Muntiacus crinifrons, Black Muntjac

Assessment by: Harris, R.B.

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Taxonomy

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animalia</td>
<td>Chordata</td>
<td>Mammalia</td>
<td>Cetartiodactyla</td>
<td>Cervidae</td>
</tr>
</tbody>
</table>

**Taxon Name:** *Muntiacus crinifrons* (Sclater, 1885)

**Synonym(s):**
- *Cervulus crinifrons*

**Common Name(s):**
- English: Black Muntjac, Hairy-fronted Muntjac
- French: Muntjac Noir
- Spanish: Muntjac Negro

**Taxonomic Notes:**
Currently, the name *Muntiacus crinifrons* is only applicable to populations from eastern China (Groves and Grubb 1990).

Recent reports of *M. crinifrons* in northern Myanmar and adjacent parts of China, which lies far from its generally accepted range (see below), result from confusion with *M. gongshanensis* in Ma et al. 1990, described from the Gaoligongshan. They stem from a decision, based upon a similarity of analysed portions of mtDNA, to consider *M. gongshanensis* to be indistinguishable from, and therefore a junior synonym of, *M. crinifrons*, rather than any evidence that *M. crinifrons*, and specifically not *M. gongshanensis*, is in these areas. The first report was from northern Myanmar (Rabinowitz et al. 1998; Amato et al. 1999, 2000), which led to this claim that *M. gongshanensis* is indistinguishable from *M. crinifrons*. But to thereby consider the two as synonymous ignores the cautions and dangers of relying solely upon mtDNA to determine species phylogenies and identifications (Ballard and Whitlock 2004). Specifically, no consideration was given to possibilities that non-conspecific populations might possess very similar, perhaps identical, mtDNA, although there are several reasons why they sometimes do so (Ballard and Whitlock 2004). There are subsequent reports of muntjacs under the name 'M. crinifrons' from areas of China adjacent to northern Myanmar and some way to the west (Schaller and Rabinowitz 2004; Chen et al. 2007). The identification in Chen et al. (2007) was based explicitly solely on mtDNA and *M. gongshanensis* may not have been considered (the name *M. gongshanensis* was associated with the name ‘Roosevelt’s Muntjak’ [sic], for which the code ‘Mgon’ was used; yet no result was given anywhere for ‘Mgon’, nor is either species discussed); Schaller and Rabinowitz (2004) took *M. gongshanensis* as a synonym of *M. crinifrons*. Therefore, none of these identifications can be taken as indicative of *M. crinifrons*, if *M. gongshanensis* is considered a distinct species (as it is here).

*M. gongshanensis* and *M. crinifrons* were maintained as distinct by Grubb (2005): the two differ substantially in morphological characters (Ma et al. 1990, Groves and Grubb 1990, R.J. Timmins pers. comm. 2008), reportedly also in karyotype (Huang et al. 2006) and even in mtDNA (Lan et al. 1995, Wang and Lan 2000).

**Assessment Information**

http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T13924A4365261.en
Red List Category & Criteria: Vulnerable A2cd ver 3.1

Year Published: 2008

Date Assessed: June 30, 2008

Justification:
Listed as Vulnerable because of a probable serious population decline, estimated to be more than 30% over the last three generations (approximately 18 years), inferred from over-exploitation, shrinkage in distribution, and habitat destruction and degradation. Although there is no direct data available regarding recent declining population rates, the above-mentioned rate of decline seems reasonable based on the high levels of harvesting and habitat loss. It should also be noted that:
1) The last population assessment accounted for only 7,000 to 8,500 individuals living in the wild, in eastern China (Sheng 1998), though the basis for these numbers is not clear.
2) The distribution range of the species is rather limited, and the species appears to slow to colonize new areas (Ohtaishi and Gao 1990, Wu et al. 2007).
3) Threats, to the survival of the species, are in all likelihood still present (Ohtaishi and Gao 1990, Wu et al. 2007).

Previously Published Red List Assessments
1996 – Vulnerable (VU)
1994 – Vulnerable (V)
1990 – Vulnerable (V)
1988 – Indeterminate (I)
1986 – Indeterminate (I)
1965 – Status inadequately known-survey required or data sought

Geographic Range

Range Description:
This species is now restricted to eastern China (in southeastern Anhui, northern Fujian, northeastern Jiangxi, and western Zhejiang (Ohtaishi and Gao 1990, Wu et al. 2007), with a few outlying records from eastern Zhejiang. Its range formerly extended from the coastal region of Ningbo at the mouth of the Yangtze River, westward to Guangdong province (Ohtaishi and Gao 1990). Records from Yunnan and Myanmar refer to Muntiacus gongshanensis. Animals are restricted to altitudes of 200-1,000 m asl.

Country Occurrence:
Native: China
Muntiacus crinifrons

Range

- Extant (resident)

Compiled by:
IUCN (International Union for Conservation of Nature)
Population

This species is endemic to China. In 1989 the total Chinese population was estimated around 5,000-6,000 individuals by Ohtaishi and Gao (1990); Sheng (1998) estimated the population to number approximately 7,000 to 8,500. However, the basis for these population estimates is not known. Hunting and habitat destruction have negatively affected its geographic distribution and abundance (Sheng, 1998). A possible decrease in numbers during the late eighties was inferred by Ohtaishi and Gao (1990). Among the three main distribution centers of this species in eastern China there has developed a degree of genetic differentiation that Wu et al. (2006) attributed to the reduction of female-mediated gene flow stemming from habitat fragmentation. Although Wu et al. (2007) found a comfortingly large degree of nuclear genetic diversity; they nevertheless confirmed the earlier conclusions of Wu et al. (2005, 2006) based on mtDNA that the species had been fragmented into subpopulations. The species is believed to be in decline because of hunting and habitat loss.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

This species occurs mostly in heavily forested mountain areas, with abundant undergrowth (Ohtaishi and Gao 1990), as well as mixed forest and scrub (Sheng Helin and Zhang Endi, East China Normal University pers. comm.). The species appears to be a generalist browser/frugivore, its diet includes a wide variety of tree leaves and twigs, forbs, grasses, and fruits. Zheng et al. (2006) found that most sign of M. crinifrons in a study area in Suichang county, Zhejiang province was found in mixed forests, although conifer forests increased in importance during winter. M. crinifrons seemed to prefer relatively high tree canopy cover in relatively high elevation (> 800 m) zones with little human disturbance. They apparently display rather limited dispersal capability (Wu et al. 2005, 2006, 2007).

The reproductive cycle is aseasonal, and some females conceive new litters while still lactating. Young are born throughout the year. Gestation is 210 days, and mothers give birth to single fawns. Sexual maturity is reached at one year (Sheng and Ohtaishi 1993).

Systems: Terrestrial

Threats (see Appendix for additional information)

Numbers of this species continue to decline due to deforestation, expanding agriculture, hunting, and other human disturbances. The species is hunted for venison and skin. Ohtaishi and Gao (1990) reported that 500 animals were being killed annually for skins which were sold to local markets during the 1980s. Sheng (1998) reported that yearly harvest may have exceeded this figure. There are no current data available regarding human predation on the species, but considering the chronic nature of the poaching problem in China there is no reason to assume that the species is not affected by it.

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Conservation Actions (see Appendix for additional information)

*M. crinifrons* is listed on Appendix I of CITES. On the Chinese Red List this species is termed Endangered A2bcd (Smith and Xie 2008), and it protected by the 1988 Chinese National Wildlife Law under category I. It presumably exists in some protected areas, but no active conservation measures are currently in place for this species. Recommended conservation actions include initiation of research to determine status and threats throughout the species' range. Activities should include field reconnaissance, population censuses, demographic surveys, ecological studies and investigations into human use of the animals. The highest priority is to conserve the forest habitat of this species, and to bring poaching under strict control.

Credits

**Assessor(s):** Harris, R.B.

**Reviewer(s):** Black, P.A. & Gonzalez, S. (Deer Red List Authority)
Bibliography


**Citation**


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Appendix

Habitats
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Season</th>
<th>Suitability</th>
<th>Major Importance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Forest -&gt; 1.4. Forest - Temperate</td>
<td>-</td>
<td>Suitable</td>
<td>-</td>
</tr>
<tr>
<td>3. Shrubland -&gt; 3.4. Shrubland - Temperate</td>
<td>-</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Use and Trade
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>End Use</th>
<th>Local</th>
<th>National</th>
<th>International</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food - human</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wearing apparel, accessories</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Threats
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>Threat</th>
<th>Timing</th>
<th>Scope</th>
<th>Severity</th>
<th>Impact Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Residential &amp; commercial development -&gt; 1.1. Housing &amp; urban areas</td>
<td>Ongoing</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Stresses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.1. Ecosystem conversion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.2. Ecosystem degradation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Agriculture &amp; aquaculture -&gt; 2.1. Annual &amp; perennial non-timber crops -&gt; 2.1.2. Small-holder farming</td>
<td>Ongoing</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Stresses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.1. Ecosystem conversion</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.2. Ecosystem degradation</td>
<td></td>
<td></td>
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<tr>
<td>4. Transportation &amp; service corridors -&gt; 4.1. Roads &amp; railroads</td>
<td>Ongoing</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Stresses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.1. Ecosystem conversion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.2. Ecosystem degradation</td>
<td></td>
<td></td>
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<tr>
<td>5. Biological resource use -&gt; 5.1. Hunting &amp; trapping terrestrial animals -&gt; 5.1.1. Intentional use (species is the target)</td>
<td>Ongoing</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Stresses:</td>
<td></td>
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</tr>
<tr>
<td>2. Species Stresses -&gt; 2.1. Species mortality</td>
<td></td>
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<tr>
<td>5. Biological resource use -&gt; 5.3. Logging &amp; wood harvesting -&gt; 5.3.5. Motivation Unknown/Unrecorded</td>
<td>Ongoing</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Stresses:</td>
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<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.2. Ecosystem degradation</td>
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</tbody>
</table>
## Conservation Actions in Place

*In-Place Land/Water Protection and Management*

- Conservation sites identified: Yes, over entire range

*In-Place Education*

- Included in international legislation: Yes
- Subject to any international management/trade controls: Yes

## Conservation Actions Needed

*Conservation Actions Needed*

1. Land/water protection -> 1.1. Site/area protection
2. Land/water management -> 2.1. Site/area management
5. Law & policy -> 5.1. Legislation -> 5.1.4. Scale unspecified
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.3. Sub-national level

## Research Needed

*Research Needed*

1. Research -> 1.1. Taxonomy
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
1. Research -> 1.6. Actions

## Additional Data Fields

*Distribution*

- Lower elevation limit (m): 200
<table>
<thead>
<tr>
<th><strong>Distribution</strong></th>
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<tbody>
<tr>
<td>Upper elevation limit (m): 1000</td>
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<table>
<thead>
<tr>
<th><strong>Population</strong></th>
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</thead>
<tbody>
<tr>
<td>Population severely fragmented: No</td>
</tr>
</tbody>
</table>
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