
WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

SICHUAN GIANT PANDA SANCTUARY – WOLONG, MT. SIGUNIANG AND JIAJIN MOUNTAINS (CHINA) - ID N° 1213

INTRODUCTORY NOTE: This is the third time the State Party (China) has nominated a natural World Heritage property for the protection of Giant Pandas. Parts of the currently nominated property have been included within the two previous nominations, specifically the Wolong National Nature Reserve (nominated in 1986 as the Wolong Giant Panda Reserve) and the Mt Qingcheng and Dujiangyan National Park (nominated in 2000 as part of the Mt Qingcheng and Dujiangyan Irrigation System). In both cases the World Heritage Committee noted the potential of the property to meet natural criteria but deferred the proposal to enable the State Party to bring forward a larger nomination and to address management issues.

1. DOCUMENTATION

- i) **Date nomination received by IUCN:** April, 2005
- ii) **Additional information requested from and provided by the State Party:** IUCN requested supplementary information on the 28 October, 2005 following the IUCN Evaluation Mission. The State Party response was received on 5 December, 2005, including revised boundaries and responses to all the issues raised by the IUCN mission. Additional information was requested from the State Party on 31 January, 2006 following the IUCN World Heritage Panel meeting in January 2006. A response to this request was received from the State Party on 23 March, 2006.
- iii) **IUCN / WCMC Data Sheet:** five references
- iv) **Additional Literature Consulted :** IUCN/WWF. 1995 **Centres of Plant Diversity**. Vol. 2; MacKinnon, J., Xie Y., Lysenko s., Chape S., May I., and Brown C. **GIS Assessment of the Status of Protected Areas in East Asia**. IUCN/UNEP-WCMC; Myers, N., Mittermeier, R.A., Mittermeier, C.G., Gustavo, A.B., Kent, J., 2000. Biodiversity hotspots for conservation priorities. **Nature**, 403, 853-8; Thorsell, J., and Hamilton, L., 2002. **A Global Overview of Mountain Protected Areas on the World Heritage List**. Working Paper 6. IUCN; Xie, Y., Wang S., and Schei, P. (Eds), (2004) **China's Protected Areas**. China Council for International Cooperation on Environment and Development; Mackinnon, J. et al 1996. **A Biodiversity Review of China**. WWF; Ministry of Construction (2002); China State Environmental Protection Administration (1998). **China's Biodiversity: A Country Study**, China Environmental Science Press, Beijing
- v) **Consultations :** 15 external reviewers. Extensive consultations were undertaken in China during the field visit, including with representatives of relevant government agencies, local communities, researchers and other stakeholders.
- vi) **Field visit :** David Sheppard and Bill Bleisch, September/October 2005.
- vii) **Date of IUCN approval of this report:** 11 April, 2006

2. SUMMARY OF NATURAL VALUES

The nominated property, the Sichuan Giant Panda Sanctuary (SGPS), is located in the Qionglai and Jiajin Mountains between the Chengdu Plateau and the Qinghai-Tibetan Plateau. It fringes the Sichuan basin on the west and is located approximately 100 km from Chengdu City. SGPS includes seven nature reserves and nine scenic parks in four prefectures and covers an area of 924,500 ha, surrounded by a buffer zone of 527,100 ha. The high ranges of the Qionglai Mountains are predominantly Triassic siltstone, limestone and slate, while the western half of the Jiajin Mountains, their continuation to the south, are mainly Permo-carboniferous rock. On the east side of the mountains

the land is heavily ridged, forested and deeply dissected by the valleys and gorges of perennial rivers falling from the glaciated snow-covered peaks and alpine meadows. The range of landforms within the nominated property contributes to its high scenic value. More than 20 special scenic areas have been identified within the property, each possessing its own unique features. These include steep forested valleys, scenic rivers, rocky crags, wide alpine meadows and the mountain peaks of Mt Siguniang.

Fauna: The nominated property protects the main habitat of the giant panda, which is recognized as a "National Treasure" of China and is a flagship for global

conservation efforts. The giant panda is listed as an endangered species under the IUCN Red List of Threatened Species and is inscribed as a Class 1 Protected Animal by the Chinese Government. This species is a relict species from the paleo-tropic forests of the Tertiary Era and has evolved into a unique specialized herbivore of the Order Carnivora. The giant panda feeds almost exclusively on bamboo in the wild and its preferred habitat is between 2,200m to 3,200m. As a unique single species and family the giant panda is highly significant in taxonomy and is very important for studying mammal classification and evolution. Within the nominated property the main centres of giant panda population are in the Wolong Reserve in Wenchuan county in the northeast; Fengtongzhai Reserve in Baoxing county in the southeast; and in Mt. Jiajin Provincial Park in the Jiajin Mountains to the southwest. The nominated property features a number of other endemic and threatened animal species. There are 542 species of vertebrates, including 109 species of mammals in 25 families (more than 20 % of all Chinese mammals). Globally endangered mammals, apart from the giant panda, are the red panda, the snow leopard and clouded leopard. The nominated property is an important centre of endemism for some bird taxa and features 365 birds in 45 families, 300 of which breed locally.

Flora: The total flora of the nominated property is between 5,000 and 6,000 species in over 1,000 genera. 50 genera are endemic to China (20% of its total) and 67 plant species are nationally protected. The reasons for this diversity include the wide range of different habitat types afforded by the large altitudinal range, sharp climatic gradation, the variety of rock and soil types and the wide and complex connections with other major floristic regions. Within the nominated property there are 794 angiosperm genera, (77% of China's total), 24 gymnosperm, 70 pteridophyte and 102 bryophyte genera. Many species are relicts, isolated during the extreme climatic fluctuations of the Pleistocene in the moisture trap created by the high plateau to the west. The nominated property has many representatives of plants with long evolutionary histories; species such as the dove tree are often referred to as living fossils. It is probable that there are many species yet to be discovered. The nominated property is a significant global diversity centre for many plant groups such as roses, peonies, magnolias, maples, primroses, bamboos and rhododendrons. More than 100 species of rhododendron are listed for the area. Of the property's 22 orchid species, nearly 40% are endemic. Many western ornamental garden plants were discovered in these mountains. The property is a major source and gene pool for hundreds of traditional medicinal plants, many now rare and endangered.

3. COMPARISON WITH OTHER AREAS

Comparison for giant panda conservation: There is particular emphasis on the importance of the property as habitat for the giant panda. The giant panda occurs only in China in a very narrow belt within Western Sichuan, south western Gansu and southern Shaanxi. It is estimated that the nominated property includes approximately 500 giant pandas representing more than 30% of the global population (1,600 Pandas). Giant

pandas are conserved in nearly 40 other nature reserves in China, including the nature reserves in Minshan Mountains, Qinling Mountains, Liangshan Mountains and Xiangling Mountains. However, the nominated property constitutes the largest and most significant remaining contiguous area of panda habitat in China and thus the world. It is also the most important source of giant panda for establishing the captive breeding population of the species. The presence of giant pandas within the nominated property and in other nature reserves in China underlines the importance of effective landscape level planning which protects the habitat within these reserves, and the areas between them, to ensure the long term survival of the giant panda.

Worldwide comparison with similar World Heritage properties: The nominated property features significant altitudinal zonation, with an altitudinal range of 5,670m, from the subtropical, through temperate to alpine zones. A comparable altitudinal zonation exists in the Three Parallel Rivers World Heritage property in Yunnan, China (5,980m), which also rises from the subtropical to the alpine, and in Kinabalu Park in Malaysia (3,943m). Figure 1 compares flora, bird and mammal species of the nominated property with other comparable World Heritage properties worldwide, (including Kilimanjaro with a range of 4,065m and the temperate site of Yosemite).

The nominated property compares favourably with other comparable World Heritage property. The concentration of diversity on Kinabalu, a property of three-quarters the area, is similar, but its iconic mammal, the orang-utan, is more widely dispersed in Malaysia and Indonesia than the panda is in central China. The nominated property is one of the botanically richest sites of any temperate region in the world or indeed anywhere outside of the tropical rain forests. It is important for bird conservation and two Endemic Bird Areas (as defined by Birdlife International) occur within the nominated property. This significance is reinforced by its classification as one of the world's top 25 Biodiversity Hotspots selected by Conservation International (CI) (Myers et al, 2000) and as one of the Global 200 Ecoregions defined by WWF. Underlining the comparative importance is the large size of the nominated property and the fact that it protects a wide variety of topography, geology, and plant and animal species.

Comparison with other World Heritage properties in China: Four other Chinese World Heritage properties have been inscribed under natural criterion (iv): Mount Emei Scenic Area, Mount Huangshan, Mount Wuyi and the Three Parallel Rivers of Yunnan. Comparative biodiversity data are summarized in the Figure 2 below.

The nominated property has significantly higher biodiversity values and global significance than all other Chinese World Heritage properties except the Three Parallel Rivers of Yunnan property, which is much larger. In addition, the nominated property has some features in common with Jiuzhaigou (72,000 ha) and Huanglong (70,000 ha), both within the Minshan in northern Sichuan. These properties are primarily listed for their scenic beauty and geochemical phenomenon, especially their travertine terraces and pools. They are high altitude

Figure 1. Comparison of nominated property to other comparable World Heritage properties worldwide

World Heritage property	Size (ha)	Plant species	Mammal species	Bird species
Yellowstone (USA)	899,200	1,050	58	290
Yosemite N.P. (USA)	308,200	> 1,400	74	230
Olympic N.P. (USA)	369,600	500	50	180
Great Smoky Mountains N.P. (USA)	209,000	1,500	> 50	> 200
Sagarmatha N.P. (Nepal)	233,000	c. 2000	28	152
Kinabalu Park (Malaysia)	75,300	5,000-6,000	112	326
Kilimanjaro N.P (Tanzania)	18,300	2,500	140	179
Nominated Property	924,500	> 4,000	132	> 365

Figure 2. Comparison of nominated property to other comparable World Heritage properties in China

World Heritage property	Size (ha)	Plant species	Mammal species	Bird species
Mount Emei Scenic Area	15,400	3,200	51	256
Mount Huangshan	15,400	c.800	48	170
Mount Wuyi	99,975	2,888	71	256
Three Parallel Rivers	1,680,000	6,000	173	417
Nominated Property	924,500	> 4,000	132	> 365

properties and do not have the altitudinal range, topographical complexity and biodiversity of the nominated property.

4. INTEGRITY

4.1 Legal Status

The nominated property is covered by a range of laws and regulations at national and provincial levels. These include the “Regulations of the People’s Republic of China on Nature Reserves” and “Regulations on the Management of Nature Reserves of Sichuan Province”. A specific regulation relating to protection of World Heritage in Sichuan Province has been developed, to apply to the nominated property, and this represents the first of its kind in China. These regulations provide an adequate legal framework for protection of the nominated property. The challenge is to ensure their effective implementation and to ensure there is effective coordination between all relevant agencies and stakeholders.

4.2 Boundaries

The boundaries of the nominated property have been designed to maximise the protection of panda habitat based on the latest panda survey data, carried out in 2003-2004, as well as the distribution of existing natural

habitat. The original boundary of the nominated property included towns, agricultural development and a number of infrastructure developments. The issue of boundaries was discussed in detail by the IUCN evaluation mission in October 2005, and IUCN requested the boundaries of the nominated property be revised to address a number of key issues. An amended boundary was submitted by the State Party in December 2005 to respond to these points. The key features of the new boundary are that it has been revised to:

(a) Allow a clearer and simpler zonation: The boundary of the nomination has been revised to delineate the strictly protected core zone and a surrounding buffer zone in which agriculture and some other human activities are allowed. Only the core area constitutes the nominated property.

(b) Exclude towns, villages, agriculture land, major infrastructures and sites of high impact tourism: The townships of Wolong (Shawan) and Gengde within the Wolong Nature Reserve are now excluded from the nominated property. All other townships are located outside the boundary of the nominated property. The old Tibetan town of Yaoji lies in the centre of the nominated area. The town has extensive agricultural farmland and it is proposed to build a dam and establish a 400 ha reservoir at this site. This site is therefore not suitable for inclusion within the World Heritage property and is excluded as an enclave. This is discussed further under point 4.4 below. The earlier proposed boundary has been

adjusted at several other peripheral valleys where agricultural lands need to be excluded from the World Heritage property. An exception is made for the valley of Dengchigou. Although this valley is largely agricultural and houses a number of farmers, it constitutes a very important scientific type locality collecting site. The marble mines of Guobaiyan (Baiyunshan and Hongjunzhandao) are excluded as enclaves from the nominated property. Other small scattered mines and factories within the nominated property will be closed, infrastructure removed and the areas rehabilitated. Other minor infrastructure exists within the nominated property, including roads, bridges, trails, scattered farms and water pipes and electricity pylons. Approval of this nomination would give the management agencies greater authority to control and, where necessary, eliminate their impacts and allow habitat restoration. The total of such partially disturbed areas remains less than 5% of the area of the nominated property. The long term objective should be to relocate or remove infrastructure which is not essential for on going management of the property.

(c) Coincide with existing reserve boundaries, particularly core zones: The nominated property corresponds with the boundaries of a number of existing protected areas, apart from a few areas of state forest lands that will be added for reasons of size and completeness. A process should be initiated to complete the boundary rationalization, including the addition of areas of state forest and other areas, to ensure that all areas within the nominated property have the highest level of protective status. This should be completed within a period of two years.

(d) Include the most important habitats for conservation, particularly for panda conservation: The boundaries of the nominated property have been designed to maximise the protection of giant panda habitat based on the latest panda survey data, carried out in 2003-4, as well as the distribution of existing natural habitat. Conservation International (CI) has undertaken a GIS overlay exercise to identify areas of high biodiversity priority and two very detailed surveys of giant pandas (survey 2: 1986-8 and survey 3: 1998-2002) give precise locations of the extent of giant panda occupation. The data points from both these surveys have been overlaid over the boundary maps and satellite background to show the contiguity and degree of inclusion achieved. Minor boundary revisions have marginally improved this cover and opened up future potential for eventually relinking the Qionglai panda populations with other populations in Minshan (across the Min River in Dujiangyan sector) and with populations in south east Tianquan; as well as to narrow the gap at Baoxing township where occasionally pandas may cross the Baoxing river. Accordingly, the revised boundary now constitutes the most important portion of remaining giant panda habitats out of the mountain systems still containing wild pandas. It has the largest connected area of occupied giant panda habitat in Sichuan, the largest area of suitable "potential" habitat for giant panda and is less fragmented than other mountain ranges in Sichuan.

4.3 Management

General Government agencies at different levels in China have shown great enthusiasm and commitment to safeguard the biodiversity values of the nominated property. It is important that this enthusiasm is matched with a commitment to ensure the nominated property is adequately staffed and resourced. The level of management between the different components of the nominated property varies considerably at present, with the highest level of management at the Wolong Nature Reserve and with lower levels of management in the other reserves within the nominated property.

Management Plan A management plan has been prepared for the nominated property and has the following goal: *"The biodiversity, ecosystem and habitat of the giant panda will be effectively protected in the world heritage site and social and economic development of the human population in the area will be harmonized with the natural environment guidelines for the area and for management of different types of use"*. The management plan identifies a number of management objectives and a zoning plan which flow from this goal. There is a general aim of maintaining a higher standard of protection within the core zone, and also to avoid further habitat fragmentation and loss of connectivity, particularly between centers of current giant panda distribution. The management plan is a comprehensive document and provides a sound framework for site management. However, management arrangements within the nominated property are complex, including seven nature reserves and nine scenic parks in four prefectures and a range of different prefectural, provincial and national government management agencies. Effective coordination, as well as the clarification of responsibilities of the different agencies involved, will be essential if the management plan is to be effectively implemented.

World Heritage Management Committee (WHMC) The management plan establishes a mechanism to achieve coordination, through the establishment of a World Heritage Management Committee formed under the Provincial Government. With this arrangement a management office has been established under the Department of Construction with executive responsibility for management of World Heritage properties. The WHMC will play a particularly significant role in relation to: building consensus among individual agencies; developing and coordinating new management programmes; and monitoring the effectiveness of conservation efforts. It is essential that the WHMC be given sufficient powers and has real authority and financial resources to ensure it can carry out its role effectively. Direct involvement of national government in World Heritage management and in the Committee is essential in providing authority and coordination to strengthen site management. In particular, the central Ministry of Construction Office should play a strong role. The WHMC must be involved in the review and approval of major development proposals which may impact on the natural values of the nominated property. In addition, any subsequent revision of the management plan and associated site development plans within the nominated property should be approved by the WHMC.

Staffing and training: There are currently more than 500 conservation staff working within the nominated property, including more than 40 senior professional staff. The majority of these staff work in the Wolong Nature Reserve. It is important that the level of staffing is progressively increased within all reserves within the nominated property, with the aim of ensuring the level of staffing and management is equivalent to that within the Wolong Nature Reserve within a ten year period. Training should be based on a training needs assessment, and should be coordinated through the Sichuan World Heritage Administration Office. It should include aspects such as training in basic protected areas skills, such as monitoring and the application of GIS methods, as well as the development of study tours and training workshops to other relevant natural World Heritage properties to broaden the experience of local staff.

Budget: The funding for protected area management within the nominated property from 1963 to 2000 was RMB 320,000,000 (USD 38,325,000 at 2000 rates). This funding is provided from the national government, the Sichuan Provincial government, and from relevant prefectural and county governments. In addition there has been substantial donor investment, particularly within the Wolong Nature Reserve. From 2003 to 2010 the projected budget is RMB 1,956,000,000 (about USD 233,500,000). This increased funding proposed appears to be adequate but this should be regularly reviewed. It is important that: (a) funding is allocated in line with the provisions of the management plan for the property; (b) that current levels of government funding, at all levels, are increased; and (c) that planning and implementation of the budget for the nominated property is overseen by the WHMC.

4.4 Threats

Dam Construction at Yaoji: The town of Yaoji is located in a valley in the middle of Baoxing county just south of Wolong, thus placing it within the geographic centre of the nominated property. Yaoji has been a Tibetan town for hundreds of years and agricultural development around the town is of long standing. Giant pandas have retreated to higher elevations where there are wide habitat connections on both the north-west and south-east sides of the valley. This area has limited natural values and has been excluded from the nominated property as an enclave. It is noted that the World Heritage Committee has previously approved the inscription of enclaves within natural World Heritage properties, such as is in relation to the Kakadu National Park in Australia. Plans are well advanced to build a hydroelectric dam at Yaoji and to establish a 400 ha reservoir at this site. The town of Yaoji is adjacent to the proposed dam site and the State Party provided the following advice on the dam at Yaoji in December, 2005 and in March 2006: (a) dam construction and associated flooding will displace approximately 2,000 people who will be resettled within the boundary of the enclave, within existing farmland and degraded secondary forest/scrub land; a re-settlement plan has been developed and is being implemented; (b) the dam impoundment, when it is full at a height of 2,140m, is entirely within the boundary of the enclave and does not encroach on the nominated property; (c) water from the dam will be channeled along 18 km of low bore (3-4 meters diameter) underground

pipes which will be tunneled several hundred meters deep through the mountains and will not affect the surface vegetation or panda habitat above; (d) The State Environmental Protection Authority will undertake hydrological monitoring of the river; and (e) there is no panda habitat loss involved in the construction of this dam.

It appears that dam construction will not have a major impact on the nominated property, in view of the fact that impacts are concentrated within the existing enclave. There may be potential for indirect impact on the nominated property but this cannot be ascertained at this stage. Should the property be inscribed on the World Heritage List, it is critical that: (a) the impact of the dam and the associated relocation of people from Yaoji, on the values of the property be closely monitored; (b) effective mitigation measures are applied to minimize the impacts associated with dam construction, the impoundment and the relocation of the village; where possible measures to encourage the establishment of panda habitat should be implemented; and (c) impacts and mitigation measures be assessed two years after inscription.

Ecotourism and the Wolong Tourism Development Plan:

There is considerable potential for the growth of tourism within and adjacent to the nominated property. For example, it is reported that the tourist growth to the nominated property exceeded 48% (from 430,000 to 640,000) over the last three year period. Tourism can have both positive and negative impacts and it is essential that it is carefully planned and sympathetic to the values of the property. There are a number of proposals to develop tourism within and adjacent to the nominated property. The nomination document notes that 12 scenic resources are 'to be developed' within the nominated property and there are currently major tourism proposals, within the Wolong Valley, concentrated in two towns, Wolong (Shawan) and Gengda, through the development and implementation of the Wolong Tourism Development Plan. This Plan includes proposals for major development, including expansion of accommodation, up to a limit of 7,300 beds. The appropriateness of some of the proposed developments has been questioned such as proposals to build a cable car in Panda Valley. The following principles should apply to the development of tourism within the property: (a) all major tourism development and associated infrastructure should be outside the nominated property, and should be located either within the buffer zone or adjacent areas; (b) clear limits should be established on tourism development, specifically accommodation, within and adjacent to the nominated property; (c) carrying capacity limits should be defined for sensitive natural areas within and adjacent to the property; and (d) the focus on tourism development within and adjacent to the nominated property should be to encourage appreciation and understanding of the natural values of the property, particularly the important role of the property in panda conservation; and (e) any income deriving from tourism in and adjacent to the nominated property should benefit conservation efforts within the property. In relation to the Wolong Tourism Development Plan it is considered that an independent expert review should be undertaken of the existing plan, under the direction of the World Heritage Management

Office, to assess the impacts of the proposals on values within the nominated property and to recommend modifications that may be required.

Road Construction - Yingxiu – Xiaojin road: There is currently a proposal to upgrade the county road that now crosses from Yingxiu through Wolong Nature Reserve, across Balangshan Pass and down to Xiaojin. Upgrading will involve widening parts of the road and also developing a 10 km tunnel at the Balangshan Pass. Alternative routes are currently under consideration for this tunnel. This road is currently located within the buffer zone and within part of the nominated property. The development of a tunnel at Balangshan Pass will reduce traffic flow across the pass and would thus reduce noise pollution and disturbance to alpine fauna, flora and environment. An environmental impact study has been undertaken and a number of mitigation measures proposed. It is not anticipated that there would be major adverse impact on the values of the nominated property from this upgrading. However, there may be potential for increased traffic flow within the Wolong Valley and this should be carefully monitored by the World Heritage Management Office.

5. ADDITIONAL COMMENTS

5.1 Scientific Research and Education

The nominated property is very important for research and education. Substantial research programmes have been implemented within parts of the nominated property, particularly within the Wolong Nature Reserve, for many years. A number of national panda surveys have been conducted and these have progressively improved the state of knowledge regarding panda distribution and ecology. Assistance from international NGOs, including WWF and CI has been very important in assisting research and monitoring programmes within the nominated property. The successful Wolong Panda Breeding Centre at Hetaoping was set up in 1983 and is the world's largest and most successful captive breeding centre for giant panda. It has provided a major focus for research efforts, as well as being a major source for pandas sent to many domestic and international zoos. The nominated property has thus made an important contribution to scientific research, public education and international cooperation. This should continue. It is important that field research be continued and expanded throughout all of the nominated property. A clear research programme should be developed for the property. All applications for conducting research must be submitted to the responsible management agency concerned, but must also be communicated with and coordinated by the Sichuan World Heritage Administration Office.

5.2 Landscape Level Planning

Fragmentation of habitat makes it essential that large intact areas of panda habitat are adequately protected and also that green corridors are established to enable movement of panda species and to avoid inbreeding of panda populations. Accordingly, it is very important to

ensure habitat connectivity between the nominated property and surrounding areas where pandas are located. Special attention should be placed on maintaining connectivity across vulnerable bottlenecks or corridors in the distribution of giant pandas. The location and design of corridors should be based on the best information, particularly that available from satellite images and field surveys, especially the third national panda survey and ongoing monitoring by staff within the nominated property. Where corridors have been encroached by logging or agricultural activities, an active programme of habitat restoration should be applied involving planting of relevant native species, particularly those which improve panda habitat.

5.3 Cultural Values

The nominated property appears to have important cultural values. Records of the giant panda date back 2,500 years, and a Han emperor once set up a panda breeding house. The temples of Mount Qingcheng where Taoism is believed to have been founded, and the 2,200-year old Dujiangyan irrigation system to the north of the nominated property, were inscribed on the World Heritage List for cultural values in 2000. Mount Siguniang, within the nominated property, is considered to be a sacred mountain by Tibetans. To the south in Baoxing are early Han buildings and the 19th century Franco-Qing mission station at Dengchigou, where Père David, the French missionary who first described the panda, was based. It is important that cultural values within the nominated property are identified and appropriately protected.

5.4 Local Populations

Following the revision of the boundaries, all county towns are located outside the nominated property; 41 townships seats are located within the buffer zone. Local communities have shown a strong interest in panda conservation and their involvement in supporting the management of the nominated property should be encouraged. There have been a number of direct and indirect impacts on local communities in and around the property in recent years. These include: (a) the closure of a number of development projects, including 176 mines and polluting factories; (b) the suspension of a number of small to medium hydropower projects inside the nominated property and the buffer zone; (c) and a logging ban associated with the Natural Forest Protection Programme and the "grain to green" habitat restoration programme. These are positive initiatives which should be supported but it is important that local communities are not unfairly deprived of opportunities for satisfactory livelihoods. Local people should be allowed and assisted to derive benefits from appropriate tourism associated with the property. They should also be informed and involved, where possible, in management of the property.

6. APPLICATION OF CRITERIA / STATEMENT OF SIGNIFICANCE

The Sichuan Giant Panda Sanctuary has been nominated under all four natural criteria. Previous IUCN evaluations of giant panda nominations in China have noted the potential to meet natural World Heritage criteria.

Criterion (i): Earth's history and geological features

The high ranges of the Qionglai Mountains are predominantly Triassic siltstone, limestone and slate, and the western half of the Jiain Mountains are mainly Permo-carboniferous rock. The property has evidence of glacial and tectonic activity and has features a diverse range of rocks of different ages and types. There are a number of glaciers, and a high region of U-shaped valleys, horns, cirques and arêtes. The property provides good examples not only of glaciation (past and present) but also of fluvial incision under relatively pristine sub tropical conditions. There is the prospect for future geomorphological research on the processes operating in a dynamic range of biomes, including landslides, debris flows, flood events and seismic effects. These characteristics are of interest but are not of outstanding value. The key features of the property are not uncommon in other areas of the world and they are also represented within other World Heritage properties. IUCN considers that the nominated property does not meet this criterion.

Criterion (ii): Ecological Processes

The nominated property protects a range of natural systems, reflecting the high level of altitudinal zonation. Many elements of the flora and fauna are abundant, diversified and complicated in their origins – as is to be expected in a mixing zone between the subtropical flora of East Asia and the temperate flora of the Himalayan/Qingzang Plateau. Accordingly, the property plays a key role in understanding the evolution of the flora and fauna of Central and South West China. However, the diversity of natural systems is better represented within other mountain / forest sites in China, particularly the Three Parallel Rivers of Yunnan Protected Areas, where the dramatic expression of ecological processes has resulted in a far more dramatic mix of geological, climatic and topographical effects. The range of natural systems is also better expressed in a range of World Heritage properties outside of China. IUCN considers that the nominated property does not meet this criterion.

Criterion (iii): Superlative natural phenomena or natural beauty and aesthetic importance

The property has important scenic value, reflecting the range of landforms and features within the nominated property which contribute to its high scenic value. A number of scenic areas have been identified within the property, including representation of steep forested valleys, scenic rivers, wide alpine meadows and mountain peaks. The scenery of Mt Siguniang itself is dramatic. However, IUCN concludes that the scenic values within the property are better displayed within many other World Heritage properties. Mountain scenery, for example is better represented within properties such

as Sagarmatha National Park, Nepal. IUCN considers that the nominated property does not meet this criterion.

Criterion (iv): Biodiversity and threatened species

There is a strong and compelling case for inscription of the nominated property under this criterion. The property includes more than 30% of the world's population of giant panda and constitutes the largest and most significant remaining contiguous area of panda habitat in the world. It is also the most important source of giant panda for establishing the captive breeding population of the species. The nominated property is also one of the botanically richest sites of any temperate region in the world or indeed anywhere outside of the tropical rain forests. This significance is reinforced by its classification as one of the world's top 25 Biodiversity Hotspots selected by Conservation International and the Global 200 Ecoregions defined by WWF. Underlining the outstanding value is the large size of the nominated property and the fact that it protects a wide variety of topography, geology, and plant and animal species. The nominated property has exceptional value for biodiversity conservation and can demonstrate how ecosystem management systems can work across the borders of national and provincial protected areas. IUCN considers that the nominated property meets this criterion.

7. RECOMMENDATION

IUCN recommends that the Committee **inscribe** the Sichuan Giant Panda Sanctuary: Wolong, Mt Siguniang and Jiain Mountains (China) on the World Heritage List on the basis of natural criterion (iv).

IUCN also recommends that the State Party be requested to:

- a) ensure the "Sichuan World Heritage Management Committee" has sufficient powers, resources and authority to ensure it can effectively carry out its role in relation to management of the property, including in relation to the review and approval of any major development proposals which may impact on the natural values of the nominated property;
- b) review existing infrastructure within the property with a view to better controlling impacts and, where possible, removing infrastructure and allowing habitat restoration with native species;
- c) review the possibilities for future addition of areas of high nature conservation value to the property, with priority to those areas which are particularly important for panda habitat and which are close to, but outside, the property. Options for developing conservation corridors linking the property with other suitable areas of panda habitat should also be reviewed;
- d) progressively increase the level of staffing and resources within all reserves within the property, with the aim of ensuring that the level of staffing and management in all areas of the property is equivalent

to that within the Wolong Nature Reserve within a ten year period;

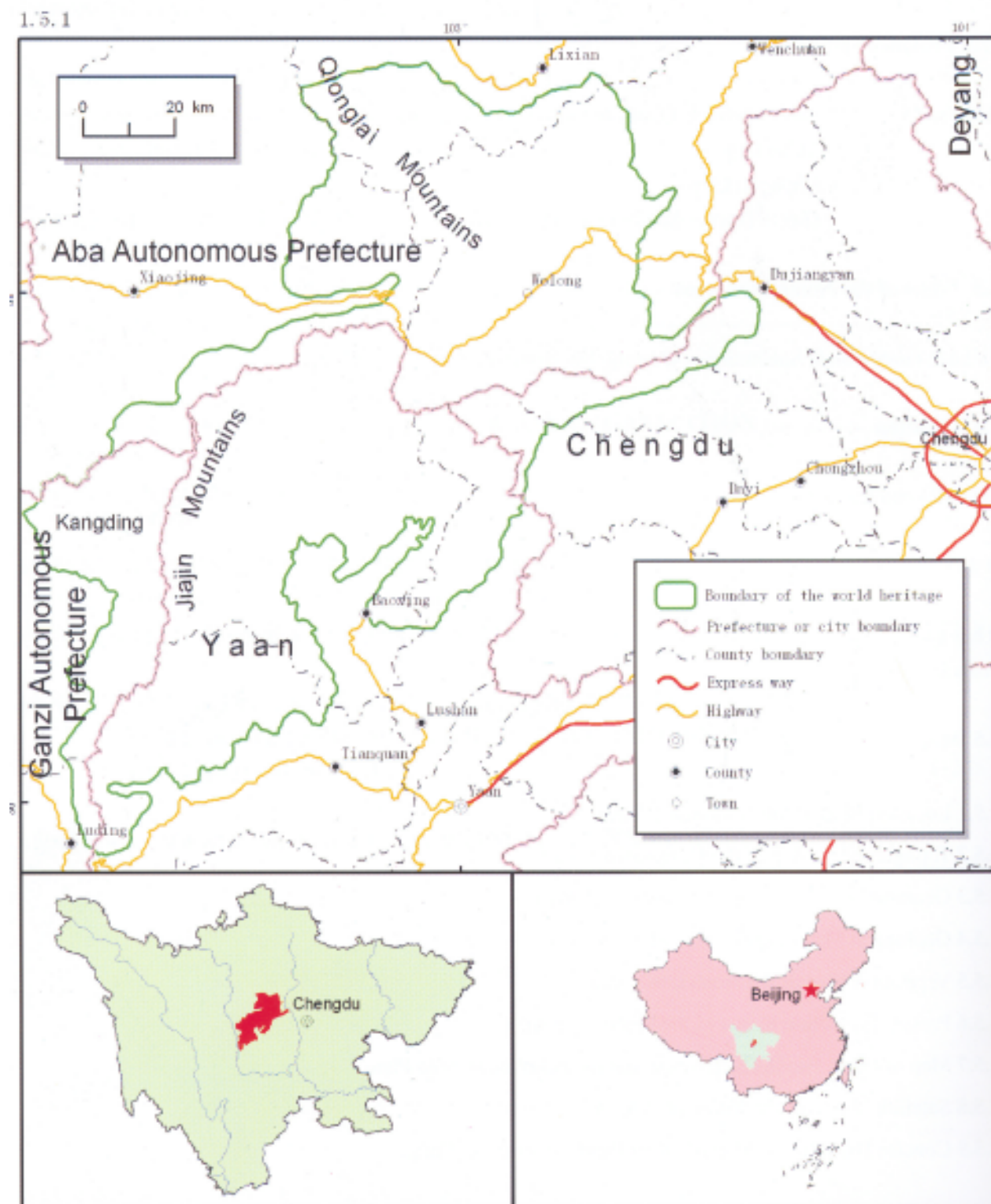
- e) in relation to the existing and proposed dams, ensure that: (a) the impact of the dam at Yaoji, and the associated relocation of people, on the values of the property be closely monitored; (b) effective mitigation measures are applied at Yaoji to minimize the impacts associated with dam construction, the impoundment and the relocation of the village; with priority to implementing measures to encourage the establishment of panda habitat; and (c) no additional dams are built within the property;
- f) in relation to the Wolong Tourism Development Plan, undertake an independent expert review of the existing plan, under the direction of the World Heritage Management Office, to assess the impacts of the proposals on values within the nominated property and to recommend modifications that may be required. The World Heritage Office should also play a role in establishing tourism development guidelines, review of proposals and development of recommendations for mitigation of impacts for any major tourism development which may affect the values of the property;
- g) address other management issues included in this evaluation report, including in relation to local populations, scientific research and education; and
- h) consider changing the name of the nominated property to "The Sichuan Giant Panda Sanctuaries" from the currently proposed name of: "The Sichuan Giant Panda Sanctuary: Wolong, Mt Siguniang and Jiajin Mountains"

IUCN recommends that Committee encourage the State Party to invite a mission to the property in 3 years to assess the implementation of the above recommendations and other recommendations outlined in the IUCN Evaluation Report.

Finally, IUCN commends the State Party for the process of consultation and scientific research involved in the preparation of the nomination dossier for this property, and for effectively addressing IUCN recommendations to enhance the conservation and management of the property.

Map 1: Location of nominated property

Location Map of the Nominated Area



Map 2: Boundaries of nominated property

Topographic Map of the WH Nomination Site

世界遗产提名地与缓冲区地形图

