IUCN Conservation Outlook Assessment 2014 **(archived)**
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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

2014 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 threats are few in number and generally under control through careful management intervention. There is still some priority needed in redressing boundary delimitation issues for the property itself and the buffer zones. Improved administrative co-ordination among the various separate components of the serial property is also a priority for further consideration. 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 or of low concern, and their trend is stable. Biological and hydrological elements play a major role in maintaining these values and in allowing the natural progression of landscape evolution. They are more sensitive to damage and loss than geological features, so must be protected to the highest standards of management. 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, and rated as high threats, are pollution of waters in the major river catchments which affect both surface and underground streams, and 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 of biota, waste production from farmed land, townships and tourist areas, 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. The most important issues for management relate to protection of the non-World Heritage biological values, as these are much more vulnerable to impacts than the geological values which form the basis of the site’s Outstanding Universal Value. There is insufficient co-ordination among the several component parts of the serial property, and there are on-going difficulties for site managers in controlling external developments and impacts, especially from pollution in major river catchments. There is still considerable work to be done in the complex task of refining and finalizing the boundaries of the property and buffer zone. Expansion of tourism activities and infrastructure remain a concern and further limitations may have to be imposed on growth in this area.

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. The stone forests of Shilin are considered superlative natural phenomena and the world reference site for this type of feature. Superlative stone forests of Shilin show a great diversity of pinnacles of different shapes and varying colours. Spectacular cones and towers of Libo. Giant collapse depressions and high natural bridges of Wulong (Nomination document, 2006; Management plan, 2005; IUCN, 2006; WCMC, 2011).

- **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 (Fengkong) and tower (Fenglin) karsts, with intervening deep dolines, sinking streams and long river caves. Wulong comprises high uplifted plateaus revealing evidence of the geomorphological development of the Yangtze River system, one of the world’s greatest rivers (Nomination document, 2006; Management plan, 2005; IUCN, 2006; WCMC, 2011).

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 this level is maintained in the long term. Two threat categories are rated as high – water pollution and tourism developments.

► Subsistence hunting

Low Threat

Inside 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).

► Invasive Non-Native/ Alien Species

Low Threat
Inside site

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

► Solid Waste

Low Threat
Inside site

Waste from townships and villages and from tourist zones is not fully controlled (Management plan 2005; IUCN 2006; Periodic Report, 2012).

► Avalanches/ Landslides, Erosion and Siltation/ Deposition

Low Threat
Inside site

Parts of the property experience landslides, accelerated soil erosion, flooding and drought (Management plan, 2005; Nomination document, 2006; IUCN, 2006, WCMC, 2011).

► Water Pollution

High Threat
Inside site

There is a significant problem controlling pollution in the upstream catchments and downstream courses of major rivers that flow through the property and buffer zone (IUCN 2006; WCMC 2011). Chongqing Wulong Karst region has a serious potential possibility of water pollution into natural caves from catchment area, and this is the only and the most serious concern.

► Tourism/ visitors/ recreation

High Threat
Inside site

Tourist numbers have grown slowly but steadily since inscription of the property, especially in Shilin. Waste production and disposal are problems in tourist spots, with garbage accumulating in the peak tourist season (Management plan, 2005; Nomination document 2006; IUCN, 2006, WCMC, 2011). The Yunnan Shilin Karst is one of the most famous and popular place for domestic and international tourism. Therefore this component can be particularly influenced by high visitor pressure.

Potential Threats

Low Threat

A number of potential threats, both in the property and the buffer zone, are identified in the management plan. These, too, highlight impacts from pollution and tourist developments.

► Other

Low Threat
Inside site

These are among the potential threats mentioned in the management plans for the sites in the property and the buffer zone (Management plan, 2005).

Protection and management

Assessing Protection and Management

► Relationships with local people

Mostly Effective

Traditional minority groups interact with management authorities but their cultural identity and traditions should be given greater recognition and respect in management (31COM 8B.11; Nomination document, 2006;

Management plan 2005; WCMC 2011).

▶ Legal framework and enforcement

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).

▶ Integration into regional and national planning systems

Data Deficient

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▶ Management system

Mostly Effective

A management plan exists but there are some problems in coordinating administration and management among the component parts of the property (31COM 8B.11; WCMC, 2011). The management structure at Wulong is considered to beefficient (Management plan, 2005).

▶ Management effectiveness

Some Concern

Generally effective, but protection of water quality in upstream catchments and downstream water courses is proving difficult (IUCN, 2006, WCMC, 2011). With international donor financial and technical support there have been improvements in staff capacity and training, external outreach and awareness raising, resource monitoring systems and database developments, and visitor planning (Kaldun, 2009).

▶ Implementation of Committee decisions and recommendations

Data Deficient

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▶ Boundaries

Some Concern

Some boundaries are considered to be essentially arbitrary and ineffective, taking no account of the physical landscape or developments and not well known by the community (Chuanrong Zhang, 2005). The Wulong site should be extended and the buffer zone re-designed. Some changes have been made in Libo site boundaries (31COM 8B.11; IUCN, 2006; WCMC, 2011).

▶ Sustainable finance

Mostly Effective

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

▶ Staff training and development

Some Concern

Lack of staff training opportunities is reported (Management plan, 2005).

▶ Sustainable use

Mostly Effective

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

▶ Education and interpretation programs

Some Concern

Reported to be only fair (Management plan, 2005).

▶ Tourism and interpretation

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

Highly Effective

Monitoring of cave environments, fires, floods, water quality, species,

invasive species, and numbers of visitors (Nomination document, 2006, Management plan, 2005; IUCN, 2006).

▶ 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).

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. The most important issues for management relate to protection of the non-World Heritage biological values, as these are much more vulnerable to impacts than the geological values which form the basis of the site’s Outstanding Universal Value. There is insufficient co-ordination among the several component parts of the serial property, and there are on-going difficulties for site managers in controlling external developments and impacts, especially from pollution in major river catchments. There is still considerable work to be done in the complex task of refining and finalizing the boundaries of the property and buffer zone. Expansion of tourism activities and infrastructure remain a concern and further limitations may have to be imposed on growth in this area.

▶ 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. They are more sensitive to damage and loss than geological features, so must be protected to the highest standards of management. 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).

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

Good
Trend:Stable

The geological values and features of the property are essentially robust and resilient to human influences and destruction. Their condition and trend 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).

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).

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 or of low concern, and their trend is stable. Biological and hydrological elements play a major role in maintaining these values and in allowing the natural progression of landscape evolution. They are more sensitive to damage and loss than geological features, so must be protected to the highest standards of management. 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

Key conservation issues

▶ Water pollution

Regional

There is a significant problem controlling pollution in the upstream catchments and downstream courses of major rivers that flow through the property and buffer zone (IUCN 2006; WCMC 2011).

▶ Impacts of tourism

Local

Tourist numbers have grown slowly but steadily since inscription of the property, especially in Shilin. Waste production and disposal are problems in tourist spots, with garbage accumulating in the peak tourist season (Management plan, 2005; Nomination document 2006; IUCN, 2006, WCMC, 2011).

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.

▶ **Does management of the site provide jobs (e.g. for managers or rangers)?**

The property provides jobs and cash income for more than 500 people and gives opportunities for the sale of local produce and handicrafts.

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	.		.

REFERENCES

№	References
1	31COM 8B.11
2	Chuanrong Zhang et al. 2005. Towards establishing effective protective boundaries for Lunan State Forest using an online spatial decision support system. Acta Carsologica 34/1(9): 151-167.
3	IUCN, 2006. IUCN evaluation report for South China Karst, China.
4	Kaldun, B. et al. (eds.), 2009. Mercedes Benz-UNESCO co-operation on the conservation and management of World Heritage sites in China: Achievement report 2008. UNESCO Office, Beijing, China 2009, 53pp.
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6	Nomination document, 2007. South China Karst : Shilin Karst (Yunnan), Libo Karst (Guizhou), Wulong Karst (Chongqing). Ministry of Construction, People’s Republic of China.
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