

Inclusion of the Mangshan Pit Viper *Protobothrops mangshanensis* in Appendix II

Proponent: China

Summary: The Mangshan Pit Viper *Protobothrops mangshanensis* is a snake endemic to south China. It has a small area of distribution in moist subtropical forest around Mt. Mang in the Nanling Mountains (Hunan-Guangdong border). It is known to occur in two protected areas: Mangshan and Nanling National Nature Reserves, and in adjacent unprotected areas. It is thought to have a very small total population, of perhaps fewer than 500 individuals and likely to be decreasing. The species is a large, attractively patterned, and only recently described (1990) venomous snake, and as such is much in demand amongst specialist hobbyists. Collection for the live animal trade is considered a major threat to the population, which has also been affected by habitat changes and extreme weather events. Collection is prohibited within the two National Nature Reserves, but there are apparently no national level trade restrictions or national protection. Several zoos and private individuals outside China hold this species. In 2010 it was reported that around 100 had been raised in captivity to date. It was assessed by IUCN in 2012 as Endangered and is listed as critically endangered in the Chinese national red data book.

Analysis: The endemic Mangshan Pit Viper has a restricted range in southern China and is believed to have a very small (estimated at fewer than 500 individuals) and probably decreasing global population. It is known to be in international demand for the hobbyist trade. A proportion of the population occurs in protected areas, but there are no national level trade restrictions or national protection. The species may already meet the biological criteria for inclusion in Appendix I and therefore would appear likely to meet the criteria for inclusion in Appendix II in paragraph A of Annex 2 a *Resolution Conf. 9.24 (Rev. CoP15)*.

Supporting Statement (SS)	Additional information
<u>Taxonomy</u>	
<i>Protobothrops mangshanensis</i> (formerly assigned to genera <i>Trimeresurus</i> , and <i>Zhaoermia</i>).	
<u>Range</u>	
China.	
<u>IUCN Global Category</u>	
Endangered.	<i>B1ab (v)+2ab(v) (Assessed 2012, criteria ver 3.1).</i>
Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
<u>A) Trade regulation needed to prevent future inclusion in Appendix I</u>	
Restricted to 105 km ² of moist subtropical forests around Mt. Mang, Nanling Mountains, southern China.	<i>The stated area of 105 km² apparently refers to the area within the two protected areas (see below) but the species also occurs in an area of unknown size outside the reserves. The current IUCN Red List account gives an estimated total range of 300 km² (Zhou, 2012).</i>
Several population surveys were conducted and the population was estimated at 300-500 individuals in 2000. In 2010, it is estimated that the species in the wild has a	

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<p>population size of no more than 500 individuals.</p> <p>Surveys have been conducted in the Mangshan National Nature Reserve from 1990 to 1997, and in 2007-2010. More recent field study has recorded several specimens in the wild, as well as in villages, a restaurant and in markets.</p> <p>Based on field surveys and community interviews from 1990 to 2010, the density of the Mangshan Pit Viper is estimated at about 3-5 individuals per km².</p> <p>The population trend of the pit viper is unclear due to a short observing period. A decline in the population size inferred from high levels of harvesting for terrarium keeping and pet trade and extreme cold spells in 2008.</p> <p>Quantitative data on biological characteristics and population status of Mangshan Pit Viper are vague. Based on the records from captive breeding in southern China, the pit viper produces clutches of 20-31 eggs. There are no data on age at maturity or life expectancy of the species.</p>	<p><i>The Nanling mountains run along the border between Hunan and Guangdong Provinces. It is not clear if the species occurs in two separate small areas or if there is a single distribution that straddles the provincial boundary.</i></p> <p><i>Between the 1950s and the 1980s, deforestation within the species's range significantly reduced its distribution (Zhou, 2012).</i></p> <p><i>Has been (1998, 2009) categorised as critically endangered in the Chinese Red Data Book.</i></p>
<p><u>B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences</u></p>	
<p>The wild population is reportedly decreasing because of over-collection (and is at risk from extreme weather events and habitat modification).</p> <p>The Mangshan Pit Viper is desired for rare zoological collections or for pets.</p> <p>Much in demand by terrarium-keepers because of its rarity, large size and attractive appearance. Sometimes used locally for food or medicinal purposes, More than 30 Mangshan Pit Vipers were illegally harvested and sold in 2007-2012 and prices have reached USD1000 per kilogram. Live individuals have been traded internationally for some time but the scale is hard to estimate. It has been made available through online forums by terrarium keepers in Hong Kong and Germany. One trader reported that 30 to 40 Mangshan Pit Vipers had been traded.</p> <p>So far, no legal trade of wild caught <i>Protobothrops mangshanensis</i> authorised by national or local forest administrative agencies has been recorded, and snakes traded to Hong Kong and overseas are believed to have been collected outside Hunan National Nature Reserve and outside Nanling National Nature Reserve.</p>	<p><i>At one time said to be regularly encountered by local villagers, although in low numbers; altitudinal range 700-1300 m (Chen in litt., cited in David and Tong, 1997).</i></p> <p><i>A local researcher (Chen Yuanhui) reportedly noted that smugglers offer 6000 yuan (USD910) to 7600 yuan per kilogramme for Mangshan Pit Vipers, and many local villagers keep traders' contact numbers because the price is greater than could be earned from a year's crops. Forest rangers deter poachers from entering Mangshan National Nature Reserve but other areas can be accessed. Smuggling of snakes to destinations including the USA and Germany is reportedly flourishing. A Mangshan Pit Viper was stolen from the museum of the Mangshan Forestry Administrative Bureau in 2005 (Chen, cited in Yan, 2011).</i></p> <p><i>Online forums (e.g. www.venomland.net and www.venomousreptiles.org) confirm very high interest in this species among terrarium keepers in North America, Europe, and South Africa; this is supported by the high prices (USD1800 to 3250 in recent years) asked by dealers. Animals offered for sale are frequently advertised as captive-bred. The extent of second generation captive-breeding is not clear from readily available information but appears to be minimal at best.</i></p> <p><i>The species is held in private collections in Scandinavia and other parts of Europe, and</i></p>

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	<i>in institutions in Russia; breeding is very difficult and typically is not sustained; the species is much in demand and at risk of over-collection (Paasikunnas, T. in litt., 2012).</i>
Other information	
<p style="text-align: center;"><u>Threats</u></p> <p>Occasionally killed because it is venomous. Also affected by habitat modification and at risk from extreme weather events (such as the exceptional cold wave that reportedly led to mortality in 2008). Parts of the range have been logged prior to 1999, and hydroelectric plants installed.</p>	
<p style="text-align: center;"><u>Conservation, management and legislation</u></p> <p>Most of the known range is within two protected areas: Mangshan National Nature Reserve and Nanling National Nature Reserve, within some 70 and 35 km² respectively.</p> <p>The species is not included in the list of Wildlife under Special State Protection of China but is given lower priority protection by listing among species that are Beneficial or of Important Economic or Scientific Value. In 2002, the species was put on the revised List of Wild Animals under Special Local Protection in Hunan Province; not similarly listed in Guangdong. Subject to the 1994 Regulations of the People's Republic of China on Nature Reserves, under which hunting without a permit is banned.</p>	
<p style="text-align: center;"><u>Captive Breeding/Artificial Propagation</u></p> <p>Zoos and terrarium keepers have had some success in captive breeding, but it is feared that sale of captive-bred snakes would increase interest among pet keepers and stimulate further collection of snakes from the wild.</p> <p>The Mangshan Forest Administrative Agency began work on captive breeding of the Mangshan Pit Viper in 1994 and has produced more than 100 young, most of which were released to the wild. To date no second generation (F2) stock has been generated. Around 60 individuals are in zoos in China, Europe and USA, some breeding has occurred. A significant number are held in private collections, with some successful hatching of eggs, but it is not clear if any second generation snakes have been raised.</p>	
	<p><i>It seems there is no legal impediment to collection of snakes outside the two relevant National Nature Reserves, nor to trade and international export of snakes reported to have been collected outside the Reserves.</i></p> <p><i>About 80 forest rangers keep poachers away from the Mangshan National Nature Reserve, but smugglers still enter the snake's habitat through the other side of Hunan's border with northern Guangdong province (Yan, 2011).</i></p>
	<p><i>Captive breeding has been successful in Germany, China and the USA. Captive breeding started in 1994; by 2010, about 100 individuals had been born in captivity (Zhou, 2012).</i></p> <p><i>San Diego Zoo reported the successful hatching of a clutch of eight eggs laid by a wild-caught pregnant female in 2002 (San Diego Zoo Global, 2011).</i></p> <p><i>A specimen was recently offered for sale through a site based in Sweden, at 20 000 Kr (c. USD3500)</i> http://www.repti.net/modules/5/Item.aspx?portal=reptinet&PortalsModulerID=125736&CatID=5&PostID=4202 <i>and the same source advertised a number of specimens claimed to be captive-bred at</i> http://www.venomland.net/t3029-zhaoermia-mangshanensis-cb-2010</p>

Supporting Statement (SS)	Additional information
<u>Other comments</u>	
	A popular account of the species from China Central Television is available in video: http://english.cntv.cn/program/natureandscience/20101105/104838.shtml

Reviewers: C. Jenkins, C. Shepherd.

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