country borders are urgent if not overdue. *Eidolon helvum* provides essential ecosystem services for large swathes of the continent and due to its long-distance migration really requires large-scale conservation efforts.

Eidolon helvum is frequently mentioned as a potential source of zoonotic spillover in the media and by community disease sensitization campaigns, without any underlying evidence (e.g. Roth 2022). This is increasingly complicating the conservation of the species, in many West African countries especially since the 2014 Ebola outbreak (based on our personal observations) and in East Africa latest since COVID-19 (e.g. Ejotre et al. 2022). Then again, it has been shown that eviction attempts of another African fruit bat species (*Rousettus aegyptiacus*) from its day roost in a cave has resulted in increased viral loads of the bats, probably due to increased stress levels, (Amman et al. 2014), ultimately emphasizing that roost protection is the better strategy than persecution.

(xi) Absence of better remedies

The species *Eidolon helvum* is not restricted to protected areas and has basically well adapted to roost in anthropogenic landscapes. Many known roost sites are situated on private, community or government lands. The conservation of the species thus requires multiple approaches and strong collaboration with range States at all levels to the local communities for accepting and protecting their colonies. *Eidolon helvum* is listed in Appendix II of CMS, and most of its range States are Parties to CMS. Accordingly, the CMS Secretariat and Parties, especially respective Range States, are ideally suited to coordinate generation and sharing of the information about the occurrence of the species across its range.

The Eidolon Monitoring Network aims at monitoring seasonal as well as overall population fluctuations of the species in the long term, and the monitoring is conducted by a wide variety of in-country partners, e.g. Rwanda Wildlife Conservation Association (RWCA) has initiated the project of monitoring the species in Rwanda in 2018. In Kenya, studies have been conducted to understand the diet and seed dispersal roles of the species, combined with education programs (e.g., Webala et al. 2014). However, a lack of legal national protection measures, collaboration between Range States, and of knowledge about migratory patterns are still a challenge for effective conservation of *E. helvum*. Therefore, the proposed Concerted Action is the best option for long-term conservation planning and implementation.

(xii) Readiness and feasibility

As partnerships and some local conservation works are already established through the Eidolon Monitoring Network (https://www.eidolonmonitoring.com/monitoring), this Concerted Action is both timely and feasible.

(xiii) Likelihood of success

First outreach attempts through interviews and subsequent discussions have shown that the perception of bats by humans is rectified through raising awareness and sharing biological and ecological knowledge on bats. Indeed, exchange with local communities in the frame of the ongoing monitoring activities indicated that people have negative images of and about this species, particularly, in parts based on unclear communication about bats and viruses. Adding to the biological and ecological knowledge transmitted in the course of discussions, we also noted that handling individuals of this species with confidence and love is fascinating for the populations and is proof that this species is important. These observations indicate that

expanding and officializing these efforts will broaden and increase the positive conservation outcome.

In addition, the areas targeted to be protected, i.e. regularly used roost sites of the species, are limited in their spatial extent and predictable. This allows for spot-on protective measures that are easy to implement and monitor.

(xiv) Magnitude of likely impact:

The species is distributed across Sub-Saharan Africa, tools and activities developed in this Concerted Action can be translated to include many other countries across the range. The size of local populations and the threat they are exposed to varies, but in the near future, continued declines and increased threats are anticipated, and there is no knowledge to predict potential thresholds of population size that might risk the extinction of the species (see Halliday 1980). Thus, these actions target to save and maintain a continent-wide migration system of a keystone fruit bat, enabling gene flow and reforestation across large distances and country borders. Local conservation efforts are crucial to achieve these goals and require larger-scale support.

(xv) Cost effectiveness:

Activities are supported by various funding sources. The Monitoring Network is run by volunteers and (currently) coordinated by the MPI-AB. Migration research to better understand connectivity between populations is funded and carried out by the MPI-AB in collaboration with African partners. RWCA has ongoing outreach activities into which additional information and actions can be incorporated. Dr. Patrick Atagana as a university lecturer seeks to create a network of volunteer students across Cameroon, which is already effective in the capital Yaounde where counts are made each month, with potential for further activities. Funding for a workshop will be raised from the Rufford foundation or equivalent and will include additional partners from e.g. Benin, Kenya, Mozambique, Zambia, Ghana, Guinea, Mali, Nigeria, Sierra Leone, and Uganda.

(xvi) Consultations - Planned/Undertaken

The proponents individually and jointly with MPI-AB, consulted Governmental institutions, NGOs, and individual volunteers across the species Range States. Further consultations will continue post submission and during COP14.

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ANNEX

EIDOLON HELVUM IN KENYA – TOWARDS A NATIONAL ACTION PLAN

The species has been recorded congregating in colonies of tens of thousands (Webala *et al*., 2014), to a few millions (Thomas 1983, Hayman *et al*. 2012, Fahr *et al*. 2015), and sometimes up to roughly 10 million individuals (Richter and Cumming 2006). *E*. *helvum* has been known to make long-distance seasonal migrations, sometimes over 2,000 kilometres (Thomas 1983, Richter and Cumming 2008, Ossa *et al*. 2012). Additional evidence shows that the species flies at distances ranging from 59 to 88 kilometres on nightly foraging bouts (Richter and Cumming 2008, Fahr *et al*. 2015). Evidently, such short- and long-term movements are potential avenues for dispersing hundreds of thousands of seeds and pollen, and the impact is enormous for entire landscapes given that they live in aggregations of thousands to millions of individuals.

In Kenya, records and representative specimens show larger colonies and wider distribution, clearly marked migration patterns in early 1900s, but with increasing evidence now (Webala et al. 2014, Hurme et al. 2022)

The species is scattered across the country, primarily in Western, Central and coastal Kenya but with no evidence of their distribution in the drier northern Kenya.

In Kenya, several colonies of *E*. *helvum* have been mapped and studies at some of these colonies have revealed that the species can roost and persist in highly modified landscapes through feeding on a mixture of native and introduced species (Webala *et al*. 2014). Importantly, the species requires a functional network of roosting and foraging sites for survival as a response to disturbance and, perhaps, to shifting patterns of food availability (Poiani *et al*. 2000, Webala *et al*. 2014).

Due to its status as a keystone species, its migratory nature and its habit of shifting between roost sites (Webala *et al*. 2014), such movements and by feeding on fruits, pollen and nectar of tropical plants, the species aids forest succession and vegetation dynamics (Fleming, 1982; Medellin and Gaona 1999, Taylor *et al*. 2000, Henry and Jouard 2007). Evidently, such short- and long-term movements are potential avenues for dispersing hundreds of thousands of seeds and pollen, and the impact is enormous for entire landscapes given that they live in aggregations of thousands to millions of individuals. Therefore, they assist in maintaining genetic connectivity among fragmented patches in tropical rainforests and distant habitats because of their capability to fly over long distances (Richter and Cumming, 2008. Smith *et al*., 2011, Tsoar *et al*. 2010 ; Fahr *et al*. 2015 ; Abedi-Lartey *et al*. 2016).

Such long-distance movements are avenues for effective transfer of seeds and pollen and are therefore critical in fragmented landscapes for maintaining gene flow and colonizing new sites for plants. Unlike other seed dispersers (e.g., primates), which drop seeds beneath the parent plant or only a few meters away, subjecting them to seed predators and density-or distance-dependent seed and seedling mortality, the nomadic and long-distance flying straw-coloured fruit bats provide seeds with high survival probabilities and chances of colonizing new suitable sites away from source plants (Wenny 2001).

Among the known colonies, the species is threatened by a combination of factors, including habitat loss (cutting down of roost trees to evict the bats or for timber or construction), and chemical spraying which causes direct mortality. In addition, negative perceptions and traditional beliefs exert pressure on household owners to be intolerant to the bats and their roosting sites, leading to roost destruction via deforestation.

The loss of roost trees in the area may be crowding too many bats into too few trees for roosting. These threats do not only cause the loss and reduction in abundance of these animal species, but also affect the plants they disperse or pollinate. Apart from the bushmeat trade and local consumption prevalent in Central and West Africa, but absent in Kenya, these threats are not dissimilar to those facing the species elsewhere over much of its range across Sub-Saharan Africa. The survival of the species may, thus, in large part depend on saving many smaller groups over a very large area.

In Kenya, there are ongoing initiatives of studies to understand the diet and seed dispersal roles of the species (e.g., Webala et al. 2014, Hurme et al. 2022), as well as on a robust public education and community programs to protect known roost sites. Other actions in the country include surveillance for zoonotic diseases in the bat species especially in towns and villages and involves mapping main colonies across the country and tracking to trace roost and movement and migratory patterns of the Kenyan satellite populations.

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