IUCN Conservation Outlook Assessment 2017 **(archived)**
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Please note: this is an archived Conservation Outlook Assessment for South China Karst. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

South China Karst

SITE INFORMATION

Country:
China
Inscribed in: 2007
Criteria:
(vii) (viii)

Site description:
The South China Karst region extends over a surface of half a million km2 lying mainly in Yunnan, Guizhou and Guangxi provinces. It represents one of the world's most spectacular examples of humid tropical to subtropical karst landscapes. The stone forests of Shilin are considered superlative natural phenomena and a world reference with a wider range of pinnacle shapes than other karst landscapes with pinnacles, and a higher diversity of shapes and changing colours. The cone and tower karsts of Libo, also considered the world reference site for these types of karst, form a distinctive and beautiful landscape. Wulong Karst has been inscribed for its giant dolines (sinkholes), natural bridges and caves. © UNESCO

SUMMARY

2017 Conservation Outlook

Good with some concerns

The outstanding scenic and geological values are well protected under the current management regime. These values are largely resilient to human modification and loss and their overall condition and trend is good and stable. Significant progress has also been achieved with the development and implementation of an integrated management system for the entire serial property with the development of the overarching Conservation and Management Plan for South China Karst. Significant threats are few in number and generally under control through careful management intervention. There are two significant current threats that could become more problematic in the near future – pollution of upstream catchments affecting both surface and underground water courses in the property, and increased tourism infrastructure development, which could introduce undesirable elements of mass tourism at popular scenic spots. However, it needs to be noted that it is often difficult to generalise because the issues of concern vary in seriousness from component to component in this serial property.

Current state and trend of VALUES

Good
Trend: Stable

The outstanding scenic, aesthetic and geological values of the property are in good condition and their trend is stable. The additional karst landforms added to the property in 2014 completed the diverse spectrum of South China Karst landscapes and landforms. Biological and hydrological elements play a major role in maintaining these values and in allowing the natural progression of landscape evolution. To date the management has been able to avoid any serious deterioration, but continued vigilance and effective management intervention are required in the long term.

Overall THREATS

Low Threat

Overall, both current and potential threats to the values and attributes of the property can be assessed as low, and capable of being controlled by existing management capacity. Of greatest concern, is expanding development of tourism infrastructure. Other threats of lesser concern are the impacts of subsistence cropping and livestock grazing, introduction of exotic and alien species, waste production, and natural disasters such as landslides, floods and droughts.

Overall PROTECTION and MANAGEMENT

Mostly Effective

Overall, the protection and management of the property can be assessed as mostly effective. The property has a very strong legal basis and a good administrative framework, and site management is of adequate capacity and capability. The scientific underpinning of management is excellent, but educational outreach needs further work. Significant progress has been achieved with the development and implementation of an integrated management system for the entire serial property with the development of the overarching Conservation and Management Plan for South China Karst.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► **Spectacular humid tropical to subtropical karst landscapes**
Criterion:(vii)

South China Karst represents one of the world's most spectacular examples of humid tropical to subtropical karst landscapes (Nomination document, 2006; Management plan, 2005; IUCN, 2006; WCMC, 2011). The property includes the stone forests of Shilin, superlative natural phenomena which include the Naigu stone forest occurring on dolomitic limestone and the Suyishan stone forest arising from a lake, the remarkable fengcong and fenglin karsts of Libo, and the Wulong Karst, which includes giant collapse depressions, called Tiankeng, and exceptionally high natural bridges between them, with long stretches of deep unroofed caves. It also includes Guilin, which displays spectacular tower karst and internationally acclaimed fenglin riverine landscapes, Shibing Karst, which has the best known example of subtropical fengcong karst in dolomite, deep gorges and spine-like hills often draped with cloud and mist, and Jinfoshan Karst, which is an isolated island long detached from the Yunnan-Guizhou plateau, surrounded by precipitous cliffs and punctured by ancient caves. Huanjiang Karst provides a natural extension to Libo Karst, contains outstanding fengcong features and is covered in almost pristine monsoon forest (World Heritage Commitee, 2014).

► **Limestone karst landforms and landscapes of global scientific significance.**
Criterion:(viii)

Stone forests of Shilin illustrate episodic evolution in four major geological time periods over a period of 270 million years. Libo has carbonate outcrops of different ages eroded into cone (Fengcong) and tower (Fenglin) karsts, with intervening deep dolines, sinking streams and long river caves. Wulong represents high inland karst plateaus that have experienced considerable uplift, with giant dolines and bridges. Wulong's landscapes contain evidence for the history of one of the world's great river systems, the Yangtze and its tributaries. Huanjiang Karst is an extension of the Libo Karst component. Together the two sites provide an outstanding example of fengcong karst and also preserve and display a rich diversity of surface and underground karst features (Nomination document, 2006; Management plan, 2005; IUCN, 2006; WCMC, 2011; World Heritage Committee, 2014). Guilin Karst is considered the best known example of continental fenglin and provides a perfect geomorphic expression of the end stage of karst evolution in South China. Guilin is a basin at a relatively low altitude and receives abundant allogenic (rainfed) water from surrounding hills, leading to a fluvial component that aids fenglin development, resulting in fenglin and fengcong karst side-by-side over a large area. Scientific study of karst development in the region has resulted in the generation of the ‘Guilin model’ of fengcong and fenglin karst evolution. Shibing Karst provides a spectacular fengcong landscape, which is also exceptional because it developed in relatively insoluble dolomite rocks. Shibing also contains a range of minor karst features including karren, tufa deposits and caves. Jinfoshan Karst is a unique karst table mountain surrounded by massive towering cliffs. It represents a piece of dissected plateau karst isolated from the Yunnan-Guizhou-Chonqing plateau by deep fluvial incision (World Heritage Committee, 2014).

Other important biodiversity values

► Intact and biologically rich subtropical karst forests

The property protects one of the largest expanses of intact karst forest in the world, dominated by evergreen broadleaved forest and evergreen mixed broadleaf-conifer forest. Located at the junction of three biogeographical provinces, the property has transitional vegetation of great variety. Shilin has 899 spp. of vascular plants of which eight are nationally protected plants,

and there are 100 rare and locally endemic plants. Libo has 1,532 vascular plants with 18spp. listed in the IUCN Red List. Wulong has 558 vascular plant spp. Of the fauna – Shilin has 185 vertebrate species; Libo has 314 species plus 174 spp. of cave fauna; and Wulong has 332 species of animals including nationally rare and endemic species. The property is partly within a WWF Global 200 Eco-region, and it forms a Birdlife-designated Endemic Bird Area (Nomination document, 2006; Management plan, 2005; IUCN, 2006; WCMC, 2011).

Assessment information

Threats

Current Threats

Low Threat

Overall, the current threat level is assessed as low but vigilance is required to ensure that some threats would not result in significant negative effects on the site’s values and integrity in the long run.

► Poaching

Low Threat
Outside site

Residents in the property and in the buffer zone are engaged in subsistence agriculture and there is some cash cropping. Herbicides and pesticides are discouraged but there are reports of runoff from cropped and grazed land, and from villages, affecting water quality (Management plan, 2005; IUCN, 2006).

► Solid Waste

Low Threat
Inside site, localised(<5%)

Waste from townships and villages and from tourist zones is not fully

controlled (Management plan 2005; IUCN 2006; Periodic Report, 2012).

▶ Tourism/ Recreation Areas

High Threat
Inside site, scattered(5-15%)

Tourist numbers have grown steadily since inscription of the property, gradually, tourism becomes a pillar industry in some components. Libo Karst, Wulong karst, Guilin Karst are famous and popular places for domestic and international tourism, they are reported to have millions of tourists in 2017. Therefore these components can be particularly influenced by high visitor pressure. Construction of new tourist facilities, glass bridge in Shibing Yuntai mountain core zone for instance (The 13th five-year national economic and social development plan of Shibing County, 2017), might influence the integrity of the property. On the other hand, in many components, strict regulations are in place to prevent any new constructions within the boundaries of components (IUCN Consultation, 2017).

▶ Invasive Non-Native/ Alien Species

Low Threat
Inside site, localised(<5%)

Invasive species are reported among the negative factors affecting the property (Management plan, 2005; Periodic Report, 2012).

▶ Avalanches/ Landslides, Erosion and Siltation/ Deposition, Earthquakes/ Tsunamis

Low Threat
Inside site, localised(<5%)

Parts of the property experience earthquakes, landslides, accelerated soil erosion, flooding and drought (Management plan, 2005; Nomination document, 2006; IUCN, 2006, WCMC, 2011). For example, Wulong karst is located in the Yunnan-Guizhou Plateau and the joint position of the Three Gorges region, which is prone to collapse, landslides, mudslides, karst collapse and earthquakes (Zhang Zhenzhen, 2016). And Shilin Karst is easily affected by earthquake, Jinfoshan exposes to collapses and landslides (Chen Yan, 2017).

► Tourism/ visitors/ recreation

High Threat
Inside site, scattered(5-15%)

Tourist numbers have grown steadily since inscription of the property, gradually, tourism becomes a pillar industry in some components. Associated impacts include solid waste accumulation and pollution. However, a number of measures have been undertaken to address the issue. In Shilin component, garbage disposal policies in accordance with requirements of the Quality Management System(QMS), Environment Management System(EMS), and Occupational Health and Safety Assessment System (OHSAS) are being applied. Different garbage collection facilities are in place and garbage collected by garbage trucks is then transported to the Waste Biochemical Treatment Plant of Yiliang County, Kunming Province in the same day (IUCN Consultation, 2017). For some components, tourism carrying capacity studies have been undertaken. For example, the "Shilin Scenic Area’s Maximum Tourists Carrying Capacity Report" estimated the maximum environmental capacity at 4.85 million tourists per year in tourism area (IUCN Consultation, 2017).

► Roads/ Railroads

Low Threat
Outside site

Guiyang-Nanning High-speed Railway would cross the buffer zone of Libo Karst, 3km away from the property, potentially affecting its biodiversity, landscape and karst landform. Shilin karst plans to broaden and build roads across the buffer zone of the component to connect Changhu Scenic, Dieshui Scenic and Shilin County, which might have impacts on biodiversity and hydrogeological environment of the property (Sun Jie, 2017; Zhang Zhenzhen, 2016; 41 COM 7B.26).

Potential Threats

Low Threat

Given the already high and increasing tourism at the most popular areas, pressure to expand existing facilities and infrastructure will remain, even if

regulations are in place to prevent any harmful developments.

▶ Other

Low Threat
Inside site, not applicable
Outside site

Given the already high and increasing tourism at the most popular areas, pressure to expand existing facilities and infrastructure will remain, even if regulations are in place to prevent any harmful developments.

Protection and management

Assessing Protection and Management

▶ Relationships with local people

Some Concern

A policy for sharing tourism benefits with community was proposed, which may encourage local community to take part in direct administration of the sites (State of Conservation Report of South China Karst World Natural Heritage, 2016). Wukeshu Village had been relocated from the property of Shilin Karst with the consent of the population concerned (41COM 7B.26). Traditional management by minority peoples is an important element in some components which requires continued recognition and respect in site management (World Heritage Committee, 2014).

▶ Legal framework

Mostly Effective

There is a strong legal framework at national and provincial levels, but some lack of capability to enforce regulations outside the property (31COM 8B.11; IUCN, 2006; WCMC, 2011).

▶ Enforcement

Mostly Effective

Strict regulations on development and constructions within the property are

being effectively enforced. Within the buffer zone, there is a set of very strict approval regulations for new constructions, including assessment of scales, site selection, environmental evaluation and reporting procedures (State Party of China, 2016).

▶ Integration into regional and national planning systems

Data Deficient

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▶ Management system

Mostly Effective

The Conservation and Management Plan of South China Karst (CMP-SCK) was finalized in late 2016 covering the period 2016-2025, and has established the Protection and Administration Coordinating Committee for South China Karst World Heritage Sites (PACC) in 2015 to integrate planning, governance and management of the whole serial property (41COM 7B.26).

▶ Management effectiveness

Mostly Effective

Significant progress has been achieved with the development and implementation of an integrated management system for the entire serial property (UNESCO, 2017). The overarching Conservation and Management Plan for South China Karst identifies threats at each component and includes specific targets and management measures for water, solid waste, air pollution, light pollution, and noise control, as well as separate chapters on tourism, local communities, education, scientific research, and monitoring (UNESCO, 2017). Given the recent adoption of the Plan, it is too early to assess the effectiveness of its implementation.

▶ Implementation of Committee decisions and recommendations

Highly Effective

The request expressed by the World Heritage Committee in 2014 "to continue efforts to integrate planning, governance and management across the whole South China Karst World Heritage property including the proposed finalization of a management plan anticipated by 2015" (World Heritage

Committee, 2014), has been now addressed through the development of an overarching Conservation and Management Plan for South China Karst (UNESCO, 2017).

▶ Boundaries

Mostly Effective

The property was extended in 2014 and now includes seven karst clusters in four Provinces: Shilin Karst, Libo Karst, Wulong Karst, Guilin Karst, Shibing Karst, Jinfoshan Karst, and Huanjiang Karst (World Heritage Committee, 2014). A proposal for a boundary modification of the Wulong component is currently being developed (IUCN Consultation, 2017).

▶ Sustainable finance

Mostly Effective

Adequate funding levels are reported (Nomination document, 2006; Management plan, 2005).

▶ Staff training and development

Some Concern

Trainings on water protection measures and monitoring have been organized for many times. In 2014-2016, technical and administrative staff participated in seminars and trainings held in different places across the country (State Party of China, 2016).

▶ Sustainable use

Mostly Effective

Local communities are engaged in sustainable farming activities with support of site managers (Nomination document, 2006).

▶ Education and interpretation programs

Mostly Effective

A number of new exhibition centres were built up to promote the values and importance of the components of the property, for example the Shibing World Heritage Exhibition Center.

▶ Tourism and visitation management

Some Concern

Tourism is growing steadily and proving increasingly harder to control. May require imposition of limits on visitors (Nomination document, 2006, Management plan, 2005, IUCN, 2006).

▶ Monitoring

Mostly Effective

Monitoring of cave environments, fires, floods, water quality, species, invasive species, and numbers of visitors is undertaken (Nomination document, 2006, Management plan, 2005; IUCN, 2006). Remote sensing of all components is being undertaken and is complemented by field inspections (State Party of China, 2016). However, some concerns remain regarding the indicators used, as well as regarding the lack of equipment (Zhang zhenzhen, 2017).

▶ Research

Highly Effective

Many scientific institutions are active in the property. Scientific values are well documented. Socio-economic research occurs (Nomination document, 2006, Management Plan 2006, WCMC, 2011; State Party of China, 2016).

Overall assessment of protection and management

Mostly Effective

Overall, the protection and management of the property can be assessed as mostly effective. The property has a very strong legal basis and a good administrative framework, and site management is of adequate capacity and capability. The scientific underpinning of management is excellent, but educational outreach needs further work. Significant progress has been achieved with the development and implementation of an integrated management system for the entire serial property with the development of the overarching Conservation and Management Plan for South China Karst.

► **Assessment of the effectiveness of protection and management in addressing threats outside the site**

Some Concern

The range and level of threats inside the property are mirrored by those in the buffer zone and surrounding areas. The site managers appear to have a good relationship with provincial management authorities in identifying threats and concerns, but successful solutions require ongoing collaborative effort which may be difficult to sustain.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► **Spectacular humid tropical to subtropical karst landscapes**

Low Concern
Trend:Stable

The current state of the scenic and aesthetic values and attributes of the property is assessed as of low concern. Biological elements though are not considered to be of World Heritage quality, play a major role in maintaining these values. To date the site managers have been able to avoid any serious deterioration, but continued vigilance and effective management intervention are required in the long term (Periodic report, 2012). The additional karst landforms
added to the property in 2014 completed the diverse spectrum of South China Karst landscapes and landforms (IUCN, 2014).

► **Limestone karst landforms and landscapes of global scientific significance.**

Good
Trend:Stable

The condition and trend of the geological values of the property can be rated as good and stable respectively. However, the natural progression of

geomorphological evolution of the karst landscapes requires that the biological and hydrological regimes of the natural ecosystems remain intact and unmodified. These regimes will require the principal management effort to maintain the World Heritage values of the property in perpetuity (Periodic report, 2012). The areas that were added to the property in 2014 through its extension were evaluated as being in good condition (IUCN, 2014). However, clastic and chemical cave sediments are fragile features that are easily damaged by humans. Caves open to tourists need to be managed to the highest standards.

Summary of the Values

► Assessment of the current state and trend of World Heritage values

Good

Trend: Stable

The outstanding scenic, aesthetic and geological values of the property are in good condition and their trend is stable. The additional karst landforms added to the property in 2014 completed the diverse spectrum of South China Karst landscapes and landforms. Biological and hydrological elements play a major role in maintaining these values and in allowing the natural progression of landscape evolution. To date the management has been able to avoid any serious deterioration, but continued vigilance and effective management intervention are required in the long term.

► Assessment of the current state and trend of other important biodiversity values

Low Concern

Trend: Data Deficient

The condition and trend of biota in the property are generally of low concern, but there is no room for complacency. An intact vegetation cover is vitally important for the continuation of natural geomorphological processes and geological evolution. There are also many endemic and endangered species of national and international conservation and scientific importance. In particular, significant cave fauna could be detrimentally affected by tourist activities. There is concern over the presence of exotic and alien species, and

a need to control these and prevent further introductions. Pollution of waterways is of major concern to habitat health and the survival of freshwater biota.

Additional information

Benefits

Understanding Benefits

► Importance for research

The property is a significant focus of research and is a major source of knowledge about karst landscapes, with more than 500 scientific papers published since its inscription. There is also some contribution to local education programs but this could be expanded.

► Traditional agriculture

Small-scale farming by local residents is permitted in the property. Agricultural practices avoid the use of herbicides and pesticides. Livestock grazing is generally discouraged. There is some pollution with runoff from agricultural land.

► History and tradition

Traditional lifestyles and practices of the local minority groups are recognized and encouraged, and they contribute to tourist programs. The property protects many sacred sites.

► Soil stabilisation, Flood prevention, Water provision (importance for water quantity and quality)

The property provides very substantial environmental services such as protection of natural vegetation cover, prevention of soil erosion, mitigation

of impacts of landslides and flooding, and maintenance of water quality.

► **Direct employment, Tourism-related income, Provision of jobs**

The property brings both direct economic incomes through entry tickets and relevant travel services and indirect benefits like employment and reputation (Wang Huiting, 2017).

Summary of benefits

The property contributes significantly through research to an improved scientific understanding of karst landscapes. Local residents including minority groups are able to pursue traditional agricultural activities, and receive benefits from cash income as employees within the property or through the sale of local produce and handicrafts to visitors. Protection and management programs contribute to a wide range of environmental services and to the promotion of cultural values.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	.		.
2	Guizhou Normal University, Xiong Kangning	From: 2016 To: 2020	“Industrial Mode and Technology Integrating Demonstration of Rocky Desertificationg Control, World Heritage Protection and Mountain Tourism”
3	Guizhou Normal University / Xiao Shizhen	From: 2015 To: 2015	Named ”Specialized Technical Services for the Impacts of the New-built Guiyang-Nanning Passenger Transportation Railway Project on Libo World Natural Heritage Site”, aims to fully demonstrate the impacts of the project on the Libo World Heritage and the buffer zone.

№	Organization/ individuals	Project duration	Brief description of Active Projects
4	Guizhou Normal University / Xiong Kangning	From: 2014 To: 2019	Named “The Science and Technology Support of the Protection and Management of Shibing World Heritage Site of South China Karst”, aims to further strengthen the scientific research, resource protection and environmental change monitoring, protection and management of science and technology support in Shibing Karst.
5	Guizhou Normal University / Xiong Kangning	From: 2014 To: 2015	Named ”Scientific research of Huanjiang World Heritage Site of South China Karst”, aims to further strengthen the scientific research, resource protection and environmental change monitoring of the Huanjiang World Natural Heritage Site.

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