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DEER SPECIALIST GROUP NEWS

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Editorial

We are focused on obtaining and updating the knowledge needed to complete the Red List Assessment for both New World and Old World species. As a part of the Species Survival Commission one of our main tasks for this period is the Global Mammal Assessment. In consultation with our RLAs and SSC staff, we have shortened the Red List Assessment process to DSG-recognized 71 deer species. We are reassessing species who meet the following criteria: a) species that DSG members believe have shown dramatic changes in distribution and numbers over the past five years; b) species where increased knowledge of their populations and distributions might lead to changes in IUCN Red List status; or c) new species as a result of revised taxonomy. We did not reassess species whose status has not changed significantly in the past five years (according to local experts) or for which we have no new information.

This process has reinforced the knowledge that many Old World species are not being actively monitored or studied. We wish to thanks to everyone who has assisted Sarah and Eveline to help with the several species assessments. The DSG needs to expand its membership by locating additional experts on the smaller deer species, and to encourage field research and monitoring on these species through increased funding opportunities.

We wish to acknowledge our supporting agencies: Conservation Force (www.conservationforce.org) for providing funding for Eld's deer ecology and conservation projects in Southeast Asia, and *Comisión Sectorial de Investigación Cientifica* (CSIC-UdelaR), for funding the Neotropical Deer Project.

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Report
Old world deer

Re-assessments of all 55 species of old world deer have now been completed and will be available online very soon, with the exception of Pere David's Deer *Elaphurus davidianus* and Fallow Deer *Dama dama.*

The re-assessment for Pere David's Deer has been postponed, until surveys of the 4 free-living populations have been conducted to assess their long-term viability, before any changes to the status of the species can be made.

The re-assessment of Fallow Deer has been postponed until further work has been done to clarify the status of the various populations of this deer.

Lastly, we are working with DSG members to conduct an assessment of the Hangul *Cervus hanglu hanglu,* a very threatened subspecies of Red Deer in India. Several Indian conservationists contacted the RLA to request a subspecies assessment in this case, suggesting that conservation of the Hangul would benefit significantly from being red listed. We anticipate the assessment to have been completed by the end of June.

Sarah M. Brook
Red List Authority

Report
New world deer

We identified 18 deer species in New World habitats that needed to be reassessed for the Global Mammal Assessment. We established a web forum in which all the species were uploaded for a month and we asked our specialists to send comments and revise the information. Also we contacted the past assessors, asking them to update the data. Based on this data we have established three criteria for bringing the Red List categories of these deer species up to date, based on:

a) **Species that we know have shown dramatic changes in distribution and abundance** over the past five years. We identified 3 species that have experienced dramatic changes in distribution and abundance: Taruka (*Hippocamelus antisensis),* Huemul *(Hippocamelus bisulcus),* and Brazilian Dwarf Brocket *(Mazama nana).*

b) **Species where increased knowledge on populations and distributions** might lead to a change in category. This is the case in the following deer species: Marsh deer (*Blastocerus dichotomus),* Red brocket (*Mazama americana),* Amazonian Brown Brocket (*Mazama nemorivaga),* Pampas deer (*Ozotoceros bezoarticus),* Southern Pudu *(Pudu puda*), and Mule deer *(Odocoileus hemionus*).

c) **New species that were elevated from sub-species to species status based on new genetic information**. We identified one case: Small Red Brocket (*Mazama bororo*).

The remaining eight species (*Mazama bricenii*, *Mazama chunyi*, *Mazama gouazoubira*, *Mazama pandora*, *Mazama rufina*, *Mazama temama*, *Odocoileus virginianus*, *Pudu mephistophiles*) will keep the same category as in the latest review, since, in most cases, new biological data is not available to update them.

Eveline Zanetti

Red List Authority

Bactrian deer (*Cervus elaphus bactrianus*) still exist in Afghanistan

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Abstract

The Darqad District in Takhar Province, which forms the biggest floodplain on the Panj River in northern Afghanistan, was known to have a Bactrian deer (*Cervus elaphus bactrianus*) population, and was proposed as a protected area in the 1970s. However, due to four decades of political unrest, very little is now known about the area and its wildlife. We conducted a field survey of Darqad in November and December 2013 and confirmed the presence of Bactrian deer more than 40 years after the last documented record of the species in the area. From direct observation of a single live animal, indirect field evidence and community reports, we found that Bactrian deer are resident in the north and occasionally visit the west, southwest, and southern parts of Darqad. The estimated global population of Bactrian deer increased from 350 – 400 in the 1960s to ca. 1,900 free-ranging animals in 2011 thanks to conservation efforts in the former Soviet Union territory in Central Asia. In Afghanistan Bactrian deer have been declining due to habitat loss, hunting, pet trade, and other anthropogenic activities and are currently in urgent need of conservation.

Keywords: Darqad District, *Cervus elaphus bactrianus*, Bactrian deer, re-discovery, threats

Introduction

The Bactrian deer (*Cervus elaphus bactrianus*) is a subspecies of red deer (*Cervus elaphus*) that only occurs naturally along the Amu Darya River, Syr Darya River and their tributaries in Afghanistan, Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan (Nowak 1999). It inhabits predominantly the *Tugai* forest, which is a riparian forest composed of woody and shrub thickets dominated by poplar (*Populus* spp.), oleaster (*Elaeagnus* spp.), tamarix (*Tamarix* spp.) and reeds (*Phragmites* spp.), along the riverbanks and floodplains of semi-arid and desert areas (Bannikov 1978, Thevs 2005).

The global population of Bactrian deer experienced serious fluctuations during the second half of the 20th century. In the 1950s it disappeared from the Syr-Darya basin (Bannikov 1978). By the 1960s, the

number of Bactrian deer had dropped to 350-400 individuals, due to numerous anthropogenic threats, and was limited to wildlife sanctuaries. However, with the establishment of special reserves and introduction of the animal to several other suitable areas within the former Soviet Union, the number of Bactrian deer increased to ca. 900 animals in the 1980s (Bannikov 1978, Pereladova 2013), followed by a drop to ca. 350 individuals after the breakup of the Soviet Union (Pereladova 2013). Thanks to successful conservation actions in most of its range, the population of Bactrian deer rebounded to an estimated ca. 1,900 free-ranging animals in 2011 (Pereladova 2013). The Bactrian deer has not been evaluated, however, red deer as a whole is currently listed as Least Concerned on the IUCN Red List (Lovari et al. 2008).

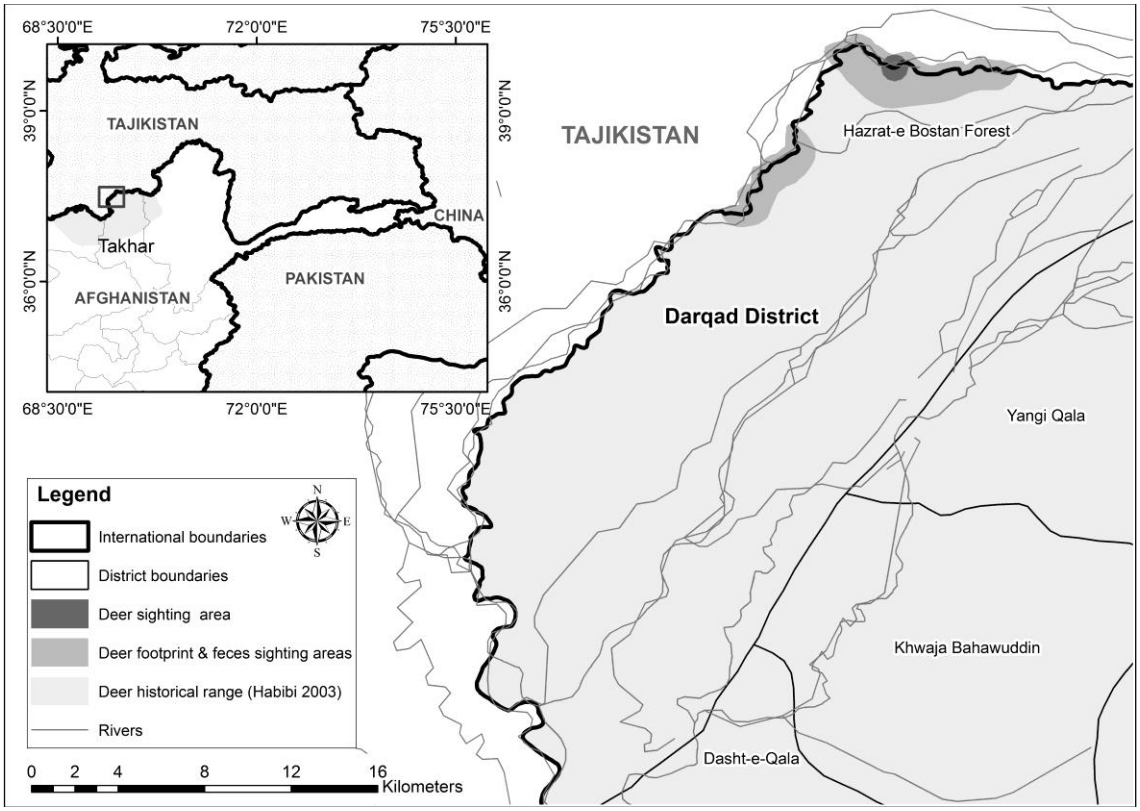

Figure 1: Map of the surveyed site showing the areas with confirmed presence of Bactrian deer (*Cervus elaphus bactrianus*), November-December 2013.

The oldest scientific records of Bactrian deer from Afghanistan date back to the 19th century. Scully (1887; cited by Hassinger 1973) reported an antler of *Cervus cashmirianus* (=*C. elaphus*) from the banks of the Amu Darya River near the city of Balkh. Flerov (1952) mentioned that the deer was found along

the Kukche River in its confluence with the Amu Darya; along the Kunduz River valley from Khanabad to Amu Darya; and along the Balkh River. One individual kept captive at Kabul University in 1973 was allegedly captured in northern Afghanistan (Hassinger 1973). Neumann & Nogge (1973; cited by Shank et al. 1977) estimated that the Afghan population was reduced to ca. 120 individuals by the early 1970's, surviving in the riparian forests of Takhar and Kunduz provinces. Habibi (2003) includes the northern parts of Kunduz and Takhar provinces in the historical range for the species (Fig. 1). A recent wildlife survey carried out by the Wildlife Conservation Society in December 2007 in the riparian forests of the Panj River in its historical range in Kunduz and Takhar provinces failed to find any indication that the species was present and reported that none of the 26 local persons interviewed had seen a live specimen of Bactrian deer in Afghanistan in recent years (Ostrowski et al. 2008).

Here we report the results of a survey aimed at evaluating the contemporary presence of Bactrian deer and the main threats affecting the species in the district of Darqad, Takhar Province, Afghanistan.

Study Area

Darqad is the northernmost district of Takhar Province in northern Afghanistan. It shares an international border with Tajikistan to the north and west, and borders the Afghan districts of Dasht-e-Qala, Khwaja Bahawuddin and Yangi Qala to the south and east, respectively (Fig. 1). Darqad District borders the major habitat of Bactrian deer in Tajikistan – Tigrovaja Balka Nature Reserve - where, the Bactrian deer population was estimated at 150 in 2011 (Pereladova, 2013). The Panj River isolates ca. 70% of Darqad District from the mainland and gives it a unique island/floodplain shape with sparse wetland and riparian habitat types; the remaining portion is connected to the adjacent districts. The island of Darqad is approximately 456 km^2 (AGCHO 2012) of flat floodplain area at 400-500 masl. Records for annual precipitation in the area are lacking but the average rainfall in Yangi Qala, the adjacent district to the southeast of Darqad, has been estimated at ca. 380 millimeters annually (climate-data.org, accessed on March 7, 2016).

Since Darqad District is situated in the floodplain of the Panj River, it turns into a seasonal wetland during the spring and summer months. The level of water depends on the condition of the Panj River, which fluctuates every year. Darqad is partly covered by a *Tugai* forest, which consists mainly of *Tamarix* spp., willows (*Salix* spp.) and reeds (*Phragmites australis*). A strip of *Elaegnus* spp. forest exists in the south and southwest through the western parts of the area, and it changes to mixed forest and

eventually riparian habitats with tall reeds and grasslands to the north and northeast. The Afghan Central Statistics Organization (2003) estimated a population of 25,771 people for Darqad District. Southern and central areas of Darqad are densely populated with intense agriculture, whereas the north, northeast, and western parts have relatively low human population. These areas still contain forests, riparian habitats, bushland, reeds, and rangelands.

Methods

To evaluate the presence and current status of Bactrian deer we conducted a community survey based on questionnaires as well as field visits throughout Darqad District from 20 November to 12 December 2013. During the questionnaire survey we targeted individuals likely to have the most knowledge about wildlife (e.g., community elders and hunters) and asked them what they knew about local wildlife. Because of time constraints we could interview only two persons per village in Darqad. We inquired about the present status and threats to large mammals including Bactrian deer. In addition, we asked about the presence of Bactrian deer body parts (e.g., skins and antlers) in the area. We presented a photo gallery of large mammals that were known or suspected to have been historically present in the study area. Photos helped the interviewees identify species and avoid confusion during the interview. Overall we interviewed 77 male respondents in the 38 villages of Darqad.

Besides the community survey, we visited the forest areas, rangelands, and riversides that were likely to have deer based on indications gathered from the local community and on our knowledge of red deer habitat. We recorded direct sighting of Bactrian deer, as well as faeces, and footprints, which are quite distinct from those of the wild boar (*Sus scrofa*), the only other ungulate species reported in the surveyed area.

Results

Local communities recognized the Hazrat-e Bostan forest area to be permanently occupied by Bactrian deer, whereas other areas were allegedly visited only occasionally by vagrant animals from Tajikistan. Among the interviewees 33% (n = 25) reported the presence of resident Bactrian deer in the north and northeast areas of Darqad. One of the respondents stated that he had observed a herd of seven deer in Band-e Ghazi Abad area, west of Darqad in 2012, whereas 14% (n = 11) of the respondents reported that they have not seen the deer in the west, south, and southwest of Darqad for the last 20 years. In the morning (ca. 10:00 am) of December 3rd 2013, we saw one Bactrian deer from a distance of ca. 30 meters

in a dense plume-grass thicket (Fig. 2A) within the Panj River bank on the border area with Tajikistan, in Hazrat-e Bostan forests in the northeast of the Darqad floodplain (Fig. 1). The deer looked like a young female (ca. 2 years old). Although the international border in the area varies with the changing meandering course of the Panj River, the area was located in Afghanistan. We also recorded over 80 faecal pellet groups and numerous fresh tracks (Fig. 2B) of Bactrian deer in a strip of 10-12 km in the northeast of Darqad floodplain, in open grasslands, mixed shrubs and bushes, and dense tall reeds. Fecal pellets were mostly recorded near the sea-buckthorn (*Hippophae rhamnoides*) shrubs, the shoots of which are, according to local inhabitants the only source of fresh food for Bactrian deer in winter. Almost all forest areas have been overused and degraded in the western and southwestern areas where we could not find any clear evidence to confirm the presence of deer. Local communities, however, stated that vagrant animals sometimes cross the border from Tajikistan and visit the west and southwestern parts of Darqad.

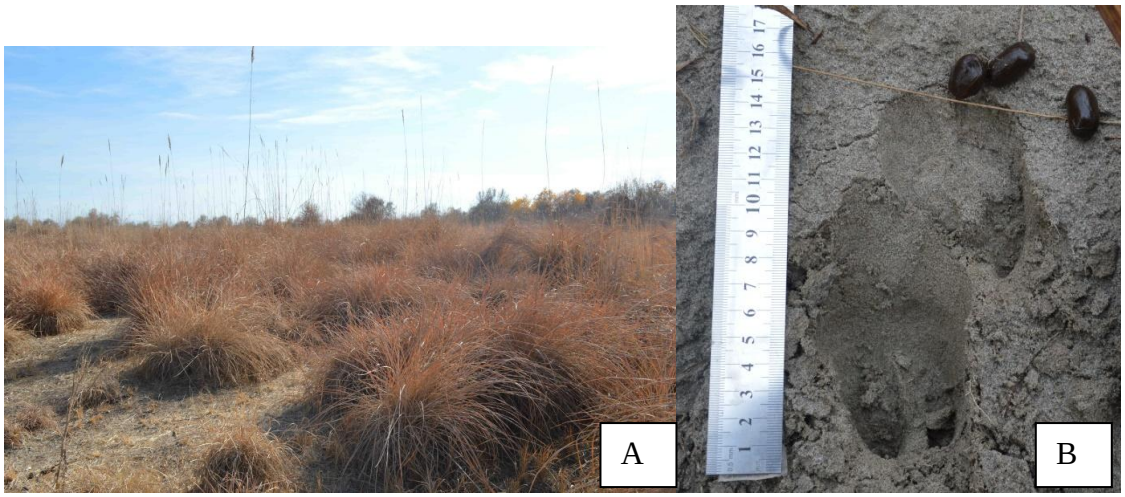

Figure 2A: Plume-grass thickets where Bactrian deer were found in the north part of Darqad District, Takhar Province, Afghanistan, December 3, 2013.
Figure 2B: Bactrian deer footprints and fecal pellets in the north part of Darqad District, Takhar Province, Afghanistan, December 4, 2013.

During our survey we also found one pair of antlers in a village called “Lala Maidan” in northern Darqad. The owner claimed that his father had been the Royal Families’ hunter in the 1970s and he had kept the antlers from that period.

Discussion

Our survey confirmed the presence of Bactrian deer in Darqad District in northern Afghanistan for the first time since the 1970s (Petocz 1973, cited by Shank et al. 1977). Despite four decades of unrest and consequent instability in the area, marked by high levels of hunting and deforestation, Bactrian deer still persist in the area. However according to local communities, wildlife in general and in particular Bactrian deer, are decreasing (this survey; Ostrowski et al. 2008). We confirmed the presence of the Bactrian deer only in Hazrat-e Bostan forest and it is in urgent need of conservation to prevent its extinction from the area.

Some of the forested areas, mostly in the Panj River bank in the northern Darqad, are considered as 'shared forests' between Afghanistan and Tajikistan and have therefore remained in good enough condition to retain populations of large terrestrial herbivores. In contrast in the central, north, west, south, and southwestern areas, the forest and shrubland areas have been largely converted to agriculture, the few grasslands are heavily grazed by livestock and are no longer suitable for deer.

The keystone habitat type in Darqad where Bactrian deer were found is called *Tugai* forest, a rare and typical riverside ecosystem that was once widespread in the floodplains and valleys of the arid regions of Central Asia (Ostrowski et al. 2008). This habitat type consists mainly of willows, bushes, grasses, and tall reeds. Some *Tugai* habitat thickets in good condition still exist in the northern Darqad areas and if protected would most likely have a positive impact on the population of Bactrian deer in the area. However, the *Tugai* forest has been highly degraded and over used in the south, west, and southwestern parts of Darqad and is unlikely to be able to support wild ungulate species such as the Bactrian deer, unless restored.

During the survey respondents reported a series of threats to Bactrian deer in Darqad. The majority (75%, n=58) reported that Bactrian deer had suffered a serious decline in the last decades due to habitat loss, hunting, and capture for the pet trade. The main factors behind habitat loss are deforestation, overgrazing, land conversion to agriculture, as well as, more specific to Darqad, gold washing activities along the riversides.

Bactrian deer live in border areas between Afghanistan and Tajikistan; therefore cooperation between these two neighboring countries is crucial to conserve this rare species at the landscape scale. International borders are often rendered inaccessible due to police restrictions; however, only a

transboundary conservation approach with Tajikistan will secure a long-term restoration of Bactrian deer in the region.

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Hangul cry for discrete conservation status

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Abstract

Species rank is crucial in conservation decisions since the status of a species under the Red List is often seen as a key for prioritization of that species for conservation attention, funding allocation, development of conservation policies and national legislation. However, discriminating conservation status at the subspecies level becomes challenging in situations where many subspecies are often incorrectly lumped into a single species complex. In this study, we highlight the necessity to provide a discrete conservation status for the *hangul*, a subspecies of red deer (*Cervus elaphus*) inhabiting the state of Jammu & Kashmir, India. The population has shown a relatively low genetic diversity, skewed sex ratio and has experienced severe reduction in distribution range and population size in the past few decades. We propose that *Cervus elaphus hanglu* be elevated to a species level (may be by merging it with two other subspecies of red deer, *bactrianus* and *yarkandensis*, from the Tarim mountains). Further, we see necessity that *Cervus elaphus hanglu* be differentiated individually in red deer species complex under the IUCN Red list of threatened species. This assessment would certainly help to call immediate attention to the conservation and management of this subspecies of red deer.

Keywords: *Hangul* deer; conservation status; the Red List; population decline; Dachigam National Park.

Goswami Tulsidas, a Hindu poet-saint and a great philosopher of 14th Century writes: "*Daya Dharm Ka Mool Hai, Paap Mool Abhiman, Tulsi Daya Na Chhoriye, Jab Lag Ghat Mein Pran*", Or *"One should be compassionate and kind towards all living being and help them when they are helpless, needy or in pain"*.

Figure 1. A herd of hangul (*Cervus elaphus hanglu*) at Dachigam National park.

This is especially true in wildlife conservation and management. Although, the IUCN Red List of Threatened Species ("the Red List") simply assesses each species' extinction probability, it is often incorrectly seen as a key for prioritization of a species for conservation attention, funding allocation, national development policies and legislation. This list indeed encourages conservationists to monitor threatened species to ensure their long-term survival.

The *hangul* is a deer inhabiting the state of Jammu & Kashmir, India, and currently considered by the Red List as a race of the widespread Red Deer, or *Cervus elaphus*. It is the only survivor of the Red Deer complex in the Indian subcontinent and listed under Schedule I of the Wildlife (Protection) Act of India (1972), as well as in the J&K Wildlife (Protection) Act (1978). The *hangul* is categorized among the 15 species of highest conservation priority by the Government of India. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) forbids the trade of *hangul* and lists it in Appendix I. Yet because the IUCN Red List considers *hangul* a subspecies of Red Deer, its species-level

Red List category is Least Concern reflecting the widespread geographic range, and large and relatively stable populations of Red Deer in most of the countries of its distribution range.

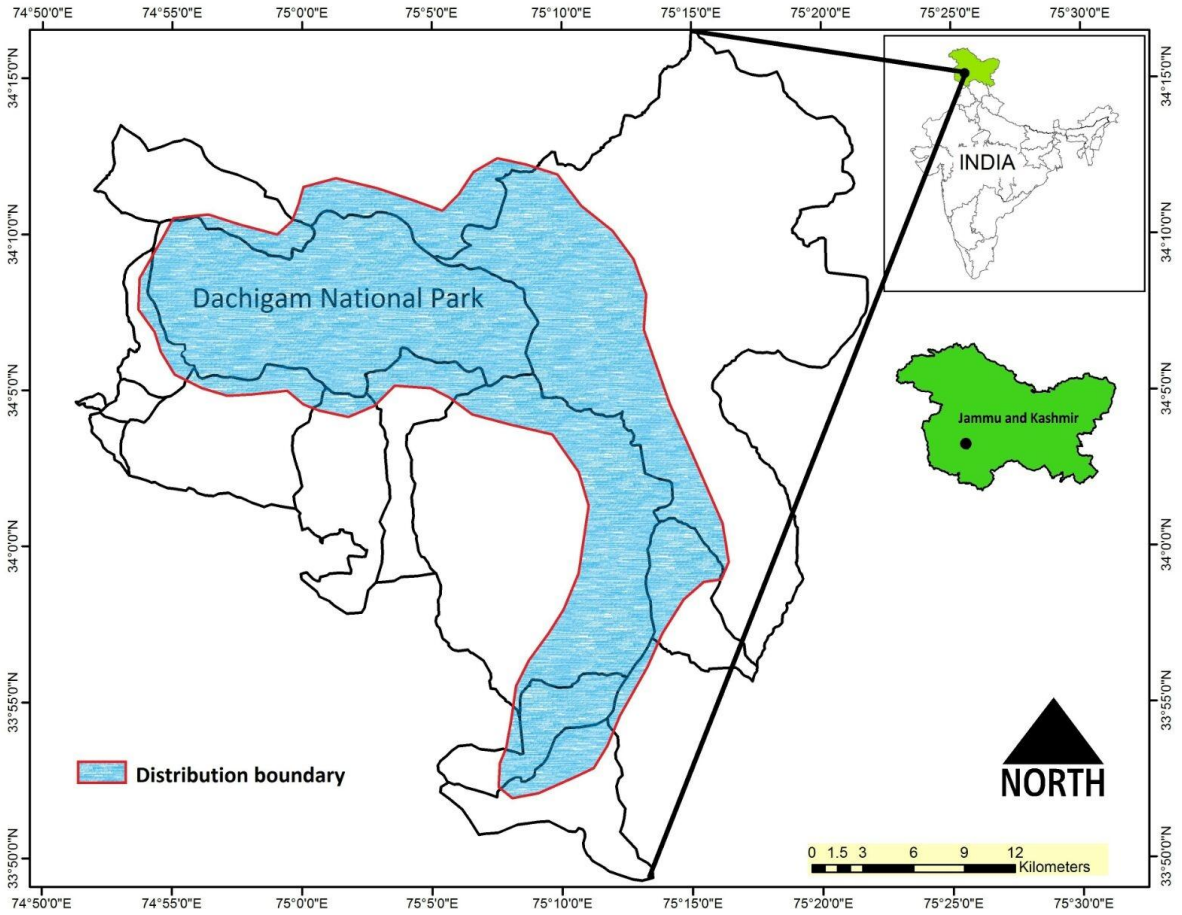

Figure 2 Current distribution map of Hangul deer.

This assessment is the very opposite of the status of *hangul*. Its population once occupied an arc 65 miles in width, north and east of the Jhelum and lower Chenab rivers, from Shalurah in the north to Ramnager in the south (Schaller 1969), now largely confined to the Dachigam Landscape of Kashmir valley spanning an area of *ca*. 1,000 km^2 (Qureshi et al. 2009) (Fig. 1). The *hangul* population in the early and mid 20th century declined alarmingly, from about 3,000-5,000 individuals in the early 1900s to about 1,000-2,000 by 1947 and as low as 180-250 individuals by 1965 (Gee 1965). The population recovered to 700 individuals by 1987, but fell again to 120 individuals by 1994. Conservation efforts by the Wildlife Department of Jammu and Kashmir showed a detectable growth to 375 individuals by 2002, which by 2003 declined to 212 individuals (Qureshi et al. 2009, Mukesh et al. 2013 & 2015a). The census, carried

out in 2011, reported only 218 individuals, with a significant imbalance in the sex and fawn-female ratios. The most recent census (2015) carried out by the forest department indicated hangul population in Dachigam is lowest ever recorded *i.e.* 110 to 130 individuals only. The overall population size of hangul in Dachigam and other relic ranges in Kashmir is about 150 to 180 individuals (Source: *Environment Policy Group, the Wildlife Conservation Fund*). Considering this estimates, we must say that hangul facing the worst time for its survival and requires an immediate action. Several recent peer reviewed articles erroneously mention *hangul* as "Critically Endangered" (Ahmad et al. 2009, Ahmad et al. 2013, Wani 2013), the IUCN category in which it would clearly be placed if given its own Red List assessment. William J. McShea, Co-Chair, IUCN SSC Deer Specialist Group, opined that *"hangul is not recognized as a separate species… by DSG, but it is listed as a subspecies of* Cervus elaphus. *As long as it holds that status it will be considered together with the broader and more abundant Red Deer and therefore of Least Concern. It is an issue we are aware of, but we have not been able to organize any consensus around the species status of several deer sub-species"* (*pers. comm. 20 May 2015*). Sarah Brook, Old-world Coordinator of IUCN SSC Deer Red List Authority, agrees that *"the subspecies assessment of Red Deer, which has however not been performed up to now would surely promote the hangul conservation in India"* (*pers. comm. 21 May 2015*).

We found the *hangul* population to exhibit relatively low genetic diversity and a skewed sex ratio (Mukesh et al. 2013). However, the population is currently under demographic equilibrium and sustains enough effective breeders to bounce back to historical numbers with proper protection and management (Mukesh et al. 2015a & b). We foresee that emergent loss in corridor functionality due to developmental processes and changes in the land use patterns will have serious repercussions for animal movements and maintaining genetic viability among the relic populations. Therefore, conservation efforts should be concentrated on mapping, protecting and enriching those relic range areas where the potential *hangul* habitat still remains. In view of IUCN guidelines on ex situ-conservation, we strongly advocate that conservation breeding be initiated to insure the *hangul* population against extinction and to recruit new individuals to the wild population. In light of concern to upgrade the *hangul*'s taxonomic status to species level, Lorenzini & Garofalo (2015) recently investigated the evolutionary history of the genus *Cervus* and showed that the central Asian populations of the Tarim Basin (*C. elaphus bactrianus, C. elaphus yarkandensis* and *C. elaphus hanglu*) showed genetic distinction in phylogeny and are thus worthy of being raised to a species level. Phylogenetic distinction and uniqueness of Asian red deer populations of

Tarim group, we documented even before Lorenzini & Garafalo study (Mukesh et al. 2015a) and has received peers' attention. Considering the latest two genetic studies, (Mukesh et al. 2015a and Lorenzini & Garafalo 2015), we suggest to lump the three subspecies of red deer of the Tarim mountains *i.e. hanglu, bactrianus* and *yarkandensis* together to achieve species status which could be known as *C. hanglu hanglu, C.hanglu bactrianus, C. hanglu yarkandensis.* Furthermore, a reassessment should be undertaken at the subspecies level to provide *hanglu* a distinct conservation status under Red List category.

Considering current population structure, severe reduction in distribution range, area of occupancy, extent of occurrence, number of mature individuals, population size, low genetic variability, low recruitment rate and imbalanced sex and female-fawn ratio, the *hangul*, certainly deserves a conservation status of "*Critically Endangered*", discrete from that of the species *Cervus elaphus*.

Similarly, it is worth mentioning Groves and Grubb's assessment (2011) favoring changes in the "Standard" list of ungulates (*ca.* 250 species) based on new physical and genetic evidences. The authors proposed renaming subspecies as distinct species, separating or uniting genera, or naming species new to science. The IUCN Red List of Threatened Species does also include assessment of many subspecies and populations and the DSG members remark that the IUCN SSC Deer Red List Authorities (as all other mammal RLAs) are currently fully occupied in a mandated full review of all species' Red List categories and criteria. When this is completed, we expect *hangul* to receive priority attention for a subspecies assessment or elevation to species status.

Last but not the least, we hope this article will encourage a rethinking of the conservation status of not only for *hangul*, but also for all those species forms for which a detailed assessment at the subspecies level has been long awaited or yet to be done due to the non-availability of enough taxonomic and systematic evidences. At the local scale, this would certainly attract the immediate attention of biologists, park managers and policy makers to invest more efforts, time and funds to safeguard the dwindling population of *hangul* in India which has international as well as regional value.

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Exploration of a Muntjac Working Group

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The muntjacs (Genus *Muntiacus*) are a diverse group of deer found throughout Asia—and one of the most overlooked large mammal taxa for both research and conservation efforts on the continent. Basic ecological and taxonomic information are lacking for several muntjacs. These include the dark muntjac species complexes found across the region (*Muntiacus rooseveltorum / trungsonensis, Muntiacus crinifrons / gongshonensis*) and little-known endemics such as the Sumatran muntjac (*Muntiacus montanus*). Furthermore, at least one species, the large-antlered muntjac *Muntiacus vuquangensis*, is now critically endangered, with little or no species-specific conservation measures devoted to its preservation. Given the gaps in both research and applied-conservation efforts, a group of biologists working in Asia seek to start a dialogue within the Deer Specialist Group focused on muntjacs. The goal of this discussion is to highlight needed avenues of research and conservation efforts for muntjac. Follow-up actions would include exploring the possibility of a Muntjac Working Group or one or more species-specific Action Groups. We would like to start this discussion with three general questions, directed specifically towards Deer Specialist Group members working in Asia, but also more generally to anyone with an interest in muntjacs or deer taxonomy.

Figure 1 Red muntjac *(Muntiacus vaginalis)* captured on camera trap in Hua Kha Khaeng, Thailand.

Questions:

(1) What are the most pressing research needs for muntjac (please list the species) in the area in which you work?

(2) What are the most pressing conservation needs for muntjac in the area in which you work?

(3) How can these basic research gaps be addressed in a way that informs effective on-the-ground conservation?

Please send replies and comments to Andrew Tilker at atilker@gmail.com. We look forward to hearing from you!

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