

# Development and Ranking of Tourism Management Goals for Wolong and Wanglang Giant Panda Nature Reserves, China

Weinan Connie Yin and Paul F. J. Eagles

Department of Recreation and Leisure Studies, University of Waterloo, Waterloo, Ontario, Canada

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## SUMMARY

The giant panda (*Ailuropoda melanoleuca*) is an endangered species with a high-profile international image. Its profile is heightened through its use by the World Wildlife Fund for Nature (WWF) as a symbol of conservation. To protect the giant panda and its habitat, the Chinese government established 33 nature reserves between 1962 and 2002, with a total area of 5,830 km<sup>2</sup>. There are about 1,590 wild giant panda protected and managed in their natural habitat in China. The Wolong and Wanglang Nature Reserves in the Minshan Mountains of Sichuan Province have thriving populations of giant pandas and, recently, have seen large increases in tourism. Neither of these reserves have formal tourism management goals or plans. This research used a literature review to develop tourism management goals and a Delphi method applied to reserve managers, scientists and park visitors to develop and prioritize the goals for these reserves. The research found that the tourism management goals developed from the international literature were applicable in this specific situation involving a charismatic, endangered species in China. It also revealed that prioritization amongst many applicable goals can also be achieved. This is the first time that tourism management goals have been developed for the giant panda reserves in China. It is also significant that these goals were developed using the opinions of three key groups involved in research, resource management and tourism at the reserves.

## INTRODUCTION

The giant panda (*Ailuropoda melanoleuca*) is an endangered species of large mammal with a wonderful image in the world (Schaller *et al.* 1985). Because of its impressive black and white appearance and its rarity, the WWF selected it as their symbol of conservation. To protect the giant panda

and its habitat, the Chinese government established 33 nature reserves between 1962 and 2002, with a total area of 5,830 km<sup>2</sup> (Zhao 2002). These reserves contain more than 50% of the giant panda habitat and give protection to about 60% of the wild giant panda population (WWF 2003). There are

about 1,590 wild giant panda protected and managed in their natural habitat in China (WWF 2004). The Minshan Mountains of Sichuan Province have the largest population of giant panda. Wolong and Wanglang Nature Reserves in the Minshan Mountains are the focus of this research. Both are close to Chengdu, the capital of Sichuan Province in the southwest of China.

The Wolong Giant Panda Nature Reserve was the first reserve created, designated in 1963, and is also the largest, about 2,000 km<sup>2</sup>. It extends about 60 km from east to west and 63 km from north to south (102°52′–103°24′E, 30°45′–31°25′N). The Wanglang Nature Reserve, established in 1965, covers 323 km<sup>2</sup> (103°55′–104°10′E, 32°49′–33°02′N).

Because of its reputation and large area, Wolong has many more visitors than most other nature reserves in China, with about 100,000 visitors in 2002 (M. Chen, personal communication, November 3, 2003). With the development of tourism, visitor numbers in Wanglang have increased dramatically in recent years: from 1,100 in 1998; 1,700 in 1999; 4,770 in 2000; 12,460 in 2001; to 21,266 in 2002 (S.W. Jiang, personal communication, May 28, 2003). Both nature reserves face the dilemma of managing the natural resources and the increasing number of visitors. At present, neither reserve has tourism management goals or plans. The purpose of this study was to formulate tourism management goals for the two giant panda nature reserves, Wolong and Wanglang.

The research involved a two-step process. A literature review of Chinese material, including existing policy documents and reserve management statements, found no examples of explicit tourism management goals for Chinese parks or reserves. This absence revealed that the development of such goals must be from existing international literature sources. Therefore, the first step was the development of draft tourism management goal statements based on international park tourism literature. The second step involved the ranking of these goal statements through a Delphi approach with a survey instrument given to park managers, scientists and park visitors.

## LITERATURE REVIEW

In the tourism planning process, defining goals is the first and the most difficult step. The goals

indicate a general management direction, though not in detail (Jones 1990). It is necessary to identify the purposes of the project, to order goals in terms of their importance, and to consider how far they are reconcilable with each other. In other words, goals are general statements of broad ends to which management aspires (Eagles *et al.* 2002). They also tend to fall into broad categories, such as social, economic and environmental, although some categories may overlap, and they may include qualities of the planning process itself, such as flexibility (Hall 1992).

Eagles *et al.* (2002) recommend that parks and reserve management should be guided by a set of overall goals set within the context of a management plan. The fundamental purpose of the protected area must be reflected in the tourism management goals, which are a subset of the overall management goals. In the formulation of the goals, the contribution of the visitors, the agency staff of nature reserves, and the academic experts can be determining. Since expert knowledge about these broad matters is needed, the Delphi method can be used in the formulation of goals. The purpose of a Delphi exercise is to establish an expert view of a given subject (Perloff 1980).

Tourism management goals in giant panda nature reserves would describe in very broad terms the ideals that management strives to attain. These goals would be visions for the future and the focus would be on desired future conditions, not specific actions. Given the absence of existing tourism management goals in Chinese nature reserve policy, the draft tourism management goal statements followed the lead of Eagles *et al.* (2002) for utilizing six subject areas:

- Goal A – Increasing financial returns to the reserves;
- Goal B – Effectively accomplishing ecological preservation;
- Goal C – Fulfilling local community development;
- Goal D – Accurately forecasting visitor numbers;
- Goal E – Visitor satisfaction management; and,
- Goal F – Fostering public awareness of environmental appreciation and protection.

These goal statements and their associated detailed subgoals became the basis for a Delphi group ranking. The background to each of these five areas is outlined in turn.

## DEVELOPMENT OF TOURISM GOAL STATEMENTS

### Goal A: Increasing financial returns to the reserves

As with other types of tourism, park tourism involves visitor expenditures that result in the generation of revenue and employment. Tourism with international travellers involves high levels of economic leakage and low levels of the associated local community benefits. To increase the local economic benefits, effective strategies are necessary. Stimulating the expenditure per visitor is an effective way to inject more money into the local economy without the need of attracting significantly more visitors (Eagles and McCool 2002). The remote locations of the panda reserves and the poorly-developed tourism infrastructure currently lead to high levels of leakage.

Goal statements dealing with increasing the financial returns to the reserves are given below as an illustration of the approach used. Goal statements were developed for each of the six subject areas, but are not listed in this section of the paper.

How do you rate the importance of the following two aspects in the formulation of goal A: increasing financial return to the reserves by tourism?

- a) Visitor expenditures maximization
- b) Economic leakage minimization.

### Goal B: Effectively accomplishing ecological preservation

#### *Fundraising for ecological preservation*

Nature-based tourism in nature reserves is dependent upon a healthy environment, both ecologically and managerially. However, without sufficient funds for nature reserve management, the natural environment and its associated nature-based tourism industry can be harmed (Van Sickle and Eagles 1998).

The natural environment has sometimes been degraded in China by activities such as logging, grazing, gathering herbs and poaching. To make a living, local residents often rely on the natural resources. Most of the conflicts between natural resource protection and local residents result from poverty. The nature reserves in China face major budgetary constraints and managers consider

tourist user fees may be a way of increasing income. However, the panda reserves were originally established for scientific research and nature conservation, not for use by recreational visitors.

Tourism-related revenues can partially or fully offset the costs of environment preservation in parks and reserves. Park tourism not only plays a growing role in the protection and enhancement of nature reserves in China, but can also become an important source of the funds for improved management and expansion of these sites (Weaver 2001). Visitor fees are direct income from tourism. The tourism-enhanced fame of giant panda nature reserves attracted financial investment, donations and foreign financial aid (M. Chen, personal communication, November 3, 2003). It could also, but does not presently, encourage income from the licensing of intellectual property, sale or rental of image rights, and cross product marketing. For example, satisfied visitors might make donations to the nature reserves towards specific initiatives, e.g. a new research or tourism programme. Satisfied and concerned foreign visitors could recommend the nature reserves to their friends, or publish related articles. Some of them may lobby for foreign financial aid. The rising reputation of nature reserves can enrich the value of their names and images, which may stimulate cross product marketing.

#### *Minimize the negative impacts of tourism*

Tourism, similar to other forms of development, brings both positive and negative environmental impacts. This issue is critical for tourism in nature reserves, since the human use is within a sensitive environment (Eagles *et al.* 2002). Pigram (1990) suggested factors to assess the regenerative ability of natural resources, a critical issue in the identification of the level of visitor impact, that could be acceptable in a given environment, include:

1. Uniqueness – the differentiation of a given natural element in a region;
2. Fragility – its ability to regenerate and resist tourism effects; and
3. Naturalness – how far the area has been altered from its natural state.

Even at low levels of intensity, and despite the best efforts of nature reserve managers, the negative impacts of tourism on the natural environment can

not be totally avoided (Eagles *et al.* 2002). The impacts largely come from three main activities (Buckley and Pannell cited in Worboys *et al.* 2001):

1. Transport and travel, such as tracks and recreation vehicles<sup>2</sup>
2. Accommodation or shelter, such as campsites; and<sup>3</sup>
3. Recreational activities.

The negative impacts from visitors can be minimized effectively with the careful development and application of reserve management plans (Shackley 1998). It is critical that the reserve managers have sufficient funds to implement these plans.

### **Goal C: Fulfilling local community development**

Effective tourism management of nature reserves is enhanced with the support of the local community. One way to gain this support is through the involvement of local people in the planning and service delivery of tourism (Campbell 1994). Such involvement raises awareness of the potential benefits of ecotourism, enhances local pride in natural and cultural resources, encourages conservation and empowers people in decision making relative to the development and management of ecotourism areas. Park tourism can provide major benefits for local community development. It can generate direct, indirect and induced benefits for communities (economic and social benefits), and enhance geographic and social distribution of benefits (WTO 2002).

#### *Economic benefits*

As a service-sector activity, tourism can stimulate sustainable economic development in both local and peripheral regions (Weaver 2001). Tourism in nature reserves can influence the economy of local communities in four ways. First, visitor expenditures are important in local communities. Second, the natural resource and landscape both inside and outside a nature reserve are a component of a local area's quality of life. Third, some of the nature reserve's funding is spent in the local area to purchase food, labour and services. So, nature reserves can bring a net increase in revenues to local

communities. Fourth, the employees of nature reserves and private tourism businesses spend some of their income in local communities, on accommodation, goods and services. These economic impacts make for a positive economic and social relationship between nature reserves and local communities (Eagles and McCool 2002).

For maximum local benefit, tourism business ownership should be by local community members (WTO 2002). The business and management skill of local operators and service providers in rural areas must be developed gradually. Cooperation amongst all the stakeholders is necessary (public and private sectors, NGOs and communities). The economic development for local communities can make local enterprises viable and local people more aware of the need for environmental protection (WTO 2002). Tourism provides direct and indirect employment and business opportunities for many sectors, including women: guides, protected area management, transport and accommodation services (including home-stays and family cottages), food supply and restaurants, production and sales of handicrafts and local agricultural products and infrastructure development (e.g. roads, water and electricity supply, etc.) (WTO 2002).

#### *Cultural enhancement*

Travel experiences can influence visitors in their understanding and appreciation of other cultures. At the same time, visitors' attitudes and living patterns can influence the local people. Consequently, the increased interest, respect and praise from visitors not only increase the local residents' respect for these visitors, but also enhance the local residents' pride in their own customs, traditions and rituals. Thus both hosts and guests build up awareness of each other's character and qualities, improving appreciation and respect in both groups (Goeldner and Ritchie 2003). Such cultural enhancement is best undertaken through careful planning and programme delivery.

#### *Residents' life improvement*

Local people's life quality can be improved by effective management of tourism of nature reserves in the following aspects:

- Developing local facilities, health care, transportation and communications and educational service
- Promoting aesthetic, spiritual and other values related to well-being
- Encouraging them to learn the languages and cultures of foreign tourists, to value their local culture and environments, to develop their culture, crafts and the arts (Eagles *et al.*, 2002; WTO 2002); and
- Establishing community development funds into which part of the tourism revenue is channelled and used for developing infrastructure and social services (WTO 2002).

#### **Goal D: Accurate forecasting of visitor numbers**

'Tourism demand is the foundation on which all tourism-related business decisions ultimately rest' (Song and Witt 2000:1). The success of tourism development in any reserve depends on the state of the tourism demand, understanding of this demand and development of facilities and services to fulfill the demand. Thus, the forecasting of tourism demand plays a key role in tourism business profitability. Forecasting can be determined by consideration of seven factors (Witt and Moutinho 1995; Song and Witt 2000):

1. Population – The population of tourist origin areas;
2. Income – The level of income in tourist origin areas;
3. Own price – The price of tourism for giant panda nature reserves;
4. Competitor price – The price of tourism for substitute destinations;
5. Attitudes – Tourist tastes in tourist origin areas;
6. Advertising – Advertising by nature reserves, local communities or tour agency in tourist origin areas; and
7. Expectations and habit persistence – The value given to the benefits derived from a visit and the long-term retention of that value.

If reserve visitors were very satisfied with their experience, they would be inclined to visit again

and to recommend that others visit as well. Therefore, the number of visitors to a giant panda nature reserve in a certain year is related to the numbers of previous years and the satisfaction of former visitors.

#### **Goal E: Visitor satisfaction management**

Visitor satisfaction occurs when the visitor experience achieves or exceeds expectations. Very importantly for nature reserves in China, high visitor satisfaction could, in turn, satisfy the goal of increasing the financial return. Visitor satisfaction builds loyalty and attracts new visitors. It leads to positive, word-of-mouth advertising, reduces the level of complaints from visitors, reinforces workforce efficiency and satisfaction, adds value to natural attractions and the destination image and justifies charging somewhat higher prices (Mancini 2003). If the recreation activity or behaviour results in the achievement of goals or satisfactions, the result is a strengthened personal attitude. It is important to identify the various needs, motives and satisfactions that compel people to seek out more recreation activities and experiences (Mannell and Kleiber 1997). During the stage of activity or behaviour, the quality of service and facilities and product pricing are the main factors influencing visitor satisfaction.

Visitors seek destinations that identify and meet their wants (Ryan 1995). The visitor is often the ultimate source of the revenue and political power that encourages governments to establish protected areas (or to strengthen existing ones) as part of an overall tourism strategy. Thus, understanding visitor motivation is one of the key issues for policy makers, nature reserve managers and business persons (Ceballos-Lascurain 1996).

#### *Visitor service management*

Excellent visitor service is the key for a successful tourism destination. One aspect of visitor service is to understanding visitors' attraction motives. Motivation is a mental value that moves people to action and gives direction to that action once it is aroused or activated. The term need can be used to refer to both physiological and socially-learned motives (Mannell and Kleiber 1997).

Both Wolong and Wanglang have giant pandas as their most significant tourist attraction. However, these reserves have other important natural

resources as well. Thus, it is possible to increase visitor satisfaction by increasing the emphasis on other valuable natural resources, and reducing the emphasis on the one charismatic megafauna.

Nature reserve service management can provide visitors with better service in the following five basic ways (Sournia, cited in Eagles 2001):

1. Good basic information about the two nature reserves within and outside the country;
2. Good technical information available for a visitor to use while planning a trip and while at the locations;
3. Good visitor reception achieved through training of ecolodge, nature reserve and guiding staff;
4. Good accommodation and transportation facilities to ensure adequate levels of safety, comfort and medical attention; and
5. Good facilities adapted to the nature reserves' conditions and to the types of visitors targeted.

It is important that all tourism programmes have visitor service quality goals. It is also necessary to have ongoing service quality measurement to ensure that these goals are met.

Facility quality plays an important role in visitor service satisfaction. In order to give visitors high-quality experiences, special characteristics of different natural environments in nature reserves must be taken into account when designing and setting facilities and services. Facilities can only be built in the experimental zone of Chinese nature reserves (P. R. China 1994). Buildings must avoid pollution or negative impacts on the natural environment.

### *Pricing*

Pricing strategy is a critical element in tourism management. It impacts both visitor use fees and contracting-out fees. For visitors, price influences their involvement and satisfaction. Decreases in visitor fee levels may bring a series of impacts, such as a rise in reserve use and the associated higher management spending. Conversely, increases in visitor fees may result in visitor complaints and visitor number reductions.

For the giant panda reserves, visitor use fees generate revenue directly. Appropriate pricing

strategies benefit management objectives. When developing a pricing policy for giant panda nature reserves, managers need to think of what the objectives of the pricing strategy are, and how the prices are established for a specific product or service in accordance with these objectives (Eagles *et al.* 2002). On the other hand, as a management tool, fees could only be effective if they are large enough to significantly influence visitor behaviour. Fees can direct visitor behaviour in directions that reduce conflict with other management goals, such as social equality. Relative to the effectiveness, the cost must be compared to other alternative management tools, for example, earning income, controlling frequency of use, moving use to an alternative area or time, creating an attitude of respect or achieving some desirable social purpose (e.g. using differential fees to favour local residents or encouraging less privileged sectors of society to use nature reserves) (Eagles *et al.* 2002).

### **Goal F: Fostering public awareness of environmental appreciation and protection**

Interpretation, park-based education, develops knowledge in the tourists during the visitation experience. It generally covers: nature reserve information and orientation, rules and regulations, activity opportunities, major attractions, understanding and appreciation of resources and opportunities to clarify personal conservation ethics in relation to the park resources. Interpretative programmes are designed according to a nature reserve's own character (Weaver 2001; Worboys *et al.* 2001). In the giant panda nature reserves, the interpretation could be based on animal behaviour, botany, geology and environmental management issues in the reserve.

With effective planning and implementation, interpretation can work as a valuable and central management tool and bring benefits for nature reserve agencies. Beaumont (cited in Worboys *et al.* 2001) described four roles of interpretation. First, promote public understanding of nature reserve's goals, recreational programmes and other information about the managed area. Second, the major goal of interpretation, which is especially important in ecotourism, is to enhance visitors' enjoyment. It helps orient visitors: finding preferable recreation activities and doing so safely and enjoyably,

developing a keen awareness and appreciation so as to enrich their experience. Third, interpretation is an effective tool of conservation education, although it is different from conventional instruction. It conveys conservation meanings and relationships based on factual information, the why and how of nature conservation. Fourth, it is a tactical tool for nature reserve management: persuading visitors to treat sites respectfully. The tourist guides play an important role among visitors, operators, local communities and nature reserve managers.

Clearly interpretation is an important element in tourism management. Critical management issues include the level and types of programmes, the costs of the programmes and the amount of funding available for programme development and delivery.

## RESEARCH METHODS FOR DELPHI

The literature review provided the background for the development of potential tourism management goals within the six subject areas. Twenty-six statements, called subgoals, were developed within the six overall goals. Such statements became the basis of a ranking and prioritization exercise utilizing a Delphi method.

Delphi is a method for structuring a group communication process that allows a group of individuals, as a whole, to deal with a complex problem (Linstone *et al.* 1975). It is most useful in dealing with issues that require consideration of a complex set of variables on which there may be a number of plausible viewpoints. Participants may reach some agreement during the process. The number of participants in Delphi research in past studies covers a wide range, from 10 to hundreds. Expertise on the subject is the key criterion for inclusion in Delphi research (Martino cited in Kyanak *et al.* 1994).

This Delphi method uses four distinct phases. The first phase is exploration of the subject under discussion by researchers. In this research, the first phase involves development of goal statements based on the literature and placement of those statements into a research instrument. The second phase is the recruitment of three groups: an academic expert panel, a nature reserve management staff panel and a visitor panel. The third phase involves distribution of the research instrument to each member of the Delphi panel. Each member

ranks the importance of each goal on a five-point Likert-type scale, with values ranging from 1 'not at all important' to 5 'extremely important.' These data are summarized. The fourth phase involves a second round of ranking by each member. In this phase, each member is provided with a summary of the initial ranking, and each person has an opportunity to re-evaluate their original answers based on the examination of other participants' responses.

For the academic panel 20 people were invited to participate. Eight accepted and returned the first-round questionnaire, giving a response rate of 40%. The second-round questionnaires were sent to these eight respondents, and seven replied. For the staff panel, 10 people were invited and eight people participated in the first round, giving a response rate of 80%, and they all completed their second-round questionnaires. For the visitor panel, 12 people were contacted using a tourism discussion group in China. Nine people who had visited at least one of the research sites joined the visitor panel and returned their first-round questionnaires, giving a response rate of 75%. In the second round, one of the nine participants declined, and eight questionnaires were collected. The overall response rate of the first round was 59.5% from a total of 42 contacted people, and 23 participants out of the 25 first-round respondents replied to the second-round questionnaire.

It is important to note that the survey was a census of the managers who work at the reserves and all the scientists who had worked on various aspects of science at the reserves. The respondent numbers were therefore low. Only the visitor panel constituted a sample.

Local community residents were not invited to participate in this research, due to their large numbers and the very high cost of effectively involving large numbers of local citizens in this research. Funds for such large-scale community involvement were not available.

## RESULTS OF GOAL RANKING

The survey instrument collected basic background information on the panellists. The visitation experience for the visitor panel and academic expert panel ranged from one to 12 visits to the panda reserves. The work experience of the managers in the nature reserve ranged from 1.5 to 28 years. Each of the seven academic expert panellists had been

involved in one or more research projects working within the reserves. Four of the academic expert panellists were professors in universities, while three were from a non-government organization, a government agency and a planning company. All of the eight participants in the visitor panel had a university education. Five were from Sichuan Province, and the others were from Beijing, Yunnan Province and Hubei Province. They all considered 'travel' or 'outdoor activities' as their main personal interest. Participants in the staff panel worked either in the tourism-related department or in senior manager positions. All had a

post-secondary education but no data on academic subject areas was collected.

### Combined results

For the combined results of the 26 tourism goals, the mean scores of the entire population were 3.61 or greater on a scale from 1 to 5 (Table 1). Therefore, all the goals are important, but with different levels of importance. This finding indicates that the tourism goals assembled from the international literature are relevant and applicable to the giant panda reserves in China.

**Table 1** Evaluation of the tourism goals

Statement	Goal	Sub-goal	All panels	
	Rank	Rank	Mean	SD
<b>Goal B: Effectively accomplishing ecological preservation</b>	<b>1</b>		<b>5.00</b>	<b>0.00</b>
b) Minimizing the negative impact of tourism on giant pandas and their habitat		1	4.78	0.42
a) Boosting fundraising for ecological preservation		2	4.61	0.58
c) Mitigating the negative impact of the local community on giant pandas and their habitat, such as poaching and grazing		3	4.48	0.67
<b>Goal F: Fostering public awareness of environmental protection and appreciation</b>	<b>2</b>		<b>4.83</b>	<b>0.39</b>
a) High-quality interpretation to both visitors and local residents		1	4.83	0.39
b) Monitoring visitor impacts, orienting visitors		2	4.70	0.47
c) Being an effective tool of conservation education		3	4.70	0.56
d) Being a tactical tool for nature reserve management		4	4.61	0.50
e) Modelling appropriate on-site environmental and cultural practices		5	3.96	0.56
<b>Goal C: Fulfilling local community development</b>	<b>3</b>		<b>4.35</b>	<b>0.65</b>
d) Minimizing the negative impact of tourism on local residents		1	4.61	0.50
c) Improving the quality of life for the local residents		2	4.39	0.58
b) Enhancing local culture		3	4.35	0.88
a) Maximizing economic benefits to the local community		4	3.39	0.99
<b>Goal A: Increasing financial return to the reserves</b>	<b>4</b>		<b>3.91</b>	<b>0.51</b>
a) Visitor expenditures maximization		1	4.00	0.80
b) Economic leakage minimization		2	3.48	1.04
<b>Goal D: Accurately forecasting visitor numbers</b>	<b>5</b>		<b>3.91</b>	<b>0.51</b>
e) Understanding tastes of potential tourists		1	4.30	0.63
i) Cooperative effort with another tourism destination		2	4.13	0.55
c) The cost of travel and living		3	4.13	0.69
b) The level of income in tourist origin areas		4	4.13	0.87
g) Expectations of visitors		5	4.04	0.64
d) The costs of tourism for alternate destinations		6	3.96	0.56
f) Advertising in potential tourism markets		7	3.87	0.76
h) Return rate		8	3.74	0.86
a) Population in potential visitor markets		9	3.70	0.63
<b>Goal E: Satisfying the expectations of visitors</b>	<b>6</b>		<b>3.61</b>	<b>0.78</b>
a) Understanding visitor motivation		1	4.48	0.67
b) Improvement of the quality of service and facilities		2	4.39	0.66
c) Establishing a pricing policy		3	3.91	0.51

A list of the six goals ranked from the highest to the lowest in importance is:

- Goal B – Effectively accomplishing ecological preservation;
- Goal F – Fostering public awareness of environmental appreciation and protection;
- Goal C – Fulfilling local community development;
- Goal A – Increasing financial returns to the reserves;
- Goal D – Accurately forecasting visitor numbers; and
- Goal E – Satisfying the expectations of visitors.

Table 1 lists the six goals in the order of ranking, from highest to lowest. Under each goal, the sub-goals are also listed in rank order, from highest to lowest. The respondents ranked the goal statements and the subgoal statements independently, thus giving a situation where the ecological preservation goal received a mean ranking of 5, while each of the subgoals under ecological preservation received a mean ranking varying from 4.48 to 4.78. The mean score of the goal statement is not a mean derived from the subgoals.

This research found that ecological preservation is most important, while visitor satisfaction is least important. The ranking suggests that ecological preservation should be paramount, while all tourism activities must fit within and be complementary to this overall goal.

Goal B, effectively accomplishing ecological preservation, and Goal F, fostering public awareness of environmental protection and appreciation, are the two most highly ranked goals. Such ranking reveals that these Chinese reserves are similar to most other protected area systems in the world, where conservation and recreation are the predominant goals.

Goal C, fulfilling local community development, is the third most important goal. Campbell (1994) emphasized that effective tourism management can only occur with the support of the local communities. This is especially valid for nature reserves in China. After the logging ban was applied in 1998 in China, the nature reserves and their surrounding communities faced serious economic hardships. To make up for the loss of logging income, poaching, herding, woodcutting and the collection of medicinal plants increased, all of which harmed giant panda habitat (WWF 2002). Effective

implementation of Goal C, fulfilling local community development, can positively impact other goals, such as Goal A, effectively accomplishing ecological preservation, and Goal F, fostering public awareness of environmental appreciation and protection.

The success of tourism development in parks and reserves largely depends on the state of tourism demand. The failure to meet market demand contributes to the failure of most tourism-related business in nature reserves and their local communities (Song and Witt 2000). Thus, Goal D, accurately forecasting visitor numbers, plays a key role as a determinant factor for the accomplishment of Goal A, increasing financial return to the reserves, and Goal C, fulfilling local community development.

Goal A, increasing financial return to the reserves, and Goal D, accurately forecasting visitor numbers, are ranked as the fourth most important goals. Financial shortage is a serious problem faced by all nature reserves in China, including the giant panda nature reserves. This is a major reason why nature reserve managers wish to further develop tourism in nature reserves. For instance, because of fiscal limitations, nature reserves cannot hire enough rangers or purchase equipment to protect wildlife from being poached (S. W. Jiang, personal communication May 28, 2003). Thus, Goal A, increasing financial returns to the reserves, and Goal B, effectively accomplishing ecological preservation, influence each other. Goal A and Goal E, satisfying the expectations of visitors, also have an impact on each other. If Goal A is realized, nature reserves can receive better financial benefits from tourism development. Thus, there will be more available funding for ecological preservation, facilities improvement, marketing research, etc. As a result, Goal B and Goal E will be met. From the standpoint of tourism management, improving visitor satisfaction could, in turn, satisfy the goal of increasing the financial benefits.

Goal E, satisfying the expectations of visitors, was ranked as the lowest level of importance by the total group. However, as will be seen later, there were major differences of opinion on this point amongst the three groups of panellists.

Within all the individual 26 sub-goals, the one dealing with maximizing economic benefits to the local community received the lowest overall mean score of 3.39 (SD = 0.99). The sub-goal of economic leakage minimization had the second lowest overall

mean score of 3.48 (SD = 1.04). These two sub-goals are both related to economics. The standard deviations of the two sub-goals are both around 1, indicating that the participants had different opinions.

### Comparisons amongst panels

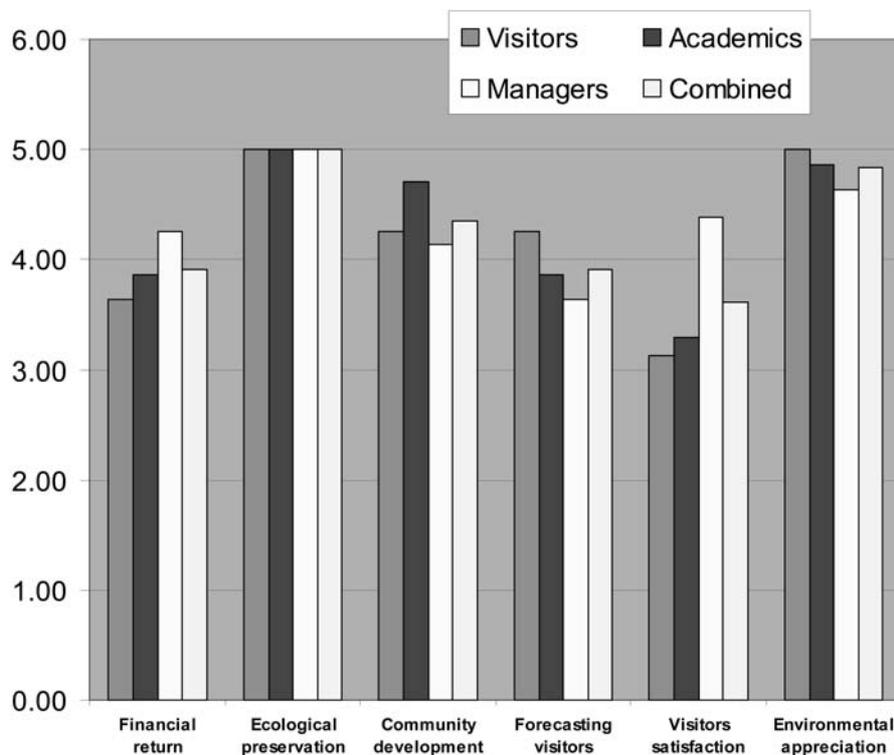
The three panels showed differences in ranking (Table 2 and Figure 1). The most significant similarities and differences are worthy of discussion.

Goal B, ecological preservation, and Goal F, public awareness, are highly ranked by all panels. Goal C, community development, is highly ranked by all panels, with the academics giving a higher level of priority than the managers or the visitors.

For Goal A, increasing financial return to the reserves, the staff panel gave the highest ranking, while the visitor panel gave the lowest. Clearly, the reserve managers are much more interested in having park tourists pay more towards reserve

**Table 2** Ranking of the goals by the panels

Statement	Visitor panel		Academic expert panel		Staff panel		All panels	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>Goal B: Effectively accomplishing ecological preservation</b>	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
<b>Goal F: Fostering public awareness of environmental protection and appreciation</b>	5.00	0.00	4.86	0.38	4.63	0.52	4.83	0.39
<b>Goal C: Fulfilling local community development</b>	4.25	0.46	4.71	0.49	4.13	0.83	4.35	0.65
<b>Goal A: Increasing financial return to the reserves</b>	3.63	0.52	3.86	0.38	4.25	0.46	3.91	0.51
<b>Goal D: Accurately forecasting visitor numbers</b>	4.25	0.46	3.86	0.38	3.63	0.52	3.91	0.51
<b>Goal E: Satisfying the expectations of visitors</b>	3.13	0.64	3.29	0.49	4.38	0.52	3.61	0.78



**Figure 1** Ranking of the goals by the panels. (Based on a 5-point, Likert-type scale where 1 = 'not at all important' and 5 = 'extremely important'.)

management, while the visitors were much less enthusiastic about paying these fees.

For Goal D, accurately forecasting visitor numbers, the visitor panel gave the highest level of importance amongst the three panels, while the staff panel gave it the lowest. Here, the visitors may be showing concern about increasing visitor numbers, and thus their concern about accurate forecasting, while the staff panel may have more interest in increasing numbers.

Goal E, satisfying the expectations of visitors, was ranked much higher by the managers than by the other two panels. Clearly, the reserve managers see the need for visitor satisfaction and the associated financial and political rewards, more than do the scientists or the visitors themselves. This is possibly due to the fact that the reserve managers need the income from the visitors, where tourism income is not personally relevant to the scientists or the visitors.

The academic panel provided scores between the other two groups for all goals, except for Goal C, fulfilling local community development. The academic panel ranked this goal much higher than did the managers or the visitors. This ranking suggests that the academics may hold a broader perspective of the role of the community development. Conversely, both the managers and the visitors are more concerned with management issues within the panda reserve and therefore rank concerns that occur outside the reserve, such a community development, at a lower level.

Generally, the staff panel believed that increasing financial returns to nature reserves through visitor expenditure maximization was more important than did the visitor panel or the academic panel. This important difference occurs due to several underlying factors. The nature reserve managers are much more aware of the weak financial situation of the panda reserves than are the visitors or the scientists. The managers have a much higher personal stake in the outcomes that would occur with such income. The visitor panellists appear to have a stronger sense of natural resource and environment protection. They also feel that tourism development should not become the principal financial source for nature reserves, while the government should be responsible for providing sufficient levels of funding. The visitors expressed strong concern that increasing the financial return from tourism development may conflict with the

preservation of natural resources and the environment.

Interestingly, the academic panel provided intermediate ranking for most goals. This suggests that the academics may have a broader view of the issues, and thus appreciate the points of view of the other two groups. However, the higher emphasis placed on community development suggests that the academics have a higher social conscience than the managers or the visitors.

This research reveals that well-known management issues occur in the Chinese panda reserves as occurs in parks and reserves all over the world. The relative balance of nature conservation and tourism development is a well-worn discussion path in park management. In addition, the relative cost of management that should be borne by government tax sources and by tourists is also a familiar management debate around the world.

## DISCUSSION

This research finds that all the tourism management goals presented to the members of the research panels are important. Therefore, all these goals should be included in any future management plans for Wolong and Wanglang Nature Reserves.

This research also shows that the goals developed from the worldwide literature are applicable in these specific Chinese cases. The management of nature conservation and tourism development in China involves similar concepts and conflicts as occur elsewhere. Therefore, as the Chinese planners develop tourism plans for the reserves, they can safely utilize the international literature for guidance.

Park planners will have to prioritize amongst a large number of goals. To assist with this purpose, the authors divided all the sub-goals into three priority levels based on the overall mean scores (Table 3). Level I priority includes 7 sub-goals with overall mean scores ranging from 4.61 to 4.83. Level II includes 11 sub-goals with the overall mean scores ranging from 4.00 to 4.48. Level III includes 8 sub-goals with the overall mean scores ranging from 3.48 to 3.96. It is again important to note that all of these goals are ranked above 3.00, which is the neutral point on the five-point ranking scale.

There are several approaches that could be used by managers to deal with the three levels of priority.

**Table 3** Priority setting

Priority level			Goals and sub-goals (listed by rank order of goal)
1	2	3	
			<b>Goal D: Effectively accomplishing ecological preservation</b>
X.			Minimizing the negative impact of tourism on giant pandas and their habitat
X.			Boosting fundraising for ecological preservation
	X		Mitigating the negative impact of the local community on giant pandas and their habitat, such as poaching and grazing
			<b>Goal F: Fostering public awareness of environmental appreciation and protection</b>
X.			High-quality interpretation to both visitors and local residents
X.			Monitoring visitor impacts, orientating visitors
X.			Being an effective tool of conservation education
X.			Being a tactical tool for nature reserve management
	X.		Modelling appropriate on-site environmental and cultural practices
			<b>Goal B: Fulfilling local community development</b>
X			Minimizing the negative impact of tourism on local residents
	X		Improving the quality of life for the local residents
	X.		Enhancing local culture
	X.		Maximizing economic benefits to the local community
			<b>Goal A: Increasing financial return to the reserves</b>
	X.		Visitor expenditures maximization
	X		Economic leakage minimization
			<b>Goal D: Accurately forecasting visitor numbers</b>
	X		Understanding tastes of potential tourists
	X		Cooperating with another tourism destination
	X.		The cost of travel and living
	X.		The level of income in tourist origin areas
	X.		Expectations of visitors
	X		The costs of tourism for alternate destinations
	X.		Advertising in potential tourism markets
	X		Return rate
	X.		Population in potential visitor markets
			<b>Goal E: Visitor expectations management</b>
	X.		Understanding visitor motivation
	X.		Improvement of the quality of service and facilities
	X		Establishing a pricing policy

The higher priority items could be addressed first. Alternatively, the higher priority items could be assigned the most money for implementation. Or the higher priority items could be given the highest profile in management planning. It is up to the reserve managers to decide the best approach to use.

The Chinese giant panda reserves are very important conservation reserves that assist in the conservation and understanding of one of the world's best-known, endangered species. This research provides the first comprehensive listing

of goal statements for application within tourism management planning for these reserves. It also provides a ranking that can assist planners in the setting of priorities amongst many highly-ranked goals. It is important that those involved in reserve management move forward constructively so that tourism development occurs in a fashion that best supports endangered species conservation as well as local community development. Careful development and implementation of tourism management plans should assist with the long-term sustainable development of the Chinese giant panda reserves.

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