International Workshop on Sustainable Wildlife Management in Central Asia: Practical Experience and Way Forward

Ashgabat-Turkmenistan

The Asiatic wild ass (*Equus hemionus*) distribution, genetics and IUCN Red List Status

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Our greatest challenge

is to improve their conservation status,

sustain their ecosystems

and enhance the livelihoods of local communities.

IUCN Red List assessment

CONSERVATION STATUS

Equus africanus **(African wild ass)**	**Critically Endangered**
Equus ferus przewalskii **(Takhi)**	**Endangered**
Equus grevyi **(Grevy's zebra)**	**Endangered**
Equus zebra **(Mountain zebra)**	**Vulnerable**
Equus hemionus **(Asiatic wild ass)**	**Near Threatened**
Equus kiang **(Kiang)**	**Lower Risk**
Equus quagga **(Plains zebra)**	**Lower Risk**

Behavioral Ecology

Resource Availability : 2 social systems

Forage, Water, Predators

Mesic Habitat

Harem/Family

Plains zebra

Mountain zebra

Przewalski's horse

Arid Habitat

Territorial

African wild ass

Grevy's zebra

Asiatic wild ass

Kiang

- 25% of mammals that have been assessed (n=1139) are threatened with extinction

- Family Equidae are highly endangered with over 70% of the species assessed as threatened (five of the seven equid species)

- Quantifying this level of threat under the objective IUCN Red List of Threatened Species™ allows conservationists and policy makers to develop an appropriate response to prevent further decline.

- The Red List can be used to develop strategies for prioritizing species and areas for conservation action.

Threats

All equid species are threatened in varying degrees by

1) Loss of habitat,
2) Reduction in water and forage accessibility,
3) Illegal and unsustainable hunting
4) fragmented and small population size, and
5) reduced gene flow.

These factors can be exacerbated by climatic extremes and stochastic events like drought and severe winters.

Climate change & Stochastic Events

Asiatic wild ass Negev Desert, Israel

- Global climate change may cause increased variance and environmental stochasticity
- More frequent droughts in arid habitats
- 20 yrs: 74 ± 45 mm/yr, 18-206 mm/year
- Drought < 40 mm
- 0.5 Mean number of foals/Adult female (.29-.90)
- Drought -> inducing abortion during the dry winter and reducing conception rates in the following spring.

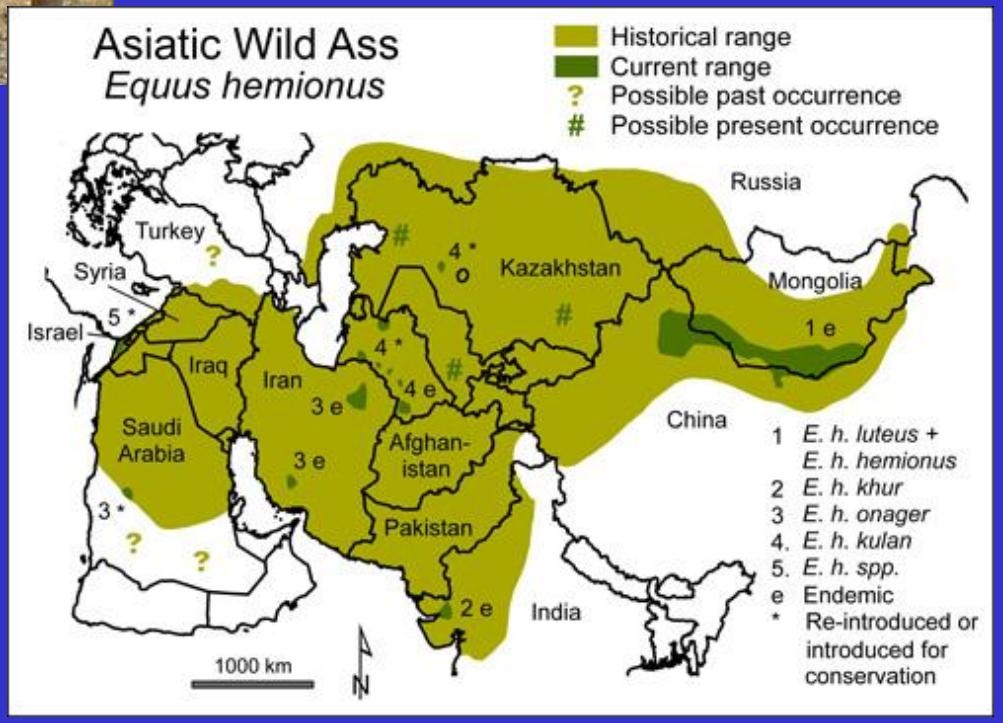
Saltz, D., Rubenstein, D. and White, G.C. 2006. Conservation Biology Volume 20, No. 5, 1402–1409

Asiatic wild ass

Equus hemionus

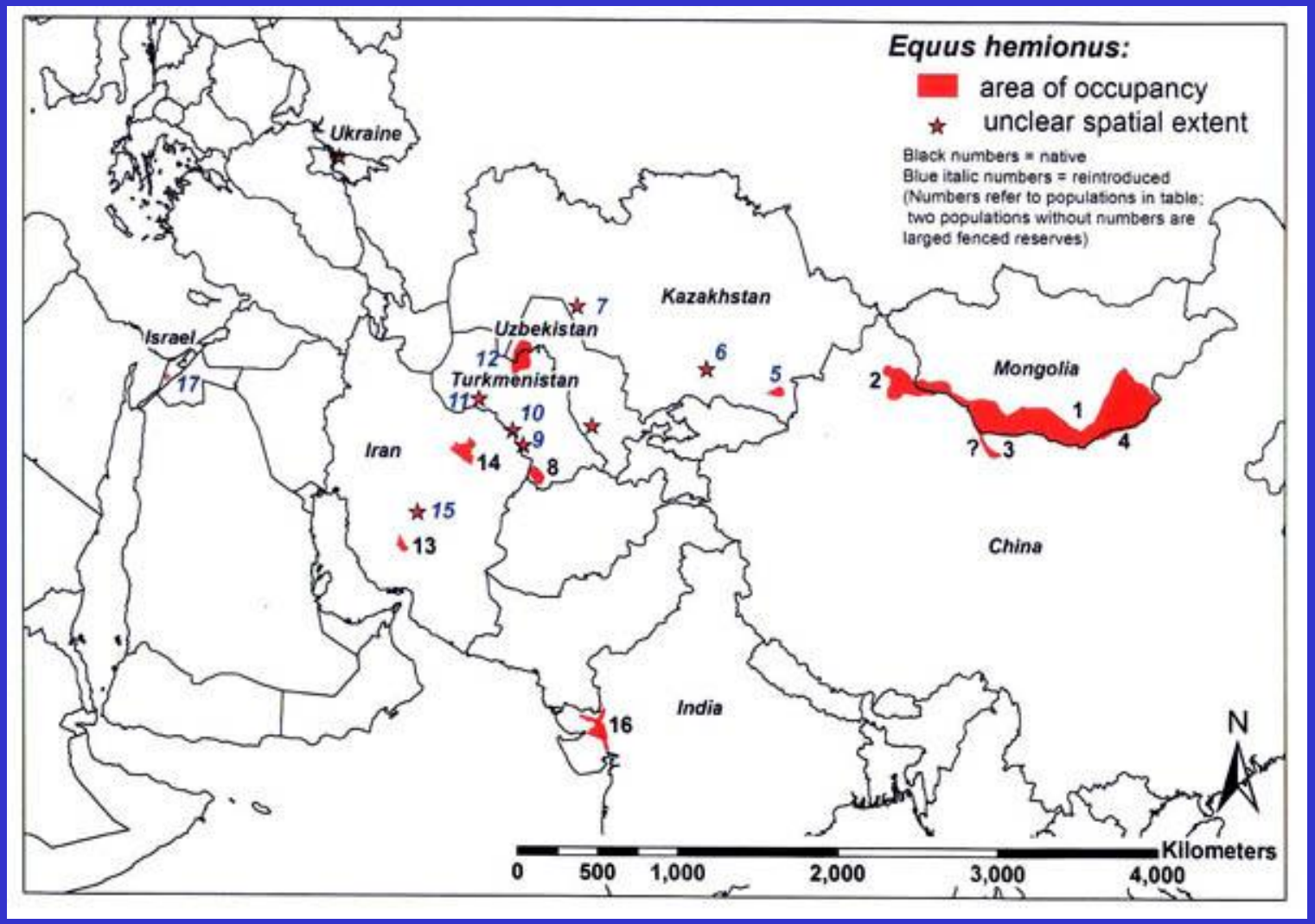
One large population in Mongolia and China

All other populations Small and vulnerable



Asiatic wild ass *(Equus hemionus)* Distribution

Kaczensky, Lkhagvasuren, Pereladova, Hemami, and Bouskila 2015



Asiatic wild ass (*Equus hemionus)*

- *E. h. hemionus* - Mongolian khulan (Mongolia, China)
- *E. h. khur* – the khur (India)
- *E. h. kulan* – the Turkmen kulan (Turkmenistan, re-introduced in Kazakhstan, Uzbekistan, Ukraine and mixed *E. h. kulan* x *E. h. onager* in Israel)
- *E. h. onager* - the onager (Iran and re-introduced and mixed *E. h. kulan* x *E. h. onager* in Israel)
- *E. h. hemippus* – the Syrian wild ass (Extinct)

Genetics

- Highest genetic diversity in *E.h.hemionus*
- Onagers *E.h.onager* genetically different but have lower diversity
- Probably due to low population size and isolation

Rosenbom et al 2015 Molecular Phylogenetics and Evolution 85: 88–96

IUCN Red List of Threatened Species™

- Red List Categories and Criteria
- Assessments are made at the species level for the global range
- the term ‘population’ refers to the total number of mature individuals
- Mature individuals of wild species are those that are capable of reproduction (50%)

Categories and Criteria

- Population size reduction
- Geographic range size and fragmentation
- Small population size and decline
- Very small or restricted population

Red List Status

- *E. h. hemionus* - Mongolian khulan NT near threatened
- *E. h. khur* – the khur VU vulnerable
- *E. h. kulan* – the Turkmen kulan EN endangered
- *E. h. onager* - the onager EN endangered
- *E. h. hemippus* – the Syrian wild ass (Extinct)

Asiatic wild ass Population Trends in Central Asia

Country		Population	Origin	1992/ 1993	1996/ 2000	2005/ 2010	2013/ 2014	Trend
Turkmenistan	***Kulan***	Badkhyz	**Native**	3,000	1,200	450	<210	**Declining !**
Turkmenistan		E. Kopetag	Re-introduced			226 for	50	**declining ?**
Turkmenistan		W. Kopetag	Re-introduced			all	7	**declining ?**
Turkmenistan		Kuruhhauden Kalinin	Re-introduced			sites	6	**declining ?**
Turkmenistan/Uzbekistan		Kaplankyr/Ustyurt	Re-introduced				188	increasing
Kazakhstan		Altyn Emel NP	Re-introduced	75			1,375	increasing
Kazakhstan		Barsa-Kelmes Island	Re-introduced	48		174		increasing
Kazakhstan		Andassay Sanctuary	Re-introduced	82			18	**declining ?**
TOTAL	2,028							

Iran	***Onager***	Bahram-e-Goor	**Native**		48		316	increasing
Iran		Touran	**Native**		236	150	73	**Declining !**
Iran		Kalmand P.A.	Re-introduced		2		6	increasing
TOTAL	395							

- Most of the endangered equids live in arid ecosystems must have access to water and forage

- These habitats are also home to human populations that are at risk from the same climatic extremes

- Conservation of wildlife will be closely linked to local people actively participating in and benefiting from the conservation management of their areas

- Most ‘declining populations’ of wild equids face external threats, i.e. illegal and non-sustainable hunting, loss of habitat, and reduced access to forage and water

- Most ‘small populations’ face internal threats, i.e. slow population growth due to density dependent social interactions, inbreeding, hybridization, and vulnerability to stochastic factors such as disease, droughts and extreme winters.

- Small populations are also more vulnerable to normal predation by carnivores

- Climate change has the potential to further exacerbate these threats

Major causes of wild equid declines

1. **Limited access to water and forage**
2. **Unsustainable hunting**
3. **potentially disease and/or hybridization**

Threatened wild equids have both types of mating systems and occur in both mesic and arid habitats

Conservation Action

- An analysis of the impact of conservation actions on the status of the world's vertebrate's yielded evidence that targeted conservation action can reverse declines in biodiversity and species threatened status

For example,

- Przewalski's horse was down listed from EW to CR to EN
- the Cape mountain zebra was down listed from CR to EN to VU

1. Wild equids have experienced amazing recoveries due to human intervention.
2. Both Przewalski's horses and Cape Mountain zebra have been saved from extinction by committed management programs.
3. Improved awareness and the support of local communities have aided the conservation of Grevy's zebra, African wild ass, Asiatic wild ass and Hartmann's mountain zebra.
4. The continued commitment of wildlife conservation authorities, research personnel and local communities will be critical for sustaining wild equid populations into the future.