



**The Endangered Species Import and Export  
Management Office of the People's Republic of China**

Ref: 2011-AL-009

November 1, 2011

To:

Mr. David H.W. Morgan  
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Dear Mr. Morgan,

Chinese Giant Salamander (*Andrias davidianus*) was selected for periodic review at the 22<sup>nd</sup> Meeting of the Animal Committee, According to the paragraph e) of Conf. 14.8, and China volunteered to undertake the review.

In response to the Notification to the Parties No. 2011/038 of CITES, we would like to provide the outputs of our studies for the species. Please find Annex I, 'Periodic Review of *Andrias davidianus*', prepared by our fishery authority.

Please feel free to contact us if you need any additional information

Yours sincerely,

Dr. Meng Xianlin

Director General

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### APPENDIX I

#### Periodic Review of *Andrias davidianus*

##### I. Biological Briefing

*Andrias davidianus*, also known as Chinese giant salamander, is of the *Andrias* genus within Cryptobranchidae family among Caudata order under class Amphibia, and unique to China. As the largest living amphibian, the Chinese giant salamander is more than 0.5 meter's long in general and can grow to 2 meters and more in length. Without covers on the body surface and with soft skin, the Chinese giant salamander can be of many colors – mostly chocolate brown, sometimes dark black, maple red, stone yellow, light brown and golden yellow. Dorsal and ventral surfaces are full of irregular spots of brown or dark brown color. The Chinese giant salamander is distinctive with its flat body, rectangular head, thick trunk, and short limbs. The species has highly advanced vomerine teeth, as the major predation tool. It breathes through lung, with no gills.

The Chinese giant salamander favors shady environment, and often hides in mountain streams, grottos, spring holes and canals with abundant limestone, clear and ample water, plentiful gravels and deep pools. Grown-up giant salamander lives in caves, mostly in clear brooks with rapid torrent at an elevation of 100-1200m. The species only comes out at night, predates from April to October, and keeps dormant in winter. Baby giant salamanders are social species, with external gill, and prefer to perch in small ponds created by brook branches. The most favorable water temperature for their growth is 16~23°C. When the temperature goes below 14°C or above 33°C, the giant salamander predates less, acts slow, and retards growth. The animal begins dormancy when temperature drops below 10°C. DO concentration in the water shall be no less than 5mg/L. Individuals of big size live in deep water, while medium-sized or small ones live in shallow waters. They breathe through skin in the water, and often hold the head out of water for breathing. The Chinese giant salamander has a wide spectrum of food. They are carnivorous, mostly fed with fish, shrimps, crabs and frogs in the brooks, and sometimes with clams, water snakes, rats and aquatic insects. With slow metabolism process, the Chinese giant salamander is highly tolerant of hunger. They can survive for months without food, if they stay in clear and cool water.

The Chinese giant salamander is oviparous, reaching sexual maturity at 4 to 5-year-old, and breeding from May to October. Before laying eggs, male giant salamander chooses venues for oviposition – normally in river caves at sludge or sand bottom around 1 meter below the water surface. Female giant salamander moves in after male giant salamander

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cleans the "delivery room" with its feet, tail and head. Female giant salamander mostly lay eggs at night, with 400 to 1500 eggs each labor. The egg is of creamy color with a diameter of 5 to 8 mm, forming a meters-long egg belt and floating on the water. Male giant salamander then sheds sperm to enable fertilization in the water. Female giant salamander leaves the cave, leaving the male on guard. During incubation, male giant salamander swims back and forth around the eggs, and often curls its body to protect the eggs from being attacked or washed away. Incubation normally lasts 30 to 40 days.

In history, the Chinese giant salamander was widely distributed in China, mainly in the Yangtze River valley and the tributaries at the middle and upper reaches of the Yellow River and the Pearl River in Guizhou, Hunan, Hubei, Sichuan, Shaanxi, Shanxi, He'nan and all together 17 provinces and regions. You could find Chinese giant salamanders in mountains ranging from several hundreds to 4200 meters high, the largest range of altitude for all Urodela. Distribution of natural giant salamanders is highly fragmented, mainly with 12 habitats in a series of mountains. Regions from Qinling Mountain in the north, to Min Mountain, Daba Mountain, Dalou Mountain, and Wuling Mountain, provide a concentrated habitat of giant salamander, while remaining giant salamander is distributed in mountainous regions in central south (see Figure 1).

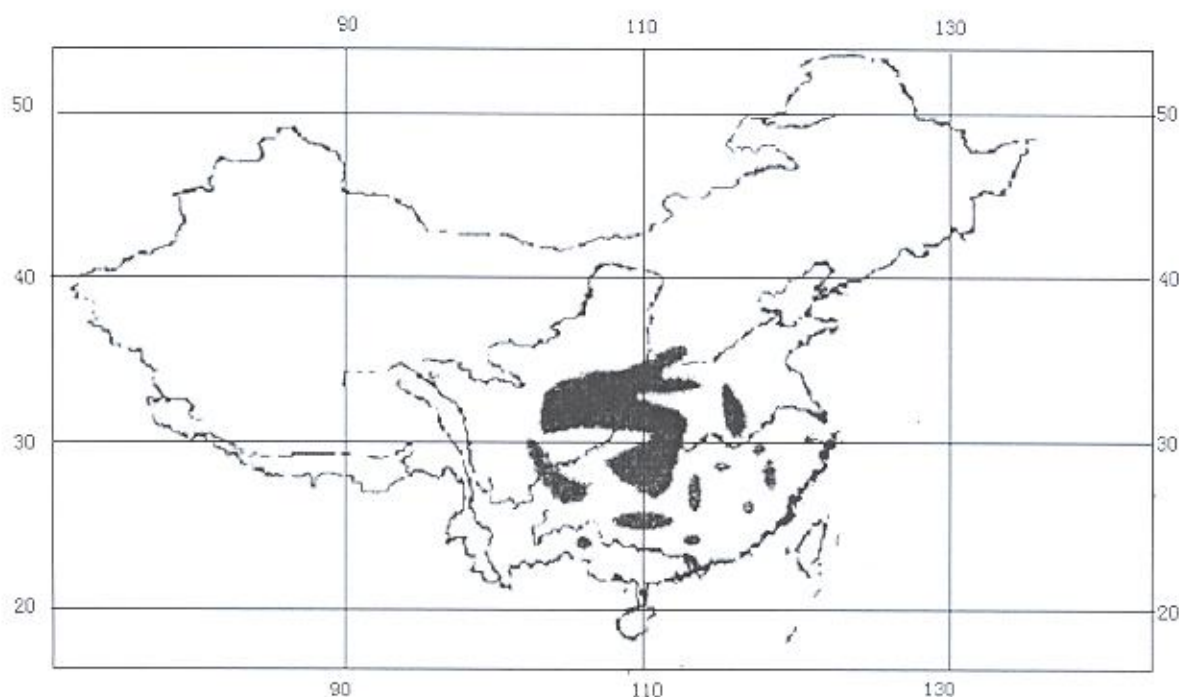


Fig. 1 The current distribution of Chinese giant salamander in China

## II. Reasons to list in Annex of CITES and international trade development

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Economic development and increasing human activities, such as mining, deforestation, reservoir construction and use of chemicals and pesticides had seriously damaged habitat of andrias. Catching activities also contribute to dwindling population of natural andrias. Andrias (including two species of the Chinese giant salamander and *Andrias japonicus*) was included on July 1<sup>st</sup> 1975 in the Appendix I of the *Convention on International Trade in Endangered Species of Wild Fauna and Flora*, and the international trade of it is banned. There was no commercial international trade of andrias in recent 10 years. In addition, andrias was listed as critically endangered (CR) species by IUCN red list (Ver 3.1, 2004).

### III. Management Status

In 1988, the Chinese giant salamander was listed as second class animal included in the *National Conservation List of Key Wildlife*. According to relevant provisions of the *Law of the People's Republic of China on the Protection of Wildlife*, *Regulations on the Implementation of the Protection of Aquatic Wildlife* and *Measures on the Licensed Use of Aquatic Wildlife*, the hunting, catching, sales, purchase, transportation and carrying of wildlife under national protection or the products shall be prohibited; where the hunting, catching, sale, purchase, utilization, transportation and carrying of wildlife under the second class national protection or its products thereof is necessary for scientific research, domestication and breeding, exhibition or other special purposes, the unit concerned must seek approval from the wildlife authority under the government of the relevant province, autonomous region or municipality directly under the Central Government and obtain the Hunting and Catching License, Operating and Utilization License or the Transportation License in advance; Units and individuals that domesticate and breed animals under the second class state protection shall win the prior approval from the provincial fishery administration in the form of granting Domestication and Breeding License.

In recent years, the Chinese government has made great efforts to protect Chinese giant salamander and check the trend of resource depletion:

**First, establish natural reserves and strengthen habitat protection.** To establish natural reserves is a very effective measure to protect wild aquatic animals and plants. Up to now, 25 Chinese giant salamander natural reserves were established across China. (See table 1). As government at all levels have attached importance to the establishment of natural reserves, boundary signs were planted and resource survey was conducted in all of these natural reserves and function setting, staffing and infrastructure construction were finished in some of them. The establishment of natural reserves has promoted the protection of natural reserves, education of the public about the protection of wild aquatic animals, and relevant teaching activities and scientific research.

**Table 1 Giant salamander nature reserves in China**

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1	Hunan Zhangjiajie National Giant Salamander Natural Reserve
2	Henan Lushi County Giant Salamander Natural Reserve
3	Henan Xiia County Provincial Giant Salamander Natural Reserve
4	Henan Xin'an County Qingyao Mountain Giant Salamander Natural Reserve
5	Hubei Xianfeng Zhongjian River Provincial Giant Salamander Natural Reserve
6	Hubei Zhuxi Wanjiang River Provincial Giant Salamander Natural Reserve
7	Gudong Liannan Provincial Giant Salamander Natural Reserve
8	Guangxi Sijian Mountain Provincial Giant Salamander Natural Reserve
9	Chongqing Youyang Giant Salamander Natural Reserve
10	Sichuan Tongjiang County Nuoshui River Provincial Giant Salamander Natural Reserve
11	Shaanxi Taibai County Xushui River Giant Salamander Natural Reserve
12	Shaanxi Lueyang County Giant Salamander Natural Reserve
13	Shaanxi Luonan County Lingkou Giant Salamander Natural Reserve
14	Gansu Wenxian County Bailong River Provincial Giant Salamander Natural Reserve
15	Jiangxi Jing'an County Liao River Giant Salamander Natural Reserve
16	Hunan Yongshun County Liangcha Giant Salamander Natural Reserve
17	Guangdong Heyuan City Guishan Mountain Municipal Giant Salamander Natural Reserve
18	Guangdong Shanwei City Luhe Municipal Giant Salamander Natural Reserve
19	Guizhou Guiding County Municipal Giant Salamander Natural Reserve
20	Guizhou Tongren City Songtao County Municipal Giant Salamander Natural Reserve
21	Guizhou Tongren City Jiangkou County Municipal Giant Salamander Natural Reserve
22	Hunan Loudi City Dacheng Mountain Giant Salamander Natural Reserve
23	Hunan Sangzhi County Giant Salamander Natural Reserve
24	Hunan Yongshun Liangcha Giant Salamander Natural Reserve
25	Hunan Chenxi County Longmen Giant Salamander Natural Reserve

Second, encourage domestication and breeding, develop and utilize rationally. As early as 1970s, China began the research on Chinese giant salamander farming. As the farming technology was immature then, the farming of Chinese giant salamander was of small scale and not very successful. In 1987, the Yangtze River Fishery Research Institute of the Chinese Academy of Fishery Sciences led the intensive farming research in China

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and successfully bred second-generation Chinese giant salamander with artificial propagation technology in 1997, which opened a new page for the farming of Chinese giant salamander. Adopting the guidelines of "Strengthen resource protection, conduct active domestication and propagation, develop and utilize rationally" written in the *Law on Wild Animal Protection*, regions across China made intensive efforts in domestication, breeding and propagation of Chinese giant salamander. Breakthroughs were made in artificial propagation technology and fish farms were scaled up. The all-natural, semi-natural and artificial patterns of propagation proved a sure formula for success.

### **Third, conduct artificial propagation and release to restore wildlife resources.**

Artificial propagation and release is an effective way to restore wildlife resources. Since 2002, with the support of enterprises engaged in Chinese giant salamander domestication, breeding and propagation, local fishery law enforcement authorities of Hunan, Jiangxi, Guangdong, Shaanxi and other provinces and cities organized the release of more than 10,000 Chinese giant salamander. In 2008 alone, fishery law enforcement organized the release of nearly 7000 Chinese giant salamanders. A number of education activities have been carried out along with the release, which helped to restore Chinese giant salamander resources living in the wild and enhance people's awareness of ecological protection.

**Fourth, strengthen law enforcement and punish illegal activities.** To crack down on profiteering, illegal smuggling and trafficking of Chinese giant salamander, fisheries administrations strengthened cross-sectoral coordination with departments of public security, industry and commerce, forestry, transportation, railway and civil aviation to intensify supervision and checking at the places of production, open markets, restaurants, hotels and transportation hubs to investigate and punish illegal hunting, killing, trafficking, transporting and smuggling or activities to destroy the habitat of Chinese giant salamanders. Cases of gross violations will be referred to the judicial organ.

Through all these efforts, the habitats and wild population of Chinese giant salamander in some regions are now under protection, wild resources are improving and the population has gone up. With the support of relevant national policies, domestication and artificial propagation activities grew quickly. According to incomplete statistics, up to now, more than 100 Chinese giant salamander domestication and artificial propagation farms have been approved, of which 17 are of relatively large scale. 1.4 million baby Chinese giant salamanders were produced in the last 6 years of which 750,000 were produced in 2008 alone. At present, there are approximately 1.5 million Chinese giant salamanders across the whole nation.

## **IV. Trends of wild Chinese giant salamanders**

According to estimation, due to over exploitation and the damage to the habitats, the wild population of Chinese giant salamander has decreased by 80% in 3 generations (about 45 years). Currently, the number of wild Chinese giant salamander across China is

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quite limited. Meanwhile, the wild Chinese giant salamanders are showing the trend of smaller body size, smaller number of reproductive ones and younger average age. At present, most of the wild population is located in Zhangjiajie Natural Reserve and Xiangxi Autonomous Prefecture of Hunan Province, Fangxian County and Shennongjia Natural Reserve of Hubei Province, Hanzhong City of Shaanxi Province, Tongren City of Guizhou Province and Yibin and Wenxing of Sichuan Province. The rest are scattered in Hefeng County Enshi City of Hubei Province, Jing'an County of Jiangxi Province, Liuzhou and Yulin City of Guangxi Province, Wenxian County of Gansu Province, Lushi and Songxian County of Henan Province.

It is estimated that the present population of wild Chinese giant salamander in China is about 90,000. Population of the farmed ones has far exceeded that of wild ones. The Chinese government will continue to encourage the domestication and artificial propagation of Chinese giant salamander. On the one hand, the government will regulate the artificial breeding and release activities and intensify efforts in protection of habitats and evaluation of release activities, trying to restore and rebuild the wild population. On the other hand, the government shall actively promote the tagging system for Chinese Giant Salamander as well as research on operation and management of Chinese giant salamander farming, and make preparation for registration of Chinese giant salamander as breed Appendix-I animal species for commerce.

Considering that the wild population is still vulnerable, we suggest that Chinese giant salamander being kept in CITES Appendix-I.