

## World Heritage Sites

### Protected Areas and World Heritage



## MOUNT WUYI FUJIAN, CHINA

*Mount Wuyi has one of the largest, most intact and biologically diverse subtropical forests in the world and is a refuge for a large number of relict plants, many of them endemic to China. The dramatically serene beauty of the lower gorge of Nine Bend River, with its numerous now ruined temples and monasteries, was the setting for the development and spread of neo-Confucianism in the 11th century, which has been very influential in the cultures of East Asia. In the 1st century B.C. a large administrative centre was built nearby at Chengcun, now an archaeological site of great significance.*

### COUNTRY

The People's Republic of China - Fujian

### NAME

Mount Wuyi (Wuyi Shan)

### MIXED NATURAL & CULTURAL WORLD HERITAGE SITE

1999: Inscribed on the World Heritage List under Cultural Criteria iii & vi and Natural Criteria vii & x.

### INTERNATIONAL DESIGNATION

1987: Designated a Biosphere Reserve under the UNESCO Man and Biosphere Program (56,527 ha).

### IUCN MANAGEMENT CATEGORY

Wuyi Shan Nature Reserve IV: Habitat/Species Management Area  
Wuyi Shan Scenic & Historic Interest Area V: Protected Landscape

### BIOGEOGRAPHICAL LOCATION

South Chinese Rainforest (4.6.1) / Chinese Subtropical Forest (2.1.2)

### GEOGRAPHICAL LOCATION

The site is in north-west Fujian Province 235 km northwest of Fuzhou City between 27°32'36"N - 27°55'15"N and 117°24'12"E - 118°02'50"E (**mapped as Huanggang Shan**).

### DATES AND HISTORY OF ESTABLISHMENT

748: The mountains and forests around the Wuyi River were first protected by imperial order for their exceptional beauty: forestry and fishing were prohibited;

1949+: The People's Republic declared the virgin forests of its northern part a non-felling area and strengthened its protection and management;

1979: Mount Wuyi Nature Reserve designated by the State Council of the national government;

1982: The mountain declared an Area of Scenic and Historical Interest by the State Council;

1987: Designated a Biosphere Reserve under the UNESCO Man and Biosphere Program.

1996: Protection of the Han dynasty town site at Chengcun approved by the State Council.

## LAND TENURE

State owned. Administered by the Mount Wuyi Protection & Management Committee for Areas of Scenic and Historic Interest (Scenic and Ecological Protection Areas) and the Mount Wuyi Nature Reserve Management Bureau (Biodiversity Protection Area).

## AREA

99,975 ha: comprising a Biodiversity Protection Area (56,527 ha) in the west, a Scenic Protection Area (36,400ha) in the centre and an Ecological Protection Area (7,000 ha) in the east plus a 48 ha area 15 km to the southeast protecting the remains of an ancient city. There is a buffer zone of 27,888 ha.

## ALTITUDE

From below 200m to 2,158m (Huanggang Shan).

## PHYSICAL FEATURES

This mountain range is the largest intact forested wilderness in southeast China. It is a rocky landscape of high peaks of which 112 are higher than 1,000m, with rugged monoliths, domed cliffs, craggy forested gorges, cave systems and winding streams. The area is part of the Cathayshan fold system within the eastern Asia circum-Pacific belt. The western half has a pronounced northeast-southwest fault and was subjected to intense volcanic activity in the Mesozoic era, then overlaid by thick sediments in the Jurassic to late Cretaceous periods, and eroded and weathered, but never glaciated. The western peaks are typically volcanic or plutonic, of hard tuffaceous lavas, rhyolite and granite. The eastern half of the site along Nine Bend River contains a large number of isolated 200-400m sheer-sided red sandstone monoliths formed by erosion along natural faults and jointing in the rock. The landscape of its lower gorge has an exceptionally scenic juxtaposition of smooth rock cliffs rising above clear deep waters (Nomination, 1998; IUCN, 1999). The site's concentration of geological and geomorphological features provides a wide range of microclimates and biological niches and also fit subjects for the ancient tradition of mountain painting.

## CLIMATE

The Wuyi Mountains form a barrier against cold air masses from the northwest, and retain the warm moist air stream coming in from the sea which gives the region its humid, often foggy climate and high rainfall. Annual temperatures range from 12°C to 18°C at lower altitudes. The annual precipitation is 2,200mm in the southwest to 3,200 mm in the north. In the highest areas above 1,800m, snow can lie for up to a month in winter. The relative humidity is 80-85% (Xiyang, 1988; Li & Zhao, 1989; IUCN, 1999).

## VEGETATION

Mount Wuyi is covered by one of the largest, most intact humid subtropical forests in the world, on the edge between the Chinese subtropical and south Chinese rain forests and is a refuge for a large number of relict plants: 53 discrete plant associations have been described. The high plant diversity on the mountain includes 284 families, 1,107 genera and 2,888 species of vascular species. There are 25 gymnosperms in 18 genera, and 14 bamboo forest types. 15 endangered and 13 rare species are listed in China's Red List. 78 species of orchids in 32 genera are recorded. Plant surveys in the 1980s-90s discovered 57 new species of higher plants, 48 of them endemic. A further 840 species of lower plants and fungi have been listed, including 282 ferns from 85 genera (Nomination, 1998, IUCN, 1999)..

The site has a wide range of vegetation types graded by elevation. The most extensive is evergreen broad-leaved forest which grows up to 1,400m. Eleven broad vegetation patterns are described: temperate coniferous forest, warm coniferous forest, temperate broad-leaved and coniferous mixed forest, deciduous and broad-leaved forest, evergreen broad-leaved and deciduous mixed forest, evergreen broad-leaved forest, bamboo forest, and, above 1,700m, deciduous broad-leaved and evergreen broad-leaved elfin forests, brush-wood and meadow. The dominant family is the Fagaceae; co-dominants are Lauraceae, Theaceae, Magnoliaceae, Elaeocarpaceae and Hamamelidaceae. At higher altitudes there is a cloud-forest with Ericaceae and a number of coniferous families. Among tree species are the evergreen chinquapins *Castanopsis eyeri*, *C. fargesii* and *C. fabri*, Hance tanbark oak *Lithocarpus hancei*, blue Japanese oak *Cyclobalanopsis glauca*, Taiwan pine *Pinus taiwanensis*, Chinese little-leaf box *Buxus sinica* var. *parvifolia*, common Chinese fir *Cunninghamia lanceolata*, Chinese cedar *Cryptomeria fortunei*, Masson pine *P. massoniana* and ginkgo *Ginkgo biloba*. Among rare relic species are Taiwan hemlock *Tsuga formosana*, Chinese hemlock *T. chinensis chekiangensis*, Chinese yew *Taxus sinensis*, Chinese tulip tree *Liriodendron sinensis*, Ford's manglietia *Manglietia fordiana*, Chinese bretschnidera *Bretschneidera sinensis*, Chinese cypress *Glyptostrobus pensilis*, Chinese torrey

*Torreya grandis* and dawn redwood *Metasequoia glyptostroboides* (Li & Zhao, 1989; Nomination, 1998, IUCN, 1999).

## FAUNA

The fauna of Mount Wuyi is internationally known for its high diversity and large numbers of rare and species, its reptiles, amphibians and insects. Its size alone makes the flora and fauna far richer than on the comparable Emei Shan and Huang Shan. In all, some 5,000 species have been recorded from the area. Vertebrates number 475 of which 143 species are protected and 46 listed under CITES (IUCN, 1999). These include 23 families and 71 species of mammal; 47 families and 256 species of bird; 13 families and 73 species of reptile; 10 families and 35 species of amphibian; and 12 families and 40 species of fish. In addition some 4,635 species of insects have been described, although the total insect fauna is probably far larger. Among the vertebrates are some 49 species endemic to China, one, the Chinese bamboo snake, *Pseudoxenodon karlschmidti* is endemic to Fujian, and two species endemic to the locality: short-tailed parrotbill *Paradoxornis davidianus*, and the chongan moustache toad *Leptobranchium liui*. Other notable species in the area include the South Chinese tiger *Panthera tigris amoyensis* (CR: probably now extinct in the area), clouded leopard *Neofelis nebulosa* (VU), leopard *Panthera pardus*, black muntjac *Muntiacus crinifrons* (VU), Chinese serow *Capricornis sumatraensis milneedwardsii*, yellow-billed tragopan *Tragopan caboti* (VU), Chinese black-backed pheasant *Syrnaticus ellioti*, the Chinese giant salamander *Andrias davidianus* (CR), and the golden kaiserhind swallowtail *Teinopalpus aureus*. The area is also important for migratory birds, and over 100 are protected by Sino-Japanese and Sino-Australian agreements. (IUCN, 1999; Nomination, 1998).

## CULTURAL HERITAGE

Archaeologists have discovered evidence of human occupation in the area 4,000 years ago, such as boat coffins containing ancient textiles. Since then, successive ages have left many cultural monuments and relics, notably the extensive remains and massive walls of a 1st century BC Western Han dynasty administrative capital of the Min-Yue kingdom at Chengcun uncovered in 1958. In the 7th century the Tang dynasty Wuyi palace was built for imperial ceremonies and in 748 an imperial conservation edict banned forestry and fishing within 60 km of this building, now the Immortal Greeting temple. The mountains were an important centre of Taoism and later of Buddhism when it became one of China's eight Buddhist Mountains. Temples and monasteries in the gorge became the setting for the development and spread of neo-Confucianism, inspired by the sage Zhu Xi in the 11th century, which has remained very influential in the cultures of East Asia. A Confucianism Research Centre exists today. The incomplete ruins of 35 academies and more than 60 temples have been located, with over 450 large rock inscriptions, largely in the gorges of Nine Bend River. Other notable sites are cave dwellings, buildings and structures. The area was famous for producing the finest teas for the imperial court and for its classically columnar mountains which were often painted (Nomination, 1998).

## LOCAL HUMAN POPULATION

There were 14 villages with a permanent population of 22,710 in the site in 1999, but the population within the core Biodiversity Protection Area is very small. The people were mainly engaged in tea-growing, agriculture and bamboo forestry and, now, tourism (Nomination, 1998).

## VISITORS AND VISITOR FACILITIES

Tourist numbers in the nominated area increased from about 424,000 in 1993 to around 700,000 in 1998. Of these, 85% were domestic tourists and 15% came from overseas. The average stay in the area varies between 3 and 10 days. Some 300,000 visitors annually raft down a 10-km stretch of the Nine Bend River gorge in a well-managed operation, and 120,000 visit the nearby Thread of Sky caves. Visitor access to the Biodiversity Protection Area is difficult and strictly controlled. There are several viewing terraces, natural and cultural museums, a Zhu Xi memorial hall, a painting academy, and two medical and rescue centres. Many books and brochures are available. Most tourist activities are restricted to the Tourist Service Area just outside the site, including a large hotel, restaurants and shops. There is a small airport and a railway station at Wuyishan City, 5 km away, and good road connection with other cities (Nomination, 1998; IUCN, 1999).

## SCIENTIFIC RESEARCH AND FACILITIES

As early as 1845 the plant collector R. Fortune collected specimens on the mountain and since 1873 domestic and foreign zoologists and botanists have collected nearly 1,000 new specimens of animals and plants, including 780 insects, 100 vertebrates and 60 new plant specimens. The China Biodiversity Research Report determined Mount Wuyi to be a key area for the protection of biodiversity and since its nomination as a Biosphere Reserve the amount of research has increased. There is a Biological

Research Centre in the Biodiversity Protection Area for which funding has been provided through the GEF. In the years before designation there were surveys and investigations into geology, land form, biological resources, Neo-Confucianism, the ancient town and cultural relics, many of which continue. Many studies have been published (NEPS, 1994; Nomination, 1998, IUCN, 1999).

### **CONSERVATION VALUE**

Mount Wuyi is one of the largest, most intact and biodiverse humid subtropical forests in the world, with high numbers of relict and threatened species and an ancient cultural tradition (Nomination, 1998). The Park lies within a WWF Global 200 Eco-region, a WWF/IUCN Centre of Plant Diversity, and overlaps a UNESCO Biosphere Reserve.

### **CONSERVATION MANAGEMENT**

The area is co-managed by the Mount Wuyi Protection & Management Committee for Areas of Scenic and Historic Interest for the scenic and ecological protection areas, and the Mount Wuyi Nature Reserve Management Bureau for the biological reserve. The whole site is subject to national and provincial laws and regulations for the protection of cultural relics (1982), areas of scenic and historic interest (1985, and 1988) nature reserves (1985 and 1990), wildlife (1988), and the environment (1989). A Master Plan for the Scenic and Historic Interest Areas was approved in 1986. A Management Plan for the Mount Wuyi Nature Reserve was drawn up for 1999-2019 and a Plan for the Protection of the Chengcun Han Dynasty Townsite was completed in 1995. These recommend scientific management measures, the strengthening of surveys and studies, and bringing in international experience, technical information and contacts. Government and management organisations have developed ecological tourism plans, improving the monitoring of wildlife and vegetation, tourism and local communities and ancient sites and promoting public awareness in the villages in and next to the site (Nomination, 1998).

### **MANAGEMENT CONSTRAINTS**

The extensive buffer zone around the site is important since the fast social and economic development of the surrounding villages will place increasing pressure on the surrounding lands, posing a potential threat to the rich resources of the mountain. Growing tourism, water and air pollution may begin to impact the site, but they are strictly controlled at present. The valleys tend to flood during the rainy season (Nomination, 1998, IUCN Technical Evaluation, 1999).

### **STAFF**

275 staff including 145 professional and technical personnel and 130 management and maintenance personnel. There are 7 check points, 9 management offices, 15 field posts, and teams covering supervision, security, emergency search and rescue, forest and fire protection and medical services. Extensive training programs are integral to the management of the site (Nomination, 1998).

### **BUDGET**

Funding is from the State and local financial sources. Between 1980 and 1998 capital invested in the site totalled RMB 180 million (US\$36,700,000), of which 60% came from local industries and tourist fees. A GEF grant paid for the Nature Reserve management plan and in 2005, US\$40,000 was granted for a museum hall at the ancient town (Nomination, 1998).

### **LOCAL ADDRESSES**

Fujian Provincial Forestry Bureau, Fuzhou, Fujian, China.

Fujian Provincial Cultural Bureau, Fuzhou, Fujian, China.

## REFERENCES

The principal source for the above information was the original nomination for World Heritage status.

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