



Convention on the Conservation of Migratory Species of Wild Animals

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14th MEETING OF THE CMS SCIENTIFIC COUNCIL

Bonn, Germany, 14-17 March 2007

CMS/ScC14/Doc.3
Agenda item 6

REGARDING THE TAXONOMY AND NOMENCLATURE OF MAMMALS LISTED ON THE APPENDICES OF THE CMS

(A note prepared by Dr. Torbjörn Ebenhard, Councillor for Sweden)

1. During the thirteenth meeting of the Scientific Council in Nairobi in 2005, the working group on terrestrial mammals discussed the matter of taxonomy and nomenclature of mammal species listed on the appendices of the CMS. The matter was raised by an NGO representative during the discussion on the proposal to list the gorilla (*Gorilla gorilla*) on Appendix I. The subspecies mountain gorilla (*Gorilla gorilla beringei*) was already listed, and the new proposal was to list the entire species. According to the NGO representative, the change in listing from *Gorilla gorilla beringei* to *Gorilla gorilla* would mean that the mountain gorilla would in effect be de-listed, as it is now recognised as a separate species, not included in *Gorilla gorilla*. The chairman of the working group explained that that was not the case, as the taxonomy and nomenclature of the appendices follow a designated taxonomic reference, in which the mountain gorilla is still treated as a subspecies of *Gorilla gorilla*. The intervention nevertheless raised the issue whether the taxonomy and nomenclature of the appendices should be reviewed, and a new taxonomic reference chosen. The working group decided to investigate the consequences of choosing a new taxonomic reference, and the councillor for Sweden offered to carry out an analysis of the matter.

2. At its ninth meeting (Cape Town, 1999) the Scientific Council recommended (see meeting report 9, paragraph 143) the use of two taxonomic references for the taxonomy and nomenclature of mammals on the CMS appendices. For cetaceans, sirenians and pinnipeds the reference is Rice, D.W. 1998, *Marine Mammals of the World. Systematics and Distribution, Special Publication Number 4, The Society for Marine Mammalogy*. For all other mammals the reference is Wilson, D.E. & Reeder, D.M. (eds) 1993, *Mammal Species of the World: a Taxonomic and Geographic Reference, 2nd ed., Smithsonian Institution Press, Washington, D.C.*

3. At its tenth meeting (Edinburgh, 2001) the Scientific Council recommended (see meeting report 10, paragraph 19, and meeting report 11, paragraph 281) the use of new taxonomy and nomenclature for whales of the species *Balaena australis* (see table 1), which means that Rice (1998) is no longer used as a reference for this particular species.

4. The proposal to include the Asiatic wild ass (*Equus hemionus* s.l.) on Appendix II did not strictly apply the taxonomy of Wilson & Reeder (1993), and the taxonomic entity that was

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listed (COP8, Bonn, 2002) actually corresponds to three species in the taxonomic reference. Rather than to list all three species as such, the taxon *Equus hemionus* (sensu lato) was listed, with a note explaining that it includes *Equus hemionus*, *Equus onager* and *Equus kiang*, which means that Wilson & Reeder (1993) was not followed in that particular case.

5. In most cases the original proposal to list a species clearly delimits the taxonomic entity that is proposed to be listed, and the decision to include a species on an appendix pertains to that taxonomic entity. Subsequential changes to taxonomy or nomenclature does not change the entity that is listed. When a new taxonomic reference is considered, this must be taken into account. For example, a split of the listed entity into two species means that both species are automatically included on the appendix. There is no need for a COP decision to list the new nominal species.

6. The most recent taxonomic revision of the entire class Mammalia is offered by Wilson, D.E. & Reeder, D.M. (eds) 2005, *Mammal Species of the World: A Taxonomic and Geographic Reference*, 3rd ed., The Johns Hopkins University Press, Baltimore.

7. Tables 1 and 2 present an analysis of the consequences of choosing Wilson & Reeder (2005) as a new taxonomic reference for all mammals. The first column gives the taxonomic treatment and nomenclature of species included on the present appendices, with notes on particular populations that are included, and taxonomic/nomenclatural notes given. The second column indicates the taxonomic reference now in use, with notes on cases of non-adherence. The third column gives the taxonomic treatment and nomenclature according to Wilson & Reeder (2005), for those cases where there is a new treatment or name.

8. The analysis of Wilson & Reeder (2005) is based on changes to the taxonomic entities that were originally listed on the appendices. The original proposal to list *Balaenoptera edeni* clearly indicates that it includes *Balaenoptera brydei*. Unfortunately, Rice (1998) was rather ambiguous regarding these two taxa, and if Rice is used as a taxonomic reference it is not obvious that a listing of *Balaenoptera edeni* includes *Balaenoptera brydei*. Wilson & Reeder (2005) are clear regarding this matter; *Balaenoptera edeni* includes *Balaenoptera brydei*.

9. In general the analysis shows that there are a number of taxonomic and nomenclatorial changes introduced in Wilson & Reeder (2005), reflecting both new knowledge and the application of new species concepts. A total of twelve of the listed species would be affected by these changes.

10. In addition to the differences given in tables 1 and 2, there are also changes to the sequence of taxa in Wilson & Reeder (2005).

11. The Scientific Council may wish to consider the results of the analysis and make a recommendation on appropriate action. Tables 1 and 2 include suggested actions following two main options.

12. Option 1 is to accept Wilson & Reeder (2005) as the new taxonomic reference for all mammals on the CMS appendices. Column four of the tables gives suggested action following this option.

13. Note that the choice of Wilson & Reeder (2005) as a taxonomic reference would mean that one taxon now recognised and listed on both appendices would be subsumed into another

taxon. It is the Bukhara deer (*Cervus elaphus bactrianus*) that is considered by Wilson & Reeder (2005) to be included in *Cervus elaphus yarkandensis*. This can be treated, as indicated in the tables, through a listing of *Cervus elaphus yarkandensis* with a note on populations included, in effect excluding the Chinese *Cervus elaphus yarkandensis sensu stricto*.

14. Also note that Wilson & Reeder (2005) have split the African elephant into two species, *Loxodonta africana* and *Loxodonta cyclotis*.

15. Option 2 is to keep the present taxonomic references, and include taxonomic notes that will clarify the taxonomic entity that is listed. Column five of the tables gives suggested action following this option.

Table 1
Appendix I (effective 23 February 2006): Present taxonomic treatment and nomenclature and options for changes

| Present taxonomic treatment and nomenclature (with notes given) | Present taxonomic reference for each order/family (with notes on non-adherence) | Taxonomic treatment and nomenclature according to Wilson & Reeder 2005 | Option 1 Apply Wilson & Reeder 2005 as new taxonomic reference | Option 2 Keep present taxonomic references |
|--|---|---|---|--|
| MAMMALIA CHIROPTERA Molossidae <i>Tadarida brasiliensis</i> | Wilson & Reeder 1993 | - - - | - - - | - - - |
| PRIMATES Hominidae (Formerly listed as Pongidae) <i>Gorilla gorilla</i> | Wilson & Reeder 1993 | - - Species split into two species: <i>Gorilla gorilla</i> and <i>Gorilla beringei</i> | - - Add " <i>Gorilla beringei</i> " | - - Add note: "This includes <i>Gorilla beringei</i> " |
| CETACEA Physeteridae <i>Physeter macrocephalus</i> Platanistidae <i>Platanista gangetica gangetica</i> Pontoporiidae <i>Pontoporia blainvillei</i> Delphinidae <i>Delphinus delphis</i> (only Mediterranean population) | Rice 1998 | - - Listed as <i>Physeter catodon</i> - Species split into two species: <i>Platanista gangetica minor</i> is now <i>Platanista minor</i> and <i>Platanista gangetica gangetica</i> is now <i>Platanista gangetica</i> s.s. - - - - | - - Change " <i>Physeter macrocephalus</i> " into " <i>Physeter catodon</i> " Add note: "Formerly listed as <i>Physeter macrocephalus</i> " - Change " <i>Platanista gangetica gangetica</i> " into " <i>Platanista gangetica</i> " Add note: "Formerly listed as <i>Platanista gangetica gangetica</i> " - - - - | - - Add note: "This includes <i>Physeter catodon</i> " - - - - |

| Present taxonomic treatment and nomenclature (with notes given) | Present taxonomic reference for each order/family (with notes on non-adherence) | Taxonomic treatment and nomenclature according to Wilson & Reeder 2005 | Option 1 Apply Wilson & Reeder 2005 as new taxonomic reference | Option 2 Keep present taxonomic references |
|--|---|--|---|--|
| ARTIODACTYLA Camelidae <i>Camelus bactrianus</i> <i>Vicugna vicugna</i> (except Peruvian populations) | Wilson & Reeder 1993 | - - - - | - - - - | - - - - |
| Cervidae <i>Cervus elaphus bactrianus</i> <i>Cervus elaphus barbarus</i> <i>Hippocamelus bisulcus</i> Bovidae <i>Bos sauveli</i> <i>Bos grunniens</i> <i>Addax nasomaculatus</i> <i>Gazella cuvieri</i> <i>Gazella dama</i> <i>Gazella dorcas</i> (only Northwest African populations) <i>Gazella leptoceros</i> <i>Oryx dammah</i> | | - Subspecies is now included in <i>Cervus elaphus yarkandensis</i> - - - - - - - Listed as <i>Nanger dama</i> - - - | - Change " <i>Cervus elaphus bactrianus</i> " into " <i>Cervus elaphus yarkandensis</i> (only populations in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and Afghanistan)" Add note: "Formerly listed as <i>Cervus elaphus bactrianus</i> " - - - - - - - Change " <i>Gazella dama</i> " into " <i>Nanger dama</i> " Add note: "Formerly listed as <i>Gazella dama</i> " - - - | - Add note: "Sometimes treated as included in <i>Cervus elaphus yarkandensis</i> " - - - - - - - Add note: "Sometimes listed as <i>Nanger dama</i> " - - - |

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|---|---|---|--|---|
| <p>Molossidae <i>Otomops martiensseni</i> (only African populations)</p> <p><i>Tadarida teniotis</i></p> <p>Pteropodidae <i>Eidolon helvum</i> (only African populations)</p> | | <p>- Species now split into two species within Africa: <i>Otomops martiensseni</i> and <i>Otomops madagascariensis</i></p> <p>Species now split into three species: <i>Tadarida teniotis</i>, <i>Tadarida insignis</i> and <i>Tadarida latouchei</i></p> <p>- -</p> | <p>- Add "<i>Otomops madagascariensis</i>", with note: "Formerly listed as included in <i>Otomops martiensseni</i>" Add "<i>Tadarida insignis</i>", with note: "Formerly listed as included in <i>Tadarida teniotis</i>" Add "<i>Tadarida latouchei</i>", with note: "Formerly listed as included in <i>Tadarida teniotis</i>"</p> <p>- -</p> | <p>- Add note: "This includes <i>Otomops madagascariensis</i>"</p> <p>Add note: "This includes <i>Tadarida insignis</i> and <i>Tadarida latouchei</i>"</p> <p>- -</p> |
| <p>CETACEA Physeteridae <i>Physeter macrocephalus</i></p> <p>Platanistidae <i>Platanista gangetica gangetica</i> (Formerly listed as <i>Platanista gangetica</i>)</p> <p>Pontoporiidae <i>Pontoporia blainvillei</i></p> <p>Iniidae <i>Inia geoffrensis</i></p> <p>Monodontidae <i>Delphinapterus leucas</i> <i>Monodon monoceros</i></p> | <p>Rice 1998</p> | <p>- - Listed as <i>Physeter catodon</i></p> <p>- Species split into two species: <i>Platanista gangetica minor</i> is now <i>Platanista minor</i> and <i>Platanista gangetica gangetica</i> is now <i>Platanista gangetica</i> s.s.</p> <p>- - - - - -</p> | <p>- - Change "<i>Physeter macrocephalus</i>" into "<i>Physeter catodon</i>" Add note: "Formerly listed as <i>Physeter macrocephalus</i>"</p> <p>- Change "<i>Platanista gangetica gangetica</i>" into "<i>Platanista gangetica</i>" Add note: "Formerly listed as <i>Platanista gangetica gangetica</i>"</p> <p>- - - - - -</p> | <p>- - Add note: "This includes <i>Physeter catodon</i>"</p> <p>- -</p> <p>- - - - - -</p> |

| Present taxonomic treatment and nomenclature (with notes given) | Present taxonomic reference for each order/family (with notes on non-adherence) | Taxonomic treatment and nomenclature according to Wilson & Reeder 2005 | Option 1 Apply Wilson & Reeder 2005 as new taxonomic reference | Option 2 Keep present taxonomic references |
|--|--|---|---|---|
| PROBOSCIDEA Elephantidae <i>Loxodonta africana</i> | Wilson & Reeder 1993 | - - Species now split into two species: <i>Loxodonta africana</i> and <i>Loxodonta cyclotis</i> | - - Add " <i>Loxodonta cyclotis</i> ", with note: "Formerly listed as included in <i>Loxodonta africana</i> " | - - Add note: "This includes <i>Loxodonta cyclotis</i> " |
| SIRENIA Dugongidae <i>Dugong dugon</i> | Rice 1998 | - - - | - - - | - - - |
| Trichechidae <i>Trichechus manatus</i> (populations between Honduras and Panama) <i>Trichechus senegalensis</i> <i>Trichechus inunguis</i> | | - - - - | - - - - | - - - - |
| PERISSODACTYLA Equidae <i>Equus hemionus</i> (s.l.) (The listed taxon refers to the whole complex " <i>Equus hemionus</i> ", which includes three species: <i>Equus hemionus</i> , <i>Equus onager</i> and <i>Equus kiang</i>) | Wilson & Reeder 1993 Listed by Wilson & Reeder 1993 as <i>Equus hemionus</i> , <i>Equus onager</i> and <i>Equus kiang</i> | - - Listed as <i>Equus hemionus</i> and <i>Equus kiang</i> , with <i>Equus onager</i> included in <i>Equus hemionus</i> | - - Delete " <i>Equus hemionus</i> (s.l.)" Delete present note Add " <i>Equus hemionus</i> ", with note: "This includes <i>Equus onager</i> " Add " <i>Equus kiang</i> ", with note: "Formerly listed as included in <i>Equus hemionus</i> " | - - Delete " <i>Equus hemionus</i> (s.l.)" Delete present note Add " <i>Equus hemionus</i> " Add " <i>Equus kiang</i> ", with note: "Formerly listed as included in <i>Equus hemionus</i> " Add " <i>Equus onager</i> ", with note: "Formerly listed as included in <i>Equus hemionus</i> " OR: Keep present listing and note |

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|---|---|--|---|--|
| ARTIODACTYLA Camelidae <i>Vicugna vicugna</i> Cervidae <i>Cervus elaphus bactrianus</i> | Wilson & Reeder 1993 | - - - - Subspecies is now included in <i>Cervus elaphus yarkandensis</i> | - - - - Change " <i>Cervus elaphus bactrianus</i> " into " <i>Cervus elaphus yarkandensis</i> (only populations in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and Afghanistan)" Add note: "Formerly listed as <i>Cervus elaphus bactrianus</i> " | - - - - Add note: "Sometimes treated as included in <i>Cervus elaphus yarkandensis</i> " |
| Bovidae <i>Oryx dammah</i> <i>Gazella gazella</i> (only Asian populations) <i>Gazella subgutturosa</i> <i>Procapra gutturosa</i> <i>Saiga tatarica tatarica</i> | | - - Species now split into two species: <i>Gazella gazella</i> and <i>Gazella erlangeri</i> - - Species split into two species: <i>Saiga tatarica mongolica</i> is now <i>Saiga borealis mongolica</i> and <i>Saiga tatarica tatarica</i> is now <i>Saiga tatarica s.s.</i> | - - Add " <i>Gazella erlangeri</i> ", with note: "Formerly listed as included in <i>Gazella gazella</i> " - - Change " <i>Saiga tatarica tatarica</i> " into " <i>Saiga tatarica</i> " Add note: "Formerly listed as <i>Saiga tatarica tatarica</i> " | - - Add note: "This includes <i>Gazella erlangeri</i> " - - |