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# PROPOSAL FOR THE INCLUSION OF THE PRZEWALSKI'S HORSE *(Equus ferus przewalskii)* ON APPENDIX I OF THE CONVENTION

Summary:

The Government of Mongolia has submitted the attached proposal* for the inclusion of the Przewalski's Horse (*Equus ferus przewalskii*) on Appendix I of CMS.

*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.

# PROPOSAL FOR THE INCLUSION OF THE PRZEWALSKI'S HORSE (*Equus ferus przewalskii*) ON APPENDIX I OF THE CONVENTION

## A. PROPOSAL

Inclusion of Przewalski's Horse (*Equus ferus przewalskii*) to CMS Appendx I.

**B. PROPONENT:** Government of Mongolia

## C.SUPPORTING STATEMENT

### 1. Taxonomy

1.1 Class *Mammalia*
1.2 Order *Perissodactyla*
1.3 Family Equidae
1.4 Genus, species or subspecies, including author and year
*Equus ferus Przewalskii* Pliakov, 1881
1.5 Scientific synonyms *Equus przewalskii* Poliakov, 1881
1.6 Common name(s), in all applicable languages used by the Convention
English: Przewalski's Horse, Asian Wild Horse, Mongolian Wild Horse
French: Cheval de Przewalski
Spanish: Caballo de Przewalski

### 2. Overview

The horse is named after the Russian Colonel Nikolai Przhevalsky (1839–1888) (the name is of Polish origin and "Przewalski" is the Polish spelling). He was the explorer and naturalist who first described the horse in 1881, after having gone on an expedition to find it, based on rumours of its existence. Many of these horses were captured around 1900 by Carl Hagenbeck and placed in zoos. As noted above, about twelve to fifteen reproduced and formed today's population.

Wild horses were last seen in 1969 in the wild near Mongolian border in Trans-Altai Gobi. The population is currently estimated to consist of more than 50 mature individuals free-living in the wild for the past seven years. This taxon is threatened by small population size and restricted range, potential hybridization with domestic horses, loss of genetic diversity, and disease. As the population size is small, it is vulnerable to stochastic events such as severe weather. *Equus ferus przewalskii* qualifies as Endangered (EN) under Criterion D.

### 3 Migrations

3.1 Kinds of movement, distance, the cyclical and predicable nature of the migration

Lowland steppe vegetation was preferentially selected by horses at Hustai National Park (King and Gurnell, 2005) and seasonal movements are affected by the availability of the most nutritious vegetation.

Range use of the re-introduced Przewalski's Horse population in Takhiin Tal only increased gradually and pasture use was largely confined to the north-eastern corner of the park. In 2005 one harem group was released at Takhi Us water point about 80 km west of the Takhin Tal camp to speed up the expansion of the distribution range. To facilitate monitoring and to gain sound data on habitat and space use, tenPrzewalski's Horses were monitored with satellite collars (Kaczensky et al. submitted). Range sizes based on telemetry differed only marginally from those determined by the observational data from rangers. In Takhin Tal individual Takhi groups cover non-exclusive home ranges of 152-826 km² (Kaczensky et al. 2008). Adaptation of newly released Przewalski's Horses was also monitored through behavioural observations of selected groups.

3.2 Proportion of the population migrating, and why that is a significant proportion

## 4. Biological data (other than migration)

4.1 Distribution (current and historical)

The last wild population of Przewalski's Horses survived until recently in south-western Mongolia and adjacent Gansu, Xinjiang, and Inner Mongolia (China). Wild horses were last seen in 1969, north of the Tachiin Shaar Nuruu in Dzungarian Gobi Desert in Mongolia (Paklina and Pozdnyakova, 1989).

Since the 1990s, reintroduction efforts have started in Mongolia, China, Kazakhstan and Ukraine; Mongolia is the only country where truly wild re-introduced populations exist within the species' historic range. Reintroductions in Mongolia began in Takhin Tal Nature Reserve in the Dzungarian Gobi Desert (9,000 km²) and Hustai National Park in Mongol Daguur Steppe (570 km²) in 1994 (King and Gurnell, 2005). A third reintroduction site, Khomiin Tal, (2,500 km²), in the Great Lakes Depression was established in 2004, as a buffer zone to the Khar Us Nuur National Park in Valley of the Lakes (C. Feh, pers. comm.).

All living wild horses belong to the subspecies *Equus ferus przewalskii*. The first visual account of Przewalski's-type wild horses date from more than 20,000 years ago. Rock engravings, paintings, and decorated tools dating from the late Gravetian to the late Magdalenian (20,000–9,000 BC), were discovered in caves in Italy, southern France, and northern Spain; 610 of these were horse figures (Leroi-Gourhan 1971). Many cave drawings in France show horses that look like Przewalski's Horse (Mohr 1971). In prehistoric times, the species probably roamed widely over the steppes of central Asia, China, and Europe (Ryder 1990). The first written accounts originate from Tibet, recorded by the monk Bodowa, who lived around 900 AD.

In the "Secret History of the Mongols", there is also a reference to wild horses that crossed the path of Chinggis Khaan during his campaign against Tangut in 1226, causing his horse to rear and throw him to the ground (Bokonyi 1974). That the wild horse was a prestigious gift, denoting its rarity or that it was difficult to catch, is shown by the presentation of a Przewalski's Horse to the emperor of Manchuria by Chechen-Khansoloj-Chalkaskyden, an important Mongolian, circa 1630 (Zevegmid and Dawaa 1973). In a Manchurian dictionary of 1771, Przewalski's horse is mentioned as "a wild horse from the steppe" (Dovchin 1961).

In China, the Wild Horse Breeding Centre (WHBC) of the Department of Forestry at Kalameili Nature Reserve (KNR) in Xinjiang Uighur Autonomous Region has established a large captive population of approximately 123 Przewalski's Horses. Since 2007 one harem group is roaming free on the Chinese side of the Dzungarian Gobi (Xinjiang); another 60 horses are roaming free during summer time but all return to the acclimatization pen during the winter.

Small groups of horses were reported through the 1940s and 1950s in an area between the Baitag-Bogdo ridge and the ridge of the Takhin-Shaar Nuruu (which, translated from Mongolian, means "the Yellow Mountain of the Wild Horse"), but numbers appeared to decline dramatically after World War II. The last confirmed sighting in the wild was made in 1969 by the Mongolian scientist N. Dovchin. He saw a stallion near a spring called Gun Tamga, north of the Takhin-Shaar Nuruu, in the Dzungarian Gobi (Paklina and Pozdnyakova 1989). Annual investigations by the Joint Mongolian-Soviet Expedition have since failed to find conclusive evidence for their survival in the wild (Ryder 1990). Chinese biologists conducted a survey in north-eastern Xinjiang from 1980 to 1982 (covering the area of 88–90° E and 41°31'–47°10' N) without finding any horses (Gao and Gu 1989). The last native wild populations have disappeared.

4.2 Population (estimates and trends)

The history of population estimates and trends in the Przewalski's Horse has been described by Wakefield *et al.* (2002). Small groups of horses were reported through the 1940s and 1950s in an area between the Baitag-Bogdo ridge and the ridge of the Takhin-Shaar Nuruu (which

translated from Mongolian, means 'Yellow Mountain of the Wild Horse'), but numbers appeared to decline dramatically after World War II. The last confirmed sighting in the wild was made in 1969 by the Mongolian scientist N. Dovchin. He saw a stallion near a spring called Gun Tamga, north of the Takhin-Shaar Nuruu, in the Dzungarian Gobi (Paklina and Pozdnyakova 1989). Subsequent annual investigations by the Joint Mongolian-Soviet Expedition failed to find conclusive evidence for their survival in the wild (Ryder 1990). Chinese biologists conducted a survey in north-eastern Xinjiang from 1980 to 1982 (covering the area of 88-90°E and 41°31'-47°10'N) without finding any horses (Gao and Gu 1989). The last native wild populations had disappeared.

As of 1 January 2014, the number of living captive and reintroduced animals in the International Studbook was 1,988 (883 males.1101 females.4 sex unknown). In addition to animals held in captivity and those already re-introduced, there have been a number of animals released into very large enclosures (reserves): Le Villaret, France (~4 $km^2$; 2013: 18.18), Askania Nova, Ukraine (30 $km^2$; 2014: 24.46), and Hortobágy National Park, Hungary (700 $km^2$; 2014: 125.129). Bukhara, Uzbekistan (51 $km^2$) had 19.17.1 horses in 2008 (W. Zimmermann pers. comm.) and 24 horses by 2013 (O. Pereladova pers. comm.). The unfenced Chernobyl exclusion zone (2,600 $km^2$) in Ukraine contained 32.36 horses in 2008 (W. Zimmermann pers. comm.), and approximately 60 horses in early 2014 (T. Mousseau pers. comm.).

There are now approximately 387 free-ranging reintroduced and native-born Przewalski's Horses in Mongolia at three reintroduction sites. Between 1992 and 2004, 90 captive-born horses were transported to the Takhin Tal acclimatization site, from where they were released into the Great Gobi B Strictly Protected Area (SPA) (ITG International Takhi Group, Zimmermann 2008). A further three males were translocated from Hustai National Park to Takhin Tal in 2007 (Zimmermann 2008). In 2008 there were approximately 111 free-ranging horses in this subpopulation (Zimmerman 2008, Kaczensky and Walzer 2004). By December 2009 there were 138 individuals, but due to an extremely harsh winter (dzud) in 2009/2010 the population suffered extreme mortality: in April 2010, only 49 individuals remained (Kaczensky *et al*. 2011). By 2012 the population had increased to 71. By the end of 2013 there were 90 horses forming six harems and several bachelor groups. Sixteen foals were born in 2013; three of these foals died, and one adult male disappeared and is presumed dead (P. Kaczensky pers. comm.).

A third reintroduction site was started in 2004 at Seriin Nuruu in the Khomiin Tal buffer zone of the Khar Us Nuur National Park in western Mongolia (Association pour le Cheval de Przewalski: TAKH). Twenty-two individuals consisting of four pre-established families and one male bachelor group were brought from the reserve at Le Villaret, France between 2004 and 2005, and four horses from Prague Zoo were added in 2011 (Association TAKH, Zimmermann 2008). By the end of 2013 this population had 40 horses; eight foals were born in 2013 and 3threeof these died, as did two adult stallions (C. Feh pers. comm.).

### 4.3 Habitat (short description and trends)

Przewalski's Horses formerly inhabited steppe and semi-desert habitats. As most of this range became converted to agriculture, degraded or was increasingly occupied by livestock, the species became restricted to semi-desert habitats with limited water resources (Van Dierendonck and de Vries 1996). Lowland steppe vegetation was preferentially selected by horses at Hustai National Park and seasonal movements were affected by the availability of the most nutritious vegetation (King and Gurnell 2005). The breadth of species consumed and dietary overlap with other ungulates increased in winter, compared to summer, although forage did not appear to be limiting (Siestes *et al*. 2009). In the Gobi the Przewalski's Horses also selected for the most productive plant communities (Kaczensky *et al*. 2008). The Mongolia Takhi Strategy and Plan Work Group (MTSPWG 1993) concluded that the historic range may have been wider but that the Dzungarian Gobi, where they were last seen, was not a marginal site to which the species retreated. Although grass and water are more available in other parts of Mongolia, these areas often have much harsher winters. Of all the wild equid species, Przewalski’s horse is the one with the most eastern distribution and was most likely well-

adapted to the arid steppe of the Dzungarian Gobi (Zimmermann 1999).
An alternative viewpoint of the desert-steppe controversy is that the Eurasian steppe should be considered the Takhi's optimal habitat (Van Dierendonck and de Vries 1996). This would suggest that Przewalski's horses were forced into sub-optimal ranges such as the arid Gobi, as the more favourable steppe region was colonised by nomadic pastoralist people over several millennia. Studies of feral horses have shown that they are able to live and reproduce in semi-desert habitats but their survival and reproductive success is clearly sub-optimal compared to feral horses on more mesic grassland (Berger, 1986). Van Dierendonck and de Vries (1996) suggest that the Takhi is primarily a steppe herbivore that can survive under arid conditions when there is access to waterholes.

### 4.4 Biological characteristics

The species is not territorial; home range sizes in Hustai NP varied from 120 to 2,400 ha and, in addition to grazing sites, included a permanent water source, patches of forest, and ridges with rocky outcrops (King and Gurnell 2005). In Great Gobi B SPA, home ranges of 150 to 825 $km^2$ were reported (Kaczensky *et al*. 2008).

The Mongolia Takhi Strategy and Plan Work Group (MTSPWG 1993) concluded that the historic range may have been wider but that the Dzungarian Gobi, where they were last seen, was not a marginal site to which the species retreated as they had access to the rich habitats of mountain valleys and more oases than in the present time (Sokolov *et al*. 1990), due to these areas being occupied by herders and their livestock. Although grass and water are more available in other parts of Mongolia, these areas often have harsher winters. Subsequently, others provided evidence that the Gobi is an edge habitat, rather than an optimal habitat for Przewalski's Horses (Kaczensky *et al*. 2008), and certainly also subject to severe winters with devastating consequences for the population (Kaczensky *et al*. 2011). Studies of feral horses have shown that they are able to live and reproduce in semi-desert habitats but their survival and reproductive success is clearly sub-optimal compared to feral horses on more mesic grassland (Berger 1986). Van Dierendonck and de Vries (1996) suggest that the wild horse is primarily a steppe herbivore that can survive under arid conditions when there is access to waterholes. Przewalski's Horses exhibit a harem defence polygyny (Van Dierendonck *et al*. 1996). After dispersing from their natal band at approximately 2 years of age, males enter bachelor groups consisting of other young males and unsuccessful older stallions. When they are five years of age or older, stallions attempt to form harems of semi-permanent membership that are held year-round. They take over already-established harems, steal mares from rivals, or are joined by females dispersing from their natal harem at approximately two to three years of age (L. Boyd pers. comm.; Zimmermann *et al*. 2009).

### 4.5 Role of the taxon in its ecosystem

Przewalski's Horses are playing a crucial role in ecosystems they live. They moderate grazing helps the vegetation to regrow and the pasture can be re-used or used by other herbivores. The foals are main source of food for wolves in Hustai National Park. The remains are scavenged by foxes, vultures and other scavengers.

## 5. Conservation status and threats

### 5.1 IUCN Red List Assessment (if available)

IUCN Red list 2015 Endangered D ver 3.1 (King et al., 2016). Previously listed as Extinct in the Wild (EW) from the 1960s up to the assessment in 1996. The species was then reassessed as Critically Endangered (CR) due to at least one surviving mature individual in the wild. Successful reintroductions have qualified this species for reassessment.

### 5.2 Equivalent information relevant to conservation status assessment

5.3 Threats to the population (factors, intensity)

At the 'Endangered Wild Equid Workshop' held in Ulaanbataar in 2010 the following threats were identified:

1. Loss of population due to stochastic events (i.e. severe winter);
2. Limited habitat and resources (pasture and water);
3. Domestic horses (hybridization, disease, social stress)
4. Lack of information, appreciation / awareness, lack of knowledge; and
5. Exploitation of resources (i.e. mining).

The harsh winters of 1945, 1948, and 1956 probably had an additional impact on the small population (Bouman and Bouman 1994). Increased pressure on, and rarity of waterholes in their last refuge should also be considered as a significant factor contributing to their extinction (Van Dierendonck and de Vries 1996).

For the reintroduced populations, small population size and limited spatial distribution is the primary threat, followed by potential hybridization with domestic horses and competition for resources with domestic horses and other livestock. Wherever Przewalski's Horses come into contact with domestic horses, there is the risk of hybridization and transmission of diseases. Recently, illegal mining in the protected areas is an additional threat to their viability. In Hustai NP it has been noted that overgrazing of the buffer-zone and continued pressure on the reserve are possible consequences of the enhanced economic activity in this area (Bouman 1998); however, the second phase of the project (1998-2003) paid much more attention to sustainable development of the buffer-zone.

There is concern over loss of genetic diversity after being reduced to a very small population and maintained in captivity for several generations. Sixty per cent of the unique genes of the studbook population have been lost (Ryder 1994). Loss of founder genes is irretrievable and further losses must be minimized through close genetic management. Furthermore, inbreeding depression could become a population-wide concern as the population inevitably becomes increasingly inbred (Ballou 1994). However, correct management of the population can slow these losses significantly, as has been achieved since the organization of the regional captive-breeding programs. Fortunately, Przewalski's Horses have been shown to have both higher nuclear and mitochondrial nucleotide diversity than many domestic horse breeds in spite of the population bottlenecks they have experienced (Goto *et al*. 2011).

5.4 Threats connected especially with migrations

A number of causes have been cited for the final extinction of Przewalski's Horses in Mongolia and China. Among these are significant cultural and political changes (Bouman and Bouman 1994), hunting (Zhao and Liang 1992, Bouman and Bouman 1994), military activities (Ryder 1993), climatic change and competition with livestock and increasing land use pressure (Ryder 1993, Bouman and Bouman 1994). Capture expeditions probably diminished the remaining Przewalski's Horse populations by killing and dispersing the adults (Van Dierendonck and de Vries 1996).

In the western section of the Great Gobi B SPA livestock grazing by nomads and military personnel continues, particularly in autumn, winter and spring; however, the core zone is largely free from human influence all year round. Infectious diseases transmitted from domestic horses and their parasites, notably *Babesia equi*, *B. caballi* and strangles (infection by *Streptococcus equi*), are a major threat to small reintroduced populations originating from zoos (Roberts *et al*. 2005, King and Gurnell 2005). As was observed during 2009/2010, severe winters can result in significant mortality. While predation occurs naturally as for any wild ungulate, if excessive there could be impacts on this small population.

5.5 National and international utilization

Przewalski's Horses are kept in zoos of dozen countries in small numbers since the beginning of last century and are displayed for visitors as one of the more attractive species.

## 6. Protection status and species management

### 6.1 National protection status

Przewalski's Horse is legally protected in Mongolia. It is protected as Very Rare under part 7.1 of the Law of the Mongolian Animal Kingdom (2000). Hunting has been prohibited since 1930, and the species is listed as Very Rare under the 1995 Mongolian Hunting Law (MNE 1996). It is listed as Critically Endangered in both the 1987 and 1997 Mongolian Red Books (Shagdarsuren *et al*. 1987, MNE 1997), and in the Regional Red List for Mongolia (Clark *et al*. 2006). The taxon's re-introduced range in Mongolia is almost entirely within protected areas. It is listed on CITES Appendix I (as *Equus przewalskii*).

### 6.2 International protection status

An International Studbook was produced in 1959, followed in the 1970s by establishment of the North American Breeders Group, which developed into the Species Survival Plan for Przewalski's Horse. The European Endangered Species Programme for this species was accepted in 1986. Many countries now cooperate in these programmes to minimize inbreeding and retain genetic diversity in their horse populations.

*Conservation actions required:*

- The health of wild and domestic horses should be monitored for disease (Roberts *et al*. 2005). Standardized techniques should be used to monitor health, fecundity, mortality, habitat utilization and social organization of all populations (Wakefield *et al*. 2002).
- Contact between Przewalski's Horses and domestic horses should be kept to a minimum.
- A single population management approach should be developed.
- Mongolia currently has the only sizeable wild population and an action plan is needed for the country.
- The genealogy of all horses in Mongolia should be established based on individual genotypes from micro-satellite data to monitor inbreeding levels, identify hybrids and plan for necessary movements of horses between reintroduction centres to maximize genetic diversity.
- An authoritative government protocol for hybrids should be developed, to be established before hybridization occurs, and to be made available in each re-introduction centre and to local people (King and Gurnell 2005).
- Further communication and cooperation between all re-introduction centres would be beneficial.
- Further training and post-graduate education of staff and biologists involved with this conservation work would be beneficial.

### 6.3 Management measures

There are three reintroduction sites in Mongolia, plus two in China. The Status and Action Plan for the Przewalski's Horse was produced in 2002 (Wakefield *et al*. 2002), and provides a more detailed account of the history and ongoing conservation efforts surrounding the species. All three Mongolian reintroduction sites are monitoring their populations and are integrating community livelihood support into their projects (Ulambayar 2004). There have been several workshops of stakeholders involved in the reintroduction of Przewalski's Horses to Mongolia (Boyd 2009).

### 6.4 Habitat conservation

Przewalskii’s Horses are reintroduced in Mongolia in three protected areas: Takhiin Tal, the former native habitat of the species, where the last horse was seen, and the Strictly Protected Area, Khomiin Tal, a buffer zone to the Har Us Nuur National Park in Valley of the Lakes, and the Khustai Nuruu National Park.

6.5 Population monitoring

Ongoing. Every site has own population monitoring programme.

## 7. Effects of the proposed amendment

7.1 Anticipated benefits of the amendment

The species conservation will be upgraded and international cooperation will be enhanced. Under this species protection other wildlife species populations will benefit from conservation efforts.

7.2 Potential risks of the amendment

We see no risks if the Przewalski's Horse populations in Mongolia will be added to CMS Appendix I.

7.3 Intention of the proponent concerning development of an Agreement or Concerted Action

It is possible to do so.

## 8. Range States

This taxon formerly had a wide geographical distribution across most of Eurasia, as indicated by cave paintings in France and Spain. There are now reintroduced populations in Ukraine, Kazakhstan, China and Mongolia. Considered endemic to Mongolia, as this is the only country where truly wild populations exist within its historic range.

## 9. Consultations

## 10. Additional remarks

## 11. References


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