

## World Heritage Sites

Protected  
Areas and  
World  
Heritage



# SICHUAN GIANT PANDA SANCTUARIES - WOLONG, MT. SIGUNIANG & JIAJIN MOUNTAINS CHINA

*The forested and ice-capped mountains on the western edge of the Sichuan basin contain the world's largest population of giant pandas, the emblem of the World Wildlife Fund. It is also botanically a 'hotspot', the richest site of any temperate region, having over 4,000 species of flowering plants and a great number of relict and endangered plants and animals.*

### COUNTRY

China

### NAME

Sichuan Giant Panda Sanctuaries - Wolong, Mount Siguniang & Jiain Mountains

### MIXED NATURAL AND CULTURAL WORLD HERITAGE SERIAL SITE

2000: Mount Qingcheng and Dujiangyan Irrigation System designated a Cultural World Heritage site under cultural Criteria ii, iv and vi.

2006: Inscribed on the World Heritage List under Natural Criterion x.

### STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

### INTERNATIONAL DESIGNATION

1979: Wolong designated a Biosphere Reserve under the UNESCO Man & Biosphere Programme (200,000ha).

### IUCN MANAGEMENT CATEGORY

Sichuan Giant Panda Sanctuary:

Wolong National Nature Reserve:	V Protected Landscape
Fengtongzhai National Nature Reserve:	V Protected Landscape
Mt. Siguniang National Nature Reserve:	V Protected Landscape
Mt. Qingcheng - Dujiangyan National Park:	II National Park
Mt. Siguniang National Park:	II National Park
Mt. Xilingxueshan National Park:	II National Park
Labaha Provincial Nature Reserve:	Unassigned
Jintang - Kongyu Provincial Nature Reserve:	Unassigned
Caopo Provincial Nature Reserve:	Unassigned
Mt. Jiguan - Jiulonggou Provincial Park:	Unassigned
Mt. Jiain Provincial Park:	Unassigned
Miyaluo Provincial Park:	Unassigned
Mt. Lingjiu - Mt.Daxuefeng Provincial Park:	Unassigned
Mt. Erlang Provincial Park:	Unassigned

## **BIOGEOGRAPHICAL PROVINCE**

Oriental Deciduous Forest (2.15.6)

## **GEOGRAPHICAL LOCATION**

Situated in the Qionglai and Jiajin mountains fringing the Sichuan basin on the west, 100 km west of Chengdu city, between 29°53'47" to 31°21'49"N & 102°08'45" to 103°23' 45"E.

## **DATES AND HISTORY OF ESTABLISHMENT**

- 1963: Wolong Giant Panda Nature Reserve and Labahe Provincial Nature Reserve established; Other reserves established within the nominated area:
- 1975: Wolong and Fengtongzhai designated National Nature Reserves;
- 1979: Wolong designated a UNESCO Biosphere Reserve;
- 1982: Mt. Qingcheng - Dujiangyan National Park and Mt. Jiguan-Jiulonggou Provincial Park established;
- 1989: Mt. Tiantai Provincial Park set up (in proposed transitional area);
- 1993: Heishuihe Provincial Nature Reserve set up;
- 1994: Mt. Siguniang and Mt. Xilingxueshan National Parks established;
- 1995: Mt. Jiajin and Miyaluo Provincial Parks and Jintang - Kongyu Provincial Nature Reserve set up;
- 1996: Mt. Siguniang National Nature Reserve established;
- 1999: Mt. Lingjiu - Mt. Daxuefeng Provincial Park set up (in proposed buffer area);
- 2000: Mt. Erlang Provincial Park and Caopo Provincial Nature Reserve set up;
- 2000: Mount Qingcheng and Dujiangyan Irrigation System designated a cultural World Heritage site.

## **LAND TENURE**

The state; within 12 counties in the jurisdictions of Chengdu and Ya'an cities and the A'ba and Ganzi Autonomous Prefectures. Administered variously by the National and Sichuan Bureaux of Forestry, Environmental Protection and Construction and by supporting institutions

## **AREA**

924,500ha. This is a strictly protected core area. A buffer area of 527,100ha forms a surrounding transitional multiple-use zone within which farming and some other activities are permitted.

## **ALTITUDE**

580m (Dujiangyan) to 6,250m (Mt. Siguniang, Qionglai Mountains)

## **PHYSICAL FEATURES**

The site is in the mountainous western border of the Sichuan basin and the landscape is scenically dramatic. The mountains lie on the divide between the east China and Qinghai-Tibetan tectonic sub-plates. Geologically the area was under the Tethys Sea until late Triassic times, was raised, eroded, then raised again in the late Tertiary becoming part of the eastern edge of the present Qinghai-Tibetan plateau. 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. There are fourteen glaciers, and a high region of U-shaped valleys, horns, cirques and arêtes. Between the high ridges is the panda habitat of deep forested valleys, raised terraces and gentler slopes. The soils vary from valley alluvium through various types of mountain soil to lithosols on the high mountains.

The various Palaeozoic strata of the region are intensely folded and faulted parallel to the main northeast to southwest trending ranges. The high ranges of the Qionglai Mountains are predominantly

Triassic limestone, siltstone and slate, and the western half of the Jiajin Mountains, their continuation to the south, are mainly Permo-carboniferous rock. The region was heavily damaged by the catastrophic 8.0 magnitude earthquake and afterquakes of May 2008. The epicentre was in Wenchuan county, 92 km northwest of Chengdu, the location of a similarly strong earthquake in 1933. It was caused by the movement along the northeast-striking Longmenshan fault of the Qinghai-Tibetan part of the Indian plate against the solid South China block of the Eurasian plate. Being shallow, the quake caused exceptional destruction locally, and temporary lakes at once began to form on dammed rivers. It was felt as far away as Taiwan and Pakistan. Aftershakes were felt the length of the fault parallelling the mountain ranges of the site.

## CLIMATE

The climate ranges with altitude between cool-temperate to sub-tropical. Slopes facing the southwest monsoon can receive 800-950mm of rain in summer, and, blocked by the Qionglai mountains, clouds settle in the valleys where the year-round humidity is 85%. Half of every summer month is rainy and the rest often fog-covered. It is this cloudy moisture trap which extends even to the alpine zone which creates the conditions for the exceptional biological richness of these mountains. Between October and April snow falls on higher ground (573mm at 2,520 elevation in 1981). But in the rain-shadow west of the ranges, the land is dry. The average summer and winter temperatures are 18.1°C and -1.1°C with average maxima of 19°C and -12°C. The main panda habitat lies between 1,600 and 3,500 meters where the average annual temperatures range between 0.8°C and 13°C, with a rainfall of between 800 - 1,500mm. Temperatures fall with elevation through temperate zones to permanent ice. The weather in spring and fall is very changeable.

## VEGETATION

This area lying between the subtropical flora of East Asia and the temperate flora of the Himalayan-Qinghai plateau, is the botanically richest site of any temperate region, classified among the world's top 25 biodiversity hotspots by Conservation International and as one of WWF's Global 200 ecoregions. The total flora of the nominated area is between 5,000 and 6,000 species in over 1,000 genera, over 4,000 of which are flowering plants, 67 of which are nationally protected. 50% of its genera are endemic to China, which constitutes 20% of China's total. There are 794 angiosperm genera, 77% of China's total angiosperm species, 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 steep relief also accommodated temperature changes by permitting small lateral shifts in plant populations. It is probable that there are many species yet to be discovered.

There is a range of vegetation zones from subtropical forest to tundra found in no other protected area in China except for Mt.Gongga in the Daxueshan 50km south-southwest, where there are no pandas. These include six vegetation zones related to altitude: from 600-800m, subtropical mountain evergreen broadleaved forest; 1,800-2,400m, the same mixed with deciduous broadleaved forest; 2,400-2,800m, warm temperate coniferous and deciduous broadleaved mixed forest - the umbrella bamboo *Fargesia robusta* and *Yushania chungii* draw pandas here from autumn to spring; 2,800-3,800m, cool temperate to sub-alpine coniferous forest - the arrow bamboo *Bashania faberi* attracts the pandas here during the summer; 3,800-4,400m, sub-alpine scrub and meadows; 4,400-4,500m, alpine screes and sparse growth; >5,000m, permanent ice and snow.

The site was never totally glaciated during the last Ice Age. It is now within the West Sichuan-Northwest Yunnan centre of floral endemism. Over 50 relict monotypic genera have survived from the Mesozoic era, 20% of China's total, among them the dove tree *Davidia involucreata*, Katsura tree *Cercidophyllum japonicum*, Chinese money maple *Dipteronia sinensis*, dawn redwood *Metasequoia glyptostroboides* (CR), Chinese bretschneidera *Bretschneidera sinensis* (EN), ginkgo *Ginkgo biloba* and the monospecific tree species *Tetracentron sinensis*. 50 genera are endemic to China (20% of its total) and 67 plant species are nationally protected. Globally endangered plants on site include Chinese hazelnut *Corylus chinensis* (EN), silverleaf cassia *Cinnamomum mairei* (EN), Sargent magnolia *Magnolia sargentiana* (EN), Wilson magnolia *M. wilsonii* (EN), palmate neocheiropteris *Neocheiropteris palmatopedata* (EN), bigcone spruce *Picea neoveitchii* (EN), and Chinese fern *Sinopteris grevilleoides*

(EN). The area is also the centre for many groups of plants: roses, peonies, magnolias, maples, primroses, bamboos and rhododendrons of which there are more than 100 species. Of the site's 22 orchid species, nearly 40% are endemic. And the exceptionally humid alpine zone has the richest alpine flora in the world. Many western ornamental garden plants were discovered in these mountains. The site is a major source and gene pool for hundreds of traditional medicinal plants, many of which are now rare and endangered.

## FAUNA

The site is the type locality and chief habitat of the distinctive WWF emblem, the giant panda *Ailuropoda melanoleuca* (EN), which is classed as a Class I protected animal and a National Treasure by the Chinese government. The species is an endemic rare palaeotropic Tertiary relict of the Carnivora unique in being herbivorous. Originally a tropical species fairly widespread in China, it has become a non-hibernating inhabitant of the cool-temperate belt of China stretching north from south-central Sichuan to southern Gansu and Shaanxi. Its preferred habitat is concentrated between 2,200m to 3,200m and 400m to 600m above and below this level. It is dependent for food on a few species of bamboo which die after flowering, necessitating the animal's freedom to move in search of other sources of food, a requirement constantly threatened by agricultural invasion and fragmentation of its forest habitat. Green corridors are also necessary to avert inbreeding. The nominated area has the largest remaining, least fragmented and widest range of habitats suited to the panda, and supports up to 500 animals, 30% of the wild population of 1,600. During the last 25 years this population may have been stable, only appearing to increase recently as a result of improved surveying techniques. Over half the pandas captured between 1936 and 1997 came from the nominated site and during the last 60 years the world's zoos have received 148 specimens as well as other rare animals from the area. The main centres of giant panda population in the Qionglai Mountains are Wolong Reserve in Wenchuan county in the northeast, Fengtongzhai Reserve in Baoxing county in the southeast and in Mt. Jiujin Provincial Park in the Jiujin Mountains of the southwest. However, pandas are conserved in nearly 40 smaller reserves in China.

The site does not have exceptional concentrations of wildlife, but its diversity is enormous, and there are many endemic and threatened species, Palaearctic and Oriental. This is also in part because the mountains enable vertical migration with changes in the weather. There are 542 species of vertebrates and 1,700 species of insects (not yet completely known). These include 109 species of mammal in 25 families which are 20.5% of all Chinese mammals. There are 365 bird species in 45 families, 300 of which breed locally, 32 reptiles in 9 families, 22 amphibians in 8 families and 14 fish from 5 families (the last total may be an underestimate). The butterfly fauna is immensely rich with 731 species of Lepidoptera. Globally endangered mammals, apart from the giant panda, are the red panda *Ailurus fulgens* (VU), the snow and clouded leopards *Panthera uncia* (EN) and *Neofelis nebulosa* (VU), the golden snubnosed monkey *Rhinopithecus roxellana* (EN), Asiatic wild dog *Cuon alpinus* (EN), Himalayan black bear *Ursus thibetanus* (VU), white-lipped deer *Przewalskium albirostris* (VU), Sumatran serow *Capricornus sumatraensis* (VU), Himalayan goral *Naemorhedus goral* and argali sheep *Ovis ammon*. 86 animals are under state protection which in addition to the above include Tibetan macaque *Macaca thibetana* and the goat-antelope, the takin *Budorcas taxicolor* (VU).

The area is a centre of endemism for several species of birds, the especially the pheasants of which 15 species are known on the site. Endangered birds include cinereous vulture *Aegypius monachus*, whitetailed eagle *Haliaeetus albicilla*, Chinese monal pheasant *Lophophorus lhuysii* (VU), white eared-pheasant *Crossoptilon crossoptilon* and Tibetan eared-pheasant *Crossoptilon harmani*. The black-necked crane *Grus nigricollis* (VU) is seen on migration, bearded vulture *Gypaetus barbatus*, Chinese grouse *Bonasa sewerzowi*, chestnut-throated partridge *Tetraophasis obscurus*, black stork *Ciconia nigra*, Pallas's sea-eagle *Haliaeetus leucoryphus* (VU) and golden eagle *Aquila chrysaetos*. The Sichuan brown wood-owl *Strix leptogrammica (davidi)* is also present (D. Shepherd *in litt.*, 2005). Many animals are endemic to the region, and one Triassic relict water beetle *Amphizoa davidi* found in 1870, which had been lost sight of, was rediscovered in 1995.

## **CONSERVATION VALUE**

The forested mountains on the western edge of the Sichuan basin contain the world's largest population of giant pandas, the emblem of the WWF, and, with 4,000 species of flowering plants and much relict and endangered flora and fauna, is botanically the richest of any temperate region site. The sites lie within a Conservation International-designated Conservation Hotspot, a WWF/IUCN Centre of Plant Diversity, contains two Endemic Bird Areas, a UNESCO Biosphere Reserve and a World Heritage Cultural Site.

## **CULTURAL HERITAGE**

Records of the giant panda are dated back 2,500 years, and a Han emperor once set up a breeding house. The temples of Mount Qingcheng, sacred to the Tibetans, where Taoism is held to have been founded and the 2,200-year old Dujiangyan irrigation system near the northern entrance to the site were made a cultural World Heritage cultural site in 2000. To the south in Baoxing are early Han buildings and the 19<sup>th</sup> century Franco-Qing mission station at Dengchigou, where Père David was based.

## **LOCAL HUMAN POPULATION**

The population of 41 small towns and many agricultural villages within the buffer zone, totals 21,320 of which 1,020 (260 households) live in the core area and 4,900 in the Wolong Biosphere Reserve. In the western Autonomous prefectures of Aba and Ganzi the site includes villages of the Qiang and Tibetan cultures where, unlike the Han majority, the people have not been subject to restrictive population policies. The Tibetan town of Yaoji (Qiaoji) on the Donghe river in the middle of the site is the centre of an area of some 2,000 people. Mines and factories now defunct used to support many small settlements throughout the site. Thousands of local people died in the earthquake of 2008, 133 in the Wolong Reserve and Mt. Qingcheng- Dujiangyan National Park (Bifengxia Reserve, 2008).

## **VISITORS AND VISITOR FACILITIES**

Tourism, except to Mt. Qingcheng, is fairly new to the area and is growing fast as a source of income. Records from 2000 give visitation as 640,000, 400,000 being to the National Park and World Heritage site of Mount Qingcheng and the Dujiangyan Irrigation System. Facilities include 9 travel agencies, 15 bus shuttles, 12 parking lots, 46 group hostels and canteens, 12 hotels (2-star and over), 40 shops, 2 reception and interpretation centres, 20 information stations, 8 rescue centres, 13 first-aid stations, 268 complaints signs, 164 guides and 250 safety and rescue personnel. The Wolong Tourism Development Plan has been drawn up in detail for the valleys of the Wolong-Gengda area in the northeast where there are many sites for viewing pandas. Facilities will include hotels with a total of over 7,000 beds, a small conference centre, reception centre, ecological museum and education stations, breeding centres, an ecological farm, observation stations, camps and shelters. Riding, rafting, rock-climbing and bungee-jumping will be offered. 21,900 daily visitors are anticipated, supporting direct employment of 1,500-2,000 people and indirect employment for 4,500- 6,000 (Ministry of Construction, 2005). For some time after the 2008 earthquake however, the site was not open to tourism.

## **SCIENTIFIC RESEARCH AND FACILITIES**

The area is one of the world's richest in plant and animal species, 32 mammals, 43 birds, 7 fish and 110 higher plants having been discovered there. Many are relicts of the Tertiary flora and fauna isolated when the Qinghai-Tibetan plateau rose from the Tethys Sea of central China. The giant panda was first discovered to western science in 1869 by the missionary naturalist, Père David on his one visit through western Sichuan, along with several of the 52 species of rhododendrons which he was the first to discover. The early 20<sup>th</sup> century collector E. Wilson sent many tons of seeds subsequently propagated in the west. And in the second half of the century, eminent and local Chinese scientists have studied the area continually, initially focussing on the giant panda, now widening out to an ecosystems approach.

Baseline information surveys of pandas and other resources carried out by the National Academy of Sciences, the Forestry Department and the Sichuan Provincial government preceded the establishment of the seven nature reserves and nine scenic parks within the site, Following the mass bamboo flowerings and subsequent die-backs in the 1970s and 1980s, surveys by Conservation International in

1974-77 and 1986-88 systematically swept every local valley for pandas. In 1978 with WWF help, the Wuyipeng Giant Panda Research and Protection Centre was established within panda habitat, at the 2,400m level, and studies there of the panda and mountain ecosystems have been continuous since 1981. A third national panda survey was partly funded by the WWF in the late 1990s. The successful Wolong Breeding and Research Centre for pandas at Hetaoping was set up in 1983 where, between 1986 and 2000, 46 cubs were born, a major source for the world's zoos. The Wolong Nature Reserve preserves specimens of 225 birds, 56 mammals, 17 amphibians and reptiles, 700 insects and 2,170 plants. On giant pandas alone 10 books and 1,300 monographs and reports have been written.

## **MANAGEMENT**

The property has 18 constituent parks and reserves. Each will remain under its existing administration coordinated by the Sichuan World Heritage Management Committee which meets twice yearly with representatives of the national and provincial Bureaux of Construction, Forestry and Environmental Protection, provincial bureaux for Tourism, Cultural Heritage and Religious Affairs, local governments and departments of planning. Executive staff will come under the Sichuan Construction Department and it will be advised by a Scientific Committee. Its present management function is reactive, not directly proactive and it dispenses no funding. However, it has rejected large infrastructural projects including 16 proposed hydroelectric plants. The management of the site will follow the example of the 2002 comprehensive Master Plan, incorporating and revising all the present park and reserve master plans and regulations. In the long term the site is seen as part of a serial nomination to cover six western Sichuan mountain ranges (Ministry of Construction, 2005). Management experience can be drawn from the Wolong Nature Reserve, established in 1963, and from the two other national and four provincial nature reserves, three national and six provincial scenic parks established in the site area since 1975 to protect the rare animals and scenery. The boundary of the core site largely coincides with the existing reserve boundaries.

The aims of this plan are protection of the panda and other rare species, the protection of biodiversity and the watershed forests, the scenery and the cultural heritage; also to promote sustainable development such as ecotourism, to minimise negative environmental impacts and to increase public awareness and participation in conservation. The site will be zoned and a large transitional area will be established in the downstream valleys on the east side of the site, to be administered by the provincial authorities. As well as protecting the giant panda, the heart of whose habitat defines the site's core area, and the great wealth of other species, protection of these forests is essential to help protect the water and electricity supplies, water levels, and the dependent agriculture of hundreds of millions of people living downstream. The development of tourism will be strictly controlled, with no mass tourism allowed in the core zone. Within the core zone logging is no longer permitted, farmland will be left to return to the wild, polluting industries are being closed down. Towns, villages, farms, major infrastructures, dams, mining, mass tourism sites are excluded from the site; hunting and collecting plants except for research will be prohibited. Existing inhabitants will be encouraged to move into the buffer zone. There, agricultural expansion will be prohibited, farmland on slopes will be abandoned to bamboo planted for panda; the infrastructure will be restricted and industries gradually closed down.

As these measures will adversely affect the already poor local communities who have been largely dependent on logging, their needs will be studied and financial and technical assistance considered in order to avert conflict with the program of conservation. Further studies will research panda habitats, their flora and fauna, and their breeding and release into the wild. A thorough ecological monitoring network and database will be constructed based on remote sensing and analysed by a multidisciplinary team. Monitoring of pandas and other rare animals, bamboos and vegetation will continue, and monitoring will start of mountain ecosystems and little-studied taxa, human socio-economic conditions and impacts, tourism, pollution and the progress of action programs. A management training centre will also be set up focussing on the application of GIS methods to management.

## **MANAGEMENT CONSTRAINTS**

The pressure from the growing population, especially among minority groups where large families are the norm, is diminishing and fragmenting the forest through which the pandas must be free to move to

avoid starvation when their principal food source dies. This occurred in the early 1980s with the arrow bamboo when many pandas died. Habitat links are favoured over the introduction of non-synchronised bamboos. Increased population and access also increases the likelihood of poaching. However, poachers of pandas have been executed, which is discouraging interest in this lucrative trade though accidental trap catches continue. Panda captures for sale are to be replaced by animals from the breeding stations. The alpine meadows are much grazed by yaks and cattle which replace blue sheep *Pseudois nayaur* in keeping the meadows open, but overgrazing has to be limited. Hardship to local people caused by the prohibition of logging, and restrictions on the collection of firewood and medicinal plants could be countered by giving them a part in the development of ecotourism as guides to animal, bird and butterfly tours and in mountaineering, by the cultivation of medicinal and ornamental plants and by encouraging crafts such as marble panda carvings for tourists.

176 mine sites and 25 small to medium-sized hydroelectricity projects within the site have already been closed down. Pollution by quarries and small industries is to be limited, as is the introduction of exotic plants. There is some risk of damage from natural disasters such as occasional earthquakes and fires and more frequently, from debris flows, landslides and floods. Before the 2008 earthquake three major developments had been in the making in Wenchuan county: an ecotourism development at Wolong, a 4 sq.km dam on the site of the old Tibetan town of Yaoji with a downstream hydroelectric plant at Fengtongzhai fed by an underground pipe and 147 km of upgraded road within the site and buffer zone. The dam altered the stream flow, though a minimum 30% flow will be maintained in future. It also displaced 2,300 people, most to be resettled nearby, The road between Dujiangyan and Xiaojing via the Wolong valley will tunnel under the Balengshan pass. This is to become a major link between west Sichuan and Tibet. 5,000 people are to be resettled over the next 20 years, and 1,000 jobs offered in return, with training in tourism and forest protection. Its effects were to be compensated with RMB 2,000,000 (Ministry of Construction, 2005).

However, in May 2008 a catastrophic 8.0 magnitude earthquake struck Wenchuan to the north of the World Heritage site and 20 km northeast of Wolong Nature Reserve and Mount Qingcheng-Dujiangyan National, causing 133 deaths in the Reserves, including six of their staff, affecting some 1,270 staff and causing 69,000 deaths elsewhere. There was immense damage to approach roads and infrastructure and to about 60% of the buildings of the area. About 328,667 ha of forest, 120,000 ha of panda habitat and 19 panda nature reserves were badly damaged. All but one of the pandas at the Wolong Breeding Station were rescued, but many panda houses were damaged and the animals were relocated to the Bifengxia reserve at Yaan 125 km south. Wolong Reserve was temporarily closed for assessment of the damage and rehabilitation of the Reserve's infrastructure and services was immediately started. It will need 20-30 years to recover (Bifengxia Reserve, 2008).

## COMPARISON WITH SIMILAR SITES

The site is in basically a temperate climatic area, though rising from subtropical to alpine zones. Its altitudinal range is 5,670m. A comparable range exists in the Three Rivers World Heritage site in Yunnan (5,980m) and to a lesser degree, in Mount Kinabalu in Sabah (3,943m) which also rise from the subtropical to alpine. A comparison of their flora, bird and mammal species, including an African site in Mount Kilimanjaro (4,065m), the purely temperate sites of Yellowstone (1,852m), Yosemite (3,327m) and the Great Smoky Mountains (1,966m) is given:

	Flora (spp.)	Birds (spp.)	Mammals (spp.)	Area (ha)
Sichuan site	>4,000	365 (12*)	132	924,500
Three Rivers	6,000	417 (22*)	173	1,680,000
Mt.Kinabalu	5-6,000	326	112	75,337
Mt.Kilimanjaro	2,500	179	140	18,318
Great Smoky Mtns	1,500	>200	>50	209,000
Yosemite	>1,400	230	74	308,283
Yellowstone	1,050	290	58	899,200

\*endemics

The Three Rivers serial site is almost twice the size but is otherwise rather comparable, not having twice the number of species. There is a much greater concentration of diversity on Kinabalu, a site of one twelfth the area, but its iconic mammal, the orang-utan, is more widely dispersed in Indonesia than the panda is in central China.

## STAFF

The existing conservation staff numbers 501, (mostly in the Wolong National Park) including 40 senior professionals, 182 intermediate professionals and 190 junior technicians. Senior graduate professionals and advanced training will be introduced to ensure that the rest of the site is managed as effectively as Wolong. There are also 164 tourist guides and 250 safety and rescue personnel. Staff of the forestry agency are better funded than those of the scenic areas.

## BUDGET

Funding from 1963 to 2000 within the nominated area was RMB 320,000,000 (US\$38,325,00 @ 2000 rates), comprised of 180,000,000 from the State, RMB 85,000,000 in raised funds and RMB 55,000,000 from Sichuan Province, Aba Autonomous Prefecture, Ya'an and Chengdu cities and Ganzi Autonomous Prefecture. From 2003 to 2010 the projected budget is RMB 1,956,000,000 (US\$233,500,00). RMB 2,000,000 compensation will also be paid for the effects of the dam. RMB4,560,000,000 (US\$570,000) is expected in increased tourism revenues over the next ten years. In 2008, UNF granted US\$40,000 for post-earthquake emergency relief (UNESCO, 2010).

## LOCAL ADDRESSES

Ministry of Construction of the People's Republic of China, 9, Sanlihe Road, Baiwanzhuang, Beijing 100835, China.

Sichuan World Heritage Administration Office, Sichuan Provincial Construction Bureau, 36, Section 4, Renminnanlu Road, Chengdu 610041, China

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