

World Heritage Sites

Protected
Areas and
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WULINGYUAN SCENIC AND HISTORIC INTEREST AREA CHINA

A spectacular area stretching over more than 26,000ha in China's Hunan Province, the site is dominated by more than 3,100 narrow sandstone - and limestone - pillars and peaks, many over 200m high. Between the peaks lie ravines and gorges with streams, pools and waterfalls, some 40 caves, and two large natural bridges. In addition to the striking beauty of the landscape, the region is also home to a number of endangered plant and animal species.

COUNTRY

China

NAME

Wulingyuan Scenic and Historic Interest Area

NATURAL WORLD HERITAGE SITE

1992: Inscribed on the World Heritage List under Natural Criterion vii.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

IUCN MANAGEMENT CATEGORY

V Protected Landscape

BIOGEOGRAPHICAL PROVINCE

Oriental Deciduous Forest (2.15.5)

GEOGRAPHICAL LOCATION

In northwestern Hunan Province 300km northwest of the capital Changsha, in the Wulingyuan District of Zhangjiajie City (formerly Dayong) between 29°16'25" to 29°24'25" N and 110°20'30" to 110°41'15" E.

DATES AND HISTORY OF ESTABLISHMENT

1949: The area was placed under three separate county governments;

1982: The component Zhangjiajie Forest Park (4,810ha) established by SPA Doc.813 and Nature Reserves of Suoxiyu (13,886ha) and Tianzishan (5,473ha) established by XGF Doc.029;

1988: Approved as a Scenic and Historic Interest Area by the State Council and placed under the authority of Wulingyuan District Government, created in the same year to ensure its protection.

2001: The component Zhangjiajie Scenic Nature Reserve (987ha) established by SPA Document 813. The surrounding area designated the Zhangjiajie Sandstone Peak Forest World GeoPark (39,800ha).

LAND TENURE

State. Administered by the Wulingyuan Scenic Resort Administrative Bureau (WSRAB) under the People's Government of the Wulingyuan District, by the Construction Committee of Hunan Province and by the State Forestry Administration.

AREA

The site is 26,400ha, surrounded by an undesignated 13,348ha buffer zone (WSRAB, 2002).

ALTITUDE

From below 450m to 1,264m (Tuerwangyue Feng or Rabbit Watching-the-Moon Peak).

PHYSICAL FEATURES

The area is remote and until a recently a rather inaccessible island of rugged natural country surrounded by heavily farmed and populated region. The site covers the entire drainage basin of the Suoxiyu river which winds through it for 69 kilometres; and also the headwaters of several other streams. The most spectacular feature, rising sheer above the sub-tropical forests and dominating two-thirds of the site, is a 8,600ha forest of 3,103 wooded pillar-like peaks of Devonian quartzite sandstone and Permian/Triassic limestone, itself an uncommon combination. More than 1,000 of these are over 200m high and some are over 400m high. They are part of a layer of sandstone more than 500m thick which is 75-95% pure quartz. Between the quartzite layers are a number of layers of shale or extremely thin mica-porphyrite; these lie at an oblique angle of 5-8°, which provides vertical stability. Running through the rock are vertical joints which are a major factor in the formation of these peaks and the secluded canyons between them. Some 85 peaks are listed and described in MoC (1991) and many have been named.

Between the peaks are numerous ravines and gorges, many containing attractive streams, pools and waterfalls. About one-third of the site is limestone and contains a number of karst features. Some 40 caves are concentrated on the banks of the Suoxiyu River and the south-east side of Tianzi Mountain. This valley is floored by green shale and cuts through a 600m thick layer of dark red and grey quartzite. Spectacular calcite deposits are a notable feature of many of the caves. Huanglong or Yellow Dragon Cave is said to be one of the ten largest caves in China. It is 30 km long, 200,000 sq.m in area, contains dramatic underground scenery of calcite deposits and a waterfall 50m high. There are two very high natural bridges in the area: Xianren Qiao or Bridge of the Immortals is 26m long, 1.5-1.8m wide, 1-2m thick and hangs 100m above the gorge. Tianxia Diyi Qiao or the Bridge Across the Sky is much larger: 40m long, 10m wide and 15m thick. It hangs 357m above the valley floor and may be the highest natural bridge in the world.

The site is well watered and described as having 800 streams though there are only about 60, many of which flow underground for long distances. Most drain into the Suoxi River which runs through the centre of the site. A tributary of this river, Jinbian or golden-whip stream, has been dammed to create Baojeng Lake as a water supply, for flood control, to enhance the habitat of the Chinese giant salamander and to provide for boating. Soils in the sandstone west of the area are acidic yellow-brown, in the limestone east neutral yellow-red and fertile on alluvial bottoms.

CLIMATE

Conditions are humid warm-temperate. The mean annual temperature, over a 30-year period, is 16.4°C, with a January mean of 4.8°C and a July mean of 27.3°C. The mean annual rainfall over the same period is 1427mm, with a distinct early summer maximum. Snow falls some years and the mean number of frost-free days is 275. Fogs and patchy clouds are fairly common and are renowned for providing a dramatic and ever-varying backdrop to the peaks (MoC, 1991).

VEGETATION

Wulingyuan lies in the Central China Botanic Region, and was a refuge for many ancient species during the Quaternary Glacial Era. 3,000 species occur in the area, with 751 species of woody plants, including

191 species of tree divided fairly evenly between tropical/subtropical and temperate species (MoC, 1991). The Zhangjiajie Forest Park is 97.7% forested. The vegetation varies with height and aspect, south slopes being the more complex. According to the nomination over 200 species are of medicinal value, over 200 are commercially marketable and there are more than 400 ornamentals. A number of species are globally threatened, including nine rare and three vulnerable plants. These include dawn redwood *Metasequoia glyptostroboides* (CR), ginkgo *Ginkgo biloba* (EN) and dove tree *Davidia involucreata*. There is a wealth of flowering herbs and fungi (MoC, 1991).

There are three main vegetational zones: 450 to 750m, 750 to 950m and above 950m. Below 750m the community is predominantly evergreen broad-leaf with species such as *Phoebe zhenan*, *Ternstroemia gymnanthera*, *Schima superba*, chinquapins *Castanopsis tibetana* and *C. eyrei*, oak *Quercus glaucus*, maples *Acer* spp, *Litsea elongata* and *Elaeocarpus* spp. Between 700m and 950m, there is a mixed community of evergreen and deciduous broad-leaved trees, including tanbark oak *Lithocarpus harlandii*, evergreen oak *Quercus phylliraecoides*, *Rhododendron latoucheae*, *Itea chinensis*, *Daphniphyllum glaucescens* and *D. macropodum*. Coniferous species include Chinese plum yew *Cephalotaxus fortunei* and pines *Pinus* spp. Above 950m, there is a community of deciduous broad-leaved trees, bushes and herbs, including *Clethra faberi*, *Quercus spinosa*, *Platycarya strobilacea*, *Lespedeza bicolour*, Chinese sumac *Rhus chinensis* and silvergrass *Miscanthus sinensis*. In some areas between 800 and 1,100m, extensive communities are dominated by Chinese red or Wuling pine *Pinus massoniana*.

FAUNA

A recent report by the area's administration lists 156 species of vertebrates from 50 families - though more may well exist: 43 mammals, 19 amphibians, 24 reptiles and 70 birds (WSRAB, 2002). A few species are globally threatened with extinction: Chinese giant salamander *Andrias davidianus* (CR), Asiatic wild dog *Cuon alpinus* (EN), Asiatic black bear *Ursus thibetanus mupinensis* (VU), and clouded leopard *Neofelis nebulosa* (VU). The clouded leopard population is probably very small: signs have been found but they have never been seen (Thorsell & Lucas *in litt.*, 1992). Other large animals are rhesus monkey *Macaca mulatta*, Chinese pangolin *Manis pentadactyla* (EN), Chinese otter *Lutra chinensis*, leopard *Panthera pardus tusca*, Indian and small Indian civet cats *Viverra zibetta* and *V. indica-pallida*, bengal cat *Felis bengalensis*, Chinese water deer *Hydropotes inermis* and white-maned serow *Capricornus sumatraensis argyrochaetes*. Notable birds include the white-headed duck *Oxyura leucocephala* (EN), golden pheasant *Chrysolophus pictus*, red-bellied and yellow-bellied tragopans *Tragopan temminckii*, *T. caboti* (VU) and red-billed leiothrix *Leiothrix lutea*.

CONSERVATION VALUE

With its extensive forest and large number of vertical sandstone peaks, the site is a unique geomorphological spectacle of great aesthetic attraction. It is also important because of the extent of its relatively undisturbed forests, which contain several rare plants and animals. The site lies within a Conservation International-designated Conservation Hotspot and in a WWF Global 200 Freshwater Eco-region.

CULTURAL HERITAGE

The area was always seen as uninhabited, but relics have been found of a Stone Age culture. Local legends indicate that Zhangliang, a lord in the Han Dynasty (206 BC-220 AD), lived in seclusion in Wulingyuan and was buried below Qingyan (now Zhangjiajie) Mountain. Some references to the beauty of the area are made by Liu Zhongyuan, a famous 9th century poet. There is a famous Confucian-Taoist temple at Puguang. From the Ming Dynasty (1368-1644) onwards, the area is mentioned more regularly in official records and in other literature, although most of these refer to the wild nature of the region and the small size of the local population. At least ten *shanzhai* (mountain strongholds or villages) were situated on hilltops in the area. Many were built in the Ming and Qing Dynasties for their obvious defensive value. They were usually small and some could only be reached from one or two directions, or by using a rope. None is inhabited now (MoC, 1991).

LOCAL HUMAN POPULATION

The area was a relatively poor farmland economy, which has been transformed by improved accessibility and the tourism industry. The formerly resident minority ethnic groups of the Tujia, Miao and Bai preserve their indigenous culture and customs, but largely within the buffer zone which has a large agricultural population (Thorsell & Lucas, *in litt.*, 1992). There are still some 6,600 residents in the core area, mostly hotel workers and Park staff, but including some farmers and herders who are permitted to stay if they farm in the traditional way (MoC, 1991). Many people have been relocated outside the Park (with compensation) and their farm sites rehabilitated. Following a change of name, the locality is known as Zhangjiajie.

VISITORS AND VISITOR FACILITIES

Until about 1979 the area was hard to reach and seldom visited, but it has opened up since then. In 1992 the site received over a million day-visits a year from 350,000 visitors, who stayed for an average of three days. In 1996 there were 980,000 visitors, 16,000 being foreign, and in 2001 4.46 million visitors of whom 1,320,000 were foreigners. The area then served mainly Chinese nationals with some visitors from Hong Kong, Macao and Taiwan. Access from Changsha by road or rail takes a long time. However the construction of an airfield at Zhangjiajie in 1994 has made the area much more accessible, and intensified visitor pressure. In 2001 there were 4,663,000 visitors, 3.4% being foreigners (WSRAB, 2002). Even in 1992 Yellow Dragon Cave received 100,000 visits a year (Thorsell & Lucas, *in litt.*). Of 18 scenic sections, the ten most important have been developed for tourism. There are three main entrances to the area, at Zhangjiajie, Tianzishan and Souxiyu. There is a tourist centre and a World Heritage museum. Both vehicular and hiking paths have been developed, providing access to some 239 specified natural scenic spots. Guided rafting on the river is popular. Geological and environmental tourism are being promoted. The local Tujia and Miao cultures are also displayed.

The stated goal for tourism was to achieve quality rather than quantity and attract international visitors (Thorsell & Lucas, *in litt.*, 1992). However, tourism has encouraged unsightly exploitation in the past. In an effort to restrict visitor damage, a number of different design approaches have been used. Entry to the site is by ticket, so that numbers can be counted and controlled if necessary. Vehicles are held in the buffer zone and from Zhangjiajie visitors may walk round following any of five itineraries, on very good paths, to some 80 scenic points, then use shuttle buses to visit other parts of the area. A funicular has been installed to the top of Tianzishan; another cable car and an elevator have also been installed elsewhere. Visitors travel in shuttle buses from their accommodation in the buffer zone in centres like Zhangjiajie City and Wulingyuan village where there are several good hotels.

SCIENTIFIC RESEARCH AND FACILITIES

The undisturbed nature and large extent of the peaks make them a valuable scientific resource. There have been regular measurements of air and water quality 1992. Between 1986 and 1988 national and state geological and environmental agencies studied the area in depth. Since then, international teams have studied the cave system and Tongyi and Peking Universities have studied the area's scenery. At present two major research projects are now underway: a) on the scenery, tourism development, biodiversity protection strategies, the area's culture, the influence of construction on the environment and scenic area restoration; and b) the geology and topography of the area. Since 1999 there has also been regular monitoring of geological and geographical conditions, air and water quality and biological indicators (WSRAB, 2002).

MANAGEMENT

In the past, the site was remote, inaccessible, and almost untouched by man until the founding of the republic in 1949 and its 'discovery' in 1979. From 1949 it was under the administration of three county governments. In 1988 the Wulingyuan District was established and instructed to take to ensure its protection. The national policy has been to upgrade major landmark parks like Wulingyuan to a high standard, free of the uncontrolled development which easily accrues. The Park combines forests managed by the State Forestry Administration, mountains managed by the state Ministry of Construction and geologic features cared for by the Ministry of Land and National Resources. The

Forestry Department of the State Forestry Administration is based on the State Forest Protection Law and the State Wildlife Protection Law.

The site is protected under a range of national and regional legislation including the National Constitution, the Environment Protection Law, the Urbanisation Design Law and the Provisional Regulations of Places of Scenic and Historic Interest. Specific regulations for Wulingyuan itself include: Provisional Measures Concerning the Administration of Wulingyuan Scenic and Historical Interest Area (1989) and the Provisional Regulations Regarding Strengthened Protection of the Wulingyuan Scenic and Historical Interest Area (1991), both issued by the Municipal People's Government of the City of Dayong and the Provincial Regulations Concerning the Control over Sources of Fire in the Open Fields, issued by the District People's Government of Wulingyuan (1991). In 1992 a number of these State Council regulations were provisional pending review by various ministries (Thorsell & Lucas, *in litt.*). And in 2001 the definitive Hunan Wulingyuan World Natural Heritage Protection Regulations were promulgated.

The Wulingyuan Administrative Bureau has implemented a two-part administration plan to promote the site. This included raising public awareness of the site's beauty and its importance for conservation. A zoning system has been established, with first, second and third-class conservation sections and a buffer zone. The overall plan for the site subdivides it into 18 scenic sections. In some areas, tourists are not allowed, and access is restricted to the first and second-class conservation zones. Tourist numbers may at times be limited, while visitors to some scenic spots may have to be accompanied by a guide. Some hillsides are closed off for afforestation. Other aims have been to reduce the numbers of people living in the site by relocating them to distant places to control numbers within the buffer zone. This zone itself should be extended in the future if possible (Thorsell & Lucas, *in litt.*, 1992; WSRAB, 2002).

Heritage protection offices have been established at Suoxiyu, Tianzishan, Zhangjiajie and Yangjiajie in addition to the administrative offices already existing at Wulingyuan (the central office), Huangshi, Jinbiaping and Baofeng Lake. It is clear from the tone of the Administrative Bureau's 2002 report and the close interest of central government that the Wulingyuan heritage site will continue to improve as long as funds are available (WSRAB, 2002).

MANAGEMENT CONSTRAINTS

Tourism had clearly become a threat to some parts of the site as early as 1992. By 1998, a UNESCO/IUCN mission noted that uncontrolled tourist development had begun to degrade the scenic quality of the area and threaten the wildlife (Feng & Malloy, 1998). However, the division of authority over the area between the Wulingyuan Administrative Bureau, the State Ministry of Construction and the State Forestry Administration has led to difficulties. With the unexpected opportunities for wealth, the property was overrun with uncontrolled tourist facilities both official and unofficial. Problems from human pressures on the site included water, land and air pollution and poaching. Sewage had been allowed to flow into the main scenic rivers, from development at Jundiping and Luogota. The latter development of 7,000 beds was under the aegis of the Forest Park which was independent of the Wulingyuan authorities in manpower and funding. Hundreds of commercial shacks and other buildings were erected. Two mountain cable cars and a sightseeing elevator had been fastened onto mountains, at a cost to the scenery of their sites. Long-term concessions were granted over Baofeng Lake and Yellow Dragon cave, but over-development by the concessionaires was not easily controlled. Access road construction has caused landslides and other scars. Diesel traffic and coal smoke has produced pollution and acid rain. Wild animals were being hunted and fished freely or being driven into the backwoods by disturbance. In 1998, damage from the perennial hazard of flooding was also considerable. There is also some danger from landslips and earthquakes. These threats were mostly in the buffer zone, but have also degraded the World Heritage site. Expanding the buffer zone could help to improve core zone protection (WSRAB, 2002).

In 1998, the UNESCO/IUCN mission published their critical report recommending a thorough review of the site's tourism development policy which appeared to them confused, in order to improve the

management of both site and visitors (UNESCO, 1998; WSRAB, 2002). In 2000, the Administrative Bureau submitted a response to the Chinese premier who then personally visited the site. According to the Administrative Bureau's 2002 periodic report on the state of the site's conservation, two members of the central State Council backed by the Chinese premier visited and took note of the commercialisation and lack of law enforcement, poor management and inadequate funding. The officials demanded better site-protection and invested heavily in the post-flood emergency rehabilitation, to which WHF also contributed. In 2002 the Bureau reported laws, management plans and design techniques to bring the runaway development under control, announcing some successes (WSRAB, 2002). Between 1999 and 2001 hundreds of buildings within the scenic area were demolished, the inhabitants removed, the ground restored and forests planted, although there was some trouble from former inhabitants trying to return. Over 66 million yuan was spent on the clearances. New sewage treatment plants were built. Slash and burn agriculture, tree-felling, sand dredging and quarrying limestone are now prohibited. Restrictions are placed on water pollution, on the use of coal and diesel oil and the treatment of solid wastes. Noisy sightseeing helicopters are banned. The residential development and visitor facilities at Luogota were to be removed by 2010. Within the site, construction projects are now restricted. The confiscation of guns has led to a decrease in hunting. The collection of flowers, herbs or plant or animal specimens must be licensed and only undertaken for scientific or educational purposes. Public awareness about Wulingyuan and its conservation is being increased.

STAFF

A Heritage office with 3 employees was set up in 2001 to oversee the replanning, and heritage offices were set up in each reserve; there are now 500 management staff and 4,000 workers in maintenance, fire prevention and environmental protection. Increased training for personnel has begun (WSRAB, 2002).

BUDGET

The Park's routine maintenance is covered by entry fees but these are not quite enough for its protection. In 1992, the budget was approximately RMB5 million (US\$880,000), some 1.5 million (US\$260,000) of which was ongoing annual expenditure, the balance being capital expenditure (Thorsell & Lucas, *in litt.*, 1992). In 1998, over US\$2 million was given by the central government and US\$60,000 by WWF to fund site rehabilitation after floods (UNESCO, 1998). In 2001 the Japanese government loaned US\$6 million for two sewage treatment plants, and Hunan Construction Bureau gave Yuan 6 million (US\$ 1,055,000) for the preparation of the new plan. Between 1999 and 2002 a great amount of capital was raised for reconstruction projects (WSRAB, 2003).

LOCAL ADDRESSES

Wulingyuan Scenic Resort Administrative Bureau, Wulingyuan Regional Government, Zhangjiajie City, Hunan Province 427400, China.

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DATE

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